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THE FUTURE ROLE OF THE HEALTH RECORD ADMINISTRATOR
A DELPHI-SURVEY

by



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ABSTRACT

The voluntary North American accreditation movement, born at the beginning of this century with the intent to improve the standards of medical care and teaching, decreed that the clinical records should reflect the care given to the patients. As a consequence, the occupation of Medical Record Librarian, recently renamed Health Record Administrator, has grown rapidly over the past few decades. In Canada, this growth was more numerical than substantive, and the types and quality of health record administration services--discussed later, did not meet the needs of the health care system. Within the occupation, there is serious concern about its continued viability. For these various reasons, the adaptability of the health record administrator to the scientific, technological and social changes taking place in the health field is investigated here. To study the question, the health record administrator occupation was examined in the context of the changing status of health information within the Canadian health care delivery system and the jostling professionalization of the health occupations. These two major forces are believed to have great impact upon the health record administrator occupation in its quest for survival. The Delphi-method developed by the Rand Corporation was used to elicit the predictions of some members of the health occupations as to the potential development or regression of the role of the Health Record Administrator in the future. The findings of this study show that the health occupations, and particularly the medical profession have acknowledged needs for health information and health information management services. They have forecast a strong administrative role for the future Health Record Admini-

strator, while giving equal importance to a participative role as collaborator providing the health occupations with the information services that they require for the performance of their own duties. They also visualize the integration of the various sectors of the health field with the Health Record Administrator being a potential agent of this integration process.

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List of Abbreviations

CCHA:	Canadian Council on Hospital Accreditation
CAMRL:	Canadian Association of Medical Record Librarians
RRL:	Registered Record Librarian
MRL:	Medical Record Librarian
ART:	Accredited Record Technician
HRT:	Health Record Technician
CHRA:	Canadian Health Record Association
CCHRA:	Canadian College of Health Record Administrators
HRA:	Health Record Administrator

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CHAPTER I.

INTRODUCTION

STUDY QUESTION

OUTLINE OF STUDY

Medical care and hospitals have a tradition going back to antiquity, but the Canadian health care system is only a few decades old. Forces such as the public's concern with health that followed the two world wars, the economic boom after World War II as well as the increase in population were in great part responsible for the spectacular growth of the health care system. These still quite potent forces, added to the accelerating scientific and technological changes, keep the health care field in the throes of development, and make it the battleground of ambitious and vigorous health occupations which render specialized services to the sick (34). These health occupations are more interdependent on one another than they would recognize. The vital lifeline common to both, the health care system and the health occupations, is health information, in the management of which the Health Record Administrator is a specialist.

In general, information has two major characteristics: a) it is inexhaustible because it compounds and regenerates itself: b) it does not have a physical embodiment of its own (124). The first characteristic makes information an invaluable resource, namely the key to knowledge and power. The second characteristic requires that information be recorded in some physical form; an inherent danger is that the substance, and the form selected for

its capture are often undifferentiated. These two major characteristics dictate the need for competent management of information. This generalization applies to health information; the various health occupations often confuse form and substance, and have not yet recognized it as a resource.

A group of health care workers calling themselves Medical Record Librarians emerged in response to the voluntary standard-setting accreditation movement which is now firmly established in North America. This group of workers undertook the custody and the management of the documentation of medical care in hospitals, grew rapidly in number and changed their name to Health Record Administrators in Canada. Automation in the health field created an explosion of information, in the handling of which the Health Record Administrator did not prove competent due to lack of adequate education and training. Since none of the other health occupations had been trained to cope with automation, the weakness of the Health Record Administrator resulted in various opinions within the health field as to which occupation should in future secure the territory of health information management, the options being a considerably better trained Health Record Administrator or mostly a computer-based occupation.

The eventual outcome of this issue will be occurring in relation to the needs of the health occupations for health information and health information management services. These needs are at times expressed or felt, anticipated or unsatisfied, recognized or ignored, but they are changing as a function of the changes taking place within the occupations themselves, changes which, of course, occur in response to pressures both internal and external to the

health field. Consequently, the study question was examined in relation to the professionalization of the health occupations and these occupations' concepts of health information and the needs of the organizations in which they work for the better management of costly services.

The study question is:

"What is the future role of the Health Record Administrator?", and the outline of the study is as follows:

Chapter II will present some general theories of professionalization and review this process in relation to the health occupations. The purpose is to create a framework against which to compare the developmental stages of the Health Record Administrator occupation and to introduce the forum of the various health occupations which will be represented on the panel of the Delphi survey. Another reason for placing the study within the context of professionalization is to show that an occupation's right to exist is contested by other occupations, and is greatly dependent on the social recognition given to the services provided by that occupation.

Chapter III will portray the evolution of the medical records into health information, and assess its present status within the health care system in Canada. The intention is to show the degree of recognition and of importance that is granted to the resource health information by the various health occupations, as this will reflect the needs of the health occupations for health information management services.

Chapter IV will introduce the Health Record Administrator occupation, review its stages of development and its present role within the health field.

Chapter V will present the Delphi-method used in this study.

Chapter VI will report on the methodology of the Delphi-survey and on its findings.

Chapter VII will conclude the study and introduce some recommendations.

CHAPTER II.

PROFESSIONS, PROFESSIONALIZATION

The three traditional professions were considered to be medicine, law and ministry. These professions had several characteristics in common, and these eventually became accepted as the characteristics of professions:

- a) specialized body of knowledge; b) practicing of the calling not for financial gain alone; c) rendering of services to society; d) code of ethics regulating the practice of the calling or professions (19, 29, 52, 58).

The modern literature about professions is ample. Since Carr-Saunders and Wilson (29) half a century ago expressed the view that new professions were emerging, many social scientists have presented their theories on professions and defined their characteristics. Wilensky, quoted by Freidson (58), defined five characteristics, so has Greenwood (134); Strauss and Barber (58) recognized four, while Abramhamson and Goode (134) limited themselves to two, namely the abstract body of knowledge and the service-client orientation. The most succinct is Freidson (43) who defined profession as being; "...a dominant position in a division of labor so that it gains control over the determination of the substance of its own work". This definition promotes intra-professional orientation and bestows social and organizational power on professions. On that basis, Freidson's theory negates the service-client orientation which is traditionally claimed to be the professions' main characteristic because he emphasizes the asymmetry of information that exists between professional and client, thus denying the client the right to informed choices. A consequence of

this thinking is the acceptance by society of professional monopolies, a most undemocratic form of social and economic organization.

Few social scientists are as entrenched in their opinion as Etzioni (52), who sees professions, semi-professions and would-be professions, but distinguishes between these only in the vaguest form: "...training shorter, status less legitimated, right to privileged communications less established, less of a specialized body of knowledge, less autonomy for supervision or societal control". He eventually categorizes Nursing and Pharmacy as semi-professions, and states that hospital managers are only a would-be profession, as they "...require neither theoretical study nor the acquisition of exact techniques, but rather a familiarity with modern practices in business, administrative practices and current conventions". To discuss Etzioni's opinion is quite outside the boundaries of this study, yet it must be remarked that although hospital administrators are not licensed, they represent on the premises of the hospital the Board of Trustees, that is the body legally responsible for the entire operation of the hospital, including the performance of the medical staff, notwithstanding the legitimation of this latter group.

Commenting on the changing concept of "profession", Barnes (16) writes that the oldest professions "...seemed such permanent and readily identifiable part of society...", but that with the proliferation of specialized and highly skilled occupations with well specified responsibilities, the term profession and its social status will have to be redefined. Barnes's view is supported by a host of social scientists. They recognize one important distinction between the old and the new professions, namely that many

new technological and scientific occupations are performing within an organizational structure, likely a bureaucracy as opposed to independent practice. Such occupations then receive salaries and not private remuneration, yet they have rich bodies of knowledge, they may even be legitimated, and have organizational responsibilities which could be equated with power and control over their work (16,58, 87, 134).

Rene Dussault (118) relates that professions and professionalization in Quebec are now under the government's control, and that the characteristics developed by the "Office des Professions du Quebec" in 1973 granted professional status to some 29 occupations. Green (142) reports that, in the Quebec situation, there is a dramatic departure from the traditional professional autonomy, since the respective corporations formed by each profession must report to and be re-evaluated by the "Office des Professions du Quebec". Vollner and Mills (134) set profession as an ideal model of occupational organization; they view professionalization as a process through which an occupation progressively modifies its body of knowledge, its standards, objectives and behaviors in order to reach toward the professional status, that is as a continuum of progression. In this context, professionalization becomes a dynamic and perfecting activity whereby the occupations can measure their progress and evaluate their performance. Alas, this model does not settle the issue of interdisciplinary interactions and competition. The occupational (professional) associations mediating between the groups of individuals performing some skilled tasks and society impart a sense of functional importance and occupational consciousness, and create a social arena for strong interdiscip-

linary competition (64). The evolutionary theory of professionalization recognizes that the status and the roles of existing occupations will change, status referring to the aggregate of rights and duties, and roles to the dynamic process of using these rights and performing these duties (21). Neither status nor its concurrent roles may be equated entirely with social position, as this would assign a technical character to the concept of status, leading to the assumption that everyone with the same status will perform the same roles in the same fashion with the same results, an assumption which is contrary to human nature in general and to the concept of profession in particular, where indeterminacy is perceived to endow certain individuals and certain professions with status that appear greater than they really are, simply because of the way they play their roles (13). It is this elusive indeterminacy that is so greatly sought by the aspiring occupations, not foreseeing that the technological and scientific world of tomorrow will clear the shrouds of mystery surrounding occupational performances. Interactions between the occupational groups are and will be highly dependent on the status of each one, but the greatly praised occupational and functional autonomy will become an obsolete concept, as occupations will be submitted to specific social expectancies and will have to accept the principles of reciprocity and adaptation (83).

PROFESSIONALIZATION OF THE HEALTH OCCUPATIONS

Some specific characteristics of the health care delivery system in Canada have great influence upon this professionalization movement.

First, the socio-political climate exerts strong pressure upon the health care system. The accelerated growth of the health industry following the 1949 federal health grants program (34) increased the need for division of labor and specialization. The ground became very fertile for the professionalization process to take hold. Hall reported that during the time of study on the Paramedical Professions, "the number of occupations in that year was small, fewer than a dozen", but as the study progressed, he saw "that these occupations had subdivided and were subdividing rapidly...New ones were emerging...New technological possibilities arose" (143,p.vii). Health, which emerged as a social value and a suitable political platform after World War II, has been promoted by the Canadian government as the right of every Canadian citizen. This ideology was eagerly absorbed by the providers and the users of health services, and the demands made on the health care system increased the costs vertiginously. From the early sixties, the government attempted to modify this ideology from health being a right to health being a privilege (26,34). Lalonde (87) publicly uncovered the concept of self-inflicted diseases through life style, and whereas he does not state that society will refuse care to those cases, he implies, that in the future, discrimination in the delivery of health services may occur. He presents health as an individual, yet collective wealth, and intends to make it the duty of each Canadian to promote his/her health status by the adoption of health habits rather than unnecessary use of health services

(34, 87, 124).

So far, the health occupations had been mostly care- and cure-oriented, and the usual setting for the delivery of care had been the hospitals and the doctors' offices. This new emphasis on prevention of disease and maintenance of health, as well as ambulatory and home care will force the occupations to set new standards and re-catalogue the services they can and want to offer. Consequently, these new trends will dictate changes in the occupational territories, and perhaps encourage the development of new ones as the need for specialized services becomes perceived.

Second, the scientific and technological advances strongly influence the health care system. It is a commonplace to remark that many modalities of disease investigation and treatment were unknown a decade or so ago, while others have been discarded in the light of new research. Such changes greatly affect the respective bodies of knowledge of the various health occupations, consequently their relative territories. For example, with the physician's role increasing so rapidly in content and complexity, nursing had been quite eager to seize some of the tasks formerly performed by physicians only, such as auscultation, administration of intravenous fluids, injections, etc. The addition of these new responsibilities caused the transfer of other tasks considered more menial from nursing to an occupation judged lower in status. Thus certain aspects of bedside nursing were shed and picked up by the licensed practical nurses or nursing assistants. An interesting outcome of this transfer of tasks resulted however in the licensed practical nurses claiming that they had more patient contacts, were more client-oriented, possessed more confidential knowledge of the patients than the registered nurses, and thus had greater

claim to being recognized as a profession. A strongly organized nursing promptly responded by a "back to bedside" movement (124). Yet interestingly, Bill 250 of the Province of Quebec which created a controlling mechanism to regulate all professional services, includes the Professional Corporation of Nursing Assistants of Quebec among the 38 professions named (142).

Another aspect of the scientific and technological advances is that the new types of services will necessitate the training of new occupations. It is estimated that there are approximately 30 health occupations (118, 34) at various stages of development and of professionalization. In this revolutionary process, many territories are claimed, clipped and others created, and the resultant uncertainty about the future has stirred the professionalization process into an interdisciplinary struggle.

Thirdly, the medical profession as a whole is organizationally independent of the hospital and of the institutional health care structure. Notwithstanding that the medical staff has a tremendous impact on the hospital financial and operational activities, and that in fact hospital management is directly dependent upon the medical staff for the operation of the facility, the medical staff is clearly entrepreneurial, and strongly organized to maintain and increase the status and the privileges of their profession. The power of physicians is legitimated through licensing laws. Physicians, therefore, speak of having received a social mandate which confers upon them rational-legal power. This rational-legal power added to the traditional power over life and death and the charisma developed by physicians for their profession create the dichotomous situation well-known in almost all hospitals and

health institutions (85), and which confronts the medical staff and the administration.

No other health occupation possesses this organizational and legally sanctified independence, but all health occupations look upon the medical profession as the embodiment of their aspirations and their model in terms of behaviors and attitudes. Upward mobility in the health occupations is strictly controlled by education, and within the health hierarchy, the dominance of the medical profession is obvious and especially notable through its being a minority group. Thus the medical profession is considered the ideal status on the continuum to professionalization. Official recognition of status is very important to the health occupations as it constitutes some form of reward to its individual members and to the group, thus implicitly conferring upon them some form of power.

In accordance with the presented theories of professionalization, the health occupations have all formed professional associations. These associations purport to serve and protect society; in fact, they interpret their occupation to the public with the intent of creating an idealized image for themselves and a respected social role. The fabled belief that anyone in a white coat will obtain instant trust exists perhaps to a greater extent than an apparently relatively educated society will care to admit. By virtue of the one-sided intimacy that characterizes the dealings between patients and health professionals, and by virtue of the near total dependence of these same patients on the health professionals in moments of personal crisis or tragedy, trust, on the part of the patients, has to be unquestionably bestowed upon the health professionals.

All health occupations share the feeling that they deserve the public's trust because they are practicing more in the line of calling than of duty, and see themselves as self-sacrificing and devoted. This trust is in fact based upon the asymmetry of information that exists between patients and health professionals, an asymmetry which is carefully cultivated by the health professionals in order to make their professions appear more mysterious, important and awe-inspiring. Thus, a barrier is carefully maintained between the public and the health occupations, ultimately serving to insulate the occupations from public scrutiny.

In their respective codes of ethics, the health occupations always emphasize their service orientation and express a strong commitment to the patient. Yet the same codes hold the professional answerable primarily to the profession. Concepts such as accountability to the patients and to society, as well as multidisciplinary audits are talked about a great deal, but have been neither seriously pursued nor implemented. As these concepts would also imply accountability to the organizations in which the health occupations work, the latter exercise a great deal of occult resistance against the possible threat that the health organizations would attempt to exert too strict control over the health occupations, or even worse, that the government may establish national policies similar to the Professional Standards Review Organization of the United States.

With respect to the specialized body of knowledge the health occupations greatly emphasize their own and the special skills that this knowledge confers upon the initiated members. That this body of knowledge is never pure, but rather contains a great deal

of knowledge taken from the sciences, the technologies and other disciplines, is a fact seldom acknowledged. The occupations prefer to ingest their acquired information to make it more their own, thus different from others. An obvious example of this process can be found in a nursing curriculum, where all the subjects are mostly amalgamated under "nursing" courses, and specific subjects such as pharmacology, psychology or management science are often undetectable. An obvious result is that student nurses will absorb this knowledge as is, and believe that it is specific to nursing. The other occupations mostly act in a similar manner and serious communication barriers are thus erected between the health occupations themselves.

In summary one sees that the combination of socio-political and technological factors added tremendous complexity to the rapidly expanding health sector and promoted the proliferation of skilled occupations claiming specialized bodies of knowledge, assuming the right to challenge existing boundaries, to stake their own territories, and to form occupational groups and professional associations. Their main ideological stance is claimed to be centered on the client and on society. Although bound to bureaucratized organizations by a master-servant relationship, their allegiance to these organizations is very weak. Based on their concept of patient-therapist relationship, their professional objectives have higher priorities than those of the organization within which they perform, thus creating political forces commensurate with the social recognition accorded them, with the numerical significance of their membership and with the distribution of their members within the organizational structure.

The interesting aspect of the previously quoted theories of professionalization is that none offers alternatives for the occupations between professionalizing and not professionalizing. Basically there are perhaps none, since refusal to participate vigorously in the professionalization movement will unquestionably mean regression of the occupation and its being overtaken by some other more aggressive group. Therefore, the true dimension of professionalization is one of survival, which is an occupation-oriented activity. Professionalization then really implies sustained competition with self and others, as well as the value-judgment by society to allow the occupation the right to exist because deemed to be useful.

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CHAPTER III

MEDICAL, CLINICAL AND HEALTH RECORDS AND INFORMATION
THEIR EVOLUTION AND STATUS WITHIN THE CANADIAN HEALTH SYSTEM

MEDICAL RECORDS

The history of medical records goes back to antiquity, yet less than two decades ago, an operative report three-lines long was not an unusual occurrence, even in a teaching hospital (124). Centuries after Hippocrates' detailed records (80), six decades after the Flexner Report (28) and the institution of standardization by the American College of Surgeons (93), the medical records are still too often completed days or weeks after the patients' discharges from the hospitals (124) in open violation of the legal and ethical codes.

A medical record is the aggregate of all the reports completed by the physicians during a patient's episode of illness, and covers the patient's condition, the diagnostic procedures and their results, the therapeutic treatment and their effects. The term "medical records" as well as the concepts related to them are not specific to hospital use; they apply equally to the private physician's records of their patients. The importance of medical records was promoted by the hospitals, because of the necessity of establishing standards; but it should not be assumed that those standards need be less for the private practitioners. Although one could argue that the complexity of the large institutions may dictate a higher level of complexity in recording, it must be remarked that the general characteristics of medical records, such as timeliness, accuracy, completeness and pertinence, are not

altered. Furthermore, the records, whether originating in hospitals or in the private practitioners' offices, are subject to the same ethical and legal restrictions with respect to their management and their use, and have to be kept inviolate for the length of time defined by the statutes of limitations (80).

In the 1920's, Dr. Malcolm T. MacEachern, Director of Hospital Activities at the American College of Surgeons (93) defined the purpose of a medical record for the program of standardization of hospitals, and subsequently for the program of accreditation. He stated that the medical record is the basis of the assessment of the quality of the care rendered by the hospitals seeking approval, and that it "...must contain sufficient data written in sequence of events to justify the diagnosis and warrant the treatment and end results" (80, p.31). This definition introduces the medical record as a requirement set forth by the medical profession to render its own members accountable.

The Canadian Council on Hospital Accreditation that succeeded the American accrediting body in the late 1950's played a key role in the development of the medical records by promoting the desirability for uniform standards. These standards were specific to format as well as to substance. Medical staff by-laws had to specify their rules with regard to the medical records, their accuracy, completion and pertinence. Hospitals' governing bodies realized that the medical record department was considered an essential service under the CCHA regulations and that the department had to be under the direction of a qualified department head. Over the years, the CCHA revised its program and made its standards relating to medical records more stringent. It is now no longer

enough to have medical, clinical or patients' records (terms used interchangeably by the CCHA) in good order and with good content; these records should be used to produce statistical information as input into medical and administrative decision-making as well as educational programs. This emphasis on the value of the medical records introduces legal, ethical, payment and quality of care issues, which are basic to further discussions, and will be expanded later on under the status of health information and the future role of the HRA.

The value of the medical record was briefly expressed by MacEachern (93) and by Huffman (80). Their views are summarized because they reflect the thinking in their time.

- a) Value to the patient: the records will testify that the patient's case was treated in a professional manner. In any subsequent illness, the records will allow for the continuity of care, the avoidance of repetitious investigations, and thus speed up the delivery of care and render it more economical.
- b) Value to the physician: the records will preserve all the factual information that the doctor could not possibly remember; should a change of doctor occur, the new physician will be able to manage the patient on the basis of accurate information. The records are helpful in medical education; the physician may review his own cases and compare his results with the institution's results, and inquire into reasons for those results. The records are also good evidence in medico-legal cases.
- c) Value to the hospital: the records document the care given to the patients. The hospital can analyze the quantity

and the quality of the services and inquire into the results and their determinants. These results can be related to the competence of the physicians and the facilities of the hospital. Again, the records are valuable in medico-legal cases.

- d) Value in medical research: every record that is scientifically accurate adds to the mass of data available for study, and on the basis of large numbers, the evidence is more valuable.

MacEachern also adds

- e) Value in legal defense: the records, compiled at a time when no thought of litigation existed, are admissible as evidence. However, if "the patient has grounds for legal action... the physician or the hospital will usually settle...out of court" (93, p.723); logically then, the records will constitute good evidence in favor of the physicians or of the hospital.
- f) Value in Public Health: on the basis of the information obtained from the records, the hospital is able to cooperate with the public health sector for effective disease control and for the promotion of health in the community.

One sees in these views the emergence of several concepts which over the years have acquired considerable values of their own. For example, the concept of the quality of care, important from the point of view of the patients, the physicians, the hospitals and medical research, has since grown vigorously. Special programs are now set up to monitor the quality of care rendered by the health care institutions according to predetermined indicators

and the medical records are regularly used as source of the documentation.

Another issue which is notorious today is cost containment, but not quite in the same sense as used by MacEachern. In his time, hospitals were responsible for their operational costs, and depended not only on the paying patients, but also on donations and contributions from the community; economy was a powerful incentive. Similarly, the patients were responsible for their medical and hospital costs, unless they had some type of insurance coverage; and the medical and hospital costs were usually prohibitive. Today, the government pays for the health care costs and neither the hospitals, nor the physicians, nor the patients have much incentive toward economy. Health care costs have increased extensively over the past two decades, and the government has been forced to impose tighter budgets. Reporting to the government from the medical records is one form of control, and the information is used to develop standards of care on a provincial and national basis, as well as to calculate the per diem rates. Cost containment is, of course, directly linked with the utilization of resources; utilization studies are partly based on the records, measuring the inputs and processes of providing care against the patient outcomes. There is, however, no association made between this utilization process and medical competence, as patient outcomes cannot be said to be the direct results of the inputs and processes of care.

The concept of the legal value of the records presented by MacEachern appears logical to a point: the records, compiled at a time when no litigation is contemplated, constitute good evidence. What

MacEachern did not say was that, more often than not, records are completed days or weeks after the patients' discharges. In view of these delays, the relative value of the medical records as evidence of the care given and of the patient's reactions to diagnostic and therapeutic procedures is debatable; however, the courts have either not admonished the physicians for their record-keeping practices, or have not achieved much improvement, as records today still go incomplete for days and weeks. A shocking aspect of MacEachern's expression as to the legal value of records is his statement of the records serving primarily as evidence in favor of the physician and of the hospital, because he adds, if the patient has a legal case, then the physician or the hospital would settle out of court. MacEachern's position negates the value of the physicians and the hospitals' codes of ethics, which maintains that the interest of the patient is primary. Furthermore, records, although physically owned by the hospital, contain information which in fact belongs to the patient. Yet, this reluctance by physicians and hospitals to use the medical records in legal cases primarily in the service of the patients' interest is still noticeable today.

Notwithstanding the importance and the value of the medical records as discussed above, it is well known, within the health field, that the medical records have been held in low esteem by the physicians. Three major reasons are offered as an attempt to explain this attitude:

- 1) Medical science is an art as well as an applied science with still many unknowns which render the practice of medicine imponderable and mysterious. Furthermore, each human being is unique in some ways in his/her reactions to disease and to care, and this

fact also lends uncertainty to the practice of medicine. Consequently, physicians are reluctant to reveal their medical thinking at the early stages of care.

