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ABSTRACT

The effect of word processing equipment on the future medical secretarial science curriculum was studied. A literature search focused on word processing and the medical and allied health professions, word processing and business education, and futuring of and changes in the secretarial science curriculum. Questionnaires to identify various aspects of word processing in the medical and allied health professions were mailed to 101 hospitals and 417 physicians within the five boroughs of New York City. Some study participants were also interviewed to gather in-depth data on operating installations. The major finding was that word processors were not currently being used as much as was thought. With the high percentage of hospital personnel and physicians who indicated they were considering the use of word processing equipment and with decrease in their prices and future increases in technology, use of word processing was predicted to increase in the future. Larger hospitals tended to use word processing equipment. Investment costs hindered use in smaller hospitals. Another major reason for non-use was physicians' unfamiliarity with word processing equipment. A curriculum for secretarial science majors with a concentration in word processing was suggested that included courses in computer literacy and word processing supervision as well as management, simulation, and field experience. (YLB)

THE IMPACT OF WORD PROCESSING ON OFFICE ADMINISTRATION IN THE MEDICAL AND ALLIED HEALTH PROFESSIONS

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Under the auspices of
The National Institute of Education
and The Graduate Center of
The City University of New York

This study is dedicated with love to my husband, George Lloyd, and to my children, Adina, Henry Adam, and Sabrina, who, once again, have risen above all the words processed in our home . . . .

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CHAPTER I

INTRODUCTION

Context of the Problem

The basic problem to be addressed was: How well is the community college fulfilling its responsibilities in its training of the medical secretary? Should there be a redesigning and restructuring of the secretarial science curriculum in the medical specialty to keep up with changes in word processing usage? Since the process of communication with the medical and allied health fields is vital, should the personnel in these areas be involved in the planning of new curricula, offering practical suggestions that an academician may overlook?

Basically, the following question must be asked: Should the medical secretarial science curriculum include word processing?

Objectives

Specific objectives were to determine the answers to the following research questions:

1. Do doctors who are in practice for a shorter time (less than ten years) tend to adopt word processing changes in office technology?

2. Do larger hospitals tend to adopt modern word processing technological methods more readily than smaller hospitals?
3. What kinds of skilled secretarial manpower are needed to run word processing equipment?
4. Is training for word processing being given on an office-based or hospital-based level?
5. Should the community college medical secretarial science curriculum include word processing?

Significance of the Problem

The significance of the proposed project is that the results will:

1. Indicate what further research is necessary to make the goals of more efficient office administration widespread throughout the medical profession.
2. Indicate in what areas in the secretarial science discipline curriculum has to be developed or modified in order to prepare graduates to function successfully in the word processing environment.

Statement of the Problem

This project has attempted to measure changes in office administrative procedures in the medical and allied health professions because of the introduction of word processing equipment and processes with a view toward

projecting modifications in the postsecondary medical secretarial science curriculum. It is believed that the cost structure of office administration in the medical field can be greatly reduced if appropriate word processing systems are employed. This research, through the use of a globally mailed questionnaire and selected personal interviews, has attempted to measure the depth to which word processing has been implemented in the medical field. Additionally, the broadest possible number of potential medical users were identified to form the data base for the study.

A complete search of current literature in the general area of word processing and specifically in the areas of medical applications has been undertaken.

Limitations

The focus of this research has originated in the area in which the defined population of the City University of New York is served. Therefore, the population has been delimited to those physicians practicing medicine within the five boroughs of New York City. Also, only hospitals situated within this same area; namely, New York City, has been surveyed.

Definitions

The following terms are defined as utilized in the context of this study in order to avoid any possible semantic problems:

DEPARTMENT: A functional or administrative division of a hospital, health program or government agency. Sometimes also known as a service. A department within a hospital or medical school is typically run by a responsible individual, either a chairman or director, has its own budget and admits its own patients, but is not a separate legal entity. They are frequently organized by medical specialty, i.e., a pediatric, radiology, or surgery department.

GENERAL HOSPITAL: A facility in which patients with many types of conditions are cared for; consists of various departments such as medicine, surgery, pediatrics, and obstetrics, all well equipped and well staffed.

GROUP PRACTICE: A formal association of three or more physicians or other health professionals providing services with income from medical practice pooled and redistributed to the members of the group according to some prearranged plan (often but not necessarily, through partnership).

HOSPITAL: An establishment with an organized medical staff, with permanent facilities that include inpatient beds, and with medical services, including

physician services and continuous nursing services, to provide diagnosis and treatment for patients.

HOSPITAL INPATIENT BEDS: Hospital inpatient beds, cribs, and bassinets, excluding hospital newborn bassinets. In the United States, accommodations for newborn infants are considered separately for statistical and reporting purposes.

MEDICAL RECORD: A record kept on patients which properly contains sufficient information to identify the patient clearly, to justify his diagnosis and treatment, and to document the results accurately. The purposes of the record are to serve as the basis for planning and continuity of patient care; provide a means of communication among physicians and any professional contributing to the patient's care; furnish documentary evidence of the patient's course of illness and treatment; serve as a basis for review, study and evaluation; serve in protecting the legal interests of the patient, hospital, and responsible practitioner; and provide data for use in research and education.

MEDICAL SECRETARY: Performs secretarial duties utilizing knowledge of medical terminology and hospital, clinic, or laboratory procedures. Takes dictation

in shorthand or using transcribing machine. Compiles and records medical charts, reports, and correspondence, using typewriter. May prepare and send bills to patients and record appointments.

PRIVATE PRACTICE: Medical practice in which the practitioner and his practice are independent of any external policy control. It usually requires that the practitioner be self-employed, except when he is salaried by a partnership in which he is a partner with similar practitioners.

PROPRIETARY HOSPITAL: A hospital operated for the purpose of making a profit for its owners. Proprietary hospitals are often owned by physicians for the care of their own and others' patients.

PUBLIC HEALTH: The science of dealing with the protection and improvement of community health by organized community effort (air, water, food, sanitation, immunization, preventive medicine, quarantine and other disease control activities; occupational health and safety programs; health education; epidemiology; health manpower training; biomedical research; manpower, family planning; emergency medical services systems.)

VOLUNTARY HEALTH AGENCY: Any non-profit, non-governmental agency, governed by lay and/or professional individuals, organized on a national, state, or legal basis, whose primary purpose is health-related. The term usually designates agencies supported primarily by both voluntary contributions, and charges and fees for services provided.

There are also a large series of word processing definitions in the following two references: Dartnell's Glossary of Word Processing Terms (1977), and IWP Word Processing Glossary (1978).

CHAPTER II

REVIEW OF RELATED LITERATURE

A review of the literature as related to this study has been divided into the following three areas:

1. Word Processing and the Medical and Allied Health Professions.
2. Word Processing and Business Education.
3. Futuring and Change in Curriculum.

Word Processing and the Medical and Allied Health Professions

The need for secretaries in general, and medical secretaries in particular, is forecasted to rise. The New York Times (1979, p. 9) lists the following job prospects through the mid-1980's based on unpublished data from the U.S. Bureau of Labor Statistics:

Secretarial	33.3
Secretaries, Medical	80.3
Secretaries, Legal	50.0
Secretaries, Other	37.3
Stenographers	-22.0
Typists	20.0

The growth in the number of jobs expected is indicated next to the job titles. In cases where job

opportunities will drop, the change is shown with a minus sign.

As senior Republican member of the Labor and Human Resources Committee and the Health Subcommittee, Senator Javits (1979) introduced the Health Care for All American Act, a comprehensive national health plan. If such a plan were to be passed, the projection of jobs available to medical secretaries would surpass those already predicted by the Department of Labor Statistics. According to Goldman (1979) jobs in the health fields are expected to be plentiful. If a national health bill were to be adopted, "such legislation would open up opportunities even more than the statisticians' wildest dreams" (p. 30).

Employment for medical records technicians and clerks are expected to grow rapidly according to the Occupational Outlook Quarterly (1978). This is due to the claims that have to be processed, thus increasing the need for more complete medical records. The ultimate goal in the medical profession is to offer the greatest cost benefit of documentation and distribution for medical records application in terms of a patient's medical, legal and financial status. "The unique nature of medical documentation requires different word processing procedures in hospitals than in other paper-intensive industries" (Datapro Research Corporation, 1979, p. WP08-040-101).

The ideal situation within a hospital would be the pooling of administrative resources to provide centralized services for such functions as appointment scheduling, billing, dictation, communications and medical records management. A centralized word processing facility would increase the utilization and efficiency of the organizational structure of the hospital. An alternative to a centralized word processing center, may be the introduction of several smaller workstation "clusters" placed in different areas within the medical environment.

All aspects of our society have been affected by advancements in technology. The medical business office is no exception. Word processing must be given serious consideration as a tool for streamlining and modernizing all office procedures.

In October, 1973, the World Medical Association recognized the inevitable impact of computers in medicine. The following resolution, approved in Munich, Germany, during the twenty-seventh World Medical Assembly Conference on Computers and Confidentiality in Medicine is most important:

BE IT RESOLVED that the 27th World Medical Assembly

1. draw the attention of the peoples of the world to the great advances and advantages resulting from the use of computers and electronic data processing in the field of health, especially in patient care and epidemiology;

2. request all national medical associations to take all possible steps in their countries to assure that medical secrecy, for the sake of the patient, will be guaranteed to the same degree in the future as in the past;

3. request member countries of WMA to reject all attempts having as a goal legislation authorizing any procedures to electronic data processing which could endanger or undermine the right of the patient for medical secrecy;

4. express the strong opinion that medical data banks should be available only to the medical profession and should not, therefore, be linked to other central data banks; and

5. request Council to prepare documents about the existing possibilities of safeguarding legally and technically the confidential nature of stored medical data.

ADOPTED BY THE XXVIIth WORLD MEDICAL ASSEMBLY, MUNICH, GERMANY, OCTOBER 1973.

RESOLVED:

That the 27th World Medical Assembly having approved the above Resolution hereby ADOPTS this Resolution as being the Policy of The World Medical Association, Inc. on Computers in Medicine. This Resolution thereby supersedes any other Resolution on this subject adopted at the 27th World Medical Assembly.

APPROVED by the 27th World Medical Assembly, Munich, Germany, October 1973.

Austin and Carter's (1981) research "revealed few operational systems" and concluded that "information systems have not been used extensively as an aid to quality assurance in hospitals" (p. 53). However, the literature indicates, there is an increasing projected use of mini-computers in hospitals (LaViolette, July, 1980).

Although a very small percentage of the country's hospitals have extensive information systems in operation, Webb (1982) states, "With the tasks involved in logging, sorting, filing, retrieving, manipulating and communicating information often representing about 40 percent of the cost of running a hospital, the need for up-to-date, computer-based hospital information systems is now an established fact of life" (p. 22). Austin and Carter (1981) agree that, "The current state-of-the-art in the utilization of information systems to support quality assurance in hospitals is limited.

Complete systems should combine patient care, financial subsystems, and nursing station and ancillary department terminals. It is no longer financially feasible to access information manually. Faster and more reliable access to information for decision making is achieved from an online information system. Packaged software information systems are on the market that are completely adaptable to individual hospitals.

It is presumed, according to Haase (1979), that all hospitals, whether small or large, cover the same functions in relation to patient care. Therefore, the difference, in terms of word processing, is merely in the amount of data to be processed. If the hospital is to run at a peak of efficiency, then the implementation, development and maintenance of a word processing system must be

economical for the hospital. Software should be independent of equipment manufacturers in order to allow for a competitive market.

Many software manufacturers have programmed health industry application products. For example, already on the market are admission systems, patient care systems, medical abstract systems, accounting systems, and utilization review systems. The objective is to totally and successfully manage patient records.

The federal government has developed public domain systems through federal grants and contracts for health care. This free software can handle hospital census reporting, ambulatory record maintenance, patient appointment scheduling, ECG analysis, accounts receivable, and medical information management reporting (LaViolette, August, 1980). These systems were developed, according to LaViolette (August, 1980), "to fill a gap left by proprietary vendors or to advance the state-of-the-art" (p. 26). These public domain systems can be modified for individual needs.

Although packaged software programs are often superior and can be modified if necessary, Dealy (1982) states that, "If you can't find any suitable packaged programs, it may be necessary to hire a programmer to write custom programs" (p. 39). Before a system is designed for a physician's office, a system analysis

should delineate the structure and organization of the physician's office. Hartmann (1980) acknowledges that, "In daily office work the physician and the staff perform many repetitive and tedious tasks which can be supported by automated systems" (p. 170). As the practice grows, realized Neiburger (1981), the doctor must devote an increasing amount of time to management, particularly paperwork problems. "At this point, it's time he consider computerizing his office" (Neiburger, 1981, p. 48).

Accurate, up-to-date medical records are vital in order for the medical care system to respond effectively and to allocate resources appropriately. MacIntyre and Wadbrook (1979) state that "a medical record system must store very large amounts of information in a structured and easily accessible manner" (p. 984). The aim of the word processing system is the efficient collection and presentation of necessary data in an economically sound process. The computing and word processing environments are constantly changing as we move toward the future. The volume of paper involved in the management of medical records is enormous. This area most definitely needs the focus of automation. Because medical record keeping has become a very critical application of word processing technology, many hospitals have developed standardized reporting systems in an effort to reduce medical staff paperwork while, at the same time, providing high-speed,

accurate reports. The medical record may be the only link between the physician and proper patient care.

Communication of information is the vital aspect involved in medical word processing. Ancillary departments, all service departments, and business areas must be notified of all physicians' orders in order to be made an integral part of the patient's record and, of course, the patient's master data base, including lab results, lab orders, pharmacy orders, x-ray orders and results, and nursing care plan by shift, and medication plan by nursing station.

Medical word processing is also a vital instrument in the area of research. Ability to access stored data makes it easier to isolate persons with a specific diesease and to study the course of the illness, age of the patients, length of hospital stay, and ultimate conclusion. Thus, in addition to an automated patient index, a disease index can be maintained.

Obviously, it becomes necessary to cross over departmental lines. Initially, there may be word processing units in the emergency room, reception area, emergency room nursing area, x-ray department, medical records department, admitting department, and, finally, in the accounting department for both patients and staff. Some departments may be very instrumental in the inputting of the data base to the system, but are merely the beginning

of long-line processing of information (Sixth Annual International Information Management Exposition and Conference, 1979, p. 17). Information is later added from the inpatient hospital floor, or from the business office. Retrieval of information from the on-line system crosses over departments, whether it is by unit number or medical number, x-ray number or other self-styled methods such as date of birth, last name, etc.

If word processing systems are implemented, proper training sessions must be conducted. It is most important to fully understand the data base involved and the recovery techniques.

One major concern of computerizing information was that of security. Security codes must therefore be issued for every transaction by each operator, guaranteeing that unauthorized persons have no access to the system either for input or for retrieval of information. Automated record systems are less accessible to unauthorized scrutiny than the manual retrieval of written records. Zimmerman and Rector (1979) suggest the restriction of the availability of the computerized record keeping to only those persons with the necessary authorization code. Confidential medical data must remain just that: confidential medical data. Blight (1981) recognizes the need for confidentiality of records and has built passwork controls into the system. "Trust," according to Blight (1981), "must still be placed in the individuals who have

the ability to access the records, (the same as is given to those with access to the paper records" (p. 44). It cannot be overemphasized that security and confidentiality are of prime importance.

Although there are many visual display units (VDU) installed in one particular medical center, printers are situated in selected locations. Hill (1981, p. 986) describes five main operational computer systems:

1. The patient administration system (PAS)
2. Laboratory systems
3. Nursing orders
4. Information systems
5. Drug prescribing systems.

Hill states that "many print-outs are produced regularly for the benefit of departments that cannot justify a VDU but need administrative information." Although the user has free access to information from any of the five systems, there is a code that controls the use of the system, thus ensuring confidentiality. Therefore, no one can overstep the boundaries of his authorized use of the computer system.

A more recent application of the computer in hospitals has been reviewing and selecting requested data. Work patterns and employees' tasks must be reoriented and job descriptions revised. The productivity of employees should be increased, which may mean the difference between

a hospital's economic survival or demise. However, Grobmyer (1977) states that instituting word processing in his hospital has proven to be economical in both short- and long-term goals. By organizing and processing written communication, the word processors have alleviated the voluminous amount of paperwork required for proper documentation of patient care and has improved productivity as well as accuracy.

Most hospitals are utilizing multiple mini-computers in a network. Each computer in the network supports a designated number of terminals, interconnected by data links, which are duplicated in case of computer breakdown. Many hospitals, according to Dorenfest (1980), arrange shared services whereby data is processed by large computers located off the hospital site. "Communications between a hospital and a computer service bureau may be via mail, courier or remote electronic terminals. The terminals may be set up for batch or on-line, real-time file updating" (p. 71). Dorenfest (1980) predicts that, "While computer sharing continues to be a viable alternative, as the cost of computing power declines and software packages available for in-house computing improve, fewer hospitals will utilize shared computer hardware" (p. 78).

Dorenfest (1980) divides hospital computer users into three primary approaches:

1. In-House only: This group included those that use "in-hospital" computers for almost all or all of their financial and other computer applications.

2. Shared only: This group included hospital users that purchased all of their computer services from an outside service bureau.

3. Shared for finance and in-house for other: This group included the computer users that utilize outside service bureaus for their financial applications and "in-hospital" computers for one or more other applications, such as data collection, laboratory, pharmacy, etc. (p.73)

The percentage of budget appropriated for computer operations seems to depend on hospital size in addition to the number and type of applications that are to be computerized. In his doctoral research, Lindskog (1977) based hospital size on the total available patient beds. His specific criteria were:

1. Large Hospital--600 beds or more.

2. Medium Hospital--200-600 beds.

3. Small Hospital--200 beds (p. 144).

Since no official criteria for establishing groupings of bed size has been designated by the American Hospital Association, Lindskog (1977) selected three representative hospitals in the Chicago Metropolitan area to meet these specifications.

Webb (1982) outlines the advantages of information networking with a single data entry:

> ". . . when a drug is ordered online from the pharmacy, in addition to the physical task of ordering the drug, the system also typically updates the patient's pharmacy drug profile, initiates the charge for the item, creates the medication schedule for the nursing unit, updates the picking list and decrements the pharmacy inventory--all as a by-product of the one order entry." (p. 25)

The ultimate objective of installing a data dependent information network system is to deliver better patient care (Austin and Carter, 1981; Webb, 1982). Prescriptions can also be printed by the computer, thus avoiding the possibility of theft of prescription pads. Hutchins (1982) claims that a comparatively low cost microcomputer would allow a hospital pharmacist to create his own individual program for business or clinical applications. Hutchins states, "By simple manipulation of the data already entered into the computer for labeling purposes, we are able to tabulate antibiotic usage by individual nursing floors and on a hospital-wide basis. These figures have become the basis for our input into the antibiotic usage and review function of the hospital's medical staff" (p. 33). The installation of a minicomputer has "revitalized" the pharmacy department and "has had a tremendous impact on the entire hospital in staffing and patient care, and it has paid for itself many times over" (Hutchins, 1982, p. 34).

Computers are also being utilized for identifying patients with potential adverse drug reactions. And, of course, computer applications greatly assist nurses and

physicians in patient care delivery and administration. Veazie reports the many advantages of a computer-based system in the food and nutrition service area of a hospital. Veazie (1980) indicates a heightened interest by physicians in computer applications for their private office practices. In addition, to simplify administrative and clinical management problems, the minicomputer can also be utilized as a diagnostic tool. Because of the major impetus for cost containment, "the health care field's major emphasis regarding computer-based information systems was to institute sound management of the design, selection, implementation, and operation of the systems" (Veazie, 1980, p. 99).