2) Within the hospitals, the medical staff is not bound to the institution by an employer-employee relationship, but has the status of private entrepreneur; its goals are, therefore, profession-oriented as opposed to hospital-oriented (34). The completion of the medical record is categorized by the medical staff as an administrative requirement to fulfill the letter of the medical by-laws and of the accreditation program (93), and hence the medical attitude became that the records have to be completed for the hospital. This misconception allowed resentment to build up and the advent of the lay administration model of hospital management alienated the medical staff even more. The insistence of the Canadian Council on Hospital Accreditation upon medical records also contributed to the climate of resentment.

3) Medicine is a well organized profession, with a strong sense of professional autonomy according to which the physicians are accountable to the profession. Yet, in a hospital situation, the medical records belong to the hospital, while the content is said to belong to the patients (113), and, therefore, the documentation of the physicians' performances is not under the control of the profession. To analyze the situation a little more, one sees that the information that the physicians received in trust from their patients has to be entered in the records, for others to read, analyze and use. Therefore, the entire procedure of completing records and of surrendering them to the hospital destroys the ideal of professional trustworthiness as expressed in the

physicians' codes of ethics, and undermines their conception of professional autonomy. For these very sensitive reasons, the potentials of the medical record as a very specific tool for the evaluation of the performance of the medical profession have been largely ignored and the records kept at a minimum. Because hospitals are entirely dependent on their medical staff for their operations, they have deferred to the medical profession on many issues, medical records being one of them, and most hospital administrators appear more concerned with peaceful relationships with the medical staff than with the quality of care as reflected in the medical records (124).

CLINICAL RECORDS

The clinical record as compared to medical record is the aggregate of all the observations made by the health professions, including medicine, which render diagnostic, therapeutic and social services to the patients. In that sense, the clinical record emerges as a means of communication and of coordination among the various health occupations involved in the care of the patients, and the recordings of each health occupation have acquired some prominence in the evaluation of the quality of care within a disciplinary as well as a cross-disciplinary forum.

The Canadian Council on Hospital Accreditation regularly reviewing its requirements came to use the terms of medical, clinical or patients' records interchangeably, and provides the definition of clinical record as being "the organized report of the diagnostic and treatment activities carried out by all of the professional disciplines concerned with the care of the patient" (27, p.xx). Generally, the term "medical" was superseded by "clinical" because this latter term clearly encompassed all the health occupations.

This transition from medical to clinical record was facilitated by some major events that were shaping the health field.

(1) The federal government program of health grants which started in 1949 followed by the promulgation of the Hospital Insurance and Diagnostic Services Act in 1957 and the Medical Care Act of 1967 resulted in the spectacular growth of the health industry. To fill the large need for additional manpower active but uncoordinated training programs in the health occupations began (26).

(2) Scientific and technological advances were accelerating at an unprecedented rate and resulted in increased specialization and division of labour. The medical model of health care was challenged by the ambitious allied health occupations, partly because these latter seized upon many of the tasks formerly belonging to the medical territory, partly because they wanted to free themselves from the physician's authority, but also partly because they wanted for themselves as much prestige as that enjoyed by the medical group (34). Clinical psychologists for example even claimed the superiority of the psychological approach over the medical one, and wanted the right to diagnose diseases and to prescribe medications (124).

(3) Computerization reached the health industry, and the medical records came to be abstracted and coded into a machine readable form. The impact upon physicians was enormous; standardization required the definition of basic requirements for the many diagnostic entities as well as the recording of events in an objective form which could then be codified. To resolve the physicians' struggle with automation, Dr. L.L. Weed introduced his concept of problem-oriented care and record (136, 137). This new concept was firmly grounded on two principles: 1) the patient is not merely a

diseased member or organ, but a whole unique person within a defined course of life and specific hereditary, social and economic milieus; 2) over and above the main presenting complaint, the patients' concurrent problems have to be identified and treated so that the patient can be restored to his/her productive role in society. The problem-oriented approach to care firmly established the team concept: once the patient's problems were identified, they could be addressed to by the most appropriate health occupation.

The problem oriented record strongly relies on all the health occupations being able to make scientific and professionally factual observations and to record these in an objective manner. In addition, the health professionals have to express what they assess the situation to be and what they plan to do for the patient in relation to these objective observations. The concept of professional accountability emerges very clearly, and the health professionals, through their records, have to submit to interdisciplinary scrutiny.

Subjective entries can also be made; these will reflect comments made by the patient as well as differences in perception between professionals, and also observations which cannot be firmly supported by some form of appropriate measurement, such as temperature, blood pressure or laboratory findings. Because of this segregation of objective from subjective, the pattern of entries in a problem-oriented record are colloquially stated to follow a SOAP format: Subjective, Objective, Assessment and Plan. Generally, the problem-oriented record has not met with much success. The main cause of this failure is the inability of the health occupations to recognize that the problem-oriented record is not a

mere technique, but rather rests on the validity and reliability of the professional thinking as well as on the application of the principles of logic in differentiating between objective and subjective observations.

HEALTH RECORDS

The new concept of health records takes its origin in the emphasis placed on health as opposed to the traditional focus on disease. Events relating to health maintenance and to prevention of disease should be recorded and linked with all events of disease. The linkage of a lifetime of health events is scientifically and socially desirable for the better understanding of the predictability of disease, the segregation of generic influences, and the maintenance and the promotion of health. With the advent of the computer, the linkage of health records on individual, familial, geographic, diagnostic, etc. bases is technically, and even economically feasible.

Linkage implies exchange of information between authorized parties as the interests of the patient and/or the economics of the health care system demand. This will presuppose the formation of a pledge of trust between those parties who will be able to access the data from a data bank, which will be the major repository.

The concept of linkage will certainly gain recognition in the future, mostly because the shift toward ambulatory care has established the importance of follow-up procedures, the necessity of co-ordinating various types of care, and of unifying all the observations made by health care teams. The acceptability of integration of all health events into a unified record hinges more on social consideration than on any other factor. This integration requires the use of a unique patient identifier, and tremendous

social concern has been expressed about the possibility of leakage of confidential information to unauthorized people as well as about the prospect of becoming a mere number and losing human identity. Unknown to the public at large, linkage already exists in a small or rather unpublicized form, for example through the social insurance number, and the introduction of an official health record for each Canadian will be a political decision to be made in the near future. The main difference between health record and information is that the record is the physical format, where information is the immaterial core. This substance may not always be recorded accurately and in its entirety. The Ontario Council of Health in its report on Health Information and Statistics (1975) states that "health information is considered to encompass all forms of knowledge in the health field. Within its scope, it incorporates two separate but interrelated types of health knowledge: that which is represented by facts or data of a numerical nature that are required for the planning and operation of the health care system, and that which is concerned with promoting and maintaining the health and meeting the health needs of the private individual" (p.5). The Ontario definition is based on the subsequent use of the recorded information: a) for the patient's interest; b) for the needs of the organization and of the health care system; but this is not to say that there are two kinds of health information. A tentative definition of patient health information is suggested: the sum of all data pertaining to a person's health status, starting with birth and genetic history, and including all objective and professional observations of all facts and events of the nature of disease prevention, health maintenance, disease diagnosis and therapy until death. These data should be generated, verified

modified, acted upon, used and exchanged by the various health occupations under strict ethical and legal control primarily for the patient's best interest.

Health information is then broader than health records because it encompasses all the data or potential information which today is freely and loosely exchanged without such exchanges being documented or legitimated, that is ethically, legally or professionally warranted, and all the information that many therapists do not record for questionable reasons of confidentiality, or of mistaken concept of proprietorship, or simply omission, or even lack of competence.

A brief review of the value of health information would show considerable expansion on the views of MacEachern (80) and of Huffman (93). From the patient's point of view, health information would transcend the person and take on geneologic dimensions, because the unborn generations can be genetically controlled. Health information would encompass the recording of all the events which affect the person's status of health. On the basis of the present structure of the health care delivery system, continuity of care is possible and would insure a more adequate and rapid service wherever and whenever the patient's need is recognized. From the socio-legal aspect, the individual's right to privacy will be eroded, as linkage implies a multiplicity of uses and users. But because it will no longer be confined to one hospital or one doctor, health information will, one may assume, primarily guard the patient's interests while also serving the physicians' and the hospitals' interest. For the physician, health information will be a must as he no longer involves himself with the disease entity only but with the person and, by extension, with the

family, present and future. Health information will also document the long-term effects of the care given at times of disease and of non-health status. Medical self-evaluation will become possible, at the office level as well as at the hospital and community levels. From the ethical point of view, in order to justify the patient's trust in him/her, the physician may satisfy his/her own standards of performance as well as his own sense of autonomy. Accurate health information will furnish adequate documentation for billing either the patient and/or the insurance company, or the government carrier, on the fee-for-service basis that is the preferred method of payment in Canada. On the same basis as the former medical records, health information will be admissible in court, therefore, maintaining the value attributed to the former medical records; but as health information rests on linkage and can be accessed from several directions, it follows that the records may serve primarily the interests of the patients.

For the hospital, health information\ generation and management will become a generic process that will apply equally to all the various types of patients: in- and outpatients, day care, day surgery, extended care patients, and so on. The collected health information will be the basis of a professional accountability system evaluating the processes and the outcomes of patient care. The integrated health information will allow the long-term evaluation of the care given, that is assess the role of the hospital in the community; health information will also allow greater cooperation with the public health sector for the purpose of health promotion within the community.

The results of these evaluation processes could then be related to the operational costs, the utilization of resources, and used in financial control and in government reporting. A newer trend in

the health field points to the emergence of financial standards in relation to disease entities and operations; these will evolve by comparing the hospitals' performances locally, regionally, provincially and nationally, and will be used to make critical economic decisions at all levels.

Legally, the aggregate of health information would primarily serve the patients' interest. This means that the court will be able to evaluate the care rendered by the hospital on the basis of the health information. At the present time, hospitals may expurgate the records before surrendering them to the court. Records of critical incidents occurring in hospitals are never part of the records for the simple reason that these may indicate some form of culpability vis-a-vis the patient, and may result in a court case. This custom is, of course, entirely unethical and testifies to the fact that under certain conditions of conflict of interest, the hospital will unerringly choose its own interest over and above the patient's.

The value of health information to the government would be in the provision of an accounting system from the hospitals to the government as well as from the government to its constituents. Health information will yield indices relating to the health status of the nation and more factual information on which to base decision-making processes and social policies.

STATUS OF HEALTH INFORMATION

In an effort to briefly analyze the status of health information in Canada, it must be said that the value of clinical records as opposed to medical records has mostly been recognised by now; however, that recognition is mostly academic and is not necessarily true in practice. The health occupations do not yet communicate

at the same level with one another. Communications among them have the very sensitive character of professional challenge and scrutiny. The records are not used efficiently as the official channel of communication; rather much oral exchange takes place in which definitions, objectives and standards are left comfortably vague and unclarified.

Acceptance of the necessity of recording is not uniform among the health occupations, nor among the various health institutions. For example, in one of the major Canadian teaching hospitals, the physiotherapists are required to report neither their treatment modalities nor the patients' responses to these; instead only a short summary is included in the clinical record. The records that physiotherapists maintain for their own professional requirements are kept in their department, under various conditions of confidentiality, and destroyed periodically, possibly in violation of the provincial statute of limitations (124).

Little or no effort is being expended in defining the completeness of records and what they should contain because there is little acceptance of patterns of care with reference to specific diseases, and deviations from such patterns are not necessarily considered a deficiency in the quality of care. Although quality of care programs, medical and nursing audits are commonplace, they are still often punitive in character and any representative of one of the health occupations will readily admit that the disciplining of a colleague is a most unpleasant task, and thus it is frequently pushed aside in the hope that the problem will solve itself. Therefore, records are mistakenly seen as means of disciplinary measure against individual therapists as opposed to

being accepted as educational tools.

Generally the health occupations are doing their best to magnify the asymmetry of information that exists between the health occupations themselves, between the health occupations and the patients, and between the health occupations and the management of the health institutions. A perfect example of this statement occurs with nursing which is in the throes of organizing nursing audits and quality of care programs. Nursing has not been able to define criteria acceptable to the entire profession, since some factions state that neither the medical nor the nursing parts of the record are suitable to their audits, and contend that they have to devise specific nursing diagnoses in order to focus on and evaluate the specialized nursing tasks; these nursing diagnoses would bear only very general relationship to the medical diagnoses.

All health occupations are being taught basic professional thinking emphasizing the concept of professional autonomy. This concept unfortunately places the health worker in a situation of conflict: on one side is the desire to document the care rendered in order to affirm one's contribution to the management of the patient, and to be recognized as valuable by the other health occupations and accepted at par in the health care team; on the other side is the desire to be considered "professional" which dictates a quest for autonomy.

From their vantage point, the health occupations view the hospital organization in which they work as an hierarchical authority. Although entirely incompetent in the specialized skills of the health occupations, this authority is nevertheless engaged in evaluating them in terms of output, as if they were mechanical means of production. This process of evaluation denies the occupations

the freedom of controlling and scheduling their own work, as professional autonomy would have it. This perception of the organizations by the health occupations breeds a noticeable resistance to the bureaucratically enforced supervision, and a feeling of alienation from the management of the organizations; by extension, the alienation is directed toward the government which they see as the real culprit responsible for the tyrannical and ineffective bureaucratic process.

In hospital situations, the relationship between health professionals and health information is governed by the policies of the organization; this holds true even for the independent medical staff. As the Health Record Administration occupation is not considered to be one of the allied occupations because it does not render direct services to the patients, it follows that the Health Record Administration occupation is categorized as an arm of management, therefore, a mechanism of the bureaucratic process. Health occupations resent the "paper work" which is required by the organization, and most actively search for their own system of information which would give them, what they, professionals, want. The main problems to overcome may perhaps be stated to be: none of the health occupations accept health information as being an agent of systematization and of integration; neither do they have any desire for systemetization or integration. The health occupations would rather continue to resist inroads into their territories, that is they would rather pursue their restricted professional objectives. Until these sharp professional territorial imperatives are resolved and until more encompassing, integrative objectives are recognized, the status of health information will be low.

However, the first stage toward the integration of objectives among the health occupations would perhaps be the alignment of their professional objectives with the main goals of the organization in which they have to function.

On the other hand, if managed appropriately, it is conceivable that health information will take the role of agent of change, focusing primarily on the patient, and emphasizing occupational accountability as opposed to professional objectives, simply because health information is vital to the performance of all the health occupations.

CHAPTER IV

ASSOCIATION DEVELOPMENT AND PROFESSIONALIZATION OF THE HEALTH
RECORD ADMINISTRATORS

From the beginning of this century, a strong emphasis had been placed on the medical records by the American College of Surgeons and the program of standardization they developed and sponsored. This emphasis was expressed publicly through the Hospital Management Review: "Records are a prime essential in any program of hospital standardization....the case records are the visible evidence of what the hospital is accomplishing" (80, p.21). Thus, the Congress of the American College of Surgeons held on October 11, 1928 differed from the usual annual event in as much as its topic related to medical records, and that Dr. T. MacEachern, Director of the Standardization Program, had issued a special invitation to the staffs of the medical record departments of American hospitals to participate. As an outcome of this Congress, the workers of the medical record departments of hospitals recognized themselves as a group, to which the American College of Surgeons had appealed for collaboration with them in improving the records of the patients, and in devising adequate record-keeping methods. Motivated by this appeal, the Association of Record Librarians of North America was formed on that same day, and stated its main objective to be: "to elevate the standards of clinical records in hospitals, dispensaries and other distinctly medical institutions" (80, p.23). The 58 charter members of the newly formed Association of Record Librarians of North America organized their association on the model of other professional associations and formulated their own code of ethics. By 1935, educational standards had been set and some schools had opened in hospitals which were voluntarily

assuming the responsibility to train medical record librarians as part of their education functions. Concurrently a registry was set up, and a registration examination was devised for the admission of new members; to reinforce the restrictions to entry into the occupation, the inspection and the accreditation of the educational program was placed under the Council on Medical Education & Hospitals (80).

The formalized group had staked out its territory and was endeavouring to enlarge it under the sponsorship of the medical profession. Had the group not been formed at the time of the American College of Surgeons' Congress, would there be an occupation today? Although the question is academic, to support it, one may mention that in Europe where doctors and hospitals have a much longer history, few countries--with the exception of England--have an occupation similar to the American Health Record Administrators, and where such groups exist, (West Germany, Holland) they are of quite recent formation. In Canada, where the population, and consequently the hospitals were much less numerous, the Association of Medical Record Librarians for the province of Ontario was founded in 1935 and a registry established. The formation of the Canadian group was greatly facilitated by the fact that at that time the Joint Council on Hospital Accreditation, which had evolved from the previously mentioned program of standardization, was surveying jointly the American and the Canadian hospitals, and was creating requirements for similar standards of hospital operation and of medical practice. In 1942, the Canadian Association of Medical Record Librarians (CAMRL) was formed, and subsequently obtained its Dominion Charter in 1949 (124). The total number of members was low, as for example, there were only three registered record librarians in B.C. at that time. Its main objective remained the improvement of medical records.

Strong association-oriented goals were also established relating to the restriction of entry into the association, the establishment of a specific body of knowledge and the staking out of a territory of operation.

Hospital-schools patterned on the American model were started in 1936. The educational training, partly theory, partly practice, was of one year duration. Entrance was limited to students with the equivalent of a Grade 13 Ontario. After graduating from the hospital-school program, the students became eligible to write the registration examination of the Canadian Association of Medical Record Librarians.

In the 1950's, Canadian hospitals had started their accelerated period of growth subsequent to the federal program of health grants of 1949 (34), and following the pattern established over the previous two decades, became eager to hire trained registered record librarians. Recognizing the acute need for such a class of hospital workers, the Canadian Association of Medical Record Librarians collaborated with the Canadian Hospital Association in setting up a two-year correspondence program for persons who were already employed in the Medical Record Department of hospitals. The educational requirements for these persons could not be as strict as for the students entering an official hospital-school. The correspondence classes accepted large groups of students for several years until 1960. The graduates of the correspondence program became known as Medical Record Librarians (M.R.L.) and became eligible to write their registration examination after five years of experience in a Medical Record Department. Later, that clause was repealed and the MRLs could write their registration only if they had the equivalent of Grade 13 Ontario. For those

MRLs who wanted to upgrade themselves, the association allowed a 5-year period after completion of the correspondence course. Few MRLs were willing to undertake an additional educational program as they were quite secure in their jobs due to scarcity. The association became concerned about the increasing percentage of medical record librarians with lower educational standards. This concern prompted the decision to end the correspondence course for MRLs in 1960. But, in order to supply trained manpower to meet the demand, as well as to keep enlarging its power-base the association started a correspondence course for a Medical Record Technician level: the duration of the program became one year. The requirements for participation remained the same: employment with the Medical Record Department of a hospital.

The timing for this decision was unfortunate from the point of view of the Medical Record Librarians' education. In the 1960's, in Canada, the political decision had been made to phase all educational programs into the official educational stream; and the Canadian Association of Medical Record Librarians had just documented the need for a lower level of education for some of its members by implementing the technician program. The association bid unsuccessfully for a university education to match the standards of the American Medical Record Librarians Association which had by then moved its programs into degree-granting institutions. This failure was due to the inability of the Canadian Association of Medical Record Librarians to specify and substantiate the educational requirements of its members, as well as to the lack of political power.

When the time came to phase-in the hospital-schools into the community colleges, the association, very concerned in maintaining

the librarian status for the existing Registered Record Librarians, consented to the establishment of two-year programs for technicians. The first two such programs were established at Niagara College and the B.C. Institute of Technology. With the ending of the correspondence course for the training of Medical Record Librarians, the phasing out of some hospital-schools, and the reduced output of some of these remaining hospital-schools (for example, in New Westminster, B.C., the school located at the Royal Columbian Hospital graduated, in some years, one student only or even no students at all), the percentage of Registered Record Librarians was decreasing within the association, while the population made up of lower status members was increasing due to the vigorous production of new technicians. This imbalance prompted the association to grant the right to train medical record librarians (who will be eligible to write their registration examination) to newly opening two-year college programs; concurrently, one-year programs were started at other community colleges to graduate Record Technicians. Consequently, serious inconsistencies exist within the association's educational patterns. Perhaps the major factor responsible for the departure from the American educational pattern was that the sponsorship of the Canadian Medical Association was either not sought or not obtained as in the case of laboratory technicians, etc. The occupation relied upon its own resources to conduct a program of education and accreditation, the results of which are confusing and unsatisfactory.

In the 1960's, in Canada, the concept of health acquired momentum: focus on health became more important than focus on disease, and a person was recognized to be more than the sum of his/her episodes of ill-health. During the same period, automation spread to

hospitals and one of its impacts was the possibility of linking all the information relating to the health status of a person. Sensing that these developments were to affect the Medical Record Librarians and Technicians, and perhaps propel them toward the much desired professional status, the Canadian Association of Medical Record Librarians sought to adapt itself to these developments, by trying to modify the occupation's image. In 1973, it changed its name to Canadian Health Record Association. Following the precedent of other professional associations, this newly formed association kept the socio-economic powers for itself, but vested its standard-setting and accrediting powers in the Canadian College of Health Record Administrators. This change was traumatic to the members, who could little understand the reasons for such a move and were puzzled by the new names they would have to use. The Registered Record Librarian's name, which expressed an occupation as well as a status, was changed to Certificant, which referred only to a rank within the association. The members suffered, and still do, a loss of identity; to be a "librarian" was an occupation which they, as well as others, could understand and place into some organizational and social niche; but how do you convey to others that you are a "certificant"? The name of Health Record Administrator seemed incongruous to the many who hold subordinate and technical positions within organizations. Although the reorganization of the occupation's association and its change of name were intended to raise the occupation to a professional status, these events created little interest in the health field, and even today "medical record librarian" is often the appellation used. The new associational hierarchy created was:

- a) Associate: the lowest status which comprises the clerks, the technicians and the former medical record librarians who could not obtain their registration.
- b) Certificant: this is the basic level and it comprises the former Registered Record Librarians.
- c) Fellow: the highest status, which, to date, has not been achieved by anyone, as it is poorly defined.

To complicate matters, the progression from the lowest to the highest status is not yet clearly established. This progression is based partly on further education, partly on the accumulation of credits for attendance at associational events, partly on work experience. A great deal of confusion is caused by the lack of specificity in describing desirable academic subjects; for example a technician who would earn a baccalaureate degree in physics, may not be allowed to progress because physics may perhaps be thought to be irrelevant to the occupation; on the other side, a technician who has successfully completed the Canadian Hospital Association correspondence course in Departmental Management would have accumulated one half of all the credits required. There are, therefore, serious doubts as to what is the body of knowledge specific to this occupation; furthermore what level of education corresponds to the respective status levels within the association is not clearly established and is not related to status at work. In spite of the unresolved state of such major issues as education and standards of performance, the Canadian Association of Medical Record Librarians and its successor the Canadian College of Health Record Administrators have tried unsuccessfully to obtain legitimation for their members from the provincial and federal governments as well as from the Canadian Council on Hospital Accreditation. These attempts had been made in order to restrict employment in

the Medical Record Departments of hospitals to members of the CAMRL, subsequently CCHRA, and to correlate status within the association with status within the job situations.

From the sociological point of view, the development of the occupation of Health Record Administrators exhibits some of the characteristics attributed by social scientists to the process of professionalization: association, restricted entry, code of ethics, and even an attempt at creating a new image by the change of name. However, the body of specialized knowledge was not expanded adequately in relation to the services expected by others and in relation to the revolutionary increase in knowledge obvious in our society. The educational standards remained unclear and the standards of practice undefined. From the fiduciary point of view, services to the patients, being of an indirect nature, pass unnoticed; therefore, no trust relationship has developed, and the public is, generally, unaware of the existence of the HRA. The real clients themselves, that is the physicians, the nurses, the hospital administrators, the health planners and the governments, possess bodies of knowledge which exceed by far the level of the HRA's, and have commensurate social status and power; thus it is unrealistic to expect the development of a trust relationship between HRAs one side and their clients, the physicians, the administrators and the governments on the other side within the classical paradigm "professional-client". Because of this lack of trust, and also because of the communication barriers erected by the health occupations between themselves, as mentioned earlier, the HRA occupation is well insulated from any other group within the organization, much against its will. Organization allegiance

never quite developed because of the original attachment to the medical profession persists to this day, and the HRA occupation would be quite willing to place itself under the paternalistic and protective dominance of the medical staff. HRAs have given all their attention to the clinical needs for information, and have not developed the usefulness of the same information for management and for the planning of health services.