Thies (1975) recommends consideration of the "human and organizational dimensions of systems development, rather than the purely technological or computer-related factors which commonly dominate traditional data processing applications" (p. 18). Thies (1975) suggests evaluation for computer services in terms of (1) cost containment, (2) manpower requirements, (3) system utilization, (4) availability of computer services, (5) user acceptance, and (6) generalizability (p. 19).

When utilized in the admissions office, the process of readmission of a patient is simplified. At the Sixth Annual International Management Exposition and Conference (1979), it was emphasized that "a significant amount of the data necessary is already there in the

computer and does not have to be keyed in for this visit, duplicating the effort of a month or a year ago. And it benefits the medical records department in that the admission or discharge is automatically updated on the data base" (p. 53). Coded diagnoses and procedures may also be stored on the data base.

Health care simulations through the use of computers can be divided into three levels of a hierarchy: the health care (1) of a population, (2) within an institution and (3) of an individual patient (Wilson, 1980, pp. 73-74). Simulations can be used for planning new facilities, introducing new methods of organization or improving existing services, diagnosis of illness, streamlining appointment schedules and allocation of budget.

If a national health care plan is finalized and effective, it is logical to assume that most physicians will ultimately automate as a result of paperwork overload. Rapid accessibility of each patient's record is of prime importance. According to Merrill (1981), "The conversion to automated records filing leads to cost effectiveness through increased productivity while maintaining high-quality standards" (p. 133). Word processing systems were utilized in one hospital in the handling of 10,000 documents per month. This system is coordinated with a dictation processing and scheduling station. Florida's Blue Cross and Blue Shield (1978) headquarters reduced their

budget by 31 percent by opening a word processing center that encompassed a computerized central dictating system in combination with computer-based electronic text editors.

One hospital based the selection of a microcomputer central dictation system on the service and performance available. Efficiency was a critical component. The system was an extremely helpful factor in managing the amount of dictation and supporting the medical staff with fast and accurate turnaround service, in addition to easing the workflow among transcriptionists, according to a director of medical records in a 700-bed hospital (Dictation System Meets Medical Workload at a Busy Georgia Hospital, 1981). In addition to monitoring the progress from the moment a physician begins dictating until the medical record is completed, the system also stores a history of medical-records dictation.

Datapro Research Corporation (1981) reports that, "The efficiency with which a central dictation system can record physician's notes from locations all over a hospital building and make them accessible for rapid transcription is the primary justification for hospital word processing" (p. WP08-040-101). Other advantages of the utilization of a word processing system are greater flexibility, wider applicability and the higher quality of the edited reports.

According to Ashworth (1979) the first effort in undertaking the application of the computer was the

development of a coding system for diagnosis, thereby providing uniformity in terminology. Satisfaction with a word processing system in a medical laboratory is described by Ashworth (1979):

> Introduction of the Text Editor in our laboratory has produced a major impact upon work flow and capacity. Report generation has been significantly facilitated and speeded up; total man-hours necessary for report preparation have been decreased by approximately 50%; the meetings of deadlines for report delivery is much improved. Using the Text Editor, one secretary-operator can produce 60-70 reports daily (peak loads in our laboratory) without undue strain.
>
> The requirement of seemingly incessant dictation and transcription has been almost abolished, and the atmosphere of work under pressure of volume, time, and deadlines changed favorably and dramatically almost immediately when the system was activated. (p. 261)

Ashworth concludes that:

> The system produces concise but complete descriptions that are typed with precision, grammatically correct with proper punctuations and correctly spelled words, and their content is lucid and readable because of their premeditated and edited composition.

Limitations naturally arise in a paper-based system within a hospital as the volume of appointments and multiple tests increase. By computerization of central scheduling, the effect of one department's booking pattern on another becomes evident. "Many patients come for both lab work and ECG and therefore the ability to accept appointments should be about equal in the two departments

so that the patient will be finished as quickly as possible and need make only one trip to the hospital" (Duffy, 1976, p. 34). Duffy strongly advises the automation of the hospital's index system before computerizing their appointment scheduling or admission procedures.

Since Medicare is common to all hospitals, centralization has allowed for the inclusion of a separate section specializing in the handling of Medicare forms. According to Fournet and Shoemaker (1980), "The success of electronic processing has been demonstrated both in reducing the time required to liquidate a Medicare Account and in reducing the clerical efforts associated with processing, handling and accounting" (p. 89). The sophistication of information systems must be assimilated into health care systems, or hospital management "could find they can't respond to government regulations or competition from other hospitals" (LaViolette, June, 1980, p. 24).

The centralization of a computerized billing and accounts receivable management system has allowed for the recruitment, training, and retention of skilled personnel and experienced supervisors. One hospital has substantially reduced their business office costs by introducing a data collection/communications system that "eliminates the inefficiencies, delays and lost charges associated with non-automated methods. Information is entered once at its source and is available spontaneously wherever needed

within a hospital" (Fournet and Shoemaker, 1980, p. 88). More efficient use of manhours and increased cash flow is attained when electronic submission of claims is established. Also, according to Elliott and Tucker (1979) better public relations are achieved from more timely claims filing and payment.

Although the initial computer costs have been decreasing, the software expenditures have risen. Therefore, prior to decision making, systems analysis must be conducted, and user specifications and systems design activities must be assessed for either selection of package systems or internally developed computer systems. The first step towards decision making should be the creation of a master plan for a hospital information system. The interfacing of word processing-phototype-setting eliminates the need for rekeyboarding, the most expensive and error-producing operation in the typesetting process. Accuracy is a major consideration in the health-care field, where small errors in any document can become the difference between life and death.

Each administrator must be fully aware of the total organizational system in which each computer works. Information-processing within a hospital setting are interdependent and inseparable elements. The very complexity of a hospital feeds on information processing. Bennett (1979) recommends "ongoing, formalized training

programs for user managers covering such areas as the role of computerized information processing within the organization, the logic of the programs included in the hospital's information systems, ways in which these systems can be used most effectively, and tools and techniques that can help sharpen the skills of systems users in translating data into useful information" (p. 51).

It is most vital to realize the importance of the medical record and its immediate availability for proper patient care.

Word Processing and Business Education

In the office of the eighties, word processing is the fastest growing segment of the office equipment industry. Word processing systems are more than a more-productive approach to secretarial work--more than a way of upgrading secretarial operations.

According to Kleinschrod (1979) three events are responsible for the growth of word processing systems:

1. Management studied the overhead costs of its office operations.
2. The automatic text-editing typewriter was introduced.
3. An idea was developed for a new approach to working; it mobilized the powers of text-editing equipment and typewriters against the problem of

wasteful office overhead. The higher cost was justified by the scale on which the system was implemented. (p. 8)

Word processing has become the catalyst for fusing together former isolated office functions. This has resulted in an integrated network for the transference of information from "place to place, device to device, user to user" (Kleinschrod, 1979).

By interacting and linking up with any screen-equipped computer terminal, information that is keyboarded on a unit in one city can be sent over a telephone hookup to a compatible terminal in another city anywhere in the country, or world, for printout.

The business educator and the business education student must be constantly aware of how changing technologies affect workers and their environment. Students and faculty must be cognizant of new career opportunities with the emergence of word processing office systems. Business educators must accept the new technology as a viable part of the world of work and the business curriculum. They must, according to Turner (1981), "have positive attitudes and a willingness to accept the change since the attitude of the teacher will influence or determine student achievement" (p. 24).

Curley (1980) states that "Word processing is having an impact upon offices which educators cannot

ignore" (p. 199). Curriculums must be revised to make students aware of the new careers that are now emerging. Curley (1980) recommends the encouragement of students to enroll in computer classes in preparation for the merging of data processing and word processing. "Business and office educators should examine carefully their thinking regarding the inclusion of word processing principles and concepts in the curriculum," states Moody (1980, p. 214).

The following are two of the suggestions for business educators that Simcoe (1980) suggests in preparation for emerging technological advances:

1. Curriculums should be based on a common core of required basic skills including grammar, punctuation, spelling, proofreading, decision making, interpersonal relations, and keyboard input.

2. Word processing programs must be integrally linked to such programs as data processing and the various disciplines involved, including but not limited to supervisory skills, time management, decision-making theory, and office design and systems administration. (p. 12)

It is imperative, Haff (1982) realizes, that business educators "prepare students not just for word processing or data processing as separate entities, but as subsystems of a more comprehensive information processing system utilized as a support function of a business or industry" (p. 19). In order for business education to survive the new technological environment, Stocker (1981) states that "new methods and new courses will need to be

incorporated into the curriculum. These new methods and new courses must involve the use of computers" (p. 25).

Zahn (1981) raises the possibility of the computer replacing the typewriter as "the most used and essential machine in business" (p. 26). The curriculum must be relevant "to reflect the rapidly changing computer technology and its corresponding impact on society" (p. 26). According to Zahn, the curriculum should have two goals: "(1) computer literacy, and (2) career preparation in information/data/word/computer processing" (p. 26).

Business educators must make students aware of the challenges to come in the word processing field. Spring (1979) states the importance of developing transcription, proofreading, editing skills in addition to establishing word priorities. Spring suggests the following topics for an introductory course in word processing:

1. Theory and development of word processing systems
2. Word processing personnel
3. Human aspects of word processing
4. Development of word processing skills and simulations
5. Word processing and the computer
6. The office of the future (p. 257)

Scriven (1981) concludes that "schools must do more to develop the basic skills of students as well as to provide a background of understanding about information,

total systems, and better ways of achieving goals" (p. 322). A weakness in the use of English must be corrected. Scriven (1981) concludes that schools should be responsible for teaching the following major competencies: "grammar and transcription skills (spelling, punctuation, capitalization, sentence structure, vocabulary, proofreading); typing with speed and accuracy; listening and following directions; operating dictation equipment" (p. 329).

As a result of her research, Rohrer (1978) recommends that business educators continue to "emphasize correct usage of English" (p. 113).

Boyce (1980) agrees that, "An essential requirement for success in word processing is strong language arts skills" (p. 13). In addition to punctuation, grammar, spelling, and vocabulary development, Boyce emphasizes the necessity of mastering proofreading skills. Turner (1981) agrees that the language arts skills are vital to transcription whether the transcribing is from stenography notes or from recorded dictation.

Most researchers agree that grammar, spelling, and proofreading skills are lacking in word processing operators. Wilkins (1981) states that a machine transcription course is the ideal location for honing of these skills. According to Wilkins (1981), "The demand for word processing operators with transcription skills will likely parallel the growth of word processing;

therefore, business education students must be given machine transcription skills that go far beyond the acquaintanceship level" (p. 37).

Dictation training is essential for future career paths if the task of document origination through the dictation process is to be mastered. The importance of teaching proper dictation skills is continuously emphasized in the literature (Hennington, 1981; Mayer, 1982; and Turner, 1981). In order to fully understand word processing concepts and word processing organization and procedures, Wilkins (1979) suggests a simulation experience for word processing or machine transcription classes. Reiff (1974) emphasizes that when transcribing material, "unless the end product contains proper spelling, grammar, and punctuation, it is not usable" (p. 179). Proofreading, Reiff (1974) adds, is also an integral part of transcription.

The curriculum in medical secretarial science, according to Gallagher (1978) should include the following four courses:

1. Medical Terminology--includes the derivation, definition, pronunciation, and spelling of medical terms. Medical specialities, allied health services, confidentiality and professionalism should also be stressed.

2. Medical Typing--includes the development of skill and speed in medical typing style with a major emphasis on insurance forms. The maintenance of financial records and computers should also be emphasized.

3. Medical Office Procedures I--includes the increasing of medical vocabulary while creating proficiency in machine transcription.

4. Medical Office Procedures II--continues the emphasis on skill building in machine transcription of medical material and the production of mailable copy utilizing medical terminology.

Medical terminology, according to Sormunen (1980) is the "building block of a medical secretary program." Typewriting, proofreading, grammar, punctuation, composition, and knowledge of insurance forms are all part of the curriculum. However, it is essential that the language of medicine, roots, suffixes, and prefixes be taught at the beginning of training. The language utilized in laboratory tests and most frequently prescribed drugs must also be taught.

In addition to knowledge of medical terminology, anatomy, pathology and pharmacology, the medical transcriptionist must possess speed, accuracy and proofreading skills (CIark, 1981). All business educators must teach the extremely vital skill of proofreading. This includes, according to Howard (1981), "not only finding typographical and spelling errors, but editing as well" (p. 11). Editing requires "proficiency in correct word usage, sentence structure, grammar, punctuation, capitalization, word division, conciseness, and the application of all composition rules that would transform the original idea into a complete, concise statement (Howard, 1981, p. 11).

Meroney (1979), as a word processing supervisor, identifies seven areas as key factors for an entry-level word processing operator: (1) typing skills; (2) transcription of dictation; (3) proofreading; (4) grammatical skills; (5) use of resource materials; (6) mathematics; and (7) concepts and theory of word processing. Of major emphasis when emphasizing accuracy in the word processing environment, is the ability to realize when a keyboarding error has been made in order to ensure the easy correction of such an error. Proofreading skills is a major part of machine transcription capabilities. Meroney also suggests the need for the employee to have the ability to interpret the written word.

Johnson (1979) and Rohrer (1978) advocate the consideration of exclusion of shorthand from word processing curricula. Rohrer states, "This will give the student who cannot master a shorthand system based on phonetic nonalphabetic symbols but who can type accurately and transcribe from magnetic media an opportunity to develop a marketable skill as a wp operator. Secretarial curricula should include this option" (Rohrer, 1978, p. 109). Rohrer (1978) also concludes that training programs of most value to word processing operators should include high standards for correct English usage.

Although the trend of word processing people is to advocate the eliminate of shorthand education, this

would also "eliminate important language skills that are desperately needed in transcription tasks that are a major part of word processing" (Darst, 1979, p. 178). Acquiring the knowledge of stenography is another employable asset for the job applicant. Substituting machine transcription for shorthand, according to Darst (1979) is not a "feasible alternative for those who do not do well in shorthand. They will still have many of the same difficulties with machine dictation" (p. 179). Stocker (1981) agrees with this philosophy by stating, "Students who do wish to become administrative support people and who do not wish to take shorthand should be required to develop the same transcription competencies as those developed by shorthand students" (p. 27).

The secretarial science student should have the option of enrolling in stenography courses (Gallagher, 1978) "in order to increase career potentialities in his or her future working life" (Reiff, 1974, p. 183). Stenography, Scriven (1981) states, may be an advantage for entry-level employees in administrative support secretarial positions. Although many employers no longer require the knowledge of shorthand for employment, Condon (1982) states, "We should aim to prepare students so well for their careers that they not only get jobs and succeed at them but are able to advance as well. That is where shorthand comes in" (p. 14). "There is no reason," Condon

(1982) continues, "why shorthand cannot be included as part of a word processing system" (p. 14). Condon (1982) emphasizes that, "The applicability of the shorthand skill to a professional career is limited only by the astuteness of the person using it" (p. 30).

Steinbrecher (1980) cites the Cypress College word processing curricula which is divided into five levels of skills. The first level includes the capabilities of nondisplay machines; the second level builds on this skill but adds "external memory and more difficult editing features; the third level expands to external media transfer, media conversion techniques, information transfer, intermediate editing features, and records handling applications on CRT display-based equipment" (p. 12). The fourth level introduces data bases and the fifth and last level includes telecommunications for interfacing word and data processing.

Field experience should be continued in order to introduce students to the environment of a word processing atmosphere in the world of work. Anderson and Brady (1978) state, "Industry finds it neither economical nor expedient to spend time, effort, and money to train the employees it so definitely needs. Educational institutions should make every attempt to provide the necessary training" (p. 123). Anderson and Brady (1978) also suggest the importance of the need for thinking logically

in order to deal appropriately and efficiently with demanding assignments necessitated by more sophisticated equipment.

In January of 1981, Wohl stated "The universities are not yet turning out information processing managers with skills in data processing, communications and office administration. Industry has not yet had the opportunities to produce many people with all these skills. It is important to realize that cooperative efforts are required now, and will continue to be required into the indefinite future" (p. 94).

Ringle (1981) discusses the difficulties of interviewing potential word processing operators. In addition to the typewriting skills of the applicant, a manager must know:

1. Can the individual relate to the machine logically?

2. Can he or she follow instructions given by the machine?

3. How does he or she relate to the scrolling effect on the screen?

4. How does he or she react when the machine errs?

5. Can he or she relate comfortably to a keyboard-screen arrangement?

6. Is this an innovative individual who will learn to apply the machine to a high degree of its capabilities?

7. What kind of proofreading does the applicant have?

8. What kind of spelling and grammar skills does the applicant have? (p. 20)

Ringle (1981) has devised a technique of interviewing a potential employee by presenting instructions and questions on the word processor in order to identify if the applicant can follow instructions independently. The program was designed to include four areas: "interview questions, a standard application, a typing test, and problem-solving situations."

Mitchell (1979) points out the need for more knowledge of business and economic problems in addition to the complexities of managerial techniques and concepts. As career paths are being established for word processing operators, supervisory and managerial skills will be required. The executor, manager and secretary will be the users of advanced technology. Howard (1981) states, "the demand for qualified workers increases as technology advances" (p. 11).

Because of changing roles in the office, and with the advent of microcomputers, Peterson (1981) predicts that information will now be accessible to the office manager directly from the computer. Therefore, managers must also be taught the operation of the equipment and the necessary procedures of basic office skills. A computer literacy course should be offered to all business education students as a foundation course. Peterson outlines the following three levels of literacy that should be integrated into a computer literacy course:

awareness, basic skill, and fluency.

> Awareness: The ability to function comfortably in a computer-oriented society is the first level that must be developed. This level includes understanding the history of the computer, job opportunities in the computer industry, and the role of computers in the future.
>
> Basic Skill: The next level of literacy involves hands-on experience. The student must develop an ability to control and program a computer in order to achieve a variety of personal, academic, or professional aims. This is usually a non-vocational presentation in that it teaches awareness but emphasizes instruction in simple programming techniques and other aspects of computer operation.
>
> Fluency: Finally, at the fluency level of literacy, the awareness and programming aspects are extended so that students are able to use a computer creatively and effectively. To be fluent, students must develop their "semantic" or problem-solving ability using a computer, in addition to learning the vocabulary and syntax of programming language. Students are taught techniques of software design in preparation for careers involving work with computers. (p. 13)

Turner (1981) states that "In addition to basic skills, personnel managers are demanding employees who can assume responsibility, think, work both independently and with people, listen, follow directions, pay attention to detail, and show initiative" (p. 24). Business educators should present techniques of presenting and standing behind one's ideas. Assertiveness training should be introduced, or, as Dittman (1981) states, "it can also be termed 'human relations skills,' or 'leadership styles'" (p. 5). Dittman (1981) states that "many business people feel that women are deficient in decision-making skills.

If this is true, then decision-making skills must be taught in the classroom.

The development of management skills is essential in order to fully utilize the newest technological systems. Wagoner (1978) states that many of her students are planning to utilize their word processing experiences "as a stepping stone to supervisory responsibilities, or possibly into a career with word processing system manufacturers" (p. 16). In the introductory course, according to Wagoner, "students are first introduced to the concepts and impact of word processing and then provided with 'hands-on' experience and a review of equipment, manufacturers, and differences between systems" (p. 15). The introductory course should be designed to:

1. Inform students about what word processing is, the needs it is best equipped to meet, and the reasons why offices are adopting it.

2. Review the impact of word processing on working conditions and office environment.

3. Acquaint students with the operation of word processing typewriters and computer terminals and to develop an understanding of the potential and the limitations of such equipment.

4. Explore the changes in work flow, office organization, and job responsibility resulting from the effective use of word processing.

5. Provide a forum for students to express their concerns, special interests, and questions about word processing and their future in the context of word processing technology.

Dorty, Dalton and Wheeler (1981) recognize that training of students for word processing management positions has been lacking. They state that "schools have a responsibility to provide a foundation of competencies that can facilitate initial job performance and professional growth by word processing managers. Community colleges and universities are in a unique position to service these people through regular courses and continuing education/adult education activities" (p. 3).

Because the word processing manager is the key factor in a word-processing oriented organization, Dorty, Dalton and Wheeler (1981) state, "Business teachers will be remiss in their responsibilities if they do not begin to address the specific needs of these people" (p. 7). They continue:

> Two of the responsibilities of business education are to prepare students for initial jobs and to prepare them for career mobility. Materials used in training students for word processing careers must be evaluated to determine that they provide the foundation for word processors to grow into management roles. Not to do so would negate the positive picture of emerging career paths by word processing proponents. (p. 9)

As a result of his research, Johnson (1979) recommended emphasis in English grammar composition, punctuation and spelling. Typewriting classes should emphasize speed building and accuracy development in typing both routine straight copy as well as statistical material, and proofreading and mechanical ability skill building.

Johnson also recommends transcription experience from recorded dictation and from handwritten or typed rough draft material. The ability to listen to and understand conversations should also be placed in the word processing curriculum in addition to communicating through speech. Johnson also recommends the refining of mathematical, reading and filing skills. Time management instruction should be available as well as cost analysis. Johnson also advocates the development of human relations skills in addition to the development of a basic business background with courses in accounting, business law and economics.

In addition to the primarily measurable skills of typewriting and stenography, Batchelder (1978) refines the need for teaching the skill of communicating into the subdivisions of "writing, conversing, leading a small group, coaching and counseling or being understood by another person" (p. 16). Dealing with conflict is also a vital part of the art of communicating. Another area in need of curricula planning, according to Batchelder, is that of planning, organizing and managing time, and problem solving. "The work has to be managed; the time has to be planned" (Batchelder, 1978, p. 17).

Usually, according to Cumpston (1974), the senior secretary is promoted to the role of manager when a word processing center is established. However, Compston

(1974) cautions, "Never assume that a good secretary necessarily a good center manager makes. It isn't so" (p. 58). Managing effectively means the development of managerial skills which must include decision making and ability to set priorities in addition to the mastery of supervisory techniques. A manager must be people oriented in order to avoid the dehumanization of the staff.

Futuring and Change in Curriculum

Is the community college accountable as a public institution to train students for the "real world"? Without the necessary training, present programs may prove to be a waste of time and money for all concerned. Students may easily become frustrated and hostile. There is always a decline in need in some areas of curriculum and expansion of others. This is appropriate, and the community college must respond to changes in the needs of society.

The potential impact of futuring of the secretarial science curriculum will be considerable. Effective implementation will have long-term effects. The community college must be responsible for adequately serving the population and once again demonstrating its commitment to its students.

In order for this study to have a positive effect on future curriculum, the findings must be understood and accepted by those who must eventually initiate change. Many decisions made today will have long-term consequences in the business education discipline. One must identify the spheres within which planning and change must take place in order to increase the ability of the business education graduate to cope with earning his livelihood within realizable goals.

Present curricula may need to be modified and possibly new ones instituted. According to Mood (1973), "A dedicated group of persons determined to bring about a change is the first and most essential requirement for change" (p. 107).

Despite any hesitations on the part of educators, the future will force us to contend with a new technological society. One cannot teach in a myopic fashion; one must anticipate and plan for the future in order to clarify opportunities that may otherwise be ignored and therefore lost.

Barnett (1953) agrees that "the primary desire is not to alter existing conditions" (p. 152). Barnett also states that, "change for the sake of change is a relatively infrequent motivation for innovation" (p. 152). Once an innovation is introduced, people are confronted with the issue of acceptance or nonacceptable. They may become

acceptors of change but not, necessarily, enthusiasts. This passive acceptance is more constructive than vacillation. The majority of forces contributing to stability in personality or in social systems are generally perceived as resisting change, according to Watson (1969). It becomes apparent that this resistance must be reduced or removed as obstructions if change is to be accomplished. Once the opponents of change begin to view the proposed innovations as good and needed, then the resistance will be transformed or neutralized and anxiety lessened.

People tend to seek security in the past rather than viewing change as constructive. Innovation must not be viewed as a threat to vested interests, whereby resistance to change becomes apparent immediately. If new equipment is bought but not actually utilized, then change has been accepted only on a lower level--rather than throughout the organization. If upper echelons of administration are not involved in planning for change, then resistance may be concentrated, according to Havelock (1971), in the early stages of change, where a forceful minority may intercede and prevent action by acts of resistance. Are we then to believe that the possibility of any change taking place at all depends on the social structure and the interpersonal relationships existing within the adopter group, and the success of group interaction?

An essential question to be asked by business educators is, "Does my education program occupationally prepare my secretarial students for today's office and that of tomorrow?" (Mitchell, 1979, p. 353). Mitchell (1979) emphasizes that "educators must analyze not only (1) how to prepare today's student for entry into the office system, but also (2) how to prepare a worker for adaption to constant change" (p. 355). One of the many forms of planning purposes, as expressed by Blum (1974), is the "willingness to plan for coping with, or adapting to, what is to come, versus planning to make the future come out as desired" (p. 49).

It is important to organize for better decision making in order to attain a more productive future. Although outside forces often influence decision making, the health profession should be able to articulate its plans for the future. Although Veazie (1980) admits that few advances were made in the development and use of computer-based information systems in hospitals during the past decade, he does state ". . . a quick assessment of the current situation and of the trends that indicate future developments do show exponential growth in the computer's role in the health care field. . . " (p. 97). Computer-based systems will virtually become a necessity in linking clinical, financial, and other management information.

Stanford (1982) predicts that in the near future, doctors, nurses, respiratory therapists, dieticians and other health professionals will all be using computers. Ready reference manual and data organizers are already available in prepackaged software which facilitates and improves patient care.

The trends for the future in the information processing capacity of the medical profession indicate complete automation in medicine and its implications for strict confidentiality. Perhaps the use of word processing equipment in the medical profession is merely a means to a more highly-sophisticated form of technology. The trend seems to indicate that all medical record keeping will eventually become part of a computer system. It may be possible that the word processing application will be entirely eliminated.

While word processing serves an important function in the office of the future, it is only one small part of the total picture. Wohl (1981) states, "Intriguing technology developments and the decreasing cost of using computer and computer-related technologies makes the automation of the office more practical" (p. 94). Cumpston (June, 1979) states that, "The rate at which certain data processing functions will be handled by the word processing operation is contingent on having equipment in the organization that can perform the assigned

tasks" (p. 87). According to one manufacturer, "office workers must be able to analyze, store, and communicate not only computer-readable words and data, but graphic, audio, and video information as well" (Word Processing: Datapoint Leapfrogs Into the Office, 1979).

As the costs of minicomputers continue to plummet, familiar office routines are becoming obsolete. In its place we now have an information-based electronic society. The "wave of the future," according to Falk (1981) is known as "networking," the "linking of small computers and terminals" (p. 78). Telephones and TV cables can link computers for combined efforts. Although all computer users share central resources, each has his own machine. Word processing software enables more technologically advanced computers to manipulate text, produce corrected letters and documents, and integrate individually constructed software for customized programming.

Toffler coined the word, "word quake" to describe the combination of rising costs and stagnating productivity juxtaposed with computer advances. The word process, he continues, is "the main symbol of this upheaval" (p. 187), as it can "capture an original, correct it, duplicate it, send it, and file it in what amounts virtually to a single process" (p. 189). This new equipment, according to Toffler, "promises to restructure all the human relationships and roles in the office" (p. 191). Toffler predicts that even typing may become an obsolete skill

with the advent of speech-recognition technology.

According to one top management personnel, "word processing, is the last dying gasp of the typewriter--it's only a method of automating an old-fashioned way of communication" (Word Processing: Datapoint Leapfrogs Into the Office, 1979, p. 96).

The newest word processing equipment has a touch-sensitive screen which drastically reduces the amount of typing needed to generate displays on the screen or storage of information.

Hayes (1981) predicts that "People who instinctively resist the idea of working around word processors, computer terminals and other paraphernalia of what has come to be known as the office of the future may be sharply narrowing their job opportunities" (p. 29). Career paths are opening for aspiring clerical workers and managers who can manipulate computer-based information systems. Computer literacy skills may be mandatory for economic survival.

Competition in the computer area will force the price down. Japan is now entering the emerging market for personal and very small business computers (Falk, 1981; Wiegner, 1981). According to Wiegner (1981) ". . . the Japanese hope their skills in building and marketing highly reliable, low-cost consumer electronics will come in handy" (p. 125). Software is actually the

critical problem. Good software (many times custom programmed) is the key ingredient to a successful computer operation. In an attempt to guard against future declines in the automobile industry, Volkswagon, through a series of business manipulations, has entered the office automation market and hopes to build a leadership position in the electronic office of the future (VW's Latest Model: The Office of the Future, 1980). The U.S. Postal Service has initiated E-COM, Electronic Computer Originated Mail (Burns, 1981; Miles, 1982; Shef, 1982). Computers and high-speed printers will accept electronic messages, sent via a communications common carrier, and convert them to "hard copy" letters, and place them in distinctive blue and white E-COM envelopes. Delivery is promised within two business days.

According to Rosen and Fieldon (1977, p. ix), "One of education's prime responsibilities is to bring relevancy into learning programs. Educational institutions must constantly evaluate the development in the business world so that they can prepare students with the necessary skills and knowledge to understand and work in new and complex surroundings."

Mason (1979) states that "the office of the future cannot escape technological change" (p. 154). These developments that have already taken place certainly indicate the necessity for broadening the educational

options for the secretarial science student. As we are approaching the end of the twentieth century, students must be prepared by their education to change continually in order to meet the challenges of the future.

There is a need for guidance in determining the future directions of the demand and supply for manpower within the offices of the medical professions. One can anticipate future projections by observing the path the present offices are now studying and by being guided by these trends. This can hopefully provide direction to future policy making and curriculum development. Perhaps the restructuring of curriculum can help fill the void within the ranks of the medical secretary/assistant.

The importance of the conclusions of this study was acutely evident in the historic decisions in the legal actions against the American Telephone and Telegraph Company and the International Business Machines Corporation. As stated in the January 9, 1982 issue of The New York Times, "A. T. & T., however, would be free to enter such previously prohibited fields as data processing, communications between computers and the sale of telephone and computer terminal equipment, all rapidly growing and a profitable aspect of the telecommunications industry" (Holsendolph, p. 1). A. T. & T. and IBM are both now free to plunge into competition with each other in the computer and telecommunications industry.

"The only unchanging parameter in the word processing market is that it always changes" (Wohl, May, 1979, p. 112). Batchelder (1978) notes that, "The future does indeed look much different from the past" (p. 11).

It is the obligation of the colleges to make certain that the proper educational background is being provided for jobs of the future in this beginning of a new era in the communications technology revolution.

CHAPTER III

METHODS AND PROCEDURES

Sample

This study was concerned with the effect of word processing equipment on the future business education medical secretarial curriculum. Has this equipment changed the office procedures within the medical field? Should the current medical secretarial curriculum be modified in order to keep up with changes in word processing usage?

Physicians practicing within the confines of New York City and personnel administrators of hospitals located within the boundaries of New York City were the prime sources from which to gather information concerning the usage of word processing equipment.

The hospitals were chosen as medical care institutions as distinguished from health-related care institutions. They were further classified according to control and according to their purpose as general or special hospitals.

The population was randomly selected from the following two sources: (1) Medical Directory of New York

State and (2) American Hospital Association Guide to the Health Care Field.

Sampling, according to Kerlinger (1973) is "taking any portion of a population or universe as representative of that population or universe" (p. 118). This definition does not guarantee that the sample taken is representative, but that it is considered to be representative. Random sampling, the method utilized in this study, is that method of drawing a portion of a population or universe so that each member of the population or universe has an equal chance of being selected (Kerlinger, 1973, p. 118).

The population, according to Cochran (1963), is used to denote the aggregate from which the sample is chosen. Cochran prefers the terminology, unrestricted random sampling. This method of sampling is an unbiased procedure, since no member of the population has a greater chance of being selected than any other member.

The method of probability sampling was chosen in order to obtain information about a larger population by surveying only a portion of that population. According to Dunham and Smith (1979) probability sampling is the only method that accurately estimates whether the data from a given sample will represent the information that could be obtained through a canvass of the entire population. "The classic form of the probability method

is simple random sampling" (Dunham and Smith, p. 67).

In order to insure that each person considered for surveying had an equal chance of being included in the sample, a computer-generated Table of Random Numbers was utilized in choosing the sample (Kerlinger, 1973, pp. 714-717).

In order to determine how many clusters were to be included in a representative sample of all doctors in the five boroughs, the Table for Determining Sample Size from a Given Population was utilized (Dunham and Smith, p. 68). Accordingly, 417 questionnaires were mailed to physicians practicing medicine within the five boroughs of New York City. In addition, questionnaires were mailed to all 101 hospitals within the confines of New York City.

Instrument

The questionnaire method was chosen for data collection because of the efficiency of such an instrument. Based on a review of literature, it became apparent that research conducted up to this point in the area of word processing, has practically ignored the area of medical secretarial science. It therefore became necessary to construct an appropriate and efficient questionnaire as a means of data collection in order to undertake the identification of various aspects of word processing in the medical and allied health professions and to answer the

research questions outlined in the previous chapter. A letter (see Appendix A) was sent to experts in the field of word processing, business education, and the medical profession requesting them to participate in the validation of the questionnaire. Based on the responses received from this letter, the questionnaire and cover letter were mailed to numerous experts knowledgeable in the area of word processing (see Appendix B).

In order to avoid an overlong questionnaire, which may lower the quality of the answers, the pilot study was undertaken to examine the contents of the questions and to verify the relevancy and appropriateness of the data to the purposes of the study. The pilot study was instrumental in maintaining only essential data.

As a result of the pilot study, items that were producing ambiguous responses or highly skewed distribution of responses were eliminated. Also, item writing and construction were tightened in the final questionnaire draft.

In evaluating the questionnaire design, the actual placement of questions within the questionnaire were grouped together by related items rather than placing them randomly. In this way, the respondent can see the actual variation in the content and the purpose of each grouping of items.

After all appropriate revisions were incorporated into the instrument, the restructured questionnaire was mailed to the identified sample population. A second and third mailing were undertaken with appropriate cover letters for each mailing (see Appendices C, D, E, F).

The interview process was also utilized as a supplemental procedure in obtaining information for future projections and exploration of intentions, reactions, interpretations and explanations of various incidents revolving around the usage of word processing. A selected number of study participants were identified for a structured interview in order to gather in-depth data on operating installations.

Procedures

In addition to a manual search of related literature, sophisticated computer data based searches were conducted.

The ERIC data base, produced by the National Institute of Education, containing citations to the literature of education and related subject areas, served as the foundation for a review of the literature, as did the Dissertation Abstract data base.

Computer and Control Abstracts, a subset of the INSPEC data base, contained citations and abstracts to the literature of computers and control engineering.

The INFORM (INFO) data base contained citations with abstracts from primary management and administrative journals.

The MEDLARS (MESH) data base, also known as MEDLINE, surveyed the fields of medicine, dentistry, nursing, pharmacy, pharmacology, veterinary medicine, allied health professions, and other health-science related areas. The National Library of Medicine Medical Subject Headings was the thesaurus used with Index Medicus as the corresponding print equivalent of this data base.

The Health Planning and Administration (HLTH) data base were utilized for topics concerning health administration. This data base contained citations to literature relating to health care planning, organization, financing, management, manpower, and related subjects. The literature was searched from documents taken from the Medlars data base, Hospital Literature Index, and additional health journals selected by the American Hospital Association, the National Library of Medicine, and the Association of American Medical Colleges.

The MEDOC data base (MDOC) were utilized as a computer index retrieval system for U.S. Government documents in the health-related disciplines.

The review of literature and resultant bibliography is quite conclusive.

Based on recommendations of the pilot study respondents who were experts in the areas of research, word processing, business education and the health professions, revisions were made and the updated questionnaire was mailed to a sample population who were scientifically selected from lists that were gathered from appropriate sources.

Accordingly, 417 questionnaires were mailed to physicians practicing medicine within the five boroughs of New York City. In addition, questionnaires were mailed to all 101 hospitals within New York City.

Early checking of the quality of the returns was initiated, and a second and subsequently a third mailing was completed in order to handle nonresponse; that is, the failure to obtain information from identified units in the sample. The responses were then coded and tabulated in a manner in which they were routinely transferred to mechanical equipment. Decisions about tabulating procedures were established where the respondents omitted answers to certain questions.

In addition to the mailed questionnaire, a selected number of study participants were identified in each of the health constituencies for a structured interview with the interviewer. The organizations that were selected for this personal interview were a sample from amongst the groups of questionnaire respondents who have

word processing equipment installed. The structured interview was conducted to gather in-depth data on operating installations.

A complete search of current literature in the general area of word processing and specifically in the areas of medical applications has been undertaken. Also, literature was reviewed in the area of futuring and change.

After all the data were gathered, the information was tabulated and evaluations were made relative to developing conclusions and recommendations corresponding to the purpose and significance of the study.

The well-planned procedural operations are illustrated in the managerial flow chart on pages 61-63.