Professional autonomy never existed, as the HRAs have always performed within an organization. Their practice has always been strongly governed by the requirements of the government, of the Canadian Council on Hospital Accreditation, and by the medical staff and the hospital's by-laws. Furthermore, the desire for autonomy is not substantiated in any way, as self-discipline and self-evaluation programs are virtually non-existent.

EVOLUTION OF THE PRESENT ROLE AND POSITION OF THE HEALTH RECORD ADMINISTRATOR

The historical development of the role of the Health Record Administrator will show that the occupation was always bound to the hospital-organization. At the beginning, the tasks were limited to storing and retrieving the medical records, mostly a custodial function. Later, the quantitative analysis of the discharged patients' records was added; the Joint Committee on Hospital Accreditation which had succeeded the Standardization program of the American College of Surgeons, had established more specific standards about the documentation required from the physicians. As the number of Medical Record Librarians had increased, the analysis came to be performed routinely. This analysis limited itself in identifying the reports present in the record and in requesting from the physicians those which were missing. This was the point at which the work of the medical record librarians became sensitive.

If the standards established by the Joint Committee were to be adhered to, so that the hospital would receive or maintain accreditation status, then the Medical staff would have to cooperate with the medical record librarians in the completion of the records. Generally, the medical staff did not react favorably to the requests of the medical record librarians. The requests were in fact implying that there were deficiencies in the work of the physicians, therefore, they became unpalatable. The mediocrely trained Medical Record Librarians dogmatically insisted that doctors comply to the letter with the accreditation standards and the medical staff by-laws if these latter existed. To render the situation even more complex, hospitals were shifting or had shifted toward the lay administration model, and, generally the administration of the hospital had to back - ever so slightly - the medical record librarian because of the concern over the accreditation status. A tentative solution to this deep problem was the formation of a Medical Record Committee, composed of physicians, which would concern itself with the policing of the medical staff as far as completion of records was concerned. These committees limited their responsibility to the physical existence of the information, and decreed that the analytical element in the role of the Medical Record Librarian was to remain strictly quantitative. The accreditation process also required the maintenance of diagnostic, surgical and physicians' indexes, and manual indexes were established necessitating the use of a codified classification. Coding of the medical record was done by the medical record librarians. However, problems of terminology occurred immediately; the medical diagnoses were affixed quite loosely - in the sense that

they were not expressed in exact codable medical terms, were often recording symptoms as diagnoses, and recorded mostly the main problems only; the notation N.Y.D. for "not yet diagnosed" was common. The coding of the diseases according to the accepted nomenclatures had become a difficult task requiring a more thorough analysis of the records, an analysis more qualitative than the medical profession wanted to allow. Clearly, the medical profession had to evaluate its own work. Medical audits started to become known; some form of audit had to be established in each hospital according to the American as well as the Canadian accrediting bodies. The medical staff submitted, but to self-scrutiny only. Medical audit committees were formed to review the records, which were provided by the medical record librarians according to specific criteria set forth by the medical staff. However, usually one additional criterion allowed the medical record librarians to bring to the committee's attention any records which were thought to need review. The analytical function was beginning to take on more obvious qualitative and evaluative characteristics.

Approximately two decades ago, automation hit the health field. In the U.S. a commercial, but non-profit computer system company began to sell its services to the hospitals. Again the accrediting bodies acted as agent of change by modifying their requirements to include operational and utilization of resources data, as well as analyses of the diagnostic and therapeutic services. Automation meant that a greater amount of data could be collected about each discharged patient. By collating the data uniformly from all the hospitals, certain standards would evolve, for example: the number of days before the surgery; the number of days after surgery; the

types of diagnostic and therapeutic services provided; and so forth; then, each hospital could compare its results with those averaged from the entire population of hospitals under study. A detailed analysis of the records was needed, which meant stricter standards of information generation by the physician, and more questioning by the medical records librarians. The qualitative aspect of record analysis had deepened and expanded.

The tremendous amount of computerized data available created the task of data analysis for the purpose of compiling the results obtained, comparing those with those desired and making the necessary adjustments. The American and Canadian accrediting bodies had become very keen about the assessment of the quality of care rendered by the hospitals; federal and the provincial governments, as they were paying the costs, were also interested in the utilization of the resources. The logical person within the hospital structure to perform these statistical analyses was the medical record librarian, who had compiled the data and possessed the source-documents. At this point, the problems started to compound:

- a) the provincial governments, which in Canada, ought to be interested in the quality of care produced and dispensed with the health dollar, instituted their own various computer systems, and the medical record departments duplicated much work by sending the same data to the government and to the computer service. The government itself duplicated the work of the medical record departments by re-affixing codes to diseases and operations, often using a different nomenclature.
- b) the administration of the hospital is hardly trained in computer science, statistics and the methods of evaluating the quality of care.

- c) the medical staff similarly lacks interest in computers as well as in statistics; furthermore they consider the evaluation of the quality of care as their professional domain, and openly object to organizational and governmental interferences.
- d) the medical record librarians were not trained in computer science and statistics, nor in management and social and behavioral sciences; consequently they were not able, with few exceptions, to rise to the test. Their education of one or two years post high school left them unprepared for educational, professional and organization growth, and did not make them acceptable to the other disciplines. One may even venture to say that this educational gap was, perhaps one of the most important factors in the creation of problems, because the medical record librarian was expected to work as a facilitator between the medical staff, the administration and the computer group, a role requiring not only competence in computers, statistics and management, but also a great deal of tact and of understanding, as well as an ability to teach and advise without being obvious about it.

The failure on the part of the medical record librarian was the most noticed because of the frustrated expectations on the part of the organizations and of the health disciplines.

Even today, the quality of care programs function without set standards and in a very patchy way; the administrators receive pertinent and timely data neither about the care rendered by the hospital, nor about the utilization of resources, and the health planners are being fed entirely unreliable statistics as HRAs cannot distinguish between clinical and operational and planning needs for information. The Medical Record Librarians may have

become Health Record Administrators, but they have not overcome their deficiencies, and the health disciplines may be on the point of considering any other occupation's services which will provide them with the information they require. Strong candidates for this position may be the computer scientist, or perhaps the epidemiologist, the medical statistician, or the nurse administrator, or...? Should another occupation enter the health information arena with a more appropriate body of knowledge, the Health Record Administrators would be firmly set at the technical level of coding, storing and retrieving data until the computer will take those tasks completely over.

In addition to statistical analysis, another major area of function was created by automation: the linkage of the health-related information had become technologically feasible. Overall, such linkage would greatly benefit science and society through the accumulation of new observations and knowledge, and contribute to cost containment by the elimination of duplication and by better coordination. One of the main technical obstacles to linkage is the poor quality of the information recorded, and its patchiness. The other main obstacle is attitudinal: neither the medical profession, nor the allied health occupations, nor the administration and even less the HRA group feel comfortable with the concept of linkage. Well-trained HRAs would have promoted the values of linkage, even established some rudimentary linkages with perhaps the doctors' offices in the community, the clinics and the other hospitals. Linkage could have started in a manual form as a sub-system until all of these agencies acquire access to a computer. Once established, the system could have been studied and evaluated, and the experience recorded for the benefit of self and others. Basically,

linkage should exist between hospitals, all the other outlets of health care delivery including health centres, clinics, doctors' offices, as well as the health educational system, and finally the governments, and form sub-systems identifiable at the local, regional, provincial and national levels. Such linkage would inevitably expose the health occupations to mutual scrutiny, down to the individual members as they practice their calling in rendering services to the public. The reluctance of these occupations is obvious. Much to the relief of the health occupations, reluctance is also noted on the part of the public which seems to acquire a new interest in securing the individual's right to privacy. Inevitably, one may predict that purely on economic grounds, computers will win, and any occupation which can contribute to the implementation and the monitoring of the financial restrictions by documenting the services rendered and the results will be in demand. The HRA group could become that occupation, but only by considerable expansion of its body of knowledge.

With regard to the legal aspects of information handling, the body of Canadian Health Law is still very meager, and none of the health occupations is being adequately trained in the subject. In the past, because, in legal cases, the records were often subpoenaed, the custodian of the records had to appear in court and present the requested records. The frequency of these cases increased over the years and the medical record librarians endeavoured to establish some standard procedures to guide their behavior in court. These procedures have now been formalized by most hospitals and official hospital policy has been decreed and today the HRAs are frequently consulted on legal matters, by the medical staff and the administration.

Touching upon the legal issue, is the problem of information use. This is another area where the medical record librarians had to establish their norms of conduct in order to handle ethically the many requests from the insurance companies which paid either the hospitalization costs or disability or life benefits to some of the hospital's patients and former patients. Insurance companies have always wanted to peruse the records themselves, and were often successful in doing so. The Medical Record Librarians had to base their conduct primarily on the interests of the patients and strictly control the amount of information they could release. The law was not very explicit on the matter of information transmission from the patients records, and hospital policy and procedures practically non-existent or inadequate. This service orientation, one of the claimed characteristics of professions, is largely unrecognized, because the clients were unaware that they had received such confidential services. On the other hand, the insurance companies always considered the Medical Record Librarians' behavior to be obstructive.

Because the HRAs could - on a general level - achieve acceptance neither by the medical and allied health staffs, nor by the administration, it ensued that they were poorly listened to when endeavouring to establish such procedures of release of information that would protect the patients' right to privacy. Rozowsky (113) will argue that Canadians have relinquished their right to privacy when they voted for the federal health care system. However, Canadian society, dismayed by the amount of information that can be collated about any one individual, is becoming very concerned about the degree of confidentiality that should be granted to the very personal and intimate information relating to individuals' health status.

This problem is in some form of abeyance, and is solved locally and arbitrarily; but should the public concern gain momentum, hospitals and other health care facilities will need appropriate counsel on legal matters relating to the use and the users of health information.

On the organizational level, within the hospital structure, the medical record librarians were originally granted middle management positions. This was consistent with the then-existing pattern: generally, no other administrative department head was more qualified academically; exceptions were perhaps the pathology laboratory and the X-ray departments wherever these could be headed by specialized physicians, and the pharmacy. Nurses were at the hospital-school level, while the business office and the administrators were often promoted from the staff of the hospital, and had usually a minimum of formal education. However, a dramatic change has taken place over the past decades, and the hospital management group today is at least at the baccalaureate level, but mostly at the master and doctorate levels. The average health record administrator is not able to function productively among such high-powered group. This additional failure of the HRA to provide adequate managerial services alienated the administration of hospitals. In many instances this resulted in the insertion of a new level of supervision between the administration and the HRA, relinquishing this latter to a lower level. This new supervisory level was filled with non-HRA personnel of various qualifications, often with retirees from the armed forces. In other instances, the HRAs' middle management position was maintained, but the incumbent to the position was replaced with non-HRA personnel, often administrative nurses, or business managers at the baccalaureate or master level.

This latter situation has become quite noticeable in Toronto and Ontario, and has caused great concern to the Canadian College of Health Record Administrators. At present, the association finds itself in the difficult position of not knowing how to protect the interests of its members. The body of knowledge has not been sufficiently expanded in accordance with the changes in the health field and in society, and has stayed at the technical level; neither association nor its members have been receptive to the needs and requirements of the medical staff, the other health occupations, and the administration. Responsibilities and tasks have increased, hospital positions have developed, but the HRA incumbents have, generally, stagnated.

Today, hospitals still form the main environment of the HRAs' functioning. Hospitals are providing an increased number of services, consequently there are several types of patients, for example, day surgery, day care, emergency, extended care, in- and outpatients. Yet, the HRAs still function almost exclusively in relation to the inpatient population. Too often, the care given to the various types of patients is not documented according to the same standards, and the records originating in the different departments of the same hospital may not even be integrated into a unique record.

Generally, HRAs are in charge of the inpatient information system; outpatients extended care, emergency and other types of patients often have their own separate systems. This situation is more obvious in Ontario than in B.C., perhaps because the occupation, developing later in B.C. had to face additional challenges. Computerized organizational systems are being constructed, but seldom under the direction of an HRA.

K Few HRAs are working at the provincial government's level, but usually their advisory role is oriented toward the hospital HRAs and not toward the government. Neither at the local hospital level, nor at any higher regional or provincial level is input from the HRA occupation required whenever decisions are made with regard to some aspect of health information. One may surmise again, that this is because other occupations have been assessed as more likely to provide the information services that are planned or required; the computer-scientist group, in particular, appears to be considered more desirable than the HRA.

In summary, in spite of the fact that health information has gained in importance, the occupation professing to manage it has only grown numerically without increasing substantially its knowledge base. At this point, several occupations may stake a claim to the management of health information, but the HRA occupation has either not yet recognized the challenge and the danger, or is oblivious to it, or does not know what corrective behaviors to adopt.

The Delphi Study which follows was aimed at finding how the other health occupations see the future functions of the HRA in relation to their own occupation's needs for health information and health information management services.

CHAPTER V.

THE DELPHI TECHNIQUE
LITERATURE REVIEW AND CRITIQUE

The now historical Project Delphi conducted by the Rand Corporation in the 1950's for the United States Defence used a new method of survey which has now become known as the Delphi method through the publications of Dalkey and Helmer in the 1960's. This method is a means of communications within a group, the members of which do not come into face-to-face contact; the technique exploits collective intelligence and knowledge to facilitate a consensus by using the simple pen-and-paper method as opposed to speech and person-to-person interaction. Basically, a coordinator, or a coordinating group, interrogates a panel of experts on a well-defined topic. The interrogation follows this scenario: the first part is inquisitive and heuristic, and probes the thinking of the members of the panel with regard to some aspects of the future in relation to the topic in question. A controlled feedback is prepared by the coordinator and returned to the panel summarizing the group response of the first round; the panel members can gauge their relative position within the group. Then a second round of inquiry is sent out allowing the members to join the group's opinion or to maintain their own, and substantiate their decision. This procedure is repeated until some form of consensus is reached or until the subject is considered explored.

Fundamentally, three main characteristics distinguish the Delphi method from any other group encounter:

1) anonymity. There are two levels of anonymity to consider: first, the members of the panel may be anonymous to one another,

thus most of the socio-psychological pressures common to face-to-face meeting may be eliminated; the second level of anonymity guarantees that no response can ever be traced to any member by another member; this anonymity is particularly of interest when, in certain studies, the members are taken from an available collective organization, therefore, are known to one another, and feel free to discuss the topic and to sound out each other's opinions on the subject; in such cases, anonymity will guard the responses and allow the members to respond according to their own beliefs, freeing themselves from the well-known halo-effect created by the dominant members of their group. A more intense degree of anonymity would guarantee that not even the coordinator could trace the responses back to specific members, the intention being that such total anonymity would encourage candid and unguarded responses.

2) controlled feedback of the responses. The returns of each round of inquiry are presented to the members allowing them to assess their relative standing within the group, and to maintain or modify their original responses. Here, it must be remarked that if the substantiation of the choices and the elucidation of the factors responsible for the changes of opinions are important aims of a study, then anonymity will be affected in such a way that the coordinator will have to know at all times the responses of the panel members in order to make the appropriate comparisons and measurements.

3) statistical group decision. A consensus may be the aim of a Delphi exercise; the judgment surviving may not represent the best judgment, but rather a compromise. Such artificial consensus may have some merit in certain circumstances, for example in establishing organizational objectives or public policies. More emphasis seems to be placed now on the exploration of the differences of

opinions, thus statistical group decision may not always be a characteristic of a Delphi study.

The panel is recognized to be one of the most important features of the Delphi exercise. The quality of the output of the Delphi exercise appears to depend largely on the expertise of the panel and on the ability of its members to predict future events. Expert is not often defined in the Delphi literature. Molnar and Kammerud (100) merely state that an expert is someone who knows about the specific subject, but is not necessarily a professional. Pill (107) says that an expert could be anyone who can contribute relevant inputs. These definitions are very loose, and they would allow any coordinator to assemble all those persons who will likely support what he/she set out to prove by the Delphi survey. For Hill and Fowles (77, p.187), "an expert is someone who commands a specialized body of knowledge". The Rand literature refers to experts as highly educated and experienced specialists, and Helmer (69, p.3) looks at experts "....as objective indicators comparable to measuring instruments". Brockhoff (90, p.295) defines expertise as "....knowledge upon which professional certainty can be founded. This expert knowledge can be proven by demonstration or by recourse to confirmation through third parties." For social scientist Wilensky (144, p.vii) an expert is "a man of knowledge in the sense that he brings to the problem at hand a body of specialized information and skill acquired through formal education/or training on the job." While these definitions are more demanding than the former ones, they still leave a great deal of freedom to the coordinator in the assembly of the panels.

The selection of the members of the panel is reported to occur according to the category of expertise required, and the number and the quality of experts available, if these are in sufficient numbers,

the most experts among them should be chosen. Methods of panel selection are seldom discussed, and only in the most general terms. More often than not, in the studies published the criteria used for the assembly of the panel are not specified. Helmer (74) sets importance on criteria such as the reliability and the accuracy of judgment as identifiable from publications, lectures, conferences and other media of public expressions. While these criteria are commendable, they may preclude the use of experts who have not published sufficiently, limit severely the roster of experts available, and lead to in-breeding, even narrowness of outlook because of extreme specialization.

Helmer also reports (73) that most critics deny the validity and the reliability of a consensus reached by a panel, the members of which have not been selected according to the principles of random selection. He emphasizes that, although consensus is one of the aims of a Delphi study, this consensus does not intend to represent the opinions of the general population at large; this population would be, in general, unable to give considered judgment on the specific topics which are the subjects of Delphi studies. If one considers that even the most scientific methods of research are subject to sharp criticisms, it appears reasonable to expect that an individualistic and subjective method of survey as the Delphi would attract a host of protests. Many of the criticisms center around the panel of experts, and, thus around the reliability and the validity of the forecasts.

Sackman (114), one of the best known critics of the Delphi method, wants to see the parameters of the panel members explicitly measured and recorded, the specifications of their skills to meet operational definitions, and anonymity abolished because it leads to personal

unaccountability and to "elitism and deliberate manipulation of the results to satisfy vested interest". He also believes that forecasting may be dangerous and should be avoided until a precise scientific methodology can be validated. However, Sackman does not indicate how to accumulate a history of successful precedents without experimenting. He expressed the opinion that the Delphi technique does not have any scientific value because it cannot be tested by the conventional psychometric methods, and he does not admit to the Delphi to be tested by the Delphi.

Albertson and Cutler (5) express the view that the experts in a particular field would use the same limited framework and have the same narrow outlook to formulate their opinions, therefore, their forecasting would reflect their specialized biases.

Pill (107) considers the Delphi method "a specialized part of the whole field of subjective scaling" (p. 57) and concurs with Sackman on the point that the use of the Delphi technique cannot add to the scientific body of knowledge because it deals with events which because they have not yet occurred, belong rather to the realm of the metaphysics. Yet Pill agrees that rather than do nothing, the Delphi represents an attempt to harness the future, but he cautions that it should be allied with some other form of study using a better tool.

Hill and Fowles (77) think that the method needs definite procedural strengthening to achieve some reliability and validity, particularly in the areas of panel selection, panel attrition. They believe that the validity of the technique is threatened by the pressure to reach a consensus, and mostly by the lack of standardization of the procedure.

Proponents of the Delphi argue that the shortcomings of the technique do not necessarily negate its usefulness and its relative validity. Morris (103) expresses this view elegantly: "we forget that some of the most important steps forward, scientific discoveries or product development have been the result of creative, imaginative leaps which made use of, but not being dictated to by hard facts and figures". He adds that the dynamicity of events and their interdependence to a greater or lesser degree render the objectivity of hard facts more apparent than real".

Examined as a means of communication within a defined group, the validity of the Delphi results has been tested by several experimenters in that context.

Brokhoff tested banking experts through the Delphi and through face-to-face meetings, but abstains from formulating a definite opinion (90).

Mulgrave and Ducanis (90) refuted the argument that the Delphi method reduces or eliminates the psychological forces in effect in face-to-face meetings, and intended to prove that the group median reported in the feedbacks between rounds may have the effect of "perceived authority".

Milkovich et al (98) used the Delphi technique in manpower forecasting and found that the Delphi yielded more accurate results than the conventional regression methods as compared to the actual manpower policy adopted by the firm studied. However, his study does not substantiate the actual policy adopted by the firm as being the optimal policy.

Van de Ven and Delbecq (132) contrasted the effectiveness of the Nominal Group Technique, the Delphi and the interacting group decision-making processes. The Nominal Group technique was a

structured format of idea generation in writing followed by discussion, and silent voting. They found the Nominal Group technique (NGT) superior to the other two, but found the Delphi approximating closely the results of the NGT; the interacting group processes scored poorly, particularly in the generation of ideas. It must be remarked that the NGT was developed by the authors.

Within large organisations, Lachman (86) found that the Delphi technique allows for the formulation of a democratic opinion, thus reduces sharp oppositions. He concludes that the Delphi is a useful management tool, but that it must be used with infinite caution, because the consensus obtained cannot necessarily be equated with an optimal choice.

Amra (7) compared the characteristics of conferences, interviews, controlled sample population polling and computer-assisted meetings with the Delphi technique. These various methods of group interaction processes have their relative advantages, and the selection of the most appropriate method should be made in view of the information sought, the users of this information, and the time and the costs involved. He views that various combinations of these techniques may be productively resorted to.

The Delphi technique is applicable to studies concerned with the future, a future, which in some ways has to be invented. It is particularly used for forecastings which will become provable over time. In such cases the Delphi relies greatly on the theories of the hard and applied sciences, and the scientific nature of the Delphi is made quite obvious by the highly sophisticated cross-impact analyses which are weighting the probabilities of occurrence of certain events, the time sequence of occurrence and their

likely influences upon one another (7, 31, 32, 45, 51, 56, 90). Delphi studies are also used for planning in the fields of manpower, social policy, urban affairs, corporate environment, health and other areas in which intuitive and value judgments as well as personal expectations have great influence. Reliance upon subjectivity appears acceptable because the outcome desired is a form of democratic consensus. The Delphi exercise appears an ideal type of technique in such cases (25, 53, 65, 74, 86, 90, 98). The extensive use of the Delphi in educational settings (48, 90, 140) will no doubt popularize the Delphi as one of the effective methods to communicate within a group. Whereas the method may be thought to be lengthy, the use of the computer will readily alleviate this problem. Computer conferencing, making use of anonymity in order to encourage the generation of ideas and liberated discussions, as well as exploration of the divergences of opinions will likely become the most popular channel for the application of the Delphi technique.

In summary, the Delphi method is an available tool for probing the future through collective intelligence in situations where exact scientific methods are not applicable. Whereas the reliability and the validity of the method are not confirmed, the findings of a Delphi study may be used as guidance and reference in decision-making processes because they represent the considered and pooled opinions of people who are deemed to be knowledgeable in the particular subject, a fact which in comparison renders the alternatives to the Delphi method less encompassing and less thorough. Enzer, quoted by Strauss and Ziegler (123, p. 185) explained that the mission of future research is to "...broaden our time horizons and enable us not only to anticipate long-term changes per se,

but also to see how by controlling such changes we can increase the range of our alternatives....".

Even if one cannot hope to control the forces of change, there is little excuse for not employing all known acceptable means at man's disposition to prepare self for a demanding future of change which will require a high degree of intellectual and psychological adaptability, and for not using discerning judgment in the selection of the possible alternatives.