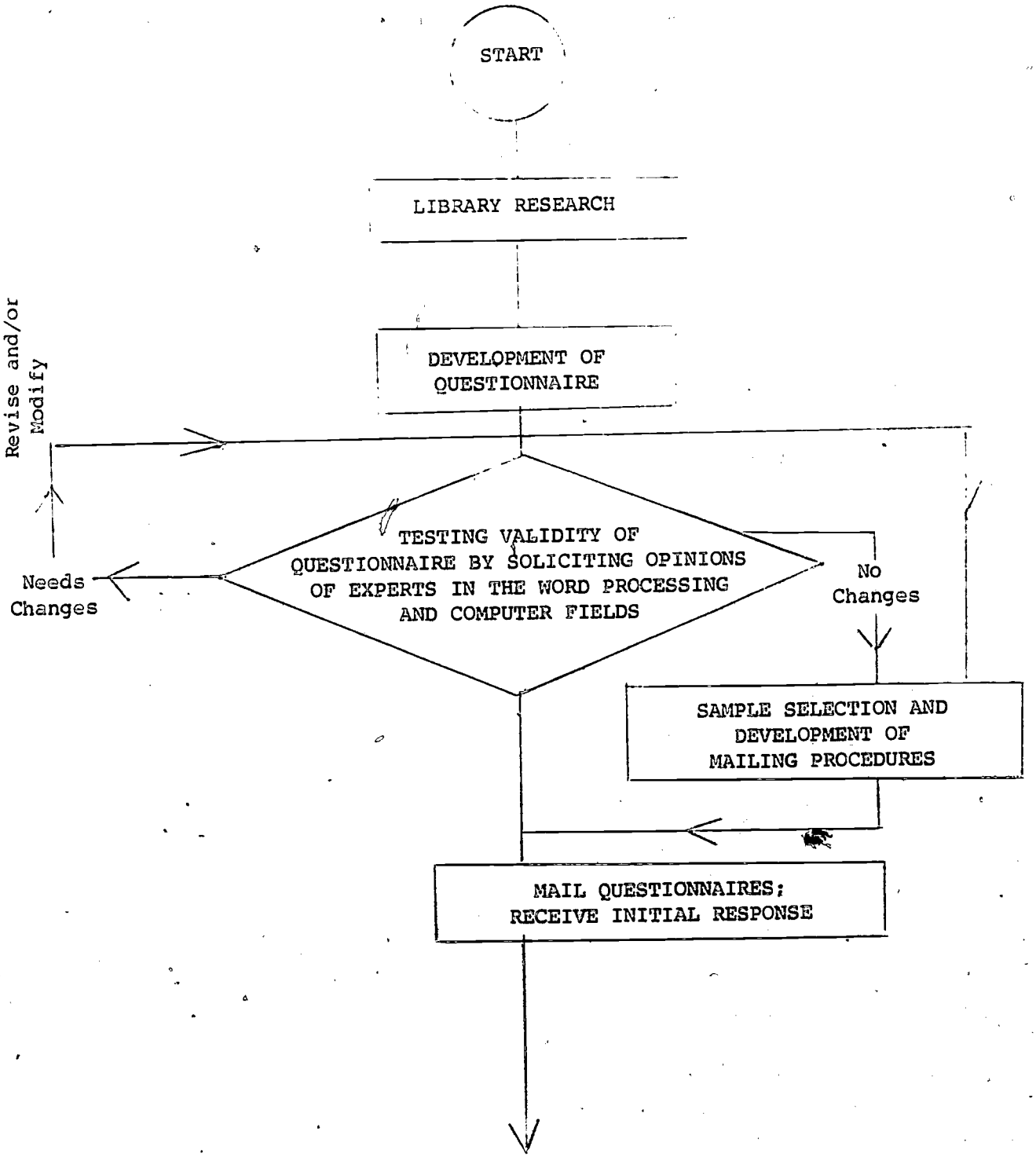
Statistical Design

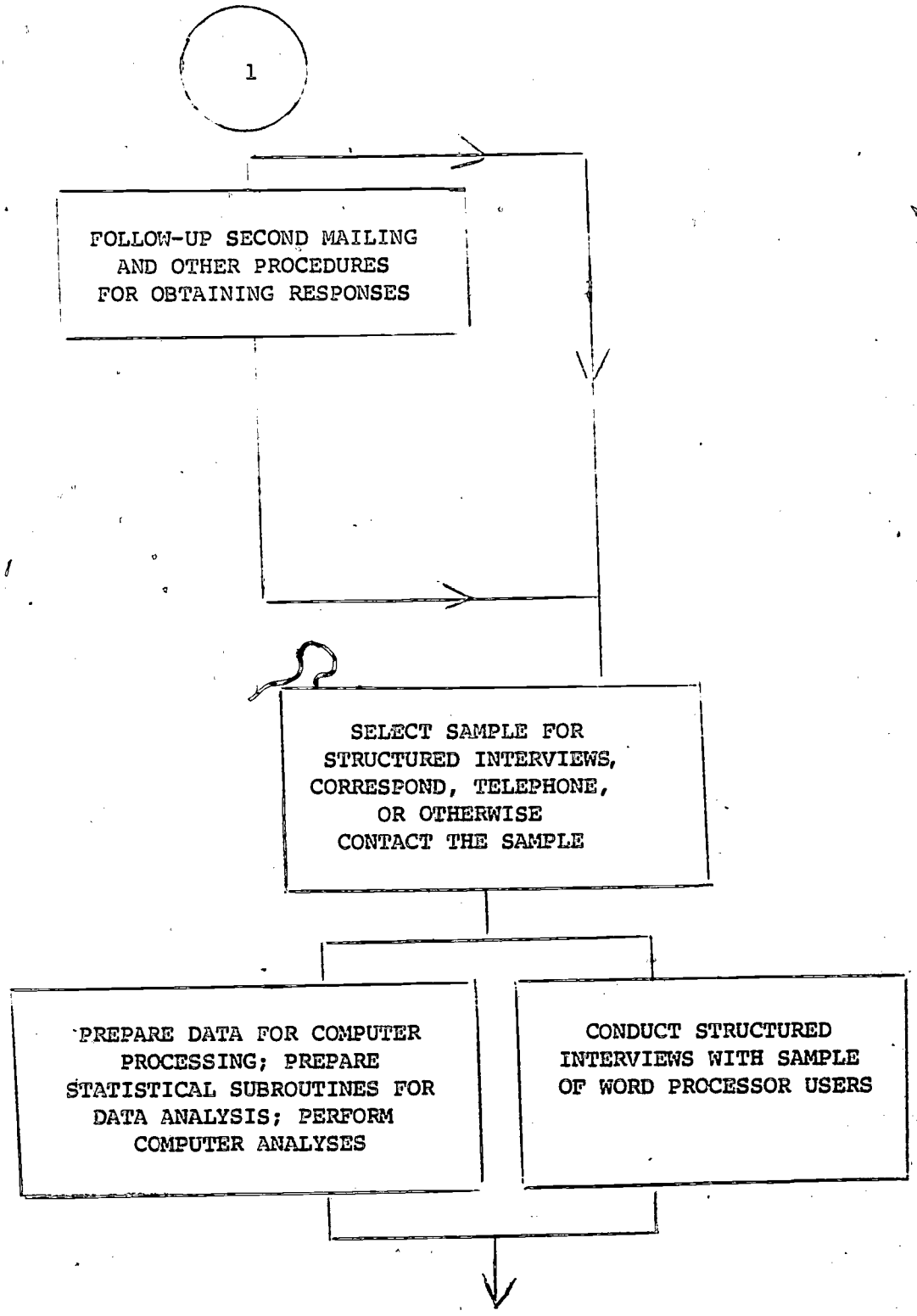
The data were transformed into numerical values and a valid measurement of 9 was assigned for missing data and another missing value code of -9 was assigned to data that the respondent was not expected to answer and, therefore, was not reported.

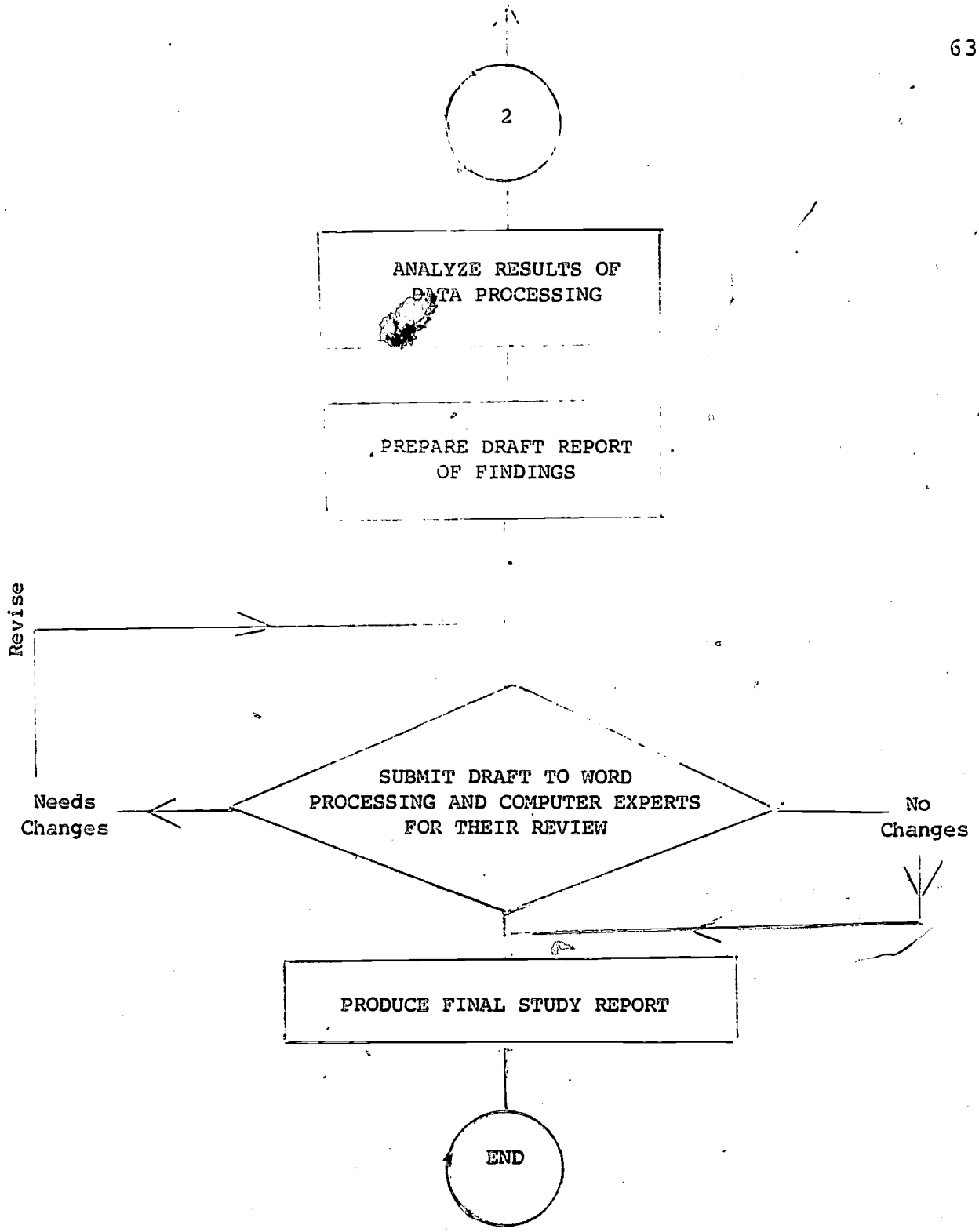
After all questionnaires were scored utilizing the coding structure, the data were entered on computer coding forms and punched into computer cards for processing, utilizing the computer programs in the Statistical

Figure 1

Flow Chart




1
FOLLOW-UP SECOND MAILING AND OTHER PROCEDURES FOR OBTAINING RESPONSES
SELECT SAMPLE FOR STRUCTURED INTERVIEWS, CORRESPOND, TELEPHONE, OR OTHERWISE CONTACT THE SAMPLE
PREPARE DATA FOR COMPUTER PROCESSING; PREPARE STATISTICAL SUBROUTINES FOR DATA ANALYSIS; PERFORM COMPUTER ANALYSES
CONDUCT STRUCTURED INTERVIEWS WITH SAMPLE OF WORD PROCESSOR USERS


2
ANALYZE RESULTS OF DATA PROCESSING
PREPARE DRAFT REPORT OF FINDINGS
Revise
SUBMIT DRAFT TO WORD PROCESSING AND COMPUTER EXPERTS FOR THEIR REVIEW
Needs Changes
No Changes
PRODUCE FINAL STUDY REPORT
END

Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975). The computer tabulated data were then tested statistically.

The methods of analysis, both statistical and substantive, were chosen to reduce the survey data to results that can be comprehended and utilized.

A dichotomy was formed within the statistical analyses. The data were classified by division into two mutually exclusive groups; namely, hospitals and physicians. The question that was answered by this method was: Do doctors' needs differ from hospital needs?

The Frequencies subprogram was run to report the frequency of occurrence of each unique value for selected variables. "The resulting table presents the raw count of cases for each value, the percentage of cases based on the total number of cases without a missing value on that variable, and cumulative percentages" (Nie et al., 1975, p. 60). Frequencies were run for the following variables: respondents (physicians and hospitals); mailings (physicians and hospitals); location by borough (physicians and hospitals); administrative title (hospital); category of hospital; classification of type of practice (physicians); number of years in practice (physicians); number of beds in hospital; present utilization of word processing equipment (physicians and hospitals); identification of word processing equipment and the number of units (physicians and

hospitals); physical arrangement of word processing center (physicians and hospitals); the consideration of installing word processing equipment at the present time (physicians and hospitals); levels of seeking information (physicians and hospitals); reasons for not utilizing word processing equipment (physicians and hospitals); and the time frame for future installation of word processing equipment (physicians and hospitals).

After the distributional characteristics of each individual variable was examined, selected statistical procedures were chosen to examine relationships among two or more variables.

Crosstabulation and correlation analysis were the techniques chosen. A crosstabulation, or contingency table, as noted in the SPSS (1975) manual, "is a joint frequency distribution of cases defined by the categories of two or more variables" (p. 70). The relationships established in the crosstabulation table were summarized with the chi-square test of statistical significance. The existence of a statistically significant relationship was computed at the .05 level of probability. Crosstabulation and level of significance were computed for the relationship between the number of years a physician has been practicing medicine and whether or not he has word processing equipment. Crosstabulations were also

utilized to establish the relationship between the number of beds in a hospital and the usage of word processing. Additional crosstabulations were studied involving relationships between those respondents who do not, at present, utilize word processing but are considering it for the future and the steps they have taken towards this goal. Those respondents who already are involved in word processing but are planning to change, expand or update their facilities were also studied in relation to their active involvement toward this accomplishment.

In order to evaluate the statistical difference between two sample means, the T test statistical procedure was used in order to determine whether the mean of one sample was significantly greater than, smaller than, or different from the mean of the second sample. The T-test was run for the statistical mean difference of ratings of skills required by the word processing operator as listed separately by physicians and by hospitals, and for the dichotomous comparison of means of ratings of training program locations in terms of Word Processing Manipulation Skills and English Communication Skills. Since the statistical concern was whether or not there was any statistical mean difference at all, the T-test reported "two-tailed probabilities."

In order to test the correspondence between the perceptions of required skills for word processing

operators on the part of physicians versus hospital personnel, a Pearson Correlation was performed using the ratings on all 47 skill categories for each of the responding groups as the operational variables in the correlation calculations. To further test the correlation, the analysis compared skill ratings in the four groupings of hospital personnel by physicians. The skills were clustered under the following headings: Basic English Skills, Basic Business Skills, Word Processing Technology Skills, Human Relations Skills. The ratings were based on a scale of one to four with the following interpretations: none = 1; low = 2; moderate = 3; high = 4.

Based on the means of each of the skills, a Spearman Rank-Order Correlation Coefficient was calculated for required skills for word processing operators and for skills learned at various training locations based on the raw data of a four-point rating scale: 1 = lowest rating, 4 = highest rating.

The highest mean in each grouping received the rank of one; the lowest mean score received the last number after the intermediate mean scores received the proper intermediate ranks. This was calculated separately for physicians and for hospital personnel when ranking all forty-seven skills separately, and then by separately ranking the four skill groups.

The reasons for currently not using word processing were ranked according to the magnitude of responses.

Conclusion

It is anticipated that the application of the information derived from this study will be useful in post-secondary medical secretarial education and will be utilized in such a manner that will lead to the reassessment and improvement of the curriculum.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

This chapter analyzes the data relating word processing to the medical professions. One-hundred-one hospitals within the City of New York were mailed a questionnaire asking meaningful questions relating to word processing, as were 417 physicians practicing medicine in New York City.

Information requested on the questionnaire mailed to physicians related to classification of a physician's practice, and the number of years in practice (see Appendix D).

The questionnaire mailed to hospitals requested information as to the size and classification of the hospital, and the working title of the administrator (see Appendices C and G).

The titles of administrators were divided into three categories of management: top, middle and bottom. These titles, as defined by Burke and Bittel (1981), are:

> Top management is responsible for setting the long-term direction of the organization, deciding what markets to compete in, determining financial structure, making major decisions on the overall form of the organization;

> Middle management concentrates on developing the more specific strategies needed to support overall goals, quarterly and annual planning, organizing departments, deploying sales forces and advertising support, designing production methods and facilities, and supervising "front line" managers;
>
> Supervisors--or bottom management are the first level of managers, the front line. They are responsible for seeing that the daily productive work gets done. They set short-term schedules, make organizational decisions at the work-crew level, and supervise the application of plans and methods set by middle managers. (p. 163)

Both groups responded to questions relating to the usage of word processing, the physical set-up of equipment, description of equipment, training of word processing operators and the level of skills required for the word processing operator.

For those persons who are not using word processing at the present time, questions were asked relating to the reasons most influential in arriving at the decision not to use word processing and when, if ever, they would reconsider their decision of nonusage.

A flow chart depicting the management of this research is included on pages 61-63.

Description of Sample

The population consisted of the physicians and hospitals located within the five boroughs of the City of New York. All of the hospitals were canvassed. The

random sampling of physicians was drawn from a listing of all practicing physicians in New York City.

The following descriptions present an overview of the sample studied.

Table 1

RESPONDENTS BY CATEGORY

	Number Mailed	Returned by Post Office	Number of Respondents	Percent Returned
Hospitals	100	4	55	.57
Physicians	417	67	161	.46

Of the original mailing, letters were returned because of unknown address of physicians, death, retirement, and consolidation of hospitals. From the original 100 hospitals canvassed, four were returned by the post office, as were 67 letters to physicians.

The sample consisted of 55 hospitals, broken down by boroughs as follows:

Table 2

HOSPITAL RESPONDENTS BY BOROUGH

Borough	N	Percent of Respondents
Bronx	5	9.1
Brooklyn	18	32.7
Manhattan	16	29.1
Queens	12	21.8
Staten Island	4	7.3

One hundred sixty-one physicians responded from the following locations:

Table 3

PHYSICIAN RESPONDENTS BY BOROUGH

Borough	N	Percent of Respondents
Bronx	13	8.1
Brooklyn	14	8.7
Manhattan	109	67.7
Queens	16	9.9
Staten Island	9	5.6

A breakdown of the working titles of respondents of hospital administrators can be located in Appendix G.

The classification of respondent hospitals is outlined in the following table.

Table 4

CLASSIFICATION OF RESPONDENT HOSPITALS

Classification	Number	Percent of Respondents
Voluntary	27	50.0
Private	9	16.7
Public	10	18.5
Federal	3	5.6
General	3	5.6
State	2	3.7

The final, restructured questionnaire was mailed to the identified population and a second and third mailing were undertaken to insure a greater response rate.

The responses by mailing are indicated in the following table:

Table 5

RESPONSES BY MAILINGS

Mailing	Physicians	Percent of Respondents	Hospitals	Percent of Respondents
First	86	53.4	27	49.1
Second	55	34.2	18	32.7
Third	20	12.4	10	18.2

Of the 161 useable replies from physicians, 53.4 were received from the first mailing, 34.2 from the second mailing, and 12.4 from the third mailing.

The returns from hospitals were 49.1, 32.7, and 18.2, respectively, for the first, second and third mailings.

The number of years in practice ranged from one year to 60 years. The mean was 22.364, the median was 19.654, and the standard deviation was 15.145.

The raw chi square value for this variance with two degrees of freedom was 4.84595, which was not significant at the .05 level.

The research question, "Do doctors who are in practice for a shorter time (less than ten years) tend to adopt word processing changes in office technology?" was evaluated. There was no statistical significance between number of years in practice and the adoption of word processing. However, although the trend may be for the younger physicians to have a higher propensity toward change, there appeared to be an even distribution in the groupings according to the number of years in practice, as indicated by the following table:

Table 6

COMPARISON OF NUMBER OF YEARS IN PRACTICE
BY UTILIZATION OF WORD PROCESSING

Number of Years in Practice	Have Word Processing		Do Not Have Word Processing	
	Number of Cases	Row Percentage	Number of Cases	Row Percentage
1-10	8	17.8	37	82.2
11-30	8	13.8	50	86.2
31-60	2	3.9	49	96.1

χ^2 value = 4.84595 with 2 degrees of freedom

Significance > .05

Sixty-nine percent of the responding physicians enjoyed a solo private practice. The next largest category of respondents were in group practices consisting of three or more physicians. Only 7.6 percent of the physicians were in a single partnership arrangement. These tabulations are illustrated in the following table:

Table 7

CLASSIFICATION OF PRACTICE BY RESPONDENT PHYSICIANS

Classification of Practice	Number of Cases	Percent of Respondents
Yourself only	109	69.0
In partners with another physician	12	7.6
In group practice of three or more physicians	37	23.4

Size of Hospital

The data from the question, "How many beds are in your hospital?" were used to quantify the relationship between the size of the hospital and the installation of word processing (see Table 8). The data were used to answer the research question, "Do larger hospitals tend to adopt modern word processing technological methods more readily than smaller hospitals?"

The number of beds ranged from 83 to 1528. For analysis purposes, a hospital having beds numbering below

Table 8

COMPARISON OF USAGE OF WORD PROCESSING
BY SIZE OF HOSPITAL

Size of Hospital	Have Word Processing		Do Not Have Word Processing	
	Number of Cases	Row Percentage	Number of Cases	Row Percentage
Small	4	15.4	22	84.6
Large	16	59.3	11	40.7

χ^2 value = 9.06466 with 1 degree of freedom.

Significance < .05

the median of 415 was considered to be small, and, accordingly, a hospital having more than 415 beds was considered to be large.

The raw chi square for this variable, with one degree of freedom, was 9.06466. Using standard chi square tables, a level of significance below .05 was determined.

As was anticipated, larger hospitals tend to utilize word processing to a greater degree than smaller hospitals. This may be due to size of staff, budgeting, or broader understanding on the part of administrators for looking toward the future.

Equipment

A wide range of equipment was utilized in the field. When asked to identify their word processing equipment, twenty-two different word processing systems were listed by the respondents. This wide range of manufacturers included multiple responses of more than one system in one location.

A visual display, standalone self-sufficient individual unit with keyboard and printer as separate units, was utilized most by physicians, and shared resources, cluster type with keyboard, printer, and central processing unit as separate units, was utilized least of all.

Conversely, the hospitals' main physical arrangement is a multi-function station terminal with integrated systems, combining word processing, data processing and telecommunications.

The standalone visual display equipment was the least utilized equipment by the hospitals.

It is interesting to compare the actual physical arrangement of the word processing center in the hospitals with the physical arrangement in the physicians' offices. Table 9 illustrates this comparison.

Table 9

PHYSICAL ARRANGEMENT OF WORD PROCESSING CENTER

	Percent of Respondents	
	Physician	Hospital
Centralized	75.0	35.0
Decentralized	25.0	65.0

The majority of hospitals, for obviously more efficient and effective usage, opted to decentralize within individual departments.

The actual physical arrangement of the physician's office seems to lend itself to a centralized work arrangement.

Table 10 indicates the response to the question, "Is word processing equipment utilized in your office?"

Table 10

TABULATION OF UTILIZATION AND NONUTILIZATION OF WORD PROCESSING EQUIPMENT BY PHYSICIANS

Physician	Number	Percent of Respondents
Users	20	12.4
Non-Users	141	87.6

Only 12.4 percent of the responding physicians are presently utilizing word processing equipment. However, of vital importance was the discovery that of the remaining 87.6 percent of non-users, a full 45.4 percent were considering installing word processing equipment within the next five years, as indicated in Table 11.

Table 11

TIME FRAME FOR POTENTIAL USE OF WORD PROCESSING EQUIPMENT BY PHYSICIANS

Time Frame	Number	Percent of Respondents
1 Year	16	13.2
1-3 Years	28	23.1
4-5 Years	11	9.1
Not At All	66	54.5

Similarly, although 36.4 percent of the responding hospitals have word processing installations at the present time (see Table 12), 87.4 percent of the non-users expected to have word processing in use within the next five years (see Table 13).

Table 12

TABULATION OF UTILIZATION AND NONUTILIZATION OF WORD PROCESSING EQUIPMENT BY HOSPITAL

Hospital	Number	Percent of Respondents
Users	20	36.4
Non-Users	33	60.0

Table 13

TIME FRAME FOR POTENTIAL USE OF WORD PROCESSING EQUIPMENT BY HOSPITALS

Time Frame	Number	Percent of Respondents
1 Year	2	8.3
1-3 Years	14	58.3
4-5 Years	5	20.8
Not At All	3	12.5

Skills

The responses of level of skills required for a word processing operator were based on a four-point rating scale as follows:

1 = none; 2 = low; 3 = moderate and 4 = high.

A Pearson correlation was calculated using the ratings of each and every skill category as the operational variables for both the physicians and for the hospital personnel.

The coefficient of correlation for the 47 skill categories was .8084. This value indicates a high statistical significance ($\alpha < .001$) in the skill ratings as perceived by physicians and by hospital personnel.

Physicians and hospital personnel have a similar perspective in terms of importance of skills. Based upon their ranking of how they value these skills for a word processing operator (see Figure 2), these are the top skills that are recommended for focusing on for curriculum development.

Figure 2

TOP-RANKED SKILLS BY PHYSICIANS AND HOSPITAL PERSONNEL*

	Physicians	Hospital Personnel
Basic Engish Skills		
	Punctuation	Punctuation
	Sentence Structure	
	Grammar	Grammar
	Vocabulary	Vocabulary
	Reading	Reading
	Spelling	Spelling
	Proofreading	Proofreading
	Editing	Editing
Basic Business Skills		
	Typewriting	Typewriting
	Medical Terminology	
Human Relations Skills		
	Following Directions	Following Directions
	Handling Stressful Situations	
		Accepting Responsibility
		Ability to Set Priorities
	Perseverance	Perseverance
	Pride in Word	Pride in Work
	Cooperation	Cooperation
		Initiative
		Relationship with Staff

* This listing was derived from the raw data shown in Tables 14 and 15 Based on means, each skill was ranked according to importance.

Hospital personnel and physicians do not disagree in terms of skills; however, there appears to be more variability in physicians' responses concerning the skills in question.

This is very important because the hospital personnel know what skills they want while physicians are uncertain. The frame of reference appears to be different among the physicians themselves.

As reported in Table 14, a statistically significant difference ($\leq .05$) occurred between the physicians' responses and the hospital personnel's responses for the following skills:

Routine paper work: This was more important to doctors who placed a higher value of moderate to high as compared to hospital personnel who rated this skill low to moderate.

Medical terminology: Physicians tend to think that medical terminology is more important than do hospital personnel.

Banking procedures: Neither hospital personnel nor doctors think that the knowledge of banking procedures is important to word processing operators. Although hospital personnel value this skill as having almost no

Table 14

SKILLS

Means, T Value, Level of Significant Difference

Category	Physician Means	Hospital Means	T Value	Level of Significant Difference*
Basic English Skills				
Punctuation	3.4375	3.4737	.874	
Sentence Structure	3.3333	3.2105	.643	
Grammar	3.5000	3.3684	.586	
Vocabulary	3.4000	3.3158	.712	
Reading	3.5333	3.4737	.799	
Spelling	3.5625	3.5789	.942	
Proofreading	3.4667	3.7368	.268	
Editing	3.3333	3.5263	.486	
Composing	3.1333	2.8947	.491	
Verbal	3.2000	2.8421	.249	
Basic Business Skills				
Filing	3.2143	2.6316	.074	
Typewriting	3.6875	3.5263	.527	
Stenography	2.4000	2.2632	.730	
Telephone Techniques	3.0000	2.5000	.146	
Routine Paper Work	3.2000	2.5263	.035	*
General Office Procedures	3.2000	2.6842	.084	
Medical Terminology	3.4000	2.6316	.039	*
Banking Procedures	2.1429	1.4211	.040	*
Recordkeeping	3.1429	2.3158	.023	*
Time Management	2.4286	2.5789	.695	
Accounting	2.5000	1.7895	.073	
Duplicators/Copiers	3.2857	2.3684	.017	*
Organizational Abilities	3.2667	3.1579	.715	
Follow-up Procedures	3.0667	3.2632	.537	
Word Processing Technology Skills				
Text Editing	3.2857	3.1579	.679	
Machine Dictation	3.1333	2.4737	.099	
Machine Transcription	3.0667	2.5789	.274	
Computer Literacy	2.3333	2.2632	.859	
Microfilms	1.7857	1.6842	.792	
Telecommunications	2.1429	1.6316	.189	
Formating	2.7857	2.8421	.890	
Data Entry	2.9286	3.0000	.858	
Data Retrieval	2.9286	3.0526	.752	
Playback	2.6429	3.2222	.128	
Rough Draft Typewriting	3.0667	3.1667	.771	

Table 14 (Continued)

Category	Physician Means	Hospital Means	T Value	Level of Significant Difference*
Human Relations Skills				
Following Directions	3.6000	3.7895	.391	
Handling Stressful Situations	3.3333	3.2105	.660	
Assertiveness	3.0667	2.9474	.732	
Supervisory Techniques	2.8667	2.8421	.944	
Accepting Responsibility	3.2000	3.5263	.294	
Designating Responsibility	2.8000	2.7895	.976	
Ability to Set Priorities	3.2000	3.3158	.725	
Perseverance	3.4667	3.4211	.863	
Pride in Work	3.4667	3.7368	.268	
Cooperation	3.5333	3.7368	.402	
Initiative	3.2667	3.5789	.279	
Relationship with Staff	3.4000	3.6842	.249	

* $\leq$ .05

importance (1.4), physicians think it is a little more important (2.1) than the hospital personnel.

Recordkeeping: Physicians place a higher degree of significance on this skill than do hospital personnel. Physicians place this skill between moderate and high in importance, whereas hospital personnel think it is less important, placing it between low and moderate.

Duplicator/copiers: Physicians think this is a more important skill than do hospital personnel. Physicians rate this between moderate and high and hospital personnel rate this skill as low to moderately important for word processing operators.

To further test the correlation, the analysis compared skill ratings in each of the four groupings, Basic English Skills, Basic Business Skills, Word Processing Technology Skills, and Human Relations Skills by hospital personnel and by physicians, as seen in Table 15.

Similar views of physicians and hospital personnel are evident in Table 16 indicating the Pearson Correlation Coefficient of skills when analyzed separately for each of the four skill categories. Rankings are indicated within each category based on means of rating as indicated in Tables 17, 18, 19 and 20.

Table 15

SKILLS

Spearman Rank-Order Correlation Coefficient

Category	Physician Rank*	Hospital Rank*
Basic English Skills		
Punctuation	10	11.5
Sentence Structure	15	19.5
Grammar	6	14
Vocabulary	12	15.5
Reading	4.5	11.5
Spelling	3	6.5
Proofreading	8	3
Editing	15	9
Composing	28.5	27
Verbal	24	29
Basic Business Skills		
Filing	21	33.5
Typewriting	1	9
Stenography	43	42.5
Telephone Techniques	34	38
Routine Paper Work	24	37
General Office Procedures	24	32
Medical Terminology	12	33.5
Banking Procedures	45.5	47
Recordkeeping	27	41
Time Management	42	35.5
Accounting	41	44
Duplicators/Copiers	17.5	40
Organizational Abilities	19.5	22.5
Follow-up Procedures	31.5	17
Word Processing Technology Skills		
Text Editing	17.5	22.5
Machine Dictation	28.5	39
Machine Transcription	31.5	35.5
Computer Literacy	44	42.5
Microfilms	47	45
Telecommunications	45.5	46
Formating	39	29
Data Entry	35.5	25
Data Retrieval	35.5	24
Playback	40	18
Rough Draft Typewriting	31.5	21

Table 15 (Continued)

Category	Physician Rank*	Hospital Rank*
Human Relations Skills		
Following Directions	2	1
Handling Stressful Situations	15	19.5
Assertiveness	31.5	26
Supervisory Techniques	37	29
Accepting Responsibility	24	9
Designating Responsibility	38	31
Ability to Set Priorities	24	15.5
Perseverance	8	13
Pride in Work	8	3
Cooperation	4.5	3
Initiative	19.5	6.5
Relationship with Staff	12	5

*Based on Table of Means.

Table 16

PEARSON CORRELATION COEFFICIENT
BY INDIVIDUAL SKILL CATEGORY*

Skills	Physician Mean	Hospital Mean	Correlation Coefficient	Level of Significance
Basic English	3.3900	3.3421	.8347	$\leq$ .003
Basic Business	2.9954	2.5470	.7446	$\leq$ .002
Word Processing Technology	2.7364	2.6430	.7925	$\leq$ .004
Human Relations	3.2667	3.3816	.9029	$<$ .001

* Four-point scale: 1.0 = lowest rating -- 4.0 = highest rating.

Basic English Skills

The Pearson correlation of .8347 indicates that there are no basic differences in the relationship between hospitals and physicians in their perceptions of Basic English Skills. Their similar views are indicated in the following ranking:

Table 17

RANKING OF BASIC ENGLISH SKILLS BY PHYSICIANS AND HOSPITAL PERSONNEL*

Basic English Skills	Physician Rank	Hospital Rank
Punctuation	5	4.5
Sentence Structure	7.5	8
Grammar	3	6
Vocabulary	6	7
Reading	2	4.5
Spelling	1	2
Proofreading	4	1
Editing	7.5	3
Composing	10	9
Verbal	9	10

* Four-point scale: 1.0 = lowest rating -- 4.0 = highest rating.

Of primary importance are spelling, proofreading, grammar, punctuation, and reading. The hospital personnel gave a higher rank order to editing. Both physicians and hospital personnel consider composing and verbal skills to be less important skills needed by the word processing operator.

Basic Business Skills

There is a tendency for physicians and hospital personnel to agree in terms of Basic Business Skills. This basically means that doctors rate these skills in terms of importance similarly to hospital personnel.

Table 18

RANKING OF BASIC BUSINESS SKILLS BY PHYSICIANS AND HOSPITAL PERSONNEL*

Basic Business Skills	Physician Rank	Hospital Rank
Filing	5	5.5
Typewriting	1	1
Stenography	13	12
Telephone Techniques	10	9
Routine Paper Work	6.5	8
General Office Procedures	6.5	4
Medical Terminology	2	5.5
Banking Procedures	14	14
Recordkeeping	8	11
Time Management	12	7
Accounting	11	13
Duplicators/Copiers	3	10
Organizational Abilities	4	3
Follow-up Procedures	9	2

* Four-point scale: 1.0 = lowest rating -- 4.0 = highest rating.

Both physicians and hospital personnel do give top priority to the skill of Typewriting. They are also in total agreement that neither Stenography, Banking Procedures nor Accounting skills are needed by the word processing operator.

Word Processing Technology Skills

There is correlation (.7925) between what both physicians and hospital personnel view as important Word Processing Technology Skills. They did not, however, list any of this group of skills as being among the top 15 that are required for a word processing operator. They both gave lowest priority to computer literacy, microfilms and telecommunications. By ranking Playback in the Number 8 position, the physicians indicate a lack of knowledge as to what word processing is all about.

Table 19

RANKING OF WORD PROCESSING TECHNOLOGY SKILLS BY PHYSICIANS AND HOSPITAL PERSONNEL*

Word Processing Technology Skills	Physician Rank	Hospital Rank
Text Editing	1	3
Machine Dictation	2	8
Machine Transcription	3.5	7
Computer Literacy	9	9
Microfilms	11	10
Telecommunications	10	11
Formating	7	6
Data Entry	5.5	5
Data Retrieval	5.5	4
Playback	8	1
Rough Draft Typewriting	3.5	2

* Four-point scale: 1.0 = lowest rating -- 4.0 = highest rating.

Human Relations Skills

In terms of agreement, the Human Relations Skills indicated the highest correlation (.9029). Even if physicians

and hospital personnel rated a skill low, they were still in agreement with each other.

They do not care about Designating Responsibility at all. They are not interested in Supervisory Techniques and are not too concerned with Assertiveness. They both ranked Following Directions as the most important skill in this group.

Table 20

RANKING OF HUMAN RELATIONS SKILLS BY PHYSICIANS AND HOSPITAL PERSONNEL*

Human Relations Skills	Physician Rank	Hospital Rank
Following Directions	1	1
Handling Stressful Situations	6	9
Assertiveness	10	10
Supervisory Techniques	11	11
Accepting Responsibility	8.5	6
Designating Responsibility	12	12
Ability to Set Priorities	8.5	8
Perseverance	3.5	7
Pride in Work	3.5	2.5
Cooperation	2	2.5
Initiative	7	5
Relationship with Staff	5	4

* Four-point scale: 1.0 = lowest rating -- 4.0 = highest rating.

Training Program Locations

Analysis suggests that there is no difference in physicians' and hospital personnel perceptions of the Word Processing Manipulation Skills and English Communications Skills based on various locations of training. Tables 21, 22, 23 and 24 are based on the mean ratings of the

Table 21

ENGLISH COMMUNICATION SKILLS OF WORD PROCESSING OPERATORS BASED ON LOCATION OF TRAINING

Means, T Value, Level of Significant Difference

Location	Physician Mean Scores	Hospital Mean Scores	T Value	Level of Statistical Difference*
Four-year college	3.2727	3.3333	.881	none
Two-year college	2.9167	3.1000	.672	none
High school	2.4615	2.4000	.875	none
By equipment manufacturer at your location	3.2000	3.0909	.828	none
On-the-job training by your own personnel	3.000	3.000	1.000	none

* $\leq .05$

Table 22

WORD PROCESSING MANIPULATION SKILLS OF WORD PROCESSING OPERATORS BASED ON LOCATION OF TRAINING

Means, T Value, Level of Significant Difference

Location	Physician Mean Scores	Hospital Mean Scores	T Value	Level of Statistical Difference*
Four-year college	3.000	2.6250	.465	none
Two-year college	2.8182	3.1250	.485	none
High school	2.6923	2.3750	.431	none
By equipment manufacturer at your location	3.3333	3.2500	.832	none
On-the-job training by your own personnel	2.8571	3.2308	.325	none

* $\leq .05$

Table 23

PHYSICIANS' RATING OF SKILLS OF WORD PROCESSING OPERATORS BASED ON LOCATION OF TRAINING PROGRAM*

Location	Word Processing Skills		English Communication Skills	
	Mean Score	Interpretation	Mean Score	Interpretation
Four-year college	3.000	Good	3.2727	Good to Excellent
Two-year college	2.8182	Average to Good	2.9167	Average to Good
High school	2.6923	Average to Good	2.4615	Average to Good
By equipment manufacturer at your location	3.3333	Good to Excellent	3.2000	Good to Excellent
On-the-job training by your own personnel	2.8571	Average to Good	3.000	Good

* Four-point scale: 1 = lowest rating -- 4.0 = highest rating.

Table 24

HOSPITAL PERSONNEL RATING OF SKILLS OF WORD PROCESSING OPERATORS BASED ON LOCATION OF TRAINING PROGRAM*

Location	Word Processing Skills		English Communication Skills	
	Mean Score	Interpretation	Mean Score	Interpretation
Four-year college	2.6250	Average to Good	3.3333	Good to Excellent
Two-year college	3.1250	Good to Excellent	3.1000	Good to Excellent
High school	2.3750	Average to Good	2.4000	Average to Good
By equipment manufacturer at your location	3.2500	Good to Excellent	3.0909	Good to Excellent
On-the-job training by your own personnel	3.2308	Good to Excellent	3.000	Good

* Four-point scale: 1 = lowest rating -- 4.0 = highest rating.

following four-point scale: poor = 1; average = 2; good = 3; and excellent = 4.

However, it is suggested that these results be set aside as there has not been enough exposure to word processing training at various levels up to this point in time.

Activity in Seeking Word Processing Information

Descriptive statistics were tabulated separately for physicians and for hospital personnel in response to the question concerning their activity in seeking information about word processing if they were planning to change, expand or update or initially install word processing equipment. Because they were allowed multiple responses, checking off more than one choice, multiple response codes were set up to see how many people responded to each of the choices within the question. The labels were 1 for a response, and Ø for a nonresponse. Only those values that were tabulated one were counted.

It was interesting to note that the majority of hospital personnel who are now considering the installation of word processing equipment (34.5 percent), have actively taken steps toward that accomplishment (see Table 25).

Table 25

ACTION TAKEN BY RESPONDENT HOSPITAL PERSONNEL TOWARD EVENTUAL INSTALLATION OF WORD PROCESSING EQUIPMENT

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	14	37.8
Had Equipment Demonstrations	12	32.4
Looked Into Personnel Training Programs	5	13.5
None of the Above	6	16.2

The physicians who indicated that they are now considering changing to word processing, have also taken steps in the direction of installing such equipment. Table 26 indicates action taken by respondent physicians relative to procuring word processing equipment.