Any group convinced that it serves a specific social purpose has the responsibility to plan for its future activities. Because of vital interdependence with the other groups in the same arena and upon events which have not yet occurred and may not even have been predicted, such planning cannot use the conventional methods of research and has to rely upon subjective analyses and inferences grounded on the expertise available. The Delphi method seemed the suitable tool to investigate and collect the opinions of the various health occupations as to what future they visualize for the Health Record Administrator group. For simplicity's sake, the postulation of the future of the Health Record Administrator was not made contingent upon the occurrence of any specific events, but related only to very general trends well known in the health field, such as ambulatory care, automation of records and linkage, and integration of the various health sectors.

The findings of this study may eventually be confirmed or denied as the future approaches and phases into present, then becomes past, and they may then serve as bench-marks against which to measure or evaluate past performances, and to use the experience for future planning.

CHAPTER VI.

DELPHI SURVEY OF THE FUTURE ROLE OF THE HEALTH RECORD ADMINISTRATOR
PHILOSOPHY, ASSUMPTIONS AND OBJECTIVES.

The basic philosophy underlying this study is the one professed by the Canadian government and the Canadian society, namely that all Canadians are entitled to the best health care services that can be provided as uniformly and equitably as possible from coast to coast. Whether this entitlement is meant as a right or as a privilege is not relevant to this study.

In this century, organization and management have proven to yield more predictable results than the former authoritarian and arbitrary models, it appears, therefore, rational to anticipate that the efficient organization and management of the health resources will produce better care and more equitable distribution of the health services among the population. The required "nervous system" responsible for the functioning of a well organized health care delivery system of a dependable health information system.

The occupation of Health Record Administrator purports to administer this health information system. In agreement with Tabenhaus (127) that the most promising resource is the manpower that is already there, it would also appear rational that before undertaking the training of a new occupation which would assumedly do a better job of health information management, the existing resource, the Health Record Administrators' group, be evaluated and its training defined in terms of its expected future role.

With the excellent means our society has developed to study and analyze past experiences, it would be unforgivable to approach the future blindly and unarmed. Consequently the present study was

set up and its objectives were defined to be:

- 1) to collect the opinions of the representatives of diverse health occupations as to the functions of the HRA of the future, in terms of the health information services required by their respective disciplines;
- 2) on the basis of the above, outline the future role expected from the HRA by other health occupations.

METHODOLOGY

STRUCTURE OF THE STUDY

A body of opinions had to be collected from the panel about the fundamental question: in terms of their knowledge of the health field and their experience and expertise in their professions as well as in terms of the future developments that would take place in the health field would the panel think that the HRA occupation has a future role to play, and if yes, could they visualize the activities to be performed by the future HRA within specified areas of the health field, such as clinical studies, information systems or health-related agencies.

To insure that the responses would be collatable, and that the major facets of the HRA role would be covered, twenty areas of function were suggested to cover the following aspects of health information management:

- a) working with the medical and allied health staffs;
- b) working with the administration and the government groups;
- c) automation and systematization of health information;
- d) integration of agencies and sectors collecting health information;
- e) responsibility to society and compliance with the law.

For each area of function, the panel would examine the relationship

between the HRA and the particular item, for example HRA and quality of care programs, and if a relationship was perceived to exist, state the activities that were expected from the HRA to render the relationship productive. The panel was requested to favor the criterion of desirability as opposed to feasibility. It was felt that the criterion of feasibility would subordinate the expression of the needs for health information management services to today's reality as opposed to a desired future.

The study was originally designed to have three rounds, but eventually two rounds proved sufficient due to the formation of a spontaneous majority.

The levels of agreement were defined as being:

- a) consensus: that is unanimity, means that 100% of the respondents have agreed on a specific issue (36);
- b) majority means at least 50% of the respondents (36);
- c) plurality means a percentage of respondents at least equal to 20% but less than 50%.

The consistency of responses by individual members was not tested for two main reasons:

- a) total anonymity had been given, the respondents could not be followed for consistency or change between the two rounds.
- b) Rounds 1 and 2 provided very different stimuli to the panel, possibly triggering different responses.

Round 1: Mail contact was made with the prospective panel members. Material presenting the philosophy, the major goal of the study was sent to them along with the instructions and the list of the twenty areas of function which constituted the structure of the

inquiry. (See Appendix 1). This round was to be a brain-storming session in which original contributions were requested. No tangible incentives were offered, but the strictest confidentiality was promised; no response could be traced by anyone to anyone. A sample completed response form is found in Appendix 2. The Random House dictionary and Roget's Thesaurus were used to break down the responses into manageable form. The members of the panel had been requested to use active verbs expressing the behaviors expected from the future HRAs, and the following six categories of activity emerged:

- 1) participate is the key word of this category and describes a role of collaboration and contribution;
- 2) organize expresses a role of initiating, structuring, planning and directing;
- 3) integrate means to link, mediate, coordinate and consolidate;
- 4) advise designates an educational and consultative role;
- 5) evaluate signifies review, monitor, validate, standardize;
- 6) no change from present role.

To allow for greater freedom of expression, a seventh category "Others" was added (See Appendix 3).

The frequencies of responses in each category were computed and fed back to the panel members. As explained in the feedback (Appendix 3), the frequency of responses also indicate the frequency of respondents because only one response per category of activity was credited to each respondent for each area of function, to ease the calculation of plurality, majority or consensus. (See Appendix 3).

Round 2: Based on the feedback of Round 1, a matrix was designed relating the twenty areas of function to the emerged ^{Seven} six categories

and activity; a seventh category titled "Others" allowing freedom of response. (See Appendix 4). The panel was requested to select the three categories of activity felt to be the most important within each of the twenty areas of function and to rank them as choices 1, 2, and 3.

To weight the responses, two self-rating scales were devised:

- a) a three-point scale of expertise adjoined each area of function;
- b) a five-point scale attached at the end recorded the degree of expertise.

A "Not knowledgeable" rating in either scale caused the responses to be eliminated since it was felt that the responses would represent random choices which could have been provided by anyone as opposed to the learned type of responses that were solicited from experts in the health field. (See Appendix 5).

Weighting for the three-point scale and for the three choices was arranged as follows:

	Choice #1	Choice #2	Choice #3
Knowledgeable	3	2	1
Expert	6	4	2

The self-ratings of the five-point scale were used to form subgroups according to their rated expertise and to compare the responses among the groups.

STATISTICS

Simple frequencies of responses were calculated by area of functions and by categories of activity. Percentages relevant to the identification of consensus or of majority were calculated. The self-rating scales were put in a matrix form and the numbers of Knowledgeable and Expert were determined by area of function and category

of activity. Subsequently the responses of Round 2 were weighted and grouped according to the above-mentioned scales, and the responses compared among the various sub-groups. The results are presented in tabular form and are supplemented by graphs where appropriate.

The χ^2 goodness of fit was used to test two hypotheses:

- 1) in Round 2, the responses could have been provided by a random sample of the general population; 2) in Round 2, the panel members indicated their three choices at random.

The percentages of responses by area of function and by categories for Rounds 1 and 2 were tested by the Wilcoxon paired-sample test for the null hypothesis that there were no significant differences in the percentages for the two rounds.

SELECTION OF THE PANEL

The formation of the panel rested on the following assumptions:

- a) the health occupations would recognize that health information services are necessary to them for the performance of their calling;
- b) they would be able to visualize the future and express their needs in terms of health information services;
- c) the selected panel members would responsibly assume representation of their occupations, and recognize that by being invited to become a panel member a certain degree of recognition and of expertise was conferred upon them.

Prospective panel members had to satisfy two basic criteria:

- 1) membership in one of the health occupations and 2) interest in health information.

Three major difficulties arose: a) to ascertain the expertise of the prospective panel members in their respective occupations;

b) to ascertain their interest in health information; c) to insure their impartiality so that they would not be chosen to prove what the coordinator of this study assumedly would want to prove. Firstly, expert was defined to mean an educated and experienced person specializing in one of the health occupations and able to contribute relevant input to the study question. Then all three problems were solved at once by requesting the members of the thesis committee to recommend health professionals who, to their knowledge, enjoy the respect of their peers, therefore, may be termed experts in their respective specialities, and who are known to recognize that health information management is an important issue. Thus the nucleus of the panel was formed to comprise seventeen names.

Then the "snow-ball" technique was used and these prospective panel members were requested to suggest further names, thus a list of forty-five prospective panel members was drawn comprising: eight physicians/clinicians, three medical directors of hospitals, three representatives of health agencies, all three being physicians, five representatives of the federal and the provincial ministries of health of which three were physicians, four representatives of professional associations of which two were physicians, eight hospital administrators, five health professionals in academic positions, five health record administrators, two nurses, one social worker, and one intern.

The single group most heavily represented is the medical profession, the members of which number twenty and form approximately 44% of the panel. Whereas this number may appear large, it must be remarked that the medical profession is vitally dependent on health information. Some care was also given to include in this group

physicians in a variety of positions in the health field as well as have them represent general practice, and the medical and surgical specialties. Many physicians are found in key positions within the health hierarchy where they are at vantage points in overlooking the operation of the health care delivery system, therefore, may foresee and identify future changes. Finally, the willingness of the medical profession to participate in this study was taken as evidence of the importance of the issue.

In terms of geographical distribution, sixteen members were drawn from Ontario, three from the Maritimes, two from Saskatchewan, two from the United States and twenty-two from British Columbia.

Findings:

ROUND 1:

Of the forty-five people contacted, there were 29 respondents to Round 1, and they provided a total of 710 responses, unevenly distributed over the 20 areas of function. These responses were original contributions and reflected the thinking of the members of the panel. After the collation of the raw responses, six categories of activity emerged, a seventh was added, titled "others" (as described under Methodology) and the frequencies of responses for each of the twenty areas of function are reported on Table I for Round 1 and on Table II for Round 2.

The hypothesis that the frequency of responses in Round 2 shows no significant difference from the frequency of responses that would have been given by a random sample of the general population was tested. The alternate hypothesis stated that the frequency of responses observed in Round 2 constituted significant choices. The χ^2 goodness of fit method was used as a measure of agreement or disagreement between observed and expected frequencies. The formula $\chi^2 = \sum_{i=1}^K \frac{(f_i - F_i)^2}{F_i}$ was used, where $K = 20$ areas of function, f_i the frequency of responses observed and F_i the frequency expected in class i , that is 3 choices for each area of function from each of the 25 respondents. The calculations are presented in Appendix 6. With 19 degrees of freedom, at the 0.01 significance level, $\chi^2 = 36.191$; therefore, the χ^2 of 68.088 obtained is not in the critical region. The null hypothesis that the results could have come from the general population was rejected, and the alternative hypothesis accepted.

A second null hypothesis was tested, namely that there is no significant difference between the choices made by the panel members

and those they would have made at random. The alternate hypothesis stated that the respondents expressed specific choices among the categories, assumedly in the light of their expertise. The χ^2 goodness of fit method was used again. The formula is $\chi^2 = \sum_{i=1}^K \frac{(f_i - F_i)^2}{F_i}$ where $K = 7$ categories, f_i the frequency of responses observed, F_i the frequency expected if the responses had been equally distributed among the 7 categories, that is $1195:7 = 170.7$. A χ^2 of 448.083 was obtained (see Appendix 6). At the significance level of 0.01 with 6 degrees of freedom, $\chi^2 = 16.812$. The χ^2 obtained not being in the critical zone, the null hypothesis was rejected and one concluded that, indeed, the respondents discriminated among the categories (Appendix 6).

As only one response was counted per category for each respondent, the frequency of responses indicates also the frequency of respondents (see Methodology P.64 and Appendix 3). For each area of function, the scores of the two leading categories were translated into percentages of respondents and of responses to ascertain the formation of plurality, majority or consensus as defined earlier.

TABLE I

Frequencies of responses and of respondents by area of function
and category of activity

ROUND 1

*Percentage of respondents/Number of responses/respondents/Percentage of Responses

Areas of func- tion	Categories of activity							TOTALS	
	1	2	3	4	5	6	7	Respon- dents	Resp- onses
1	19 66% 31%	16 55% 26%	2	6	11	6	1	29	61
2	15 52% 33%	10 34% 22%	10 34% 22%	9	-	2	-	28	46
3	6	14 48% 33%	17 59% 40%	1	3	-	2	27	43
4	10 34% 29%	4	8 28% 24%	8 28% 24%	2	-	2	26	34
5	6 21% 17%	16 55% 44%	5	3	4	2	-	24	36
6	10 34% 23%	17 59% 39%	9	4	4	-	-	27	44
7	7 24% 18%	15 52% 38%	6	5	5	1	-	22	39
8	13 45% 37%	1	2	4	13 45% 37%	-	2	22	35
9	13 45% 34%	13 45% 34%	6	2	3	1	-	24	38
10	14 48% 47%	4	1	3 10%	4	4	4	22	30
11	-	12 41% 41%	12 41% 41%	2	3	-	-	22	29
12	9 31% 29%	9 31% 29%	5	2	3 10%	3 10%	-	23	31
13	2	11 38% 31%	11 38% 31%	7 20%	4	-	-	22	35
14	3	9 31% 23%	17 59% 44%	6	3	1	-	22	39
15	3 9%	15 52% 44%	-	5	11 38% 32%	-	-	26	34
16	4	12 41% 40%	7 24% 23%	2	3	2	-	25	30
17	4 16%	4	9 31% 36%	3	4	1	-	21	25
18	4	3	17 59% 57%	2 7%	4	-	-	22	30
19	4	5 17% 25%	8 28% 40%	1	2	-	-	19	20
20	1	6	-	13 45% 42%	9 31% 29%	2	-	26	31
Totals	147 21%	196 28%	152 21%	88 12%	95 13%	25 4%	7 1%	29	710

* Percentages are indicated for the two leading categories

N = 29; Consensus = 29; Majority = 15 to 28; Plurality = 9 to 14

TABLE II
Frequencies of responses and of respondents by area of function
and category of activity
ROUND 2

*Percentage of respondents/Number of responses/respondents/Percentage of responses

Areas of function	Categories of activity							TOTALS	
	1	2	3	4	5	6	7	Respon- dents	Resp- onses
1	21 84% 33%	14 56% 22%	9	8	9	2	1	24	64
2	23 92% 34%	11	13 52% 19%	13 52% 19%	6	1	1	25	68
3	12	13 52% 22%	16 64% 27%	7	9	2	-	23	59
4	15 60% 24%	13	11	17 68% 27%	4	1	1	23	62
5	16 64% 27%	20 80% 33%	10	7	6	1	-	25	60
6	20 80% 30%	16 64% 24%	13	10	6	1	-	25	66
7	15 60% 23%	21 84% 33%	12	10	5	1	-	25	64
8	21 84% 34%	4	6	13 52% 21%	13 52% 21%	3	1	24	61
9	17 68% 31%	14 56% 25%	7	13	2	2	-	22	55
10	17 68% 30%	10	3	20 80% 36%	4	2	-	23	56
11	9	16 64% 25%	19 76% 30%	13	6	1	-	25	64
12	19 76% 34%	7 13%	7	8	11 44% 20%	2	2	22	56
13	9	13 52% 24%	10 18%	13 52% 24%	8	2	-	23	55
14	12	8 13%	16 64% 26%	16 64% 26%	8	1	-	23	61
15	15 60% 22%	23 92% 34%	2	14	12 18%	-	1	25	67
16	12 48% 22%	16 64% 29%	12 48% 22%	7	6	1	1	23	55
17	16 64% 26%	11	16 64% 26%	11	8	-	-	24	62
18	10	10	17 68% 31%	11 44% 20%	6	1	-	23	55
19	9	10 40% 19%	17 68% 31%	7	8	2	1	22	54
20	8	9	4	17 68% 33%	9 36% 18%	4	-	21	51
Totals	296 25%	259 22%	220 18%	234 20%	146 12%	30 2%	9 1%	25	1195

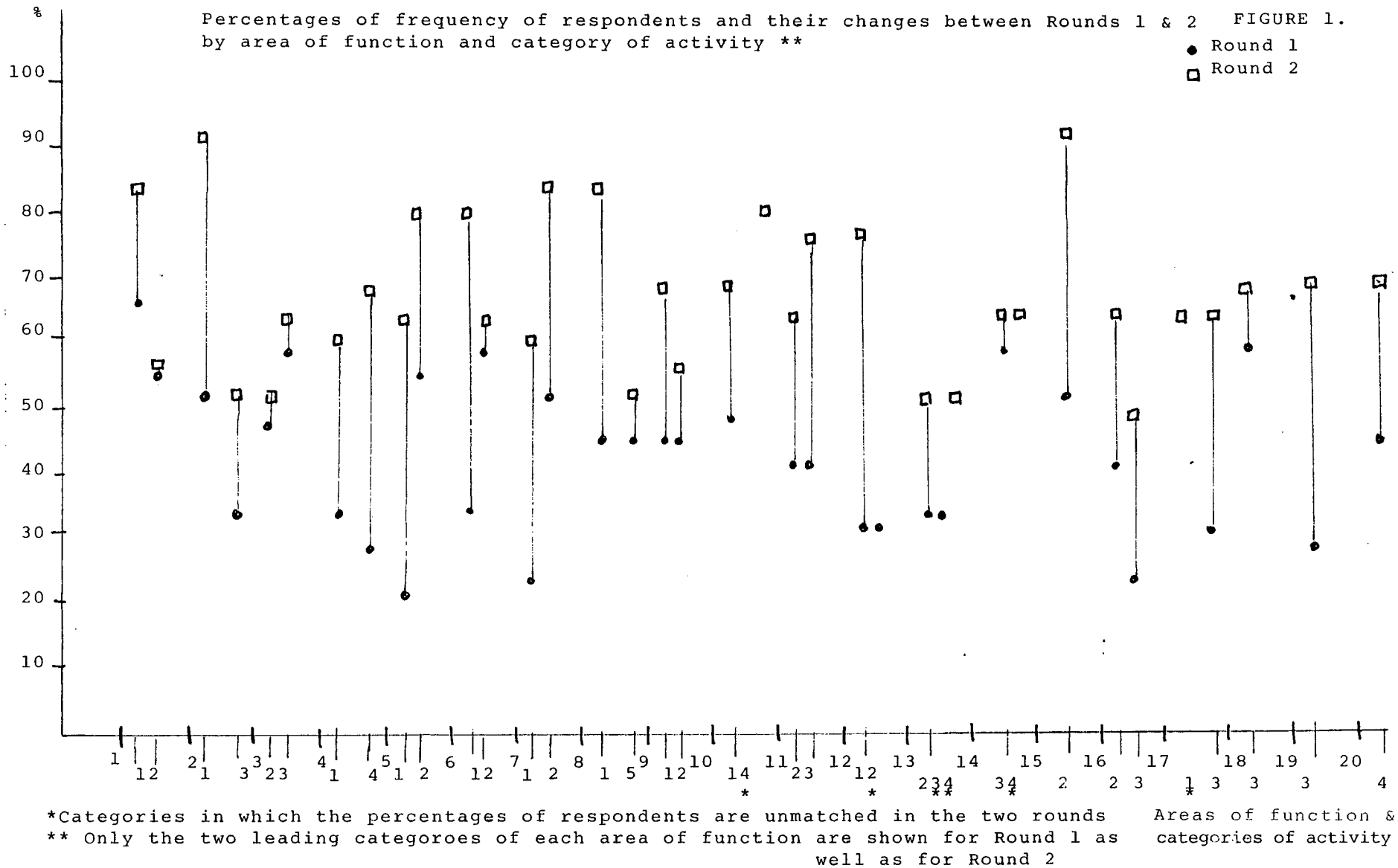
*Percentages are indicated only for the two leading categories.

N = 25; Consensus = 25; Majority = 13 to 24; Plurality = 8 to 12.

The percentages of respondents by area of function and category of activity and their changes from Round 1 to Round 2 are portrayed on Figure 1. The percentages vary greatly between the two rounds, strongly culminating in Round 2, and reaching majority in all instances but one in area of function #16, where categories of activity 1 and 3 were selected by only 48% of the respondents. Only one or two leading categories are shown for each area of function, a total of 37 categories. Consistently the same categories of activity attracted the highest percentages of respondents in Rounds 1 and 2, with the exception of area #10, category 4. Figure 2 compares the percentages of responses in Rounds 1 and 2 by area of function and category of activity. Again, only the one or two leading categories are indicated for each area of function, resulting in a total of thirty-nine categories. It can readily be noticed that there is consistency in the selection of the categories. In thirty-three instances, the panel selected the same categories in Rounds 1 and 2 even though the stimuli for Rounds 1 and 2 were considerably different.

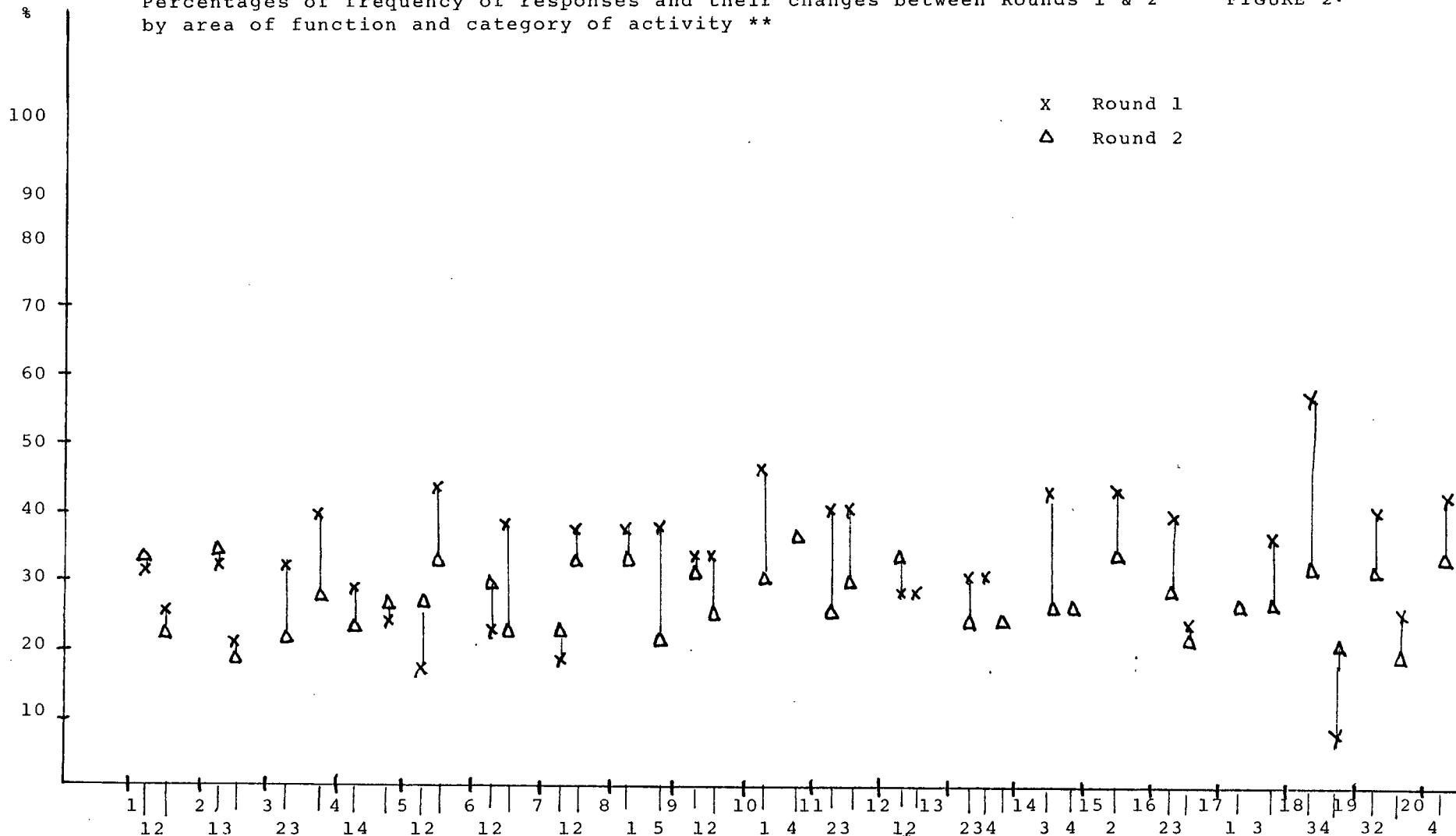
To test if the differences between rounds in the percentages of responses by area of function and by category of activity were statistically significant, the Wilcoxon-paired sample test was conducted (See Appendix 7).