Table 26

ACTION TAKEN BY RESPONDENT PHYSICIANS TOWARD EVENTUAL INSTALLATION OF WORD PROCESSING EQUIPMENT

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	14	35.9
Had Equipment Demonstrations	12	30.8
Looked Into Personnel Training Programs	8	20.5
None of the Above	5	12.8

These statistics were also analyzed separately for those who responded "yes" to Question 3, "Is word processing equipment utilized in your office (hospital)?" and the relationship with whether or not they are now considering installing, changing, expanding or updating word processing equipment.

The following breakdown (Table 27) describes those physicians who responded "yes," they do have word processing equipment in their office at the present time, and "yes," they are planning to install additional units:

Table 27

ACTION TAKEN BY PHYSICIANS WITH WORD PROCESSING INSTALLATIONS WHO PLAN TO EXPAND THEM

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	5	83.3
Had Equipment Demonstrations	4	66.7
Looked Into Personnel Training Programs	3	50.0
None of the Above	1	16.7

Positive responses for now considering word processing (Table 28) were also received from those physicians who responded to Question 3 that they do not have word processing in their office at the present time:

Table 28

ACTION TAKEN BY PHYSICIANS WHO DO NOT HAVE WORD PROCESSORS BUT PLAN TO INSTALL THEM

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	9	60.0
Had Equipment Demonstrations	8	53.3
Looked Into Personnel Training Programs	5	33.3
None of the Above	4	26.7

Similarly, those hospital personnel who indicated that they have word processing equipment at the present time (Table 29) and also plan to expand in the future have indicated the following:

Table 29

ACTION TAKEN BY HOSPITAL PERSONNEL
WITH WORD PROCESSING INSTALLATIONS
WHO PLAN TO EXPAND THEM

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	7	70.0
Had Equipment Demonstrations	7	70.0
Looked Into Personnel Training Programs	2	20.0
None of the Above	3	30.0

For those hospital personnel who indicated they do not have word processing at the present time (Table 30), but plan to in the future, the following statistics were compiled:

Table 30

ACTION TAKEN BY HOSPITAL PERSONNEL
WHO DO NOT HAVE WORD PROCESSORS
BUT PLAN TO INSTALL THEM

Activity	Number of Cases	Percent of Respondents
Received Pricing Information	6	66.7
Had Equipment Demonstrations	4	44.4
Looked Into Personnel Training Programs	2	22.2
None of the Above	3	33.3

Reasons for Non-Use of Word Processing

Different perspectives were offered as reasons for not currently considering the use of word processing equipment (see Table 31).

There were many additional write-in comments in terms of why physicians and hospital personnel were not considering the use of word processing. A list of verbatim responses is shown in Appendix H.

Table 31

RANKING OF REASONS FOR NOT CURRENTLY USING WORD PROCESSING*

Category	Physicians		Hospitals	
	Actual Response	Rank	Actual Response	Rank
Unfamiliarity with the benefits of word processing	41	3	4	7
Volume of work does not demand word processing	76	1	9	2
Type of work does not demand word processing	55	2	8	3
Initial price too costly	21	4.5	11	1
Service contracts and maintenance too costly	12	7.5	3	9
Lack of space	11	9	4	7
Lack of trained personnel	12	7.5	5	5
Too difficult to train personnel	4	11	1	11
Salary scale of trained personnel too high	7	10	1	11
Equipment development not sophisticated enough	2	12	1	11
Awaiting future developments	18	6	4	7
Other (please specify)	21	4.5	6	4

* Based on the magnitude of responses.

Utilizing multiple response coding, as far as physicians and hospital personnel were concerned, the major reasons for non-use were that neither the volume of work nor the type of work demands word processing. Far fewer physicians than hospital personnel thought that the initial price was too costly, although that was the prime concern of the hospital staff.

Physicians are far more unfamiliar with word processing equipment than are hospital personnel.

Respondents, by nature of the responses of those reasons that seem to least affect them, did not seem to believe that salary scales or training of employees would block them from or be detrimental to their installing word processing equipment. Nor do they feel that the equipment is not sophisticated enough to handle their normal activities.

The following chapter contains a summary, discussion and appropriate recommendations based on the analysis of the collected data.

CHAPTER V

SUMMARY, DISCUSSION, RECOMMENDATIONS

Summary

This study was concerned with the effect of word processing equipment on the future business education medical secretarial curriculum. Has this equipment changed the office procedures within the medical field? Should the current medical secretarial curriculum be modified in order to keep up with changes in word processing usage?

This researcher in no way attempted to restructure the operational procedures or the financial management within the health field. The focus was to redirect the curriculum planning effort so that it is more closely related to the needs of the institutions and physicians that are direct recipients of the services of the CUNY graduate.

The perspective of the project was that the results will indicate in what areas in the secretarial science discipline does curriculum have to be developed or modified in order to prepare graduates to function successfully in the word processing environment.

The theoretical focus of this project has attempted to identify changes in office administrative procedures in

the medical and allied health professions because of the introduction of word processing equipment and processes with a view toward projecting modifications in the post-secondary medical secretarial science curriculum. This research, through the use of a globally mailed questionnaire and selected personal interviews, has surveyed the extent to which word processing has been implemented in the medical field.

The primary aim of the construction of the questionnaire was to encourage participation by respondents. Dichotomous, multiple choice and open-end questions were simplified and phrased to convey the same meaning to all persons.

A questionnaire was developed and was then evaluated and validated by professionals in the area of word processing. Questions were basically designed in the closed form and there was a request for a write-in suggestion of additional reasons for not utilizing word processing. Provisions for possible multiple responses were available in selected questions.

These responses were then ranked according to the magnitude of the responses by both physicians and hospital personnel respondents.

Although the questionnaire was designed to elicit fixed response data from all the respondents, voluntary written comments represented strong view points. Although

these unsolicited responses were offered by only a fraction of the participants, they represented intense feelings. Therefore, these comments were reviewed for common threads of meaning or association.

The research questions that were being evaluated with the questionnaire were:

1. Do doctors who are in practice for a shorter time (less then ten years) tend to adopt word processing changes in office technology?
2. Do larger hospitals tend to adopt modern word processing technological methods more readily than smaller hospitals?
3. What kinds of skilled secretarial manpower are needed to run word processing equipment?
4. Is training for word processing being given on an office-based or hospital-based level?
5. Should the community college medical secretarial science curriculum include word processing?

The goal of this research was to make an inference about the population (a set of measurements) based on information contained in the sample (a subset of measurements selected from the population). The completed sample in this survey is potentially a guide for future expanded sampling of physicians in New York City concerning standard deviations, means and the nature of the variability of the principal measurements. Also, this completed research may

facilitate future sampling in recognizing certain mistakes in execution. The precision of the sampling procedure was judged by examining the frequency distribution of the sample. As the sample estimates were normally distributed, the mean and standard deviation were then determined.

Physicians practicing within the confines of New York City and personnel administrators of hospitals located within the boundaries of New York City were the prime sources from which to gather information concerning the usage of word processing equipment. The population was randomly selected from the following two sources: (1) Medical Directory of New York State and (2) American Hospital Association Guide to the Health Care Field. Accordingly, 417 questionnaires were mailed to physicians practicing medicine within the five boroughs of New York City. In addition, questionnaires were mailed to all 101 hospitals within New York City.

Three mailings were completed, and a meaningful response of 57 percent of hospitals and 46 percent of physicians was achieved. The baseline respondents included 55 hospitals and 161 physicians. Arithmetic mean characteristics of the baseline included 22 years in practice for the physicians, and 513 beds in hospitals.

The methods of analyses, both statistical and substantive, were chosen to reduce the survey data to results that can be comprehended and utilized.

A dichotomy was formed within the statistical analyses. The data were classified by division into two mutually exclusive groups; namely, hospitals and physicians. The question that was answered by this method was: Do doctors' needs differ from hospital needs?

In addition to descriptive statistics, statistical tests were utilized to determine the means, relationships, correlations, and frequencies within each group and between the physicians and the hospitals.

The following statistical tests were utilized:

CHI SQUARE: A test of statistical significance which helps to determine whether a systematic relationship exists between two variables.

CROSS TABULATION: A joint frequency distribution of participant cases according to two or more classification variables.

LEVEL OF SIGNIFICANCE: The level at which the researcher wishes to control the risk of making an incorrect statement. Traditionally, a level of .05 is used in behavioral research.

SIGNIFICANCE: The goal of the statistical analysis is to establish whether or not a difference between two samples is significant. Significant means "indicative of" or "signifying" a true difference between two populations.

T-TEST: A test to determine whether or not the difference between two sample means is statistically significant.

FREQUENCIES: A table presenting the row count of cases for each value, the percentage of cases based on the total number of cases without a missing value on that variable, and cumulative percentages.

PEARSON CORRELATION COEFFICIENT: Computes Pearson Product-Moment Correlation coefficients with tests for significance.

SPEARMAN RANK-ORDER CORRELATION COEFFICIENT: Another type of correlation test utilized when data are ordinal rankings.

The data were reported by frequence or number of respondents and by percentage of respondents. Differences between physicians and hospitals were tested statistically using both T-tests and nonparametric median tests. Statistical significance was concluded at the .05 percent level.

Pearson Correlation Coefficient tests were run for all forty-seven skills and again for skills grouped separately under the following subheadings: Basic English Skills; Basic Business Skills; Word Processing Technology Skills; and Human Relation Skills. Utilizing a Spearman Rank-Order Correlation Coefficient, with a scale of one to

four, one being the lowest rating, and four being the highest, T values and level of statistical difference were obtained from the raw data of means describing the success of equipment manipulation and English Communication Skills, based on location of word processing training.

Rankings for reasons for not considering the use of word processing equipment were presented in the order of magnitude of responses by both physicians and hospital personnel respondents.

The results of chi square computations indicated no significant relationship at $p < .05$ between number of years in practice and the usage of word processing. It did, however, reveal a statistical level of significance between the size of the hospital and the utilization of word processing. A tendency was indicated for larger hospitals to have word processing as compared to smaller hospitals. This demonstrated a statistically significant relationship at the .05 level. The arbitrary median breakdown was based on the sample itself.

Different perspectives were offered as reasons for not currently considering the use of word processing equipment. Only 12.4 percent of the responding physicians are presently utilizing word processing equipment. However, of vital importance was the discovery that of the remaining 87.6 percent of non-users, a full 45.4 percent were considering installing word processing equipment within the next five years. Similarly, although 36.4 percent of the

responding hospitals have word processing installations at the present time, 87.4 percent of the non-users expected to have word processing in use within the next five years.

The interview process was also utilized as a supplemental procedure in obtaining information for future projections and exploration of intentions, reactions, interpretations and explanations of the various incidents revolving around the usage of word processing. This interview method allowed for flexibility by pursuing unanticipated issues and the possibility of thoroughly delving into critical areas assessed by the questionnaire. According to Dunham and Smith (1979, p. 14), "The unique strengths and weaknesses of both interviews and questionnaires suggest that a combination of the two techniques provides the most effective organizational survey program" (p. 14).

A complete search of current literature in the general area of word processing and specifically in the areas of medical applications has been undertaken.

Discussion

The ultimate goal of this research was to measure the impact that word processing is having on the management and the administration of medical and allied health offices.

The knowledge obtained through a review of the literature, questionnaires, structured interviews and statistical analysis of research data has formed the basis

for the development of areas of curriculum for the secretarial science education of the future. The new role of the secretary in medical areas and administrative support services has been the goal of researching the use of word processing in the automated offices in the world of work in the medical and allied health fields.

The question addressed was: What is the impact of word processing in the medical and allied health professions on the secretarial science curriculum?

The major finding of this study was the ascertaining of exactly what exists in the area of medical professions and the utilization of word processing. A significant finding of this study is that we have a misconception of the use of word processors. It is not, at the present time, used as much as we might think it is being used. However, there is a tendency and a commitment toward gaining knowledge of this equipment which is presently unknown to most physicians. With 45.4 percent of physicians and 87.4 percent of hospital personnel indicating considering word processing within the next five years, and with the decrease in prices and the increases in technology in the future, it is more than logical to state that there will be an increase in the use of word processing in the future.

As one would expect, larger hospitals tend to use the word processing equipment. This is possible because a larger proportion of funds is appropriated for computer

systems. Since larger hospitals would logically have extensive applications of computerization, flexibility restraints may be a consideration for a non-shared approach to a stand-alone system.

Although larger hospitals demonstrated the tendency to have word processing equipment, smaller hospitals may utilize outside services for computer assistance because of the cost in the investment in hardware and software of in-house installation of an information system. It is an accepted given that data in a hospital, whether utilized for management planning, evaluation and cost and performance control, or for patient care decisions, must be relevant, timely and accurate.

Rather than installing a minicomputer with a limited data base, smaller hospitals may opt for minicomputers with on-line connections with time-sharing computer terminals. Sharing services, rather than buying a hospital information system, may be a transitional stage prior to a total in-house system. If this change should occur, no changes in software would be needed and quality staff would already be trained.

The public seems to fear a threat to their privacy with computerized medical records. The entry of information keyed into on-line systems can be coded so that only the author can retrieve the information. This seems to control the confidentiality of computer-held information to a greater

degree than manual records systems that are notoriously insecure and accessible to casual browsers, in addition to being carried around the hospital, with the possibility of loss of confidentiality and the loss of the actual folder itself.

Word processing will gain steadily in popularity. Although it may be a gradual growth, this acceptance seems to be inevitable. By defining specific requirements and objectives, the choice of a centralized word processing system or a decentralized arrangement utilizing small satellite stations will be determined.

There is no doubt that word processing is gaining momentum and has already begun to expand into other related areas. Most hospitals will more than likely require office automation in order to survive.

As more and more companies are competing to manufacture the memory for personal computers, the costs will go down. Word processors have already become more attractively priced than previously. The field is no longer dominated by the major manufacturers. With the advent of microcomputers, smaller firms have successfully been able to compete with the computer giants who were slow to enter the area of personal computers. One company has combined data processing functions with the electronic typewriter available from a single terminal. They have combined word processing and communications management on the same desk.

Letcher and Pierino (1979, p. 1529) list the following criteria to be utilized in evaluation and selection of word processing equipment: design of the keyboard and designation of special function keys; conservation and flexibility; disc storage capabilities; software practicality; print format options and security of data. Word processing vendors should be required to demonstrate the capability and flexibility of their particular equipment to perform each and every application of the individual user.

Ideally, according to Keller (1982), the equipment should be "located in an empty office so that many people can use it without interference" (p. 58). Another alternative would be to place the equipment on rolling tables in order to move the computer from one area to another to increase its functionality. Shoemaker (1982) agrees that even within a private office environment, a computer room should be set aside. In order to keep the computer area free of stray electricity, it is imperative to have wall-to-wall, anti-static carpet with anti-static matting. A line filter is recommended to protect the equipment from power fluctuations or interference (Keller, 1982; Shoemaker, 1982).

Because of serious weaknesses in the communication network of one hospital, and difficulty in discerning lines of authority and responsibility, all word processors were removed with the hiring of new administrative personnel.

"Management, at all levels of the hospital, must learn management of the computer" (Bennett, 1979, p. 50). Bennett continues, "Proper involvement requires understanding of computers and the information systems function. Learning and comprehension also needs to be continuing to avoid obsolescence in administration's knowledge of what new advances in computer technology can do for them in reaching organization objectives" (p. 50).

Manufacturers have an obligation to assist in the complexity of selecting the best system for the individual needs of physicians and hospitals based on an analysis of the work to be processed on this equipment.

Training

With all due respect to the increasingly sophisticated word processing equipment and expanded software capabilities, the most advanced technology serves no purpose if there is a lack of trained personnel to utilize it. It is the duty of the community college to fill the gap between vendor training and in-house training in the newly created area of integrated office systems. Personnel policies should reflect the introduction of career promotions within the framework of a word processing organizational structure (Elliott, 1977).

It should be among the objectives of the curricula that secretarial science majors be trained on equipment

that will enable them to have access to at least entry-level positions utilizing this sophisticated equipment. Grobmyer (1977) notes that because relatively few schools have incorporated the equipment training into their educational programs, and the availability of recently trained personnel familiar with word processing is sparse, the hospitals have to "absorb the on-the-job costs of training current personnel" (p. 112). Another alternative is to send the employee to a central training center. Grobmyer (1977) emphasizes that, "the ability of this equipment to perform is directly dependent on the personnel using it" (p. 112).

Because of the cost of the equipment, emphasis must be focused on quality and quantity of work. At present, there are alternatives for the training of personnel to operate word processing equipment. The manufacturers of word processing equipment offer support assistance in utilizing equipment after their initial training sessions. Many have initiated self-paced training programs. Training can then be carried out in-house by staff currently using the equipment. It should be a challenge to the junior college to initiate training of students rather than lose the potential student body to the vendor-sponsored training centers.

It is apparent from the results of this study that neither physicians nor hospital personnel have had any great exposure to two-year college graduates who are

knowledgeable in the operation of word processing equipment.

Oppenheim (1981) states, "It is often undesirable to recruit new typists with previous word processing experience, in preference to training the firm's own staff" (p. 16). It is this very attitude which has to be challenged by the community college. As more and more graduates enter the work force knowledgeable in the field of word processing, owners of word processing equipment will eagerly seek out students who have acquired expertise in this area.

Although only 3.5 percent of Scriven's (1981, p. 100) sample were from a medical organization, 40 percent of the total respondent word processing operators indicated the organization for which they worked as the source of their initial training. The second most identified initial source of training (29 percent) was equipment vendors (Scriven, 1981, p. 117). Only 1.3 percent of respondents indicated community/junior college as their initial source of training.

Kelley Services, Inc., an agency devoted exclusively to temporary employees, has introduced a four-hour word processing training course that focuses on concepts rather than on specific systems. This agency is planning to train up to 50,000 operators in the coming year.

Why should this training be undertaken by agencies, vendors, and corporative training systems? What role have the colleges been taking all this time? Will the

colleges also lag behind in the newer automated offices that are being forecasted by research and market analysis? Can the colleges outpace the rapid growth in demand for systems operators?

The trend, according to the literature, appears to be the cutting back on operator training by the vendors and concentrating instead on assisting in management planning of word processing systems. Merely introducing word processors in an office does not guarantee higher productivity. Long-range planning for productivity is needed so that the word processors are not used simply as an expensive typewriter. Staff must be trained to use the equipment correctly. "Word processing companies claim that they can afford to supply only basic training. And now, these companies seem to be moving toward supplying less training than before, because the market for their products is becoming more competitive" (Word Processing: How Not to Exploit the Hardware, 1980, p. 92).

In the future, most hospitals and physicians' offices will more than likely require office automation in order to survive. With the projected decline in word processing price tags, these minicomputers can now be placed in the offices of myriad new users, all of whom will need personnel to work the equipment. Without the necessary training, present programs are a waste of time and money. Students may easily become frustrated and hostile.

Is the community college accountable as a public institution to train students for the "real" world of work?

Resistance to Change

There were varying degrees of acceptance to computers entering the private domain of a physician's office. It was almost as if the physicians were afraid of losing power and position within their own practice. Doctors must be educated as to the improvement of quality and effectiveness in their rendering of health care through a systems approach of surveillance, prevention, and follow-up procedures.

Computer hardware and software technology is developing at such a rapid pace, that a new range of applications for microprocessors are already on the market since the initiation of this research. With future improvement and cost-effective developments, any reservations existing against computerized systems in the office should dissipate and change into general acceptance of the greater range of applications accessible by integrating a computer system into the office environment.

The development of semiconductor electronics and the integrated circuit, or silicon chip, has made it possible for word processors to become smaller and less expensive, and may ultimately wear down any resistance

to investing in a word processing system. There now exists unlimited opportunities for technological advances and for changes in future information system. Leasing, rather than purchasing, may become the desired option in order to allow for upgrading the equipment as new options and features are introduced.

Most physicians at present do not utilize word processing technology because they have not been awakened to the advantages and feasibility of such an environment. Their resistance to change must be broken down in order for them to become personally committed to change and to revitalization of their practice.

Shoemaker (1982) did not want to change the efficiently run office he was currently enjoying. He incorporated packaged software for micros such as "an accounting program, a word processing program and a medical package with data storage and retrievals" and has "virtually eliminated" payroll errors (p. 54). In the future, Shoemaker (1982) plans to integrate clinical data into his microcomputer. One physician admits that he and his partners were motivated to computerize their practice in order to earn more money. They believed that a more efficient and accurate processing of billing information and insurance claims would reduce their expanding accounts receivable files. Although Gold (1982) admits that the initial reaction to the installation of his office micro-computer was, "The computer means more work, not less,"

(p. 62) it was merely a reaction to the formalization of work flow in the office, highlighting inefficient and duplicated work patterns.

If personnel who are negatively disposed toward implementation of computer applications were identified, counseling and training and orientation activities could be planned. Effective training is vital for the upkeep of morale. A high degree of proficiency in working with systems routines allows for confidence on the job and general satisfaction and acceptance.

Hospitals and physicians must compete with all industries for word processing users. The salary in the medical area may be lower than in other areas that are also recruiting word processors. The responses from physicians and hospitals emphasized their "non-concern" with career path orientation of word processor operators. This lack of opportunity of career mobility would make it difficult to maintain staff, if they can be recruited initially. Hospital administrators and physicians must be educated in the transference of skills to various administrative functions.

From comments inserted on the questionnaire, it seems that physicians have an ego problem concerning the use of word processing. Communication problems must be resolved and the physician must cooperate with the word processor operator. The medical industry, hospital

information systems in particular, have tremendous growth potential. The more regulations imposed on hospitals, the more necessary will be computerization techniques. Hospitals and physicians currently without automated data handling capabilities should seriously research the area of word processing in order to keep up with or ahead of the ever-increasing information collection and processing functions related to health care.

Although the majority of physician respondents have heard something about word processing, they are not really familiar with the concepts or usages of word processing. It should be emphasized to the physicians that utilization of word processing will increase the efficiency of their office by eliminating a lot of routine work.

Plans should be initiated for inviting resident, or new staff physicians to learn to use the equipment properly. This can also apply to in-house retraining. The physicians should be involved immediately in the designing and implementation of the system. Demonstrations of word processing's capabilities should be offered to potential users, emphasizing the improvement of productivity by eliminating the retyping of entire documents in order to accommodate changes.

Most of the physicians suggested a preference for a manually run office because they were unfamiliar with the partial computerization of certain operations made possible by the word processors. There are insurance form

packages that allow for the editing and printing of master insurance forms, in addition to the entering of services and fees. Duplicate completed forms are easily accessible. In addition, there are billing programs, accounts receivable and listings of unpaid bills. There are appointments programs that are time saving by allocating a time slot for each patient. This also facilitates search techniques for forgetful patients, and cancelling and rescheduling of appointments. There are patient-record programs that eliminate the stress-causing condition of misplaced files. A computerized recall file plus a label producing program can identify those patients who are due for a checkup. Various form letters and reports can also be stored in the word processor. Computerized checkbook procedures, payroll computations, interpretation of laboratory reports and any personal program constructed for individual needs and preferences are available. Perhaps the use of word processing equipment will facilitate greater use of outpatient medical care to those persons who do not require hospitalization.

The physician should not avoid the installation of a word processor because of ignorance. He or she must become educated in the world of minicomputers. Physicians seemed to be intimidated by and fearful of any automation that may remove or change their complete control in their office. Their written responses when asked for reasons that were most influential in arriving at the decision not

to consider the use of word processing (see Appendix I) show a feeling of distrust and fear of the unknown.

Many physicians and hospital personnel felt that the benefits of installing word processing equipment were too speculative to justify the necessary capital investment on the scale required. Hospitals are particularly in a condition of financial stringency.

To what extent, we must ask, will local, national and international economic events affect the monetary allocations to hospitals? Are the central city employers (doctors, inner city hospitals) adapting their manpower and personnel policies to accommodate their individual labor force?

The technological advances everyone looks forward to is already here. The programs are available, and with increased efficiency and reduced hardware costs, the introduction of a word processor in a physician's office appears to be cost justified.

The major question seems to be: Can a word processing system be economically rationalized? Everything always does seem to come down to money. First, needs must be assessed. Secondly, how large an expenditure can be made for equipment? Are there alternatives to implementing a complete system? What is available in terms of present hardware, and personnel expertise in computer technology? If the physician's mindset is against

new technology, then what can be done to change it? The basis must be justified.

Keller (1982), states that, "A microcomputer is ideal for small jobs that concern only the laboratory" (p. 56) and that programs for laboratory applications are readily available. It is important, according to Keller (1982), to "Make your choice according to the anticipated uses for the computer" (p. 58).

The initial outlay of budget may be too high at the present time for smaller hospitals. Costs must also be accounted for computer software products in addition to capital expenditures of installation, depreciation, and computer-related activities. Hospitals, as compared to private physicians, tend to be more open to computer programs, and are more innovative in their approach for the future.

When a decision must be reached on actual purchase, the strengths and weaknesses of each company must be evaluated. The growth potential must be studied in addition to the company's history. There must be room for expansion within the same equipment capabilities. Without computer installation, further expansion of business may be impossible.

Perhaps those in the medical area who still are apprehensive about purchasing such costly equipment, should be given the option of either renting or leasing

word processing equipment. This could serve as a trial basis for becoming acquainted with the multi-features and practicality of word processing.

Vendors must provide manuals, where every step of the program is designed for you and where every step of entry and every function on the machine, from turning the switch on down to every intricate movement of the machine, is described in the manual.

The trick to choosing a word processing or computer system is to know what you want. The program must be designed the way you want it. The vendors must guarantee that they will give you what you want. Service contracts are of prime consideration in vendor selection.

As one word processing user stated, "The machine is a dumb beast; it will do anything you want it to do." Also, do not overbuy a system and do not believe everything you hear. And, most importantly, decide what you want, rather than what the vendors are going to give you.

The magnitude and scope of word processing equipment, or "state-of-the-art" is mind-boggling. In order to overcome resistance to change by physicians and hospital administrators, the medical profession personnel must be educated in the area of word processing.

Skills

Hospitals and physicians do not disagree in terms of the following skills: Basic English Skills; Basic

Business Skills; Word Processing Technology Skills; Human Relations Skills. However, there appears to be more variability in physicians' responses concerning the skills in question. This is very important because hospitals know what skills they want, while physicians are uncertain.

The results of many researchers have agreed with the findings in this study. The need for competent language arts skills was given the highest priority. Of course, the ability to type with accuracy was also of top priority. It is clear that emphasis must be placed on listening skills and the ability to follow directions.

By looking at the differences between the mean of the hospitals and the mean of the physicians, the following skills showed a statistically significant level.

Routine paper work: The reason that physicians placed a statistically significant higher value on this skill may be that their employees keep all the records for the physician to actually follow, while in hospitals others keep records that are removed from the actual surveillance of the doctors.

In a physician's office, the people who run the word processing equipment also keep the records, therefore this is more significant to the doctors. In hospitals, secretaries may do just the typing, not keep records, which may be the designated role of the medical records department. Perhaps with the introduction of word

processing, correspondence can be organized so that standardized materials can be utilized in such a manner that a personalized, individually typed letter can be completed in a fraction of the time previously used.

Medical terminology: The secretarial staff in a physician's office would tend to be smaller, and be more versatile rather than specialized as compared to the secretarial staff in a hospital. There may be more correspondence relative to the breakdown of workload whereas in a hospital more administrative tasks may be required, or the word processing operators may be more involved in billing procedures, rather than having access to many reports requiring medical terminology.

Within hospitals, the most efficient method of originating medical documents such as medical histories, physicals, clinical notes, consultation reports, letters of referral and operative reports is through the use of dictation equipment hooked up to hard-wired phones giving easy access to the dictation system. With the introduction of word processors in the transcription areas, many hospitals report heightened morale of personnel and increased productivity (Basie and Yeagley, 1977; Elliott, 1977).

Banking procedures: Hospitals have a separate and distinct Accounting office with employees knowledgeable in banking procedures. The word processing operators in a

hospital would not generally have need for this skill. Physicians, however, may initiate minimal banking procedures in the training of its secretarial staff.

Recordkeeping: This skill is given more importance by doctors than by hospitals, as those persons who run the word processing office for a physician also keep the records. In the hospital, the secretaries may not be involved in recordkeeping, which may be within the total domain of the Medical Records Department.

Duplicator/copiers: All copies of information relative to patient care are made directly within a physician's office and is therefore rated as being an important skill. Within a hospital, duplicating of any material may be sent to a centralized area handling such activities.

Basic English Skills

Word processing is the most revolutionary concept in business education since the invention of the typewriter. There are no differences between the way hospital personnel and doctors view Basic English Skills. There is a significant correlation between the perception of skills necessary for word processing operators as viewed by doctors and hospital personnel.

Both physicians and hospital personnel view the Basic English Skills as listed in the Questionnaire

(see Table 18) as absolutely necessary skills. The student must be well trained in proofreading. With all the highly advanced equipment on the market, the operator must still be able to locate errors. Rapid technological change and diversification will make revision and revitalization imperative (Bennis, 1969). Proofreading involves more than reading; it involves what we see on the page as compared to what we think we see. Grammatical proficiency is a necessity when checking for consistency, continuity, and sentence structure.

Basic Business Skills

There is always a decline in need in some areas and expansion of others. This is appropriate and the community college must respond to changes in the needs of society. "Through personal commitment to continued learning and professional development, business educators can accountably help prepare tomorrow's work force (Mitchell, 1979, p. 356). Business educators must reflect changes of office systems in curriculum development. All research recognizes the need for curricula emphasis on spelling, punctuation, proofreading, typewriting, correct grammar (Matthews, 1978). Many office tasks will, in the future, be computerized. In addition to alphabetic entries, emphasis should be placed on teaching competencies in numeric data entry.

The medical secretary who has had some formal training in word processing will be more adaptable and

versatile and accepting for retraining when newer automated equipment is introduced in the future. With the added knowledge of stenography, additional career lines are opened.

"The challenge," Bennett (1979) states, "is to bring about change and innovation within the context of the organizational system." The faculty must be aware of continued change and therefore must be current in their own knowledge in order to effectively train students for the working world.

The community college, in its commitment to the consistent development of accountable education, must constantly be challenged to innovate new and more efficient disciplines of study. An attitude of willingness to change must exist among the faculty whereby they are eager to meet the challenge of the future in the area of business education.

Channels of communication must be within the faculty ranks and through the gleaning of valuable information from outside the college. Because of budgetary constraints, open lines of communication for planning and acceptable methods of transition and change are vital. Interdepartmental courses should be developed so that the secretarial science students' knowledge will envelop all business skills.

The community college will be responsible for adequately serving the population and once again

demonstrating its commitment to its students. The future of the Secretarial Science Department is word processing.

Word Processing Technology Skills

Analysis for skills has been based only on those respondents who indicated that they are utilizing word processing equipment at the present time. By rating computer literacy low, they may not be completely familiar with the type of unit they have or it may be a very simplified version of a word processor. Hospitals may have more complex units than doctors. It seems as if the doctors and the hospital personnel are looking at word processors as a magic typewriter and do not understand the relationship between computers and word processors. Neither do they seem to understand the increasing use of telecommunication in conjunction with word processing equipment. They did not place any of these skills among the top fifteen overall, indicating that they have hired people with little or no previous training, and prefer to train word processing operators themselves.

Even though computer literacy was rated as relatively unnecessary, it is actually a microcomputer and printer that functions as a word processor. A word processor consists of a central processing unit, a cathode-ray tube (CRT) for data entry and display, a twin-disk drive with interchangeable "floppy disks" for data storage, and a printer.

Word processing equipment are already being linked with computerized information banks and total office operations. Word processing seminars and workshops are being introduced to middle and top management as part of a total communications system.

The concept of the "Office of the Future" for the 1980's according to Sinsabaugh (1981) has been the merging of technologies into "the total office automation concept which combines word processing, distributed data collection, data communications and electronic mail into total systems for improved management control" (p. 36). Bennett (1979) emphasizes that, "Every administrator should be familiar with current systems thinking and the systems approach as a part of being a self-aware manager" (p. 48). Meyer (1978) agrees that "If current trends continue, greater emphasis will be placed on Electronic Data Processing and word handling equipment. Within the next ten years, each student in a business curriculum should have an understanding of machine functions and logics . . ." (p. 44).

"In this day and age," Batchelder (1978) continues, "and certainly within the next 20 years, everyone should have some conceptual understanding of what is a computer, what makes it work, and how information is put into it and how it is gotten out" (p. 18). The equipment should be used to its full capacity, rather than being utilized at minimum levels because of lack of knowledge on the part of the

operators. According to Cumpston (1979) "A word processing operation is only as effective as the skills personnel working in this electronic environment bring to the tasks they perform" (p. 88). To meet the challenges of the highly electronic office, "companies will need workers capable of discretion and resourcefulness rather than rote responses" (Toffler, 1980, p. 353).

According to Wohl (January, 1982), "Recently, management refocused its view of the office and realized that the big payoffs in increasing office productivity will come about through offering useful, computer-based office systems to all classes of office workers, but particularly to professionals, managers and executives" (p. 97). Therefore all office workers, from the lowest on the hierarchy to the highest will, in the future, have access to a multi-function system, one component of which will be word processing. Word processing, although a relatively new phenomena is already in a state of change. Most manufacturers have developed word processing systems that are, in essence, microcomputers.

It is apparent that word processing, data processing and telecommunications have crossed paths. All this is available now, and should be adapted to the increasing pace of changes in all office work. Career paths will be available to word processing operators, but these will encompass increasing levels of education and responsibility.

Will today's students be willing to "think technologically" and adapt to the more sophisticated technology?

Although secretarial science students may not have the skills to compete with computer science majors, some knowledge of computer concepts should be mandatory. What is being called word processing, has been accomplished by computers for years. The working language has just been simplified to expand the usage of the equipment to noncomputer oriented persons. To be an effective word processor, you have to know something about how the equipment works. If students want to be more than a word processing operator, it is absolutely essential that they learn something about the computer.

Basic entry skills should be word processing skills. If the students want upward mobility, then they should acquire other related skills. Managerial skills should be taught within the context of the word processing concentration.

As an educator, the researcher does not agree with the physicians' view of what a word processor needs for skill development. Entry-level word processing skills must be taught. However, the student should be taught additional skills to allow for future upward occupational mobility.

Conceptual abilities must be increased in addition to word processing equipment technology skills. In

order to be highly productive in today's work force, the student must have a broad base of conceptual knowledge in addition to secretarial skills.

Therefore, before a student begins the "hands on" phase of Word Processing Technology Skills, a basic background in the Theory and Concepts of Word Processing must be taught.

Word processing is no longer considered as primarily a secretarial tool. It is a small part of the total systems approach in the modern office and will become a necessary skill for all levels of office personnel.

Human Relations Skills

It appears that both physicians and hospital personnel really want a clerical worker. Neither supervisory nor managerial skills seem to be important. They are not looking for upward mobility in their word processing operators. They seem to want somebody more as an android rather than as an assertive individual with possibilities of upward mobility. Respondents were not interested in career development; they were only interested in mechanical automatic, robot-like employees.

The hospitals tended to be more receptive to hiring people who can exhibit those traits listed under Human Relations Skills. It is important that students be taught to develop priorities and be creative and

self-motivated. They should be taught to listen carefully, ask questions, and basically think through given information in order to follow directions accurately. Perhaps if they were able to perceive their jobs as careers, they would develop a sense of pride in their work and accept added responsibilities in order to project a sense of pleasure in their work.

Do our students know how to listen? Can they follow directions? Can they express themselves effectively? As the usage of word processors increases, Johnson (1981) foresees that secretaries will have "more time and opportunities to perform duties now completed by managers" (p. 30). The gap between executive and secretarial salaries will narrow as a restructuring of work within an office may devaluate selected current work skills and create new ones.

Secretaries should envision the advent of word processors as a career path to managerial positions. Word processing experience is definitely an advantage in the job market as more and more employees are coming to require that experienced word processor operators become word processing trainers, supervisors, and managers. Career paths are opening in word processing service bureaus, in offices of manufacturers of word processing equipment and other office equipment, and as instructors and sales representatives.

Career paths are emerging due to the advent of word processing and part-time work is also expanding in addition to new positions in administration. Not only have word processing employment agencies been introduced, but these very agencies have set up training centers to teach word processing to perspective employees.

It is time that reality be brought into the classroom. Today's secretary is becoming tomorrow's word processing administrator. Are we preparing our students adequately?

Curriculum

Implications for changes in the secretarial science curricula become apparent when considering the recent and future prognosis for growth of word processing information systems within the medical professions.

In addition to educators, vendors of word processing equipment should be most interested in manufacturing equipment and designing software systems for this virtually untapped resource of potential users.

According to the current population surveys conducted by the Census Bureau in 1980, there were an estimated 84,000 medical secretaries (Drake, 1982). The Bureau of Labor Statistics projects that the health sector as a whole is expanding more rapidly than the whole economy and the predicted growth in the number of medical secretaries should be more rapid than other occupations. If

the community colleges are to provide relevant education, the administration must be able to anticipate the probable magnitude or impact of the new technology and utilize this future-oriented outlook as essential input for planning and curriculum development.

The faculty must decide whether or not it wants to go into the future prepared, or be left behind in teaching methodology. The college should seek meaningful goals and be accountable to the community in its education of future employees. A complete break with past methods should not be advocated, but rather an understanding and acceptance of the need for development of new curriculum that will be needed in the coming years.

The process of communication with the medical and allied health fields is vital. Should they not be involved in the planning of new curricula, offering practical suggestions that an academician may overlook?

The major contribution of this study has been the emphasis of the relationship of word processing to the medical profession. It is hoped that this study, concentrating on a specific segment of society, will serve as an impetus for further study and inquiry. One must not look at new ideas and technology with a jaundiced eye. Rather, this challenge should be viewed as the beginning of new and exciting things.

By attempting to forecast future trends within the medical area and its utilization of word processing

through a systematic appraisal of this environment, it has become apparent that business educators must commit themselves to a definite plan of action that will extend into the future. Given such a commitment, the preparation and adoption of new curriculum is inescapable.

Based on the results of this study, a suggested curriculum is offered for medical secretarial science majors with a concentration in word processing.

Recommendations

1. Because this research has been a pioneer effort in the medical area, a follow-up study should be undertaken with the same data base to see how many are now using word processing.
2. This questionnaire is generalizable for the entire country and a broader study can be undertaken.
3. The following changes are suggested for the questionnaire:
   (a) Reword the following questions: Question No. 8: Are you now considering installing word processing equipment or adding to your present installations? ☐ yes ☐ no
   (b) Add the following question: In what year was your word processing equipment initially installed? ____ or How long have you had word processing? _____ years (One would assume that more expertise would be exhibited for those

who have had it longer than for those who are utilizing word processing for a short period of time.)

(c) Under Question No. 10, add as a reason for not currently considering the use of word processing: Plan to retire

4. Because it was suggested during the pilot study that any reference to physician's income as related to word processing be eliminated from the questionnaire, it is now recommended that a study be made on cost effectiveness within physicians' offices and within hospitals with the implementation of word processing equipment.

5. Vendors of software packages should actively educate hospital administrators as to the possibility of developing individual and relevant clinical and administrative computer software in order to improve the quality of care in their hospitals.