In a two-tailed hypothesis, the critical value of T at the 0.05 significance level, with 43 degrees of freedom, is 310. The value of the T obtained is 370; therefore, T is not in the critical region, and the null hypothesis was not rejected, and the differences in percentages were not considered to be statistically significant. Although consensus was not reached, either majority or plurality were demonstrated in both rounds. Furthermore, the



Percentages of frequency of responses and their changes between Rounds 1 & 2
by area of function and category of activity **

FIGURE 2.



*Categories in which the percentages of responses are unmatched in the two rounds Areas of function &

** Only the two leading categories of each area of function are shown for categories of activity
Round 1 as well as for Round 2.

consistency in the percentages of responses and in the selection of the categories lead one to think that there was nothing to gain by a third round, as consensus was not a dominant goal of the study. Overall results show that in Round 1 (Table I), all 29 respondents addressed themselves to area #1, HRA and Quality of Care Programs, giving this area the greatest number of responses: 61 (Table I, top row, Totals). With respect to the categories of activity, category 2, Organize, captured the largest percentage of responses, 28%; categories 1, Participate, and 3, Integrate, received each 21% of the responses (Table I, bottom row).

In Round 2 (Table II), all 25 respondents addressed themselves to areas #2, HRA and Research and Studies, #5, HRA and Health Information Systems, #6, HRA and Computerized Records, #7, HRA and Health Information Linkage, #11, HRA and Admitting and other Health Record-keeping departments, and #15, HRA and Confidentiality. The highest number of responses, 68, was received by area #2, HRA and Research and Studies (Table II, right hand side Totals). With respect to the categories of activity, category 1, Participate, captured the highest percentage of responses: 25%, category 2, Organize, was second with 22% (Table II, bottom row).

Round 2 was provided with two scales of self-assessment: in addition to the three-point scale attached to each area of function, a five-point scale measuring the degree of expertise in Health Record Administration was attached to Round 2 tasks, and this latter scale was used to subdivide the panel into three groups. As reported earlier (see Methodology P.64) groups 1 and 2 were eliminated, therefore, only groups "Knowledgeable 3", "Knowledgeable 4", and "Expert 5", were studied. Appendix 5 indicates the number of respondents in each subdivision, and the shaded area shows the res-

THERE IS NO PAGE. 79

ponses eliminated. In nineteen areas of function, the Knowledgeable group is the most numerous; the exception is area of function 13, HRA and Schools and Industries Health Records, where 13 members indicated that they were Not Knowledgeable. The Expert classification was used sparingly by the panel members and totals only 73 self-ratings distributed over the twenty areas of function. Three areas have only one Expert each, #12, HRA and Cost-effectiveness, #14, HRA and Health Agencies, and #20, HRA and Health Law. The area of function displaying the largest number of Experts is area #6, HRA and Computerized Records, with a total of 7 Experts.

Tables III, IV and V report the number of responses, the weighted responses and the percentages of weighted responses by each area of function and category of activity for each of the three groups. The group "Knowledgeable 3" (Table III) was composed of 9 members. The areas of function receiving the highest number of responses, 25 out of a possible 27, were: #1, HRA and Quality of Care Programs, #11, HRA and Admitting and other Health Record-Keeping Departments, and #15, HRA and Confidentiality. In terms of weighted responses, area #6, HRA and Computerized Records, is leading with a score of 72. (Table III, right side Totals).

The graphic display in Figure 3 illustrates the detailed results, and also shows that in most areas of function the opinions of the panel as to desirable activity were quite distributed over the categories. The area attracting the highest percentage of weighted responses is seen to be area #2, HRA and Research and Studies, in which category of activity 1, Participate, was rated to be the most important (Fig. 3).

TABLE III
GROUP KNOWLEDGEABLE 3
Percentages of weighted responses by areas of function
and categories of activity
Number of responses/Weighted Responses/Percentage of Weighted Responses

Areas of function	Categories of activity							TOTALS
	1	2	3	4	5	6	7	
1	9/25/42	5/13/22	2/4/7	4/10/17	4/5/8	1/2/3	-	25/59/100%
2	9/28/56	3/6/12	6/8/16	5/7/14	1/1/2	-	-	24/50
3	3/4/10	4/10/24	7/17/40	2/5/12	4/5/12	1/1/2	-	21/42
4	6/16/30	4/10/19	4/8/15	7/15/28	1/1/2	1/3/6	1/1/2	24/54
5	4/12/22	5/16/29	5/16/29	3/6/11	1/2/4	1/3/5	-	19/55
6	6/23/32	6/24/33	3/14/9	2/6/8	2/5/7	-	-	19/72
7	4/12/24	6/19/38	3/12/24	3/7/14	-	-	-	16/50
8	8/20/37	1/2/4	2/2/4	4/12/22	6/14/26	2/4/7	-	23/54
9	4/10/24	4/14/34	2/3/7	4/12/29	-	1/2/5	-	15/41
10	4/12/27	2/8/18	2/5/11	5/15/33	1/1/2	1/4/9	-	15/45
11	3/8/12	5/18/27	8/22/33	5/12/18	3/4/6	1/2/3	-	25/66
12	5/11/31	3/7/19	2/3/8	1/2/6	2/3/8	1/6/17	1/4/11	15/36
13	1/1/4	2/5/22	2/6/26	3/6/26	2/2/9	1/3/13	-	11/23
14	2/2/7	2/5/19	3/9/33	3/6/22	2/2/7	1/3/11	-	13/27
15	5/12/17	8/27/38	2/7/10	5/10/14	5/15/21	-	-	25/71
16	4/8/23	6/13/37	5/12/34	1/1/3	1/1/3	-	-	17/35
17	5/10/21	3/11/23	6/15/32	3/6/13	3/5/11	-	-	20/47
18	2/2/6	2/4/12	6/16/48	3/7/21	2/2/6	1/2/6	-	16/33
19	1/3/14	2/4/19	4/11/52	1/1/5	2/2/10	-	-	10/21
20	1/1/3	2/4/14	5/14/48	5/9/31	1/1/3	-	-	14/29
TOTALS	86/220/24	75/220/24	79/204/22	69/155/17	43/71/8	13/35/4	2/5/1	367/910

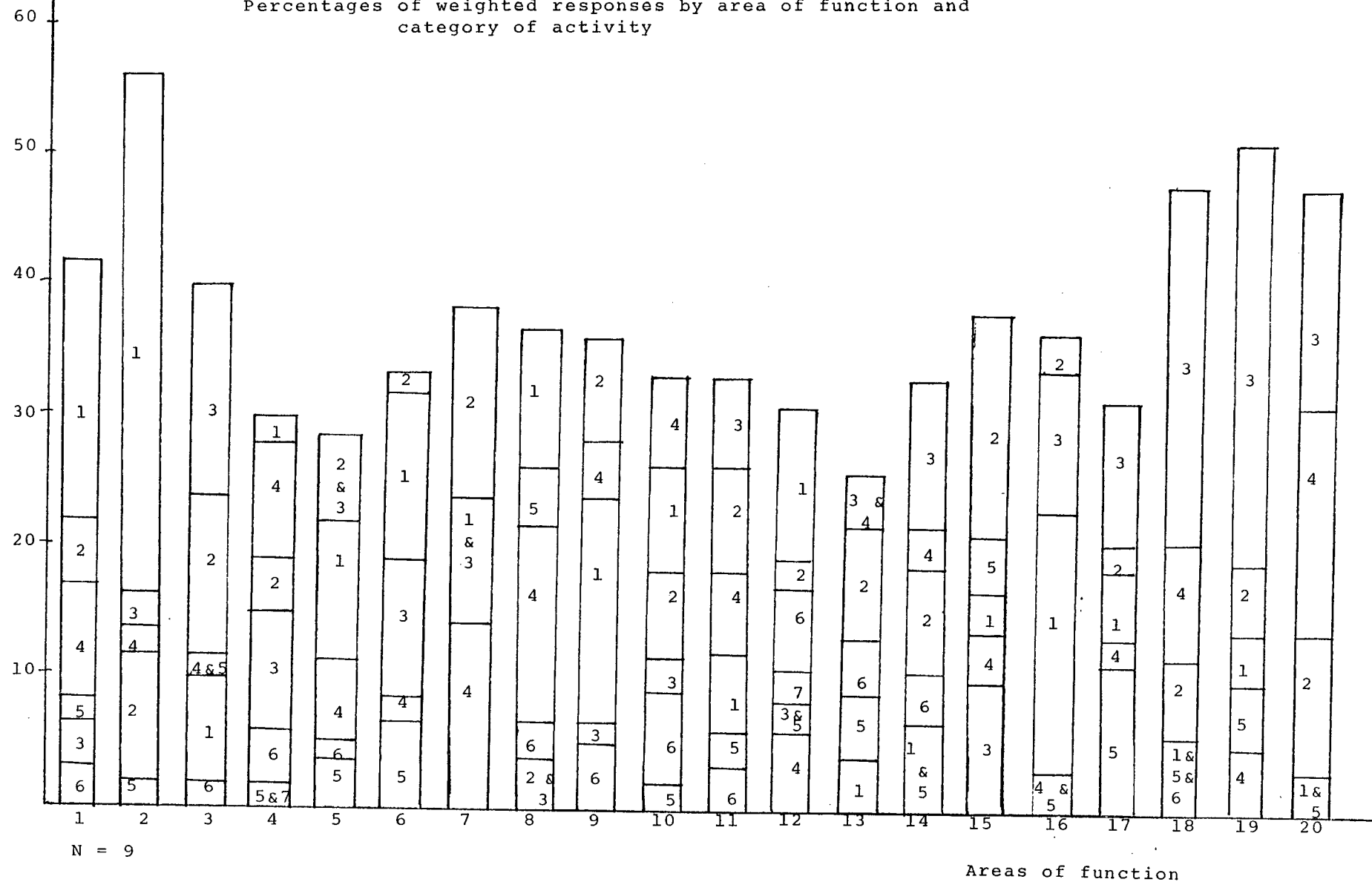
N = 9

% of weighted
reponses

GROUP KNOWLEDGEABLE 3

FIGURE 3.

Percentages of weighted responses by area of function and
category of activity



Overall, this group rated categories 1 and 2, Participate and Organize, of equal importance giving these 24% of the weighted responses; Category 3, Integrate, followed with 22% of the weighted responses. (Table III, bottom row).

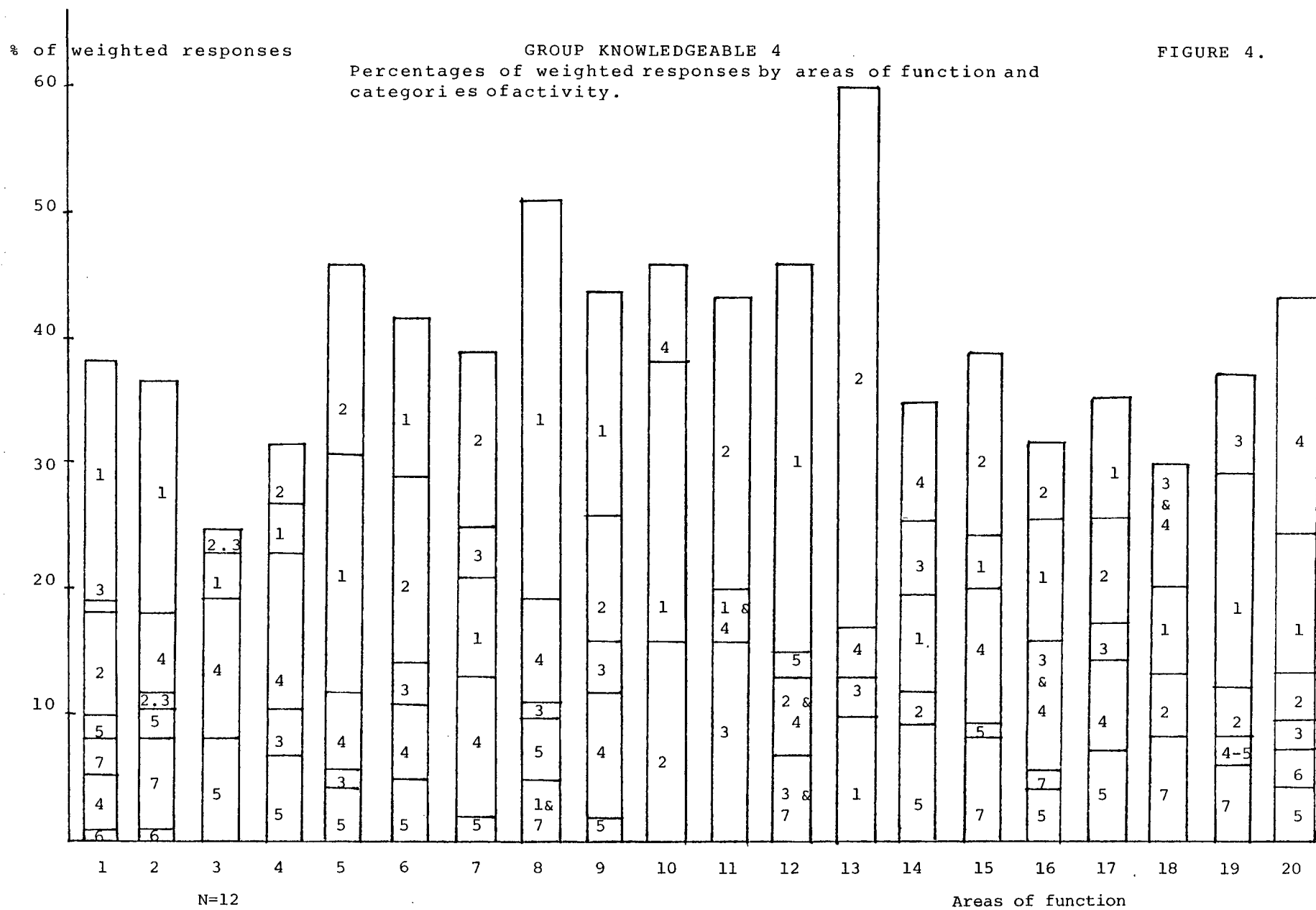
The group "Knowledgeable 4"; (Table IV) was composed of 12 members, therefore, each area of function could possibly attract 36 responses. The area with the highest number of responses is #15, HRA and Confidentiality, with 30 responses. With respect to the weighted scores, area #15, HRA and Confidentiality leads with a score of 76. (Table IV, right side totals). Figure 4 displays the percentages of weighted responses by categories of activity for each area of function. This group gave the highest percentage of responses to area #13, HRA and Schools and Industries Health Records, with category 2, Organize, as the most important activity to be carried out by HRAs.

TABLE IV
GROUP KNOWLEDGEABLE 4
Percentages of weighted responses by area of function
and category of activity

Number of Responses/Weighted Responses/Percentage of Weighted Responses

Areas of function	Categories of activity							TOTALS
	1	2	3	4	5	6	7	
1	9/27/38	6/13/18	6/14/19	2/4/6	4/7/10	1/1/1	1/6/8	29/72/100%
2	9/27/37	4/9/12	2/9/12	5/13/18	5/8/11	1/1/1	1/6/8	27/73
3	5/15/23	5/16/25	5/16/25	4/12/19	3/5/8	-	-	22/64
4	5/12/27	5/14/32	4/5/11	5/10/23	1/3/7	-	-	20/44
5	8/20/31	10/30/46	3/4/6	4/8/12	3/3/5	-	-	28/65
6	9/28/42	8/19/29	6/9/14	3/7/11	2/3/5/	-	-	28/66
7	5/12/21	8/22/39	5/14/25	4/7/13	1/1/2	-	-	23/56
8	11/32/51	1/3/5	3/7/11	6/12/19	4/6/10	-	1/3/5	26/63
9	8/22/44	6/13/26	3/8/16	4/6/12	1/1/2	-	-	22/50
10	9/26/38	6/11/16	-	10/31/46	-	-	-	25/68
11	4/10/20	8/21/43	6/8/16	4/10/20	-	-	-	22/49
12	9/21/46	2/6/13	2/3/7	4/6/13	3/7/15	-	1/3/7	21/46
13	2/3/10	7/18/60	2/4/13	2/5/17	-	-	-	13/30
14	5/8/19	3/5/12	4/11/26	6/15/35	2/4/9	-	-	20/43
15	8/18/24	11/30/39	-	6/15/20	4/7/9	-	1/6/8	30/76
16	5/13/26	6/16/32	3/8/16	2/8/16	2/2/4	-	1/3/6	19/50
17	5/15/35	4/11/26	4/8/17	3/6/14	2/3/7	-	-	18/43
18	3/8/20	2/5/13	5/12/30	4/12/30	-	-	1/3/8	15/40
19	6/14/29	3/6/12	7/18/37	3/4/8	3/4/8	-	1/3/6	23/49
20	5/11/24	3/6/13	4/4/9	7/20/43	1/2/4	1/3/7	-	21/46
TOTAL	130/342/31	108/274/25	74/162/15	88/211/19	41/66/6	3/5/0	8/33/3	452/1093

N = 12.



Overall, this group rated category 1, Participate, the highest, giving it 31% of the weighted responses; category 2, Organize, was second with 25% of the weighted responses. (Table IV, bottom row). The Expert 5 group was composed of two members only, and all the twenty areas of function received the maximum six responses. Five areas of function received the highest weighted score of 24, because both panel members coded "Expert 3" on the self-rating scales; the areas are #1, HRA and Quality of Care Programs, #2, HRA and Research and Studies, #9, HRA and Management, Institutional and Departmental, #11, HRA and Admitting and other Health Record-Keeping Departments and #15, HRA and Confidentiality. (Table V, right side Totals).

As seen on Figure 5, the percentages of weighted responses reach the 50% mark in six areas of function; #3, HRA and Ambulatory and Home Care Programs, #5, HRA and Health Information Systems, #10, HRA and Policy Formulation re Health Information, #15, HRA and Confidentiality, and #19, HRA and Preventive Care.

GROUP EXPERT 5

Percentages of weighted responses by area of function
and category of activity

Number of Responses/Weighted Responses/Percentage of Weighted Responses

Areas of func- tion	Categories of activity							TOTALS
	1	2	3	4	5	6	7	
1	1/6/25	2/10/42	1/2/8	2/6/25	-	-	-	6/24/100%
2	1/6/25	2/8/33	1/8/33	1/2/8				6/24
3	1/2/11	2/9/50	1/4/22	1/1/6	1/2/11			6/18
4	1/2/11	2/7/39	-	2/5/28	1/4/22			6/18
5	1/2/11	2/9/50	2/3/17	-	1/4/22			6/18
6	1/3/17	-	2/5/28	2/4/22	1/6/33			6/18
7	1/3/17	1/2/11	1/2/11	2/5/28	1/6/33			6/18
8	1/3/17	1/2/11	1/1/6	1/4/22	2/8/44			6/18
9	2/10/42	2/10/42	2/4/17					6/24
10	2/6/33	2/9/50		2/3/17				6/18
11	-	2/10/42	1/6/25	1/2/8	2/6/25			6/24
12	1/1/8	1/3/25	2/4/33	2/4/33				6/12
13	1/1/6	1/2/11	2/8/44	1/3/17	1/4/22			6/18
14	-	1/3/17	2/8/44	2/3/17	1/4/22			6/18
15	-	2/12/50	-	2/6/25	2/6/25			6/24
16	-	2/5/28	2/6/33	1/1/6	1/6/33			6/18
17	1/1/6	1/3/17	1/4/22	2/4/22	1/6/33			6/18
18	1/2/11	2/5/18	1/4/22	1/1/6	1/6/33			6/18
19	1/2/11	2/9/50	1/1/6	1/4/22	1/2/11			6/18
20	-	2/3/17	-	2/9/50	2/6/33			6/18
TOTAL	17/50/13	32/121/32	23/70/18	28/67/17	20/76/20			120/384

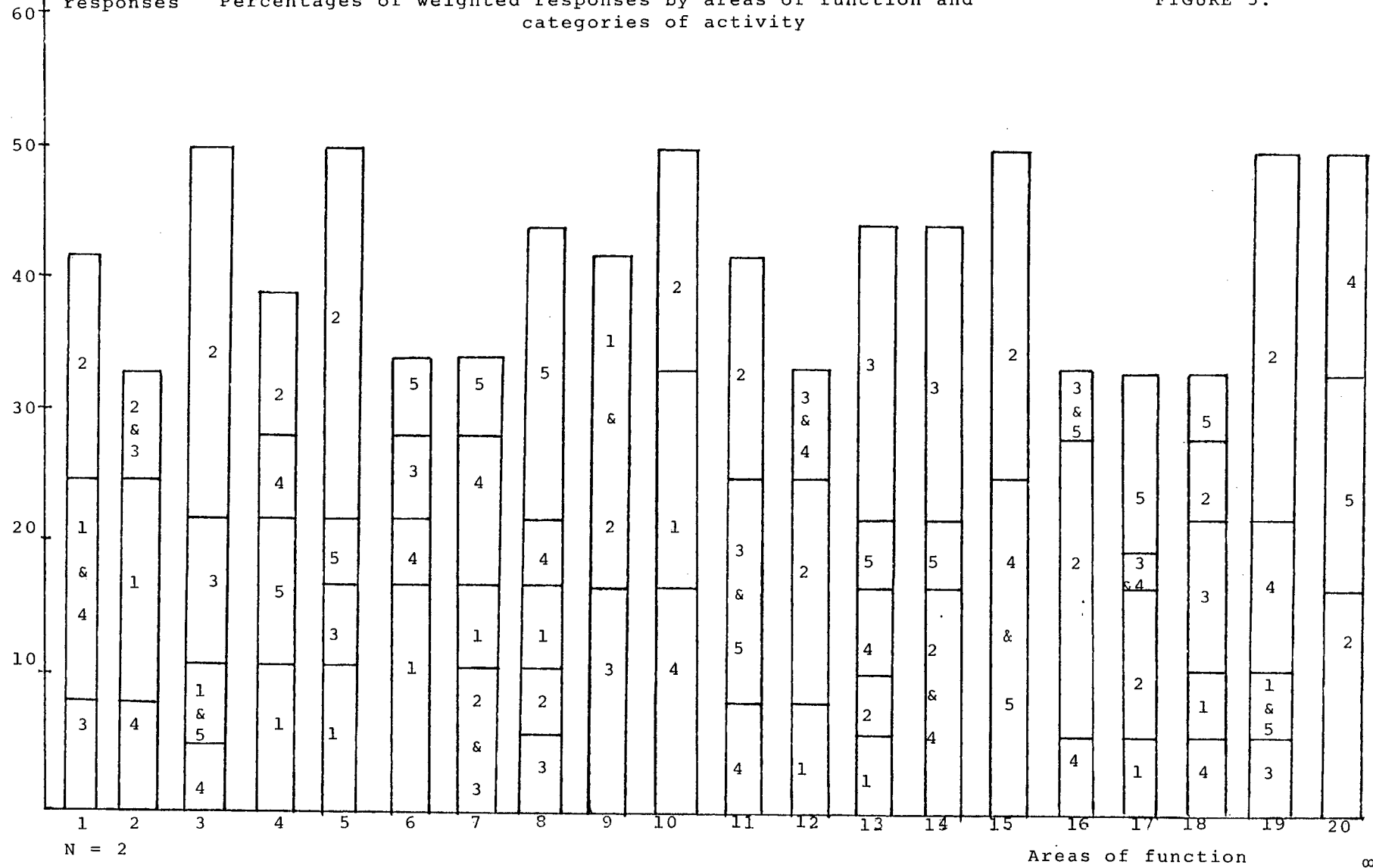
N = 2

GROUP EXPERT 5

% of weighted
responses

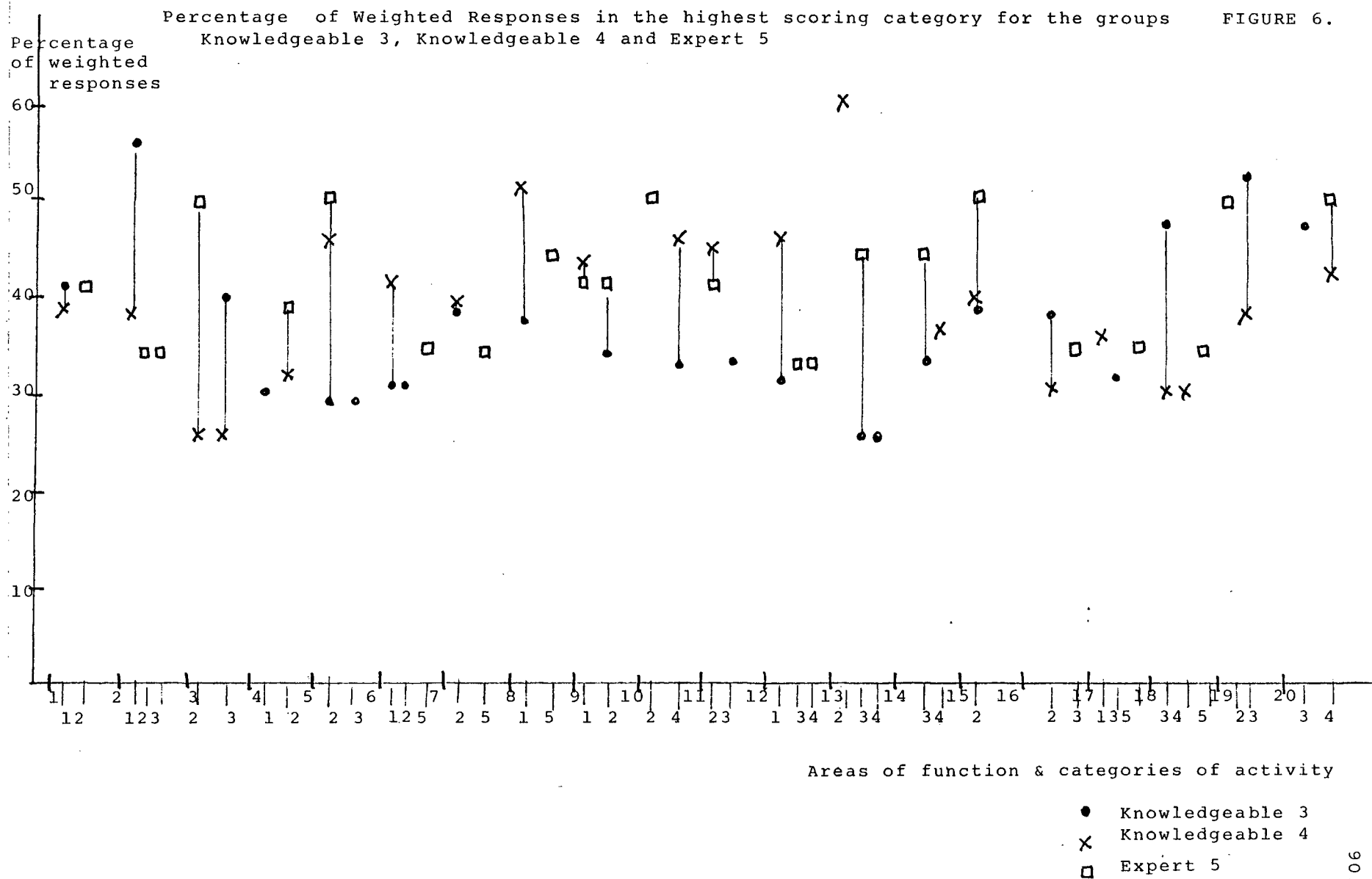
Percentages of weighted responses by areas of function and
categories of activity

FIGURE 5.



Overall, the group rated category 2, Organize, highest by giving 32% of the weighted responses to it; next was category 3, Integrate, which received 18% of the weighted responses. (Table V, bottom row). Figure 6 portrays the percentages of weighted responses for the leading category of each area of function for each one of the three groups. In two areas of function, all three groups selected the same category 2, Organize; area #5, HRA and Health Information Systems, and area #15, HRA and Confidentiality. In the remaining eighteen areas, at least two of the groups chose the same categories; in ten of these areas, groups Knowledgeable 3 and 4 agreed in their choices; in five areas, groups Knowledgeable 4 and Expert 5 agree; in three areas group Knowledgeable 3 and Expert 5 agree..

Within the group Expert 5 the most powerful combination of Expert 5 in Health Record Administration and Expert 3 in some specific areas of function will be found. The choices of this Top Expert group is portrayed on Table VI. In five areas of function both members rated themselves Expert, and these are asterisked on Table VI. None of the two members considered themselves Expert in area of function 12, HRA and Cost Effectiveness. Overall the selection of category of activity 2, Organize, as being the most important can be quickly observed. Another observation is the selection of category 5, Evaluate, in all but four of the twenty areas of function.



TOP EXPERT
 Selections of Expert 5 in combination with
 self-rating 3 Expert in areas of function

Area of function	Categories of activity				
	Parti- cipate	Organize	Integrate	Advise	Evaluate
1* HRA and Quality of Care Programs	2	1		2	
2* H.R.A. and Research and Studies	3	1	1		
3 HRA and Ambulatory and Home Care Programs		1	2		3
4 HRA and Allied Health Professions		1		3	2
5 HRA and Health Information Systems		1	3		2
6 HRA and Computerized Records			2	3	1
7 HRA and Health Information Linkage			3	2	1
8 HRA and Accreditation		3		2	1
9* HRA and Management, Institutional & Departmental	1	1	3		
10 HRA and Policy Formulation re Health Information	2	1		3	
11* HRA and Admitting & other health record-keeping depts.		1	2		2
12 HRA & Cost-effectiveness	-	-	-	-	-
13 HRA & Schools and Industries Health Records		3	1		2
14 HRA & Health Agencies			1	3	2
15* HRA & Confidentiality		1		2	2
16 HRA & Government Reporting		3	2		1
17 HRA & Vital Statistics			2	3	1
18 HRA & Public Health		3	2		1
19 HRA & Preventive Care		1		2	3
20 HRA & Health Law		3		2	1

*Both members indicated Expert 3 on the three-point rating scale measuring expertise in each area of function.

In summary, the results of the combination of all three groups are presented on Table VII. From this table, it can be noted that no category of activity attracted all of the 23 respondents to achieve a perfect consensus. The highest number of 31 respondents is found in category 2, Organize, of area #15, HRA and Confidentiality; next follows category 1, Participate, of areas 1 and 2, HRA and Quality of Care Programs and HRA and Research and Studies respectively with 19 respondents.

The final ranking of the twenty areas of function on the basis of their weighted scores is presented as Table VIII. The table also indicates the two categories of activity selected by the panel as being the most important, and the respective percentages of weighted responses assigned to them. The area of function rated first is #15, HRA and Confidentiality and Organize is the major activity expected with 40% of the weighted responses. The second area of function is #6, HRA and Computerized Records, with Participate being designated as the expected activity. The third area is #1, HRA and Quality of Care Programs, with Participate being the main activity.

At the other end of the scale, area #13, HRA and Schools and Industries Health Records, was rated the least important.

With regard to the categories of activity, categories 1 and 2, Participate and Organize respectively were rated equally, each receiving 26% of the weighted responses. Similarly, categories 3 and 4, Integrate and Advise, received an equal percentage of the weighted responses: 18%. Evaluate received only 9% of the weighted responses.

TABLE VII
ALL THREE GROUPS
Number of responses/weighted Responses/Percentage of Weighted Responses

Areas of function	Categories of activity							TOTALS
	1	2	3	4	5	6		
1	19/58/37	13/36/23	9/20/13	8/20/13	8/12/8	2/3/2	1/6/4	60/155
2	19/61/41	9/23/16	9/25/17	11/22/15	6/9/6	1/1/1	-	57/147
3	9/21/17	11/35/28	13/37/30	7/18/15	8/12/10	1/1/1	-	49/124
4	12/30/26	11/31/27	8/13/11	14/30/26	3/8/7	1/3/3	1/1/1	50/116
5	13/34/25	17/55/40	10/23/17	7/14/10	5/9/7	1/3/2	-	53/138
6	16/54/35	14/43/28	11/28/18	7/17/11	5/14/9	-	-	53/156
7	10/27/22	15/43/35	9/28/23	9/19/15	2/7/6	-	-	45/124
8	20/55/41	3/7/5	6/10/7	11/28/21	12/28/21	2/4/3	1/3/2	55/135
9	14/42/37	12/37/32	7/15/13	8/12/16	1/1/1	1/2/2	-	43/115
10	15/44/34	10/28/21	2/5/4	17/49/37	1/1/1	1/4/3	-	46/13
11	7/18/12	15/49/35	15/36/26	10/24/17	5/10/7	1/2/1	-	53/139
12	15/33/35	6/16/17	6/10/11	7/12/13	5/10/11	1/6/6	2/7/7	42/94
13	4/5/7	10/25/35	6/18/25	6/14/20	3/6/8	1/3/4	-	30/71
14	7/10/11	6/13/15	9/28/32	11/24/27	5/10/11	1/3/3	-	39/88
15	13/30/18	21/69/40	2/7/4	13/31/18	11/28/16	-	1/6/4	61/171
16	9/21/20	14/34/33	10/26/25	4/10/10	4/9/9	-	1/3/3	42/103
17	11/26/24	8/25/23	11/27/25	8/16/15	6/14/13	-	-	44/108
18	6/12/13	6/14/15	12/32/35	8/20/22	3/8/9	-	1/3/3	37/91
19	8/19/22	7/19/22	12/30/34	5/9/10	6/8/9	-	1/3/3	39/88
20	6/12/13	7/13/14	9/18/19	14/38/41	4/9/10	1/3/3	-	41/93
Totals	233/612/26	215/615/26	176/436/18	185/433/18	104/213/9	16/40/2	10/38/2	939/2387

N = 23

TABLE VIII
ALL THREE GROUPS
Ranking of the areas of function by weighted responses

RANK	Areas of function	Most important categories of activity			
		% - age		% - age	
1	15 HRA and Confidentiality of Health Information	Organize	40	Participate Advise	18 18
2	6 HRA and Computerized Records	Participate	35	Organize	28
3	1 HRA and Quality of Care Programs	Participate	37	Organize	23
4	2 HRA and Research and Studies	Participate	41	Integrate	17
5	11 HRA and Admitting and other health record-keeping departments	Organize	35	Integrate	26
6	5 HRA and Health Information Systems	Organize	40	Participate	25
7	8 HRA and Accreditation	Participate	41	Advise Evaluate	21 21
8	10 HRA and Policy Formulation re health information	Advise	37	Participate	34
9	3 HRA and Ambulatory and Home Care Programs	Integrate	30	Organize	28
10	7 HRA and Health Information Linkage	Organize	35	Integrate	23
11	4 HRA and Allied Health Professions	Organize	27	Participate Advise	26 26
12	9 HRA and Management, Institutional and Department	Participate	37	Organize	32
13	17 HRA and Vital Statistics	Integrate	25	Participate Organize	24 23
14	16 HRA and Government Reporting	Organize	33	Integrate	25
15	12 HRA and Cost-effectiveness	Participate	35	Organize	17
16	20 HRA and Health Law	Advise	41	Integrate	19
17	18 HRA and Public Health	Integrate	35	Advise	22
18	14 HRA and Health Agencies	Integrate	32	Advise	27
19	19 HRA and Preventive Care	Integrate	34	Participate Organize	22 22
20	13 HRA and Schools and Industries Health Records	Organize	35	Integrate	25

On Table IX, the selections made by the Top Expert group (Table VI) are compared with those made by the three groups combined (Table VIII). The comparison has not yielded much valuable information. In twelve areas of function, only two categories could be matched, and only in three areas of function did the three choices of the two groups match in terms of category, but not in terms of ranking.

TABLE IX

Comparison between the choices made by the Top Experts
and those made by All Three Groups

Area of function	Expert 3 Groups	Categories of activity				
		Parti- cipate	Organize	Integrate	Advise	Evaluate
1 HRA & Quality of Care Programs	E 3	2 1	1 2	3	2 3	
2 HRA & Research and Studies	E 3	3 1	1 3	1 2		
3 HRA & Ambulatory & Home Care Programs	E 3	3	1 2	2 1		3
4 HRA & Allied Health Professions	E 3	2	1 1		3 2	2
5 HRA & Health Information Systems	E 3	2	1 1	3 3		2
6 HRA & Computerized Records	E 3	1	2	2 3	3	1
7 HRA & Health Information Linkage	E 3	3	1	3 2	2	1
8 HRA and Accreditation	E 3	1	3		2 2	1 2
9 HRA & Management, Institutional & Departmental	E 3	1 1	1 2	3	3	
10 HRA and Policy Formulation re Health information	E 3	2 2	1 3		3 1	
11 HRA & Admitting & other health-record-keeping departments	E 3		1 1	2 2	3	2
12 HRA and Cost effectiveness	E 3	- 1	- 2	-	- 3	-
13 HRA and Schools and Industries Health Records	E		3 1	1 2	3	2
14 HRA and Health Agencies	E 3		3	1 1	3 2	2
15 HRA & Confidentiality	E 3	2	1 1		2 2	2
16 HRA and Government Reporting	E 3	2	3 1	2 3		1
17 HRA & Vital Statistics	E 3	2	3	2 1	3	1
18 HRA and Public Health	E 3		3 3	2 1	2	1
19 HRA and Preventive Care	E 3	2	1 2	1	2	3
20 HRA and Health Law	E 3		3 3	2	2 1	1

DISCUSSION

One positive finding is that 64% of the people contacted responded, even though Round 1 was inquisitive and time-consuming. The panel members contributed generously with their thoughts. One could interpret this cooperation as being commensurate with the interest the respondents bore to the issue at hand. Due to the high degree of confidentiality maintained in this study, the exact make-up of this group in relation to the disciplines invited is not known. The 9% attrition that occurred in Round 2 is difficult to explain, particularly since the task was simpler and less time-consuming than in Round 1. One may conjecture that some members of the panel felt that they had sufficiently shared their views in Round 1; others may have objected to the forced-choice technique of Round 2; others again may not have associated themselves very strongly with the topic. However, this attrition-event is not specific to this study, and is well documented in the Delphi literature as one of the weaknesses of the method.

Another interesting finding of this study is that from the twenty areas of function suggested to structure the responses to Round 1, none were discarded as non-relevant by the panel in spite of the fact that few of these functions are part of today's Health Record Administrators' role. True, one or two members could not visualize the HRA in one or two of these areas, and indicated definite response of "not applicable", which was duly recorded under "No change". One could assume that by responding the respondents acknowledged health information as being vital to all twenty areas of function, and recognized the need for competent information management services. Those twenty areas are by no means all encompassing, yet no other area of function was added,

perhaps because the twenty suggested represented already a monumental development.

The collapsing technique used to collate the responses in Round 1 did not preserve some of the panel's contributions. Two central ideas could not thus be projected. The first one is that the responses were made contingent on a considerable improvement in the education of the HRA. If one chooses to be optimistic, one could interpret this contingency clause as expressing that there is, at least to the belief of the panel, some potential for development in the HRA occupation.

The other central idea was that the HRA of the future should be working on the ward "where the action is". The ward is the forum of the health occupations' activities; it is the place where the information is generated, transmitted to those who need it to give prompt and appropriate care to the patient; the ward is where the information should be evaluated, amended if necessary, coded and used for prospective analyses and studies. This new concept will be discussed further in the presentation of the future role of the HRA.

With respect to consensus or unanimity as it was operationally defined, this was not reached, but then, it was not an important objective of this study. The early majority that developed in eight areas of function in Round 1, and the plurality noted in the remaining twelve were consolidated into a solid majority in Round 2 over the twenty areas of function, reaching the 80% or higher in eight areas (see Fig. 1); particularly outstanding were areas #2, HRA and Research and Studies, and #15, HRA and Confidentiality, both attracting 92% of the respondents. One possible reason for this great increase in percentages by category of activity could be

that the task of selecting among alternatives may have appeared easier than the task of contributing original thoughts; in that sense one may assume that the matrix of Round 2 provided some easy slots to the respondents. In examining the percentages of responses in Figure 2, it can be noted that almost all the percentages for Round 2 are lower than those for Round 1, that is, show a trend reverse to that of the percentages of respondents. Three possible reasons are submitted to explain this phenomenon:

- a) in Round 1, a respondent could contribute at least to six categories in each area of function; only a contribution to the category "No change" would preclude any other. In Round 2, the respondents could make three choices only, therefore, the total possible number of responses was greatly reduced.
- b) because of the forced-choice situation set up in Round 2, some respondents experienced difficulties in making their selections; some individuals indicated one choice only, or perhaps two.
- c) most members rating selves "Not knowledgeable" in a specific area of function would enter no choice for that area; furthermore, as mentioned in the methodology section, the responses given by "Not Knowledgeable" respondents were eliminated. Points b) and c) may argue favorably against the slot hypothesis. Furthermore, the following null hypotheses had been tested by the χ^2 goodness of fit method:

- 1) the responses to round 2 could have been provided by a random selection of the general population;
- 2) the members of the panel assigned their choices at random, and were duly rejected.

And finally, the self-rating scale attached to each area of function would prevent handy-slotted choices on self-esteem basis.

Some areas of function definitely attracted more responses than others, for example #15, HRA and Confidentiality, was rated the most important and this choice seems to assign a social importance to the future role of the HRA, perhaps indicating the emergence of a trust relationship between the HRA and the public. Some trends noticeable in today's social life may support the possibility of such a relationship developing in the future. One of the trends is that the public is more and more allowed to access their own hospital records, thus may develop a gradual association with the HRA occupation, an association in which it will be asked to place its trust in the HRA for the safeguarding of the privileged information. Another trend is an intensifying public demand for protection against the tampering with information that is collected about individuals by other individuals and/or organizations; this demand for privacy is particularly emphatic with regard to health information. In Ontario, a Royal Commission on the Confidentiality of Health Records has been called to investigate the subject. Semi-officially reported preliminary findings testify to appalling abuses. The full report is expected before the end of this year. The results of the study, if publicized, may well propel privacy to the rank of social value.

The second highest ranked area of function is HRA and Computerized Records. This ranking can be explained in the light of the advanced developments in computer technology and of the recognition that in the future, computers will be the medium of communication in health as well as in the industry. The health occupations sense the need for an information specialist to mediate between them and the computer scientists. But perhaps the choice can be better explained in relation to the issue of confidentiality which has been

previously discussed, as well as in relation to the next two areas which were recognized as most important, namely clinical studies and quality assurance programs. There is need for the control and the monitoring of the computer to guard the information against tampering, as well as to ascertain the reliability and the validity of the input data so it can make significant contributions to the quality of care programs. The high ranking of HRA and Computerized Records is of particular interest because this area of function comprised the highest number of experts (See Appendix 5).

Other popular areas were #1, HRA and Quality of Care Programs, and #2, HRA and Research and Studies. These high rankings reflect the medical profession's needs for a collaborator group who will take responsibility for the organization and statistical tasks that form the structure of these programs. They need a collaborator capable of consistent performance as opposed to sporadic interest in order to obtain continuity of results for their evaluation programs. These kinds of administrative tasks do not sustain the interest of the medical staff as a group, as professionals are truly dedicated to their primary professional calling. At present, many individual physicians show interest in organizing Quality of Care programs, but they cannot sustain their effort because their time is far too expensive; and because medical training is not required to perform many of the tasks, the programs become inefficient and uneconomical.

This is an area of potential professional growth for the HRA, as the Quality of Care programs have to be developed voluntarily by the medical and allied health staffs, and the health organizations, lest they wish governmental interference in setting up professional

and organizational accounting programs following the precedents established in the U.S. That these areas have been given high priority by the panel may also raise the possibility that a trust relationship could develop between the future HRAs and their clients provided that the HRAs will be able to make substantial contributions.

The areas of function judged to be the least important included Public Health, Health Agencies, Preventive Care. The low priority given to these areas of function possibly reflects the fact that within the health industry, organizations and sectors are allowed a fair amount of independence, an independence which they highly value; they wish to maintain these limited freedoms, and are inclined to recognize the same rights to others. The panel members very likely associated themselves with this quest for autonomy, not unlike the traditional autonomy of the professions. Another possible explanation would be the newness of the idea that the HRA occupation may expand into organizations such as Public Health, or Vital Statistics. Yet these areas require competent health information services just as much as the direct health care facilities to integrate them in the overall health system, and some panel members seemed to concur. These organizations would all represent new territories of activity for the HRA occupations. The least important area was judged to be HRA and Schools and Industries Health Records. This area is removed from the health field, but will have to be standardized, if the health information linkage is to be implemented.

One most interesting result is the relative indifference paid to area of function #9, HRA and Management, Institutional and Departmental. One possible explanation for this low ranking is that the

panel was mostly composed of physicians, who, as is well known, have little interest in management. According to the professionalization theories previously discussed, professionals are said to preserve the values of their primary profession, in this case, medicine. This assumption is somewhat supported by the fact that the same indifference hit areas of function #12, HRA and Cost Effectiveness, and #16, HRA and Government Reporting. Within the health field these areas of function have been gaining progressively more and more importance over the past decade in the pursuance of cost containment. Could one surmise that panel members merely wanted to de-emphasize these areas in order to uphold their highly raised professional autonomy, and protect their professional practice from too much administrative and governmental interferences? Another possible reason is that the present poor performance of the HRAs in management functions was projected into the future, and that the panel members may have considered "feasibility" as opposed to desirability. A third reason could be that the choices indicated by the panel member express the desirability of a shift in the allegiance of the HRA back toward the medical profession, a conjecture which has already been made earlier; hence the panel reduced the importance of management. With respect to expected activities the categories 1, Participate and 2, Organize were rated equally by the panel. Complexity characterizes most functions in health as well as in industry, and division of labor and specialization are the most effective and economical ways of dealing with it; on the other hand, the interdependence of the functions on one another has been amply documented in the management literature, particularly so since the introduction of the system concept. Thus one may conceive of Participate and

Organize as being in tandem; Participation of the HRA will be required because of the HRA special organizational and communication skills; and, Organization will be accepted because of the value of the participative skills.

Health information is a resource needed by all the health professions, and it may be said to be an agent of coordination among them determining the areas over which the various professions interface. The occupation which purports to manage this information will then have to be a participant in the health care team. Although Participate in this study acquired related, yet somewhat different meanings according to the areas of function, (See Appendix 3), it nevertheless carries the connotation of "give valuable contribution". In the light of the training of the HRA, participation means the contribution of specialized skills in organizing, managing and using health information for the benefit of the patients, the medical and allied health occupations, the administration of health organizations and the government.

Integrate and Advise were rated somewhat lower by the panel, but were given equal standing. These two activities gained importance over the areas of function which today are outside the HRA's territory. The panel members recognized that there was considerable need for the integration of the various near-autonomous sectors that make up the health field. This integration process presupposes the adoption of similar standards of information analysis, evaluation, storage, retrieval, and use. To achieve such a monumental task, a great deal of advisory work, and of planning is required. These sectors will have to be convinced on a voluntary basis rather than through legislation that the process will be beneficial to the public, and to them because it will enhance their

ability to render their special services. The provision of active and productive professional consultations relating to the performance of health information systems may be seen as a key activity, a facilitating agent of change, if you will. Comparatively, the Evaluative aspect of the role of the future HRA was not emphasized; however, it was not denied entirely. The traditional professional autonomy prescribes self-regulation and self-discipline to the professions. Society, the governments and the law concur with and accept this principle of professional autonomy; therefore, the activity "Evaluate" could not have created a strong interest among traditional professionals. However, the interdependence of the health occupations will submit them increasingly to multidisciplinary scrutiny. As these self-evaluation programs depend heavily on accurate, complete and pertinent information, the evaluative aspect of the HRA had to be given some recognition. An amplification of this role will be contingent on the trust relationship that can be developed between the HRAs and their clients.

The equal emphasis placed on activities Participate and Organize, then Integrate and Advise clearly indicates that no activity pattern can be dominant. All the types of activities selected by the panel are integral parts of an evolving role which will take the HRAs out of their customary environment. To successfully assume this new role, the HRAs will require a great deal of knowledge, self-discipline, tact and sensitivity to perceive which activity should be emphasized in specific situations, in order to meet the expectations of the health professions, the administration, the government and the public.

An attempt will be made to present this new role by referring to

the original contributions of the panel members.

FUTURE ROLE OF THE HEALTH RECORD ADMINISTRATOR

According to the panel of this Delphi-exercise, four major types of activity will determine the role of the future HRA.

1) PARTICIPATE: the word denotes collaborating, contributing activities. Initiative will not be the main ingredient, rather involvement with the programs initiated by the medical and allied health professions. For these programs to be useful, the HRA will be required to contribute the competence and the time that the health professions lack. The degree of involvement is contingent on the HRA's expertise and ability to communicate. Consequently, the body of knowledge of the HRA will have to interface adequately with the respective bodies of knowledge of the health professions, the efforts for this interfacing process being entirely on the HRA's side.

At the institutional level, the participative role of the HRA will be performed in great part on the wards, at the "action centres". The information generated there will be immediately analyzed, assessed, coded, used and routed toward those who will proceed to make the appropriate clinical and administrative decisions. The computer will be an indispensable tool, and the design of systems of studies and researches will require the HRA's intensive collaboration with the computer scientist in order to facilitate productive communications between this group and the medical and allied health professions.

Sustained emphasis will be placed on the quality assurance programs. The HRA will be required to participate in structuring these programs, in developing appropriate standards and indicators to measure and evaluate the care rendered in the institution, and

in comparing the results obtained with regional, provincial and/or national standards, as well as with the results reported in the literature. As linkage will make large population bases available, the prospective-type of studies will be favored to evaluate the long-term effects of care on individuals and their families; epidemiological studies endeavouring to uncover the factors influencing the health status of the communities will also be conducted in great numbers.

The voluntary accreditation movement will expand considerably to all types of health care facilities. It will be instrumental in intensifying the need for the HRA's participation in interpreting the accreditation requirements and monitoring the indicators used. At the national level, the HRA will conceivably be a member of the accreditation team in order to ascertain the functioning of the local health information systems, to participate in the establishment of standards and in the formulation of policies relating to health information management and use in the different types of health care facilities, and to recommend appropriate developments and improvements.

2) ORGANIZE: this denotes a more vigorous activity requiring initiative and acceptance of responsibility for decision-making, implementing and evaluating the outcomes.

The organization of a program to insure the confidentiality of health information was designated to be the most important function. Within the institution, appropriate policies will have to be formulated with regard to the use and the release of the privileged information that has been elicited or uncovered by the medical and allied health staffs in situations of trust. To honour this relationship of trust between patients and health professionals

the information has to be readily available to those who need to serve the patient; otherwise, the access will have to be strictly controlled and confidentiality preserved. The implication of this role is that the HRA will become accountable to the public for the management of this privileged information, and may well acquire a social identity.

The HRA will also organize and manage the institution's health information system, direct the information centre which will include admitting, and coordinating the handling of health information in the entire institution, thus cut across the now existing departmental boundaries.

Cost effectiveness studies, although not emphasized by the panel, will be required by the government, and will likely be structured according to diagnostic entities. The HRA will organize and control the program to prevent the leakage of confidential information.

As the linkage of health information will be implemented, the institution's system will be the sub-system of the community, province and nation-wide systems, and these could conceivably be designed and directed by the future HRA. Through these systems vital information will be exchanged and used for government reporting and cost control on the management side, and for the evaluation of care on short- and long-term bases as well as for clinical research and education on the medical side.

The concept of health information linkage prescribes that all the health information accumulated on the individual be compiled in one unique record. To achieve this integration, the health records now kept by schools and by various industrial and commercial organizations will have to be organized systematically

according to the same standards that will be regulating the health information system of the health industry. This area of function would constitute an entirely new territory for the expertise of the HRA.

3) INTEGRATE denotes a coordinating activity requiring specialized knowledge and communication skills. Integration will occur at the institution level where, at present, various types of patients are handled differently clinically and administratively, and where the departments generating and using health information have their own system independently of one another.

The integration process will have to encompass other sectors of the health field which today operate on a quasi-autonomous way. The health information systems of Public Health, Preventive Care and other similar sectors will have to be organized according to the then prevailing acceptable standards and channelled into the main stream for a quantitative and qualitative analysis, avoidance of duplication, planning of services, cost control and other legitimate uses. Voluntary and autonomous health agencies will be similarly regulated, and the HRA will act as agent of coordination and integration in order to implement health information linkage, at the same time preserve the public's right to privacy. Nearly without exception, these areas will constitute new territories for the HRA of the future.

4) ADVISE: represents an educational and promotional activity, supplemented by pertinent recommendations. To advise on policy formulation regarding the use of health information will be a major area of function for the future HRA. The transmitting and the release of privileged information have to be regulated and

monitored to guard against computer tampering, and the casual and uncontrolled use of hard copies.

Another major area of function in an advisory role is the complex domain of health law. Within the institution, the HRA is expected to assume an educational role on the subject of patient's rights, validity of consents, release of health information, and court behaviors. The advisory role of the HRA should not be limited to the institution, but should reach the legislative bodies and achieve direct input into the formulation of laws touching upon the subject of health information.

5) EVALUATE: although the evaluative role of the HRA was not emphasized by the panel, it nevertheless received some interest. The participation of the HRA in the self-evaluation programs of the health professions, in the quality assurance and utilization review programs implies the use of the HRA analytical and evaluative skills.

Reviewing this role, one notices some fundamental changes:

- a) the work environment will shift to the ward;
- b) the approach to information management and analysis will be prospective as opposed to historical;
- c) HRA expertise will not be confined to the hospital inpatients only, but encompass all types of patients and all sectors of the health field and integrate them into one main system;
- d) the HRA may function at higher administrative levels within the institutions and operate higher level systems within the main health care system;
- e) health information kept in other sectors, such as schools, and industries will also abide by the same stringent rules as the health field.

But the most significant change relates to the thinking and attitude of the panel members. By virtue of their expertise in the health field, they are all aware of some important factors:

a) Resources are scarce, and have to be managed competently if the costs are to stay affordable: b) Professional accountability will have to be implemented voluntarily, otherwise it will be imposed by law: c) Health information linkage is inevitable if the demands for more and better services are to be controlled and if the health services are to be equitably distributed. Health information is the common link, and the HRA occupation appears to offer to the medical and allied health professions the opportunity of developing their own tools of assessment and control. Hence the casting of the HRA of the future in strong participative and organizational role, working alongside the health professions as an indispensable member of the team, in all sectors of the health field.

This author feels that the panel has somewhat minimized the role of the future HRA in the management of the institutions. Information is management's basic tool; it provides them with the means of making decisions, of reporting, of controlling and of accepting responsibility for the operation of the institution. Similarly, the role of the HRA will expand with respect to government reporting, as more and more information is required to account for the spending of the health dollar. And health information will always be used to support operational costs. For this reason, cost-effectiveness studies will become commonplace and the HRA, in control of the information, will collaborate with the group in control of the finances.

Because there has been little distinction made between the clinical and the management needs for health information, another important

future role of the HRA has been undetected by the panel, namely the one relating to the future involvement of the HRAs in the planning of health services. At present, the need for planning is openly recognized; most hospitals, regions and provinces have planning offices and boards; but very little has been done about the provision of accurate, adequate and relevant information to these planners. Yet there is no doubt that the shift toward the prospective analysis of the health data will yield more reliable and actual health information. The HRAs, in collaboration with the health planners, will be able to monitor the indicators predictive of needs, trends or changes.

As a final comment, should this role evolve, the HRA body of knowledge would have to expand considerably; additional further specialization should be considered for the collaboration with the medical and allied health professions, for the design, organization and management of health information systems, for educational or consultative career, and for management of departments and of organizations.

Will the HRA of the future be considered a professional? The question is academic, because in a decade or more, perhaps the words profession and occupation will have different connotations, and profession may no longer enjoy the same social recognition as today, and be a desirable status. On the assumption, that the differences between profession and occupation will not have eroded, one may say that the achievement of professional status by the HRA of the future will depend almost entirely on the development of a trust relationship between the HRAs and their clients, the physicians, the allied health occupations, the management of institutions, and the government. The process of professionalization would have a greater chance of being successful if the HRAs became

related, in the public's eye, to the social values of health and privacy.

Achievement of the professional status will also depend to a great extent on the self-regulatory system of the occupation, the expansion of its body of knowledge, the organization of self-evaluation programs to monitor the quality of their services, and become responsive to the changing needs of their clients.

The profession will always be marginal on autonomy and will always be organization-bound. However, these characteristics will be shared by the other health occupations. Perhaps the issue of professional autonomy will have become antiquated as not even the medical profession will be able to maintain this highly-praised privilege. Hospitals and health facilities will have greater power over the physicians, particularly in the area of admission privileges. In the past few years, several hospitals have been successful in establishing restrictions in that sense and this power may increase in the future, unless a shortage of physicians will be artificially created. Another possible development is that more and more physicians may be bound organizationally to the institutions in which they practice.

CONCLUSION AND RECOMMENDATIONS:

With respect to the value of this study, it must be remarked that it is assumed to be one of the first of its kind. Perhaps one may say that the study may have been successful in establishing some grounds for comparison as the future unfolds. The results could conceivably be used by the HRA profession for guidance in the modification of their standards and behaviors as they wish to progress along the professionalization pathway. They may provide the HRA occupation with the opportunity of considering alternate futures

for their members, and of programming alternate modes of practice. They could also be used as guidelines in the setting of educational programs whose greatest responsibility is to train for the future, a future that appears nearly unfathomable.

With respect to the technique used, the Delphi may be considered very suitable to investigate issues, even if a consensus is not sought, as was the case in this study. The technique, by granting anonymity, allows for the expression of opinions without the pressure to join the dominant members of the group. Contrarily to Sachman and other critics of the Delphi, this author does not believe that anonymity provides an escape from responsibility; self-respecting people and professionals will rather decline to participate than respond irresponsibly. One of the most difficult tasks of this study was to motivate the members of the panel to respond. This difficulty was probably more acute because the members were selected from higher socio-political and professional spheres, with considerable responsibilities and commitments, therefore, disposing of very limited time for participation in extraneous projects. In addition, the first round probed the member's professional thinking and requested original inputs, therefore, was time and energy-consuming. No incentive of any kind could be offered; and this coordinator felt somewhat powerless knowing that no exhortation could provide positive results if the members of the panel could not be sufficiently interested in the issue at hand.

Another difficulty was the tremendous demand made upon the integrity of the coordinator in conducting the study, collapsing the responses, and finally interpreting the results. For this last reason, anonymity is not only recommended, but should be mandatory. The concept of total anonymity proved very useful in eliciting

candid responses, as these were valued. However, this concept of total anonymity cannot be implemented if the analysis of the rates of change of opinion in the successive Delphi round is of importance, as well as the exploration of the reasons for change.

Perhaps one could recommend that any subsequent Delphi-exercises organized for a similar purpose should segregate the various health occupations into sub-groups. This can easily be organized without sacrificing anonymity. The advantage would be that the analysis of the similarities and the differences of the health occupations' opinions as to future needs, and their imagery of the future would provide more precise findings against which future developments may be compared. Other advantages would be to afford a clearer comparison between their respective outlooks, and to explore the variations in their professional thinking.

Another suggestion would be the organization of a Delphi-exercise on an international scale, forming sub-groups of nations to probe the respective developments that predict changes. The findings of such grand-scale study could provide interesting comparison among the nations, lead to the development of standardized performances and have definite impacts in the area of social policy-making.

Although the Delphi-technique is mostly used to forecast the future, its reliability and validity are yet unproven. Therefore, no prediction value can be attached to the vision of the panel of this exercise. The value of the vision may simply lie in the fact that the members of this panel are occupying important positions throughout the health field and actively contribute to the formulation of national and provincial social and health policies.

In summary, the present HRAs are not offering the full range of

health information services required by the various health professions. A study using the Delphi-technique has been organized to investigate the types of health information services that will be expected from the future HRAs. The panel of respondents, representing the major health disciplines, predicted the need for a strong collaboration in the areas of quality assurance programs, professional assessment programs, and medical and clinical research and studies. Many sections of the health industry and many types of health information not yet served by HRAs should be organized according to the then acceptable standards, and integrated into the main health care system. A dependable educational and advisory role is expected from the future HRAs' vis-a-vis the health professions in the areas of health law and confidentiality of health information.

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Department of Health Care and Epidemiology
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HEALTH SCIENCES CENTRE

1 August 1978

Dear

I am organizing a Delphi study on the future role of today's Health Record Administrators. The study consists of three rounds of inquiry with controlled feedback of the responses received. Generally, the Delphi technique is used to obtain some form of consensus, however, I believe that the probably wide range of outlooks and opinions will also be very constructive. There will be approximately 35 panel members from across Canada, and some from the United States, all related to the health field.

I should like to invite your participation as a panel member. The results may have quite some impact upon the education of the HRAs.

To give you a clearer idea of what is expected of a panel member, I enclose the material for Round 1, and hope that you will be interested in participating in this educational project.

I thank you in anticipation.

(Mrs.) Irma Szabo,
Consultant in HRA.

N.B. There is a distinct possibility that I will use this study for publication and/or thesis purposes.

Enclosure.

THE UNIVERSITY OF BRITISH COLUMBIA

Health Sciences Centre
Faculty of Medicine
DEPARTMENT OF HEALTH CARE AND EPIDEMIOLOGY
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DEFINITION OF THE EXPERTISE OF THE HEALTH RECORD ADMINISTRATORS AS PROJECTED APPROXIMATELY TEN YEARS INTO THE FUTURE.

Philosophy:

The study is based on the assumptions that a a well-organized health care delivery system will benefit the patients as well as the providers of care, ultimately, society, and that the Health Record Administrators can and should contribute to this organization.

Major Goal:

is to describe the future role and expertise of today's Health Record Administrators (formerly Medical Record Librarians) as seen to evolve over the next ten years by the various classes of health professionals in terms of their specific needs for and expectations of HRA services.

Method :

The Delphi technique is used as it affords a structured communication medium among the various health groups whose opinions can thus be brought into an arena of discussion without the psychological influences at play in face-to-face meetings, and with the benefit of disregarding geographical distances. These various groups have been selected from the fields of medicine, government, administration, education, health agencies, allied health and current HRA practitioners.

The Study:

- a) Base: the present situation is expressed in terms of existing relationships binding the HRA to the internal environment of the institution and to the external environment of the health industry and of society, as well as in terms of postulated future relationships to be developed by virtue of the expertise the HRA could bring into certain areas in which HRA services are still largely unknown.

- 2 -

- b) External Context: the scientific, technological, legal, political and social influences and pressures dictating changes to the health industry over the next ten years.
- c) Internal Context: means the health industry itself; some changes will be implemented as a result of the above forces, others will be self-generated, as for example: accreditation, professional standards, quality of care.
- d) Progression: Modifications of the present role may entail the decrease, respectively the increase of certain functions in importance and in sensitivity; more crucially, some additional functions will emerge. Actual construction of images of the future is encouraged, as these should describe organized parts of an integrated national health care system (international?). Whereas some consensus may seem desirable with regard to the definition of the future role of the HRA, the range of viewpoints may be, perhaps, of greater interest.

Instructions:

To give some structure to the study, a list of the HRA relationships with specific areas of functioning is presented, but it is certainly not exhaustive. For each one of these areas of function, you are invited to state the future active role-behaviors expected by your class of health professionals and specifically by you as a panel member.

- a) you may wish to by-pass some items on the list at round 1; you may feel free to respond to these at the subsequent rounds;
- b) please use active verbs to facilitate the collation of information and the feedback;
- c) to each item to which you respond, limit your contribution to five role-behaviors;
- d) please feel free to add any other areas of function which you feel are important;

- 3 -

- e) please use the criterion of "desirability" in opposition to "likelihood" or "feasibility", in terms of the needs of an organized health industry.

To allow for the organization of the study, the following datelines are suggested:

Round 1	due September 15
Round 2	October 31
Round 3	December 15.

Round 1:

is a brain-storming session; you may wish to add to the list any other areas of function which you think should be related to the HRA.

Round 2:

you will receive a controlled feedback of the results of Round 1, and will be asked to consider the responses of the majority; you may wish to retain your previous position or you may decide to join the majority.

Round 3:

you will again receive a feedback of the previous round and asked to establish priorities on the basis of a criterion of "desirability".

Thank you in advance ! Please contribute early !

July 1978.

CONFIDENTIALITY IS PROMISED: NO RESPONSE CAN EVER BE TRACED BACK TO AN INDIVIDUAL PANEL MEMBER.

LIST OF HRA AREAS OF FUNCTION

1. HRA & Quality of Care Programs:

2. HRA & Research and Studies: medical, nursing, social;
retrospective, prospective:

- 2 -

3. HRA & Ambulatory and Home Care Programs:

4. HRA & Allied Health Professions:

5. HRA & Health Information Systems:

- 3 -

6. HRA & Computerized Records:

7. HRA & Health Information Linkage:

8. HRA & Accreditation:

- 4 -

9. HRA & Management, institutional and departmental:

10. HRA & Policy formulation re health Information:

11. HRA & Admitting and other health record-keeping departments:

- 5 -

12. HRA & Cost-effectiveness:

13. HRA & Schools and Industries' Health Records:

14. HRA & Health Agencies (for example: Canadian Arthritis Society, etc.):

- 6 -

15. HRA & Confidentiality of Health Information:

16. HRA & Government reporting:

17. HRA & Vital Statistics:

- 7 -

18. HRA & Public Health:

19. HRA & Preventive Care

20. HRA & Health Law

LIST OF HRA AREAS OF FUNCTION

1. HRA & Quality of Care Programs:

Quality of Care Programs rely heavily on measurement, evaluation and feedback. Therefore, the informational content of such programs is invariably large. The importance of informational matters in Quality of Care Programs automatically determines the involvement of HRA's in this area.

Firstly, the HRA is involved with the mechanical aspects of clinical data recording. Secondly, the HRA is in an excellent position to recommend ways to extract those parameters from the records which are the most appropriate for quality of care evaluation. Thirdly, the HRA should be involved in the planning of new systems which are specifically constructed for the purposes of monitoring quality of care. Often in these cases the confidentiality, ethical and psychological obstacles are more severe than ordinarily.

2. HRA & Research and Studies: medical, nursing, social; retrospective, prospective:

The HRA is, and will develop further into an invaluable assistance to researchers. In particular, the HRA's familiarity with the data content of the records and the form in which they are recorded can provide invaluable assistance for those who are doing retrospective studies. For prospective studies, such assistance is no less valuable especially when data which is not ordinarily recorded must be gathered. The HRA's influence can be brought to bear to make research data recording compatible with clinical data recording and so making everybody's life much easier. Such voluntary standardization of data recording methods and formats could save large amounts of money, and in general make research and studies much more cost effective.

- 2 -

3. HRA & Ambulatory and Home Care Programs:

At the present time ambulatory and Home Care Programs operate only with the most rudimentary recording systems. However, this is going to change as one can see the signs of computerized data collection and recordkeeping systems emerging to serve this area. The experience of the HRA and her familiarity with the methodology and technology of recordkeeping should be a major resource in the planning process of such systems. This implies, however, that HRA's must learn a lot more about Ambulatory and Home Care Programs since they have traditionally not been deeply involved with them.

4. HRA & Allied Health Professions:

There is no doubt at all that HRA's are going to be involved with all Health Professions to an increasing extent. This will come about for two reasons. Firstly, the data needs of Health Professions will generally increase. Secondly, as HRA's become better qualified and become more identifiably the experts in all aspects of data collection and recordkeeping, they will be approached more often for both service and advice. I believe that the crucial point here is that the relationship of HRA's with other Health Professions will very much depend on the image the HRA's will be able to develop for themselves in the health care system. The basis of a positive professional image is undoubtedly high professional qualifications and involvement.

5. HRA & Health Information Systems:

Until fairly recently, HRA's largely restricted themselves to hospital medical recordkeeping. It is quite clear now that our informational needs will increasingly encompass the entire health care system. It is also clear that it is not appropriate anymore to think only in terms of medical information as many other data related to lifestyle, the environment, social and economic aspects and others is also of prime concern in any system that reports to deal with health and not sickness exclusively.

Thus, it appears that the HRA should fulfill a role here that is a direct extension of the HRA's role in the hospital system. Nevertheless, it again should be remembered that such a role in planning, development and perhaps future management of the health information system and its components can be achieved only if the education and professional interest of the HRA encompasses the unfamiliar elements in the health care system.

- 3 -

6. HRA & Computerized Records:

The successful application of computerization to health or medical records requires varied expertise. Such expertise must definitely include both the information technology and the health care system data and informational methods. These latter should come from HRA's. It is highly desirable to have data and information experts in every institution contemplating computerization of its records. Such experts must understand the objectives of the institution and all facets of its operation, especially in terms of its data and informational needs. Only then can they interpret these needs for the computer experts for their design and planning. It is also important that computerization efforts by scientific and engineering personnel be monitored by data experts. Thus it appears that HRA's have a continuing leadership role in the computerization process.

7. HRA & Health Information Linkage:

This area has been traditionally of interest to HRA's. As we move toward more integrated health care systems and health care information systems, the need for record linkage is going to become more and more acute. The mechanics of such linkage is never easy to solve and HRA's have a natural role to play.

8. HRA & Accreditation:

- 4 -

9. HRA & Management, institutional and departmental:

I believe that, at least in part, the HRA's role is managerial. The HRA must be part of the decision-making process since in the hospital and other institutions the informational and data component is very large in most instances. It is, therefore, expected that HRA's will increasingly be called upon to participate in managerial decisions and, conversely, they will also have to insist that their voice be heard in all matters concerning their areas of professional competence. In the past, there have been many mistakes made because such direct managerial input was neither requested nor demanded in planning and operational matters regarding data and information. In some sense, the HRA's managerial role is going to be pivotal in the development of health information systems in institutions and departments.

10. HRA & Policy formulation re health Information:

This question must be answered in connection with Item 9 above. The HRA's involvement in policy formulation regarding health information is one of the managerial roles.

11. HRA & Admitting and other health record-keeping departments:

- 5 -

12. HRA & Cost-effectiveness:

13. HRA & Schools and Industries' Health Records:

14. HRA & Health Agencies (for example: Canadian Arthritis Society, etc.):

- 6 -

15. HRA & Confidentiality of Health Information:

Confidentiality of health records has always been a prime concern of HRA's. As systems become more complex and computerized, confidentiality problems will undoubtedly increase. With this, there will also be an increased need for individuals who fully understand the confidentiality implications of information stored and used in large inter-connected systems. Because of professional interest and tradition, the HRA is the person to step into this role. Of course, the confidentiality issue has many other aspects and will demand great familiarity with not only the traditional health record concerns but also with health care system organization, medical and paramedical concerns, health information systems, and computerization.

16. HRA & Government reporting:

17. HRA & Vital Statistics:

- 7 -

18. HRA & Public Health:

19. HRA & Preventive Care

20. HRA & Health Law

FEEDBACK OF ROUND 1.

29 responses were received from 45 people contacted. From the responses, the verbs and nouns expressing actions were abstracted and categorized with the use of the Randomhouse dictionary and the Roget Thesaurus Dictionary-form. Six main categories emerged and these were adopted throughout this feedback. They are:

Category 1: This category describes a participatory role for the HRA:

Words used by panel members: "assist, get involved, participate, collaborate, function, contribute, work with;"
The key word chosen to represent this category is:
PARTICIPATE.

Category 2: This category describes and administrative role for the HRA:

Words used by panel members: "design, develop, initiate, plan, provide, organize, structure, direct, fund, devise, evolve, oversee, dispense, administer, manage, handle, implement, expand, conduct, supervise, prepare, set up, define, construct, identify issue, establish."
Key word: ORGANIZE.

Category 3: This category describes an integrative role:

Words used: "integrate, link, liaise, mediate, coordinate, consolidate, exchange information"
Key word: INTEGRATE.

Category 4: This category describes an advisory and educational role:

Words used: "advise, consult, recommend, stimulate, encourage, promote, educate".
Key word: ADVISE.

Category 5: This category describes an evaluative role:

Words used: "follow-up, screen, identify compliance, evaluate, review, monitor, validate, standardize".
Key word: EVALUATE.

- 2 -

Category 6: This category describes today's role, predicting no change in the future role of the HRA.

Words used: "supply data, prepare data, retrieve, code"

Key word: NO CHANGE.

These main six categories will be used uniformly throughout this feedback for each one of the 20 areas of function or subjects; additional categories will be used only where the responses do not fall into any one of the above.

The responses were counted as follows: most respondents contributed several ideas to each area of function or subject; if these responses fell into any of the above categories, one score was assigned to each category represented; for example, if one respondent wrote, within the same area of function:

- organize program;
- evaluate according to pre-set standards ;
- encourage health workers;

then, one score was added to Categories: 2, 5, 4, respectively; if, however, a respondent wrote, within the same area of function:

- initiate program;
- provide for budget funds;
- administer program;

then only one score was added to Category 2.

For Areas of function left blank, no score was entered.

The responses, in general, communicated three major ideas:

- 1) the concept of "total patient", therefore of total record to document the continuity of care and the integration of services;
- 2) the concept of unique patient identifier;
- 3) the decentralization of the HRAs to the wards or "action-centres".

As each key word -or its synonym- was used with modifiers, as sample sentence will illustrate its interpretation. The main modifier of "better education" is of course the main reason for this study.

* * * * *

- 3 -

RESULTS FOR ROUND 1

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
1. <u>HRA & QUALITY OF CARE PROGRAMS:</u>	
<u>Categories:</u>	
1. <u>PARTICIPATE</u> actively in all quality of care committees	19
2. <u>ORGANIZE</u> hos pital, regional, provincial and inter-national audits	16
3. <u>INTEGRATE</u> - coordinate long term effects of care	2
4. <u>ADVISE</u> re feasibility of reviews	6
5. <u>EVALUATE</u> - compare with reported standards and monitor at regional, provincial and higher levels	11
6. <u>NO CHANGE</u> - collect, abstract data, store, retrieve	6
7. The role of the HRA will diminish due to the implementation of an "immediate-response" system.	1
2. <u>HRA & RESEARCH AND STUDIES:</u>	
<u>Categories:</u>	
1. <u>PARTICIPATE</u> in all studies providing organization and statistical knowledge	15
2. <u>ORGANIZE</u> - Initiate studies on basis of preliminary survey reports	10
3. <u>INTEGRATE</u> - coordinate research projects	10
4. <u>ADVISE</u> re format of studies, validity and reliability, significance of statistical findings	9
5. <u>EVALUATE</u>	-
6. <u>NO CHANGE</u> : supply data as needed	2
3. <u>HRA & AMBULATORY AND HOME CARE PROGRAMS:</u>	
1. <u>PARTICIPATE</u> - HRA to get involved in setting up administration	6
2. <u>INITIATE</u> - Plan standardized information system and adminis-ter department	14
3. <u>INTEGRATE</u> with inpatients' information system	17
4. <u>ADVISE</u> - HRA major resource in planning for programs	1
5. <u>EVALUATE</u> - Review and audit programs	3
6. <u>NO CHANGE</u>	-
7. No involvment of HRA necessary	2

- 4 -

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
4. <u>HRA & ALLIED HEALTH PROFESSIONS:</u>	
<u>Categories:</u>	
1. PARTICIPATE as active member of the health care team in reviews and audits	10
2. ORGANIZE and develop inter-professional reviews	4
3. INTEGRATE - provide coordination needed for team care	8
4. ADVISE and educate re documentation requirements, matters of policy and law	8
5. EVALUATE according to pre-set standards	2
6. NO CHANGE	-
7. Computer documentation of lab. results. Pharmacy requisitions only.	1
8. Maintains licensing roster	1
5. <u>HRA & HEALTH INFORMATION SYSTEMS:</u>	
1. PARTICIPATE - collaborate with systems analysts and management engineering group in designing health information system	6
2. ORGANIZE - design and implement health information systems at the organization, region, province and higher levels	16
3. INTEGRATE - coordinate with community and higher systems	5
4. ADVISE re linkage of health information	3
5. EVALUATE - monitors system as part of the national health care delivery system	4
6. NO CHANGE: supply data only	2
6. <u>HRA & COMPUTERIZED REPORTS:</u>	
1. PARTICIPATE: - collaborate with computer and health professionals in setting up system	10
2. ORGANIZE - control of acces to information	17
3. INTEGRATE - mediate between health and computer profes- sionals and interpret needs and outputs	9
4. ADVISE computer professionals and department heads re development of system; also re ethical and legal position	4
5. EVALUATE - monitor outputs, ensure reliability	4

- 5 -

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
<u>7. HRA & HEALTH INFORMATION LINKAGE</u>	
<u>Categories:</u>	
1. PARTICIPATE in establishment and setting of guidelines	7
2. ORGANIZE exchange of information, access methods, databanks - initiate long term follow-up	15
3. INTEGRATE with higher systems	6
4. ADVISE governments re planning and common identifier	5
5. EVALUATE - monitor physicians and patients' profiles- standardize health data	5
6. NO CHANGE - supply accurate information quickly	1
<u>8. HRA & ACCREDITATION</u>	
1. PARTICIPATE as member of accreditation survey team	13
2. ORGANIZE - coordinate information to determine care given in the hospital	1
3. INTEGRATE - interpret accreditation requirements	2
4. ADVISE re compliance with Health Discipline Act, with accreditation standards	4
5. EVALUATE - monitor standards of accreditation; of health information systems functioning in terms of legal and societal standards	13
6. NO CHANGE	-
7. Lesser role due to implementation of "immediate-response" system - more attention paid to use of information than to recording and storage	2
<u>9. HRA & MANAGEMENT, INSTITUTIONAL AND DEPARTMENTAL</u>	
1. PARTICIPATE in management problem-solving at senior level	13
2. ORGANIZE - direct health information system and department	13
3. INTEGRATE smaller institutions into regional system; act as liaison between departments re functioning of health information system	6
4. ADVISE - consultant re standards, policy-formulation with respect to the health information system	2
5. EVALUATE production measurements	3
6. NO CHANGE in organization of Medical Record Departments	1

- 6 -

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
<u>10. HRA & POLICY FORMULATION RE HEALTH INFORMATION</u>	
<u>Categories:</u>	
1. PARTICIPATE- involvment in policy formulation re health information systems one of major roles-	14
2. ORGANIZE - initiate and develop organization-wide policy re health information	4
3. INTEGRATE - work with provincial authorities	1
4. ADVISE re formulation policy, ethic standards and legislation	3
5. EVALUATE - review present policies - Monitors implementation	4
6. NO CHANGE - Supply data to Medical Advisory Committee to formulate policy	4
<u>11. HRA & ADMITTING AND OTHER HEALTH RECORD-KEEPING DEPARTMENTS</u>	
1. PARTICIPATE -	-
2. ORGANIZE - direct patient information centres	12
3. INTEGRATE - coordinate - provide link re inter-departmental needs	12
4. ADVISE hospital, provincial and national levels re standardization of information	2
5. EVALUATE - ensure federal, provincial and accreditation standards- Monitor health information system cutting accross departmental lines	3
6. NO CHANGE	-
<u>12. HRA & COST-EFFECTIVENESS</u>	
1. PARTICIPATE - cooperate with financial department in developing cost-effectiveness on specific diseases	9
2. ORGANIZE - control of own department - Justification of costs of health information programs	9
3. INTEGRATE - cross-comparisons of health and financial data-coordinate units of health care with costs	5
4. ADVISE - make recommendations re costs of treatment patterns	2
5. EVALUATE through utilization committees - Programs evaluation	3
6. NO CHANGE - No role	3

- 7 -

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
----------------------------------	------------------------

13. HRA & SCHOOLS AND INDUSTRIES HEALTH RECORDS:Categories:

- | | |
|---|----|
| 1. PARTICIPATE: in epidemiological studies and research on long-term basis | 2 |
| 2. ORGANIZE and develop documentation services - | 11 |
| 3. INTEGRATE - link with active health information system of community, region, etc. | 11 |
| 4. ADVISE organizations other than the health industry with regard to health information systems and policies | 7 |
| 5. EVALUATE - audit care given outside health industry- monitor on long-term basis, particularly high risk groups | 4 |
-

14. HRA & HEALTH AGENCIES

- | | |
|---|----|
| 1. PARTICIPATE in research, studies | 3 |
| 2. ORGANIZE - provide health information services - Set up standard of health information management | 9 |
| 3. INTEGRATE into community, regional health information system- Direct link between agencies and curative system | 17 |
| 4. ADVISE and consult on health planning at municipal and provincial levels- Consult to agencies on h.i.s. | 6 |
| 5. EVALUATE - audit care rendered in non-health settings | 3 |
| 6. NO CHANGE - no role | 1 |
-

15. HRA & CONFIDENTIALITY OF HEALTH INFORMATION

- | | |
|---|----|
| 1. PARTICIPATE - assist health care professionals in maintaining confidentiality | 3 |
| 2. ORGANIZE- formulate policy re privileged information - control access to and release of health information | 15 |
| 3. INTEGRATE | - |
| 4. ADVISE - educate public and hospital staff re legal and confidentiality requirements | 5 |
| 5. EVALUATE - monitor implementation of policy -uphold standards | 11 |
-

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
----------------------------------	---------------------

16. HRA & GOVERNMENT REPORTING

Categories:

- | | |
|---|----|
| 1. PARTICIPATE- collaborate in reporting information to account for hospital operation- Work with governments | 4 |
| 2. ORGANIZE accurate reporting system | 12 |
| 3. INTEGRATE government reporting into hospital's statistical system | 7 |
| 4. ADVISE and recommend streamlined systems to governments | 2 |
| 5. EVALUATE - analyze aggregate data for comparisons among institutions - identify deviations | 3 |
| 6. NO CHANGE - no role | 2 |

17. HRA & VITAL STATISTICS

- | | |
|---|---|
| 1. PARTICIPATE in organization of epidemiological studies, follow-up studies; involved in system organization | 4 |
| 2. ORGANIZE and supervise integrated system | 4 |
| 3. INTEGRATE into general health information system | 9 |
| 4. ADVISE - recommend collection, storage, retrieval system consult in system design | 3 |
| 5. EVALUATE- analyze trends, rates | 4 |
| 6. NO CHANGE - no role | 1 |

18. HRA & PUBLIC HEALTH

- | | |
|---|----|
| 1. PARTICIPATE in epidemiological, genetic studies - assume reporting role | 4 |
| 2. ORGANIZE - develop information systems with coordination as aim - provide management services | 3 |
| 3. INTEGRATE - link with total health information system | 17 |
| 4. ADVISE on system management | 2 |
| 5. EVALUATE - analyze data- identify trends, conditions, hazards - evaluate care rendered in public health outlets according to standards | 4 |

- 9 -

AREAS OF FUNCTION AND CATEGORIES	NUMBER OF RESPONSES
19. <u>HRA & PREVENTIVE CARE</u>	
<u>Categories:</u>	
1. PARTICIPATE in screening programs and analyze data - also in epidemiological studies	4
2. ORGANIZE provision of information - major function as shift from episodic toward preventive-social- life-style orientation	5
3. INTEGRATE - coordinate system of data generation and evaluation with total system	8
4. ADVISE re information management	1
5. EVALUATE - survey effects of preventive measures - monitor system	2
20. <u>HRA & HEALTH LAW</u>	
1. PARTICIPATE in law seminars	1
2. ORGANIZE - lobby for legislation pertaining to health information - Direct input into law formulation	6
3. INTEGRATE	-
4. ADVISE re staff implementation of health laws - educate staff re legal requirements - Leadership role	13
5. EVALUATE - monitor institution-wide knowledge of health laws and law abidance - identify need for staff education	9
6. NO CHANGE -	2

ROUND 2 TASKS

In Round 2, the AREAS OF FUNCTION OR SUBJECTS and the CATEGORIES as described in the feedback will be presented to you in a matrix form.

Your tasks will be:

1. Please list your priorities among the categories by using the codes 1,2,3 to respectively indicate the three categories you judge are most expressive in terms of the future with respect to each area of function.
2. Please indicate on self-appraisal scale your expertise in each area of function by circling the appropriate code number.
3. Please indicate on the single five-point scale at the end your expertise in Health Record Administration by circling the appropriate number.
4. If you wish to comment on the feedback, please feel free to do so on the blank page attached for this purpose. Make your comments objective, so they can be fed back into the system!

* * * * *

ROUND 2 TASKS

AREAS OF FUNCTION OR SUBJECT	C a t e g o r i e s							SELF-APPRAISAL SCALE RE AREAS OF FUNCTION. (circle the appropriate code number.)
	1.	2.	3.	4.	5.	6.	7.	
	PARTICIPATE	ORGANIZE	INTEGRATE	ADVISE	EVALUATE	NO CHANGE	OTHERS	
	(indicate your three choices by entering 1,2 or 3 in the appropriate columns.)							
1. HRA & QUALITY OF CARE PROGRAMS								Not knowledgeable 1 Knowledgeable 2 Expert 3
2. HRA & RESEARCH AND STUDIES								Not knowledgeable 1 Knowledgeable 2 Expert 3
3. HRA & AMBULATORY AND HOME CARE PROGRAMS								Not knowledgeable 1 Knowledgeable 2 Expert 3
4. HRA & ALLIED HEALTH PROFESSIONS								Not knowledgeable 1 Knowledgeable 2 Expert 3
5. HRA & HEALTH INFORMATION SYSTEM								Not knowledgeable 1 Knowledgeable 2 Expert 3
6. HRA & COMPUTERIZED RECORDS								Not knowledgeable 1 Knowledgeable 2 Expert 3
7. HRA & HEALTH INFORMATION LINKAGE								Not knowledgeable 1 Knowledgeable 2 Expert 3

AREAS OF FUNCTION OR SUBJECT	C a t e g o r i e s							SELF-APPRAISAL SCALE RE AREAS OF FUNCTION.	
	1. PARTICIPATE	2. ORGANIZE	3. INTEGRATE	4. ADVISE	5. EVALUATE	6. NO CHANGE	7. OTHERS		
8. HRA & ACCREDITATION								Not knowledgeable 1 Knowledgeable 2 Expert 3	
9. HRA & MANAGEMENT, INSTITUTIONAL AND DEPARTMENTAL								Not knowledgeable 1 Knowledgeable 2 Expert 3	
10. HRA & POLICY FORMULATION RE HEALTH INFORMATION								Not knowledgeable 1 Knowledgeable 2 Expert 3	
11. HRA & ADMITTING AND OTHER HEALTH RECORD KEEPING DEPTS								Not knowledgeable 1 Knowledgeable 2 Expert 3	
12. HRA & COST EFFECTIVENESS								Not knowledgeable 1 Knowledgeable 2 Expert 3	
13. HRA & SCHOOLS AND INDUSTRIES HEALTH RECORDS								Not knowledgeable 1 Knowledgeable 2 Expert 3	
14. HRA & HEALTH AGENCIES								Not knowledgeable 1 Knowledgeable 2 Expert 3	
15. HRA & CONFIDENTIALITY OF HEALTH INFORMATION								Not knowledgeable 1 Knowledgeable 2 Expert 3	
16. HRA & GOVERNMENT REPORTING								Not knowledgeable 1 Knowledgeable 2 Expert 3	

AREAS OF FUNCTION OR SUBJECT	C a t e g o r i e s							SELF-APPRAISAL SCALE re AREAS OF FUNTION.
	1. PARTICIPATE	2. ORGANIZE	3. INTEGRATE	4. ADVISE	5. EVALUATE	6. NO CHANGE	7. OTHERS	
17. HRA & VITAL STATISTICS								Not Knowledgeable 1 Knowledgeable 2 Expert 3
18. HRA & PUBLIC HEALTH								Not knowledgeable 1 Knowledgeable 2 Expert 3
19. HRA & PREVENTIVE CARE								Not knowledgeable 1 Knowledgeable 2 Expert 3
20. HRA & HEALTH LAW								Not knowledgeable 1 Knowledgeable 2 Expert 3

* * * * *

SELF-APPRAISAL SCALE RE HEALTH RECORD ADMINISTRATION

Please circle the appropriate number of the scale:

1. 2. 3. 4. 5.
Not knowledgeable Knowledgeable Expert

* * * * *

You have arrived now at the end of Round 2. If you have found that some important feature has been left out, please feel free to comment on the attached page. Thank you !

December 1978.

Respondents categorized according to the three-point self-rating scale attached to each area of function and to the five-point self-rating scale measuring expertise in H R A.
Round 2 only

Self-rating Areas of Function	H R A Self-rating scale					Total
	Not knowledgeable 1	Know-ledgeable 2	Know-ledgeable 3	Know-ledgeable 4	Expert 5	
1. Not know-ledgeable	1	1	-	1	2	3
Knowledge-able						
Expert						
2. Not know-ledgeable	1	1	-	1	2	2
Knowledge-able						
Expert						
3. Not know-ledgeable	1	1	2	2	1	6
Knowledge-able						
Expert						
4. Not know-ledgeable	1	1	1	2	1	4
Knowledge-able						
Expert						
5. Not know-ledgeable	1	1	1	11	1	2
Knowledge-able						
Expert						
6. Not know-ledgeable	1	1	2	1	1	4
Knowledge-able						
Expert						
7. Not know-ledgeable	1	1	3	1	1	5
Knowledge-able						
Expert						
8. Not know-ledgeable	1	1	8	10	1	3
Knowledge-able						
Expert						
9. Not know-ledgeable	1	1	3	2	-	7
Knowledge-able						
Expert						
10. Not know-ledgeable	1	1	2	1	1	5
Knowledge-able						
Expert						
11. Not know-ledgeable	1	1	-	2	2	3
Knowledge-able						
Expert						
12. Not know-ledgeable	1	1	4	2	2	8
Knowledge-able						
Expert						
13. Not know-ledgeable	1	1	5	6	1	13
Knowledge-able						
Expert						
14. Not know-ledgeable	1	1	4	3	1	8
Knowledge-able						
Expert						
15. Not know-ledgeable	1	1	-	-	-	1
Knowledge-able						
Expert						
16. Not know-ledgeable	1	1	3	2	2	7
Knowledge-able						
Expert						
17. Not know-ledgeable	1	1	2	3	1	6
Knowledge-able						
Expert						
18. Not know-ledgeable	1	1	3	5	1	9
Knowledge-able						
Expert						
19. Not know-ledgeable	1	1	5	2	1	8
Knowledge-able						
Expert						
20. Not know-ledgeable	1	1	4	4	1	10
Knowledge-able						
Expert						
TOTALS:	9	20	44	41	-	114
Not know-ledgeable						
Knowledge-able						
Expert	8	-	110	179	16	313
	3		26	20	24	73
N =	1	1	9	12	2	25

Appendix 6

Null hypothesis:

There is no significant difference between the results obtained and those which could have been obtained from a random sample of the general population.

Alternate hypothesis: There is significant difference between the results obtained and those which could have been expected from a random sample of the population:

$$\chi^2 = K \sum_{i=1} \frac{(f_i - F_i)^2}{F_i}$$

where K = 20 areas of functions.

f_i the results observed

F_i the results expected in class i , in terms of
3 choices per panel member, that is $3 \times 25 =$
75 responses.

χ^2 calculated at 19 degrees of freedom at the 0.01 significance level equals 36.191.

$$\begin{aligned} & \frac{(64-75)^2}{75} + \frac{(68-75)^2}{75} + \frac{(59-75)^2}{75} + \frac{(62-75)^2}{75} + \frac{(60-75)^2}{75} + \frac{(66-75)^2}{75} + \frac{(64-75)^2}{75} + \\ & \frac{(61-75)^2}{75} + \frac{(55-75)^2}{75} + \frac{(56-75)^2}{75} + \frac{(64-75)^2}{75} + \frac{(56-75)^2}{75} + \frac{(66-75)^2}{75} + \frac{(64-75)^2}{75} + \\ & \frac{(67-75)^2}{75} + \frac{(55-75)^2}{75} + \frac{(62-75)^2}{75} + \frac{(55-75)^2}{75} + \frac{(54-75)^2}{75} + \frac{(51-75)^2}{75} = \end{aligned}$$

$$\begin{aligned} & 1.613 + 0.653 + 3.413 + 2.253 + 3.0 + 1.08 + 1.613 + \\ & 2.613 + 5.333 + 4.813 + 1.613 + 4.813 + 5.333 + 2.613 + \\ & 0.853 + 5.333 + 2.253 + 5.333 + 5.88 + 7.68 = 68.088 \end{aligned}$$

$$\chi^2 = 68.088$$

$$\chi^2_{1\alpha} \text{ at } 0.01 \text{ level} = 36.191$$

Reject null hypothesis

2.

Appendix 6

Null hypothesis:

There are no significant differences between the scores obtained by each category, because the panel members assigned their choices at random.

Alternate hypothesis:

There are significant differences between the scores assigned to each category.

$$\chi^2 = \sum_{i=1}^k \frac{(f_i - F_i)^2}{F_i}$$

where K = 7 categories, f_i the frequency of responses observed

F_i the frequency expected if the responses had been

equally distributed among the seven categories, that is: $1195:7 = 170.7$.

χ^2 calculated with 6 degrees of freedom at the 0.01 significance level = 16.812.

$$\begin{aligned} \chi^2 = & \frac{(296-170.7)^2}{170.7} + \frac{(259-170.7)^2}{170.7} + \frac{(220-170.7)^2}{170.7} + \frac{(234-170.7)^2}{170.7} + \\ & \frac{(149-170.7)^2}{170.7} + \frac{(30-170.7)^2}{170.7} + \frac{(9-170.7)^2}{170.7} = \end{aligned}$$

$$91.975 + 45.676 + 14.238 + 23.473 +$$

$$3.574 + 115.972 + 153.175 = 448.084$$

Wilcoxon Paired-Sample Test

Null Hypothesis:

There is no difference between the percentages of responses given to the areas of function and the categories of activity in Round 1 and Round 2.

Areas of function	Categories of Activity	Percentages Received in Round 1	Percentages Received in Round 2	d	Rank	Signed Rank
1	1	31	33	-2	3	-3
	2	26	22	4	8.5	
2	1	33	34	-1	1.5	-1.5
	3	22	19	3		
3	2	33	22	11	28	
	3	40	27	13	32.5	
4	1	29	24	5	11.5	
	4	24	27	-3	5.5	-5.5
5	1	17	27	-10	22.5	-22.5
	2	14	33	-11	28	
6	1	23	30	-7	15.5	-15.5
	2	39	24	15	36	
7	1	18	23	-5	11.5	-11.5
	2	38	33	5	11.5	
8	1	37	34	3	5.5	
	5	37	21	16	38	
9	1	34	31	3	5.5	
	24	34	25	9	18	
10	1	47	30	17	40	
	4	10	36	-26	42.5	-42.5
11	2	41	25	16	38	
	3	41	30	11	28	
12	1	29	34	-5	11.5	-11.5
	2	29	13	16	38	
	5	10	20	-10	22.5	22.5
13	2	31	24	7	15.5	
	3	31	18	13	32.5	
	4	20	24	-4	8.5	-8.5

2.

Appendix 7

Areas of function	Categories of Activity	Percentages Received in Round 1	Percentages Received in Round 2	d	Rank	Signed Rank
14	3	44	26	18	41	
	2	23	13	10	22.5	
15	2	44	34	10	22.5	
	1	9	22	-13	32.5	-32.5
	5	32	18	14	35	
16	2	40	29	11	28	
	3	23	22	1	1.5	
17	3	36	26	10	22.5	
	1	16	26	-10	22.5	-22.5
18	3	57	31	26	42.5	
	4	7	20	-13	32.5	-32.5
19	3	40	31	9	18	
	2	19	25	-6	14	-14
20	4	42	33	9	18	
	5	24	18	11	28	

differences with the less frequent sign:

-3		
-1.5	$\gamma^1 = m(n+1) - \gamma$	$m = \text{number of ranks with less frequent sign}$
-5.5		
-22.5	$\gamma^1 = 14(43+1) - 240$	$\gamma = \text{sum of ranks with less frequent sign}$
-15.5		
-11.5		
-42.5	$= 616 - 246$	
-11.5		$n = 43$
-22.5	$\gamma^1 = 370$	
-8.5		
-32.5	$\gamma_{0.05(2), 43} = 310$	
-22.5		
-32.5		
-14		
<u>246.0</u>	$\gamma^1 > 310 \Rightarrow \text{Accept null hypothesis.}$	