6. Vendors should actively solicit physicians who are virtually ignorant in the area of word processing and emphasize, in addition to cost development in health care and technological advances and decreasing hardware costs, the improvement of quality of care to patients that can be made possible by the proper utilization of minicomputers which are now feasible for every office. Proper applications and cost

effectiveness must be considered before a system analysis is undertaken and a system designed.

7. In order for this study to have a positive effect on future curriculum, the findings must be understood and accepted by those who must eventually initiate change. Many decisions made today will have long-term consequences in the business education discipline. One must identify the spheres within which planning and change must take place in order to increase the ability of the business education graduate to cope with earning his or her livelihood with realizable goals. Present curricula may need to be modified and, possibly, new ones instituted.

In general, it is recommended that an Information Systems Center be established college wide whereby a program can be introduced incorporating accessing data bases from shared logic or distributed processing systems. Although this is beyond the scope of the Secretarial Science Department, an interdisciplinary curricula should be established whereby the word processing segment is taught by the Secretarial Science Department.

A working relationship should exist among various departments in order to integrate the various components required within a new area of study. There must be mutual planning and coordination of services as each department controls the resources that are

a part of the whole. If there is no working relationship, then it is detrimental to the objectives and priorities of the program and of the college. Of course, each discipline area will determine what specific programs and services will be provided within the framework of its individual department.

8. Based on the results of this research, the Secretarial Science curriculum should be tailored for the specific needs of physicians and for hospitals.

No distinction should be made between physicians and hospitals in terms of curriculum planning. With proper training, word processing skills will be acceptable in either area. Based on the results of this research, it is acceptable to assume that word processing will be utilized to a much greater degree in the future in the medical profession and therefore the present curriculum should be altered.

The potential impact of futuring on the Secretarial Science curriculum will be considerable and effective implementation will have long-term effects.

Suggested Secretarial Science Curriculum

1. Basic College-Wide Core Curriculum.
2. Basic Secretarial Core Curriculum, including Business Communications (verbal and written, with emphasis on Language Arts Skills), Typewriting, Stenography

(optional), Medical Office Procedures, Medical Terminology.

Recommended:

3. Introduction to Word Processing

   -- Word Processing Technology and Equipment

   What is word processing? How does it work? This should not be a course in skills, but rather a course in technology and the evolution of word processing.

4. Introduction to Computers--Computer Technology

   -- Skills for Computer Literacy to include programming.

5. Word Processing Skills

   -- Mechanical Skills Procedures

   -- Hands-on Approach.

6. Word Processing Elective Option

   (a) Medical Word Processing

   (b) Legal Word Processing

   (c) Executive Word Processing

   (d) School Administration Word Processing.

7. Word Processing Supervision and Management

   -- Time Management

   -- Systems Approach

   -- Measurement and Control Techniques.

Secretarial students should be required to study management theory within the business curricula. This

will allow them to have a better understanding of their work environment and will provide a basis for a career path beyond word processing administration.

8. Office of the Future
   (a) Basic Office Skills
   (b) Decision Making
   (c) Supervision Administration
   (d) Records Technology/Microfilming
   (e) Telecommunications
   (f) New and Future Technology
   (g) Attitudes
       -- Work-related
       -- Change-theory related
9. Accounting
10. Word Processing Simulation
11. Word Processing Field Experience
       -- Cooperative Work Experience.

Educators must ask themselves, "What will happen if we don't change?" Will the curriculum become obsolete? Or, has that already come to pass?

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APPENDIX A

LETTER REQUESTING PARTICIPATION IN VALIDATION OF QUESTIONNAIRE

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear

I am studying the impact of Word Processing in the medical and allied health fields as related to the medical secretarial science curriculum.

I have just started drawing up a questionnaire to be sent to hospital administrators and private physicians.

Is there any information that you can suggest that would be pertinent to this research?

When I have completed my questionnaire, would you be willing to examine it to determine whether or not the questionnaire satisfies the requirements of the medical profession?

The following research questions will be among the important issues considered in this study:

1. Do doctors who are in practice for a shorter time (less than five years) tend to be more receptive to changes in technology?

2. Are larger hospitals more receptive to changes in technology?

3. Do hospital administrators and individual doctors find that most graduates of postsecondary secretarial programs are not sufficiently trained to run word processing equipment?

4. Are complete word processing equipment systems generally more cost efficient in medical usage than partial systems or no system at all?

Administered by the Board of Higher Education
Under the Program of the State University of New York

5. What kinds of skilled manpower are needed in the secretarial area at the hospital level?

6. Can this secretarial manpower be provided by the community college?

7. Is training and guidance for word processing being given on a hospital-based level?

8. Should the medical secretarial science curriculum include word processing?

I would appreciate hearing from you.

Very truly yours,

Naomi Platt, Ed.D.
Associate Professor

APPENDIX B

LETTER SENT FOR PILOT STUDY

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear

I am conducting research under a National Institute of Education grant which deals with the use of word processing in the medical profession. The purpose of the research is to evaluate the level of use of word processing in hospitals and doctors' offices. Based on the information obtained, curriculum proposals for the education of medical personnel for automated offices will be developed.

A major source for gathering information is a questionnaire that I have developed. Since it is extremely important that the survey instrument appropriately measures the research variables, I am calling on several experts in the field of word processing to review the questionnaire and to offer any suggestions or comments that they may have. Your background and reputation indicates that you are more than qualified to provide such expert opinion.

The research questions that are being evaluated with the questionnaire are as follows:

1. Do doctors who are in practice for a shorter time (less than five years) tend to be more receptive to changes in office technology?

2. Are larger hospitals more receptive to changes in office technology?

3. Do hospital administrators and individual doctors find that most graduates of postsecondary secretarial programs are not sufficiently trained to run word processing equipment?

4. Are complete word processing equipment systems generally more cost efficient in medical usage than partial systems or no system at all?

5. What kinds of skilled manpower are needed in the secretarial area at the hospital level?

6. Can this secretarial manpower be provided by the community college?

Administered by the Board of Higher Education
Under the Program of the State University of New York

7. Is training and guidance for word processing being given on a hospital-based level?

8. Should the medical secretarial science curriculum include word processing?

I will value any comments or suggestions you may have pertaining to this questionnaire. Your response to this letter will be carefully considered when the questionnaire is redrafted and put into its final form.

I want to thank you in advance for taking part in this important work. Be assured that any response you make will be held in the strictest confidence. Your contribution to this research will be acknowledged in the final, publishable research report. A self-addressed, stamped envelope is included with the questionnaire.

Sincerely yours,

Naomi Platt, Ed. D.
Associate Professor

APPENDIX C

QUESTIONNAIRE FOR HOSPITAL PERSONNEL

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear Colleague:

I am conducting research under a National Institute of Education grant which deals with the use of word processing in the medical profession. Word processing, in its simplest form, defines a class of automatic typewriters that speed typed document output.

The purpose of the research is to evaluate the level of use of word processing in the hospitals and in doctors' offices. Based on the information obtained, curriculum proposals will be developed for the education of medical personnel for automated offices.

A major source for gathering information is a questionnaire that I have developed and have tested. As a medical user of office equipment, any information that you can provide will help to answer important questions about word processing use and training in our field.

The research questions that are being evaluated with the questionnaire are:

1. Do doctors who are in practice for a shorter time (less than five years) tend to adopt word processing changes in office technology?

2. Do larger hospitals tend to adopt modern word processing technological methods more readily than smaller hospitals?

3. What kinds of skilled secretarial manpower are needed to run word processing equipment?

4. Is training for word processing being given on an office-based or hospital-based level?

5. Should the community college medical secretarial science curriculum include word processing?

The three-page questionnaire in this folder is short and will take only a few minutes to complete. Remember, even if you are not a word processing user, your information is valued.

I want to thank you in advance for taking part in this important work. Be assured that any response you make will be held in the strictest confidence. A self-addressed, stamped envelope is included with the questionnaire for your convenience.

Sincerely yours,

Naomi Platt

Naomi Platt, Ed. D.
Associate Professor

QUESTIONNAIRE

1. If you are a hospital administrator, please indicate your working title.

_____

2. How many beds are in your hospital?

_____ beds

3. Is word processing equipment utilized in your hospital?

☐ yes

☐ no

IF YOUR ANSWER IS NO, PLEASE PROCEED TO QUESTION NUMBER 8 AND COMPLETE THE QUESTIONS TO THE END OF THE QUESTIONNAIRE.

IF YOUR ANSWER IS YES, PLEASE ANSWER QUESTIONS 4 THROUGH 7. THAT WILL COMPLETE YOUR PARTICIPATION IN THIS STUDY.

4. Please indicate the physical arrangement of the word processing center(s) within your hospital. (A word processing center is a room or area with equipment and personnel for systematically processing written communications.)

☐ centralized in one area within the hospital

☐ decentralized within each individual department

5. If you have any kinds of equipment listed in the left-hand column, please give the manufacturer, model number, and the number of units of each equipment type you have in your organization.

Equipment	Manufacturer	Model Number	No. of Units
Memory Electronic Typewriter --no magnetic media storage --keyboard and printer are in the same unit			
Visual Display --Standalone self-sufficient individual unit keyboard and printer are separate units			
--Shared Resources cluster type keyboard, printer, and central processing unit are separate units			
Multi-Function Station Terminal --Integrated Systems combining Word Processing, Data Processing and Telecommunications			

6. At what level are the following skills required for the word processing operator in your office?

	Office Skill Requirement			
	None	Low	Moderate	High
Basic English Skills				
Punctuation	☐	☐	☐	☐
Sentence Structure	☐	☐	☐	☐
Grammar	☐	☐	☐	☐
Vocabulary	☐	☐	☐	☐
Reading	☐	☐	☐	☐
Spelling	☐	☐	☐	☐
Proofreading	☐	☐	☐	☐
Editing	☐	☐	☐	☐
Composing	☐	☐	☐	☐
Verbal	☐	☐	☐	☐
Basic Business Skills				
Filing	☐	☐	☐	☐
Typewriting	☐	☐	☐	☐
Stenography	☐	☐	☐	☐
Telephone Techniques	☐	☐	☐	☐
Routine Paper Work	☐	☐	☐	☐
General Office Procedures	☐	☐	☐	☐
Medical Terminology	☐	☐	☐	☐
Banking Procedures	☐	☐	☐	☐
Recordkeeping	☐	☐	☐	☐
Time Management	☐	☐	☐	☐
Accounting	☐	☐	☐	☐
Duplicators/Copiers	☐	☐	☐	☐
Organizational Abilities	☐	☐	☐	☐
Follow-up Procedures	☐	☐	☐	☐
Word Processing Technology Skills				
Text Editing	☐	☐	☐	☐
Machine Dictation	☐	☐	☐	☐
Machine Transcription	☐	☐	☐	☐
Computer Literacy	☐	☐	☐	☐
Microfilms	☐	☐	☐	☐
Telecommunications	☐	☐	☐	☐
Formating	☐	☐	☐	☐
Data Entry	☐	☐	☐	☐
Data Retrieval	☐	☐	☐	☐
Playback	☐	☐	☐	☐
Rough Draft Typewriting	☐	☐	☐	☐
Human Relations Skills				
Following Directions	☐	☐	☐	☐
Handling Stressful Situations	☐	☐	☐	☐
Assertiveness	☐	☐	☐	☐
Supervisory Techniques	☐	☐	☐	☐
Accepting Responsibility	☐	☐	☐	☐
Designating Responsibility	☐	☐	☐	☐
Ability to Set Priorities	☐	☐	☐	☐
Perseverance	☐	☐	☐	☐
Pride in Work	☐	☐	☐	☐
Cooperation	☐	☐	☐	☐
Initiative	☐	☐	☐	☐
Relationship with Staff	☐	☐	☐	☐

7. Based on your experience with word processing operators, how would you rate the skills of participants from various locations of training programs?

SKILLS

	WP Equipment Manipulation				English Communication			
	POOR	AVERAGE	GOOD	EXCELLENT	POOR	AVERAGE	GOOD	EXCELLENT
four-year college								
two-year college								
high school								
by equipment manufacturer at your location								
on-the-job training by your own personnel								

THANK YOU FOR ANSWERING THIS QUESTIONNAIRE. IF YOU ARE PLANNING TO CHANGE, EXPAND OR UPDATE YOUR WORD PROCESSING EQUIPMENT, PLEASE COMPLETE QUESTION NUMBER 8.

8. Are you now considering installing word processing equipment?

- ☐ yes — Go to question Number 9.
- ☐ no — Go to questions Number 10 & 11

9. If you are considering using word processing equipment, have you

- ☐ received pricing information?
- ☐ had equipment demonstrations?
- ☐ looked into personnel training programs?
- ☐ none of the above

10. If you are not currently considering the use of word processing equipment, please indicate which of the following reasons were the most influential in arriving at this decision: (Check those that apply.)

- ☐ unfamiliarity with the benefits of word processing
- ☐ volume of work does not demand word processing
- ☐ type of work does not demand word processing
- ☐ initial price too costly
- ☐ service contracts and maintenance too costly
- ☐ lack of space
- ☐ lack of trained personnel
- ☐ too difficult to train personnel
- ☐ salary scale of trained personnel too high
- ☐ equipment development not sophisticated enough
- ☐ awaiting future developments
- ☐ other (Please specify) _____

11. If the above situation(s) were to change, would you consider installing word processing equipment within

- ☐ 1 year?
- ☐ 1-3 years?
- ☐ 4-5 years?
- ☐ not at all

THANK YOU FOR ANSWERING THIS QUESTIONNAIRE.

APPENDIX D

QUESTIONNAIRE FOR PHYSICIANS

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear Colleague:

I am conducting research under a National Institute of Education grant which deals with the use of word processing in the medical profession. Word processing, in its simplest form, defines a class of automatic typewriters that speed typed document output.

The purpose of the research is to evaluate the level of use of word processing in the hospitals and in doctors' offices. Based on the information obtained, curriculum proposals will be developed for the education of medical personnel for automated offices.

A major source for gathering information is a questionnaire that I have developed and have tested. As a medical user of office equipment, any information that you can provide will help to answer important questions about word processing use and training in our field.

The research questions that are being evaluated with the questionnaire are:

1. Do doctors who are in practice for a shorter time (less than five years) tend to adopt word processing changes in office technology?
2. Do larger hospitals tend to adopt modern word processing technological methods more readily than smaller hospitals?
3. What kinds of skilled secretarial manpower are needed to run word processing equipment?
4. Is training for word processing being given on an office-based or hospital-based level?
5. Should the community college medical secretarial science curriculum include word processing?

The three-page questionnaire in this folder is short and will take only a few minutes to complete. Remember, even if you are not a word processing user, your information is valued.

I want to thank you in advance for taking part in this important work. Be assured that any response you make will be held in the strictest confidence. A self-addressed, stamped envelope is included with the questionnaire for your convenience.

Sincerely yours,

Naomi Platt

Naomi Platt, Ed. D.
Associate Professor

QUESTIONNAIRE

1. If you are a physician, how many years have you been in practice?

   _____ years

2. Would you classify your practice as

   ☐ yourself only

   ☐ in partners with another physician

   ☐ in group practice of three or more physicians

3. Is word processing equipment utilized in your office?

   ☐ yes

   ☐ no

   IF YOUR ANSWER IS NO, PLEASE PROCEED TO QUESTION NUMBER 8 AND COMPLETE THE QUESTIONS TO THE END OF THE QUESTIONNAIRE. IF YOUR ANSWER IS YES, PLEASE ANSWER QUESTIONS 4 THROUGH 7. THAT WILL COMPLETE YOUR PARTICIPATION IN THIS STUDY.

4. Is the physical arrangement of your word processing center (the room or area with equipment and personnel for systematically processing written communications) centralized in one separate area of your office?

   ☐ yes
   ☐ no

5. If you have any kinds of equipment listed in the left-hand column, please give the manufacturer, model number, and the number of units of each equipment type you have in your organization.

Equipment	Manufacturer	Model Number	No. of Units
Memory Electronic Typewriter --no magnetic media storage --keyboard and printer are in the same unit			
Visual Display --Standalone self-sufficient individual unit keyboard and printer are separate units			
--Shared Resources cluster type keyboard, printer, and central processing unit are separate units			
Multi-Function Station Terminal --Integrated Systems combining Word Processing, Data Processing and Telecommunications			

6. At what level are the following skills required for the word processing operator in your office?

	Office Skill Requirement			
	None	Low	Moderate	High
Basic English Skills				
Punctuation	☐	☐	☐	☐
Sentence Structure	☐	☐	☐	☐
Grammar	☐	☐	☐	☐
Vocabulary	☐	☐	☐	☐
Reading	☐	☐	☐	☐
Spelling	☐	☐	☐	☐
Proofreading	☐	☐	☐	☐
Editing	☐	☐	☐	☐
Composing	☐	☐	☐	☐
Verbal	☐	☐	☐	☐
Basic Business Skills				
Filing	☐	☐	☐	☐
Typewriting	☐	☐	☐	☐
Stenography	☐	☐	☐	☐
Telephone Techniques	☐	☐	☐	☐
Routine Paper Work	☐	☐	☐	☐
General Office Procedures	☐	☐	☐	☐
Medical Terminology	☐	☐	☐	☐
Banking Procedures	☐	☐	☐	☐
Recordkeeping	☐	☐	☐	☐
Time Management	☐	☐	☐	☐
Accounting	☐	☐	☐	☐
Duplicators/Copiers	☐	☐	☐	☐
Organizational Abilities	☐	☐	☐	☐
Follow-up Procedures	☐	☐	☐	☐
Word Processing Technology Skills				
Text Editing	☐	☐	☐	☐
Machine Dictation	☐	☐	☐	☐
Machine Transcription	☐	☐	☐	☐
Computer Literacy	☐	☐	☐	☐
Microfilms	☐	☐	☐	☐
Telecommunications	☐	☐	☐	☐
Formating	☐	☐	☐	☐
Data Entry	☐	☐	☐	☐
Data Retrieval	☐	☐	☐	☐
Playback	☐	☐	☐	☐
Rough Draft Typewriting	☐	☐	☐	☐
Human Relations Skills				
Following Directions	☐	☐	☐	☐
Handling Stressful Situations	☐	☐	☐	☐
Assertiveness	☐	☐	☐	☐
Supervisory Techniques	☐	☐	☐	☐
Accepting Responsibility	☐	☐	☐	☐
Designating Responsibility	☐	☐	☐	☐
Ability to Set Priorities	☐	☐	☐	☐
Perseverance	☐	☐	☐	☐
Pride in Work	☐	☐	☐	☐
Cooperation	☐	☐	☐	☐
Initiative	☐	☐	☐	☐
Relationship with Staff	☐	☐	☐	☐

7. Based on your experience with word processing operators, how would you rate the skills of participants from various locations of training programs?

SKILLS

	WP Equipment Manipulation				English Communication			
	POOR	AVERAGE	GOOD	EXCELLENT	POOR	AVERAGE	GOOD	EXCELLENT
four-year college								
two-year college								
high school								
by equipment manufacturer at your location								
on-the-job training by your own personnel								

THANK YOU FOR ANSWERING THIS QUESTIONNAIRE. IF YOU ARE PLANNING TO CHANGE, EXPAND OR UPDATE YOUR WORD PROCESSING EQUIPMENT, PLEASE COMPLETE QUESTION NUMBER 8.

8. Are you now considering installing word processing equipment?

- ☐ yes — Go to question Number 9.
- ☐ no — Go to questions Number 10 & 11

9. If you are considering using word processing equipment, have you

- ☐ received pricing information?
- ☐ had equipment demonstrations?
- ☐ looked into personnel training programs?
- ☐ none of the above

10. If you are not currently considering the use of word processing equipment, please indicate which of the following reasons were the most influential in arriving at this decision: (Check those that apply.)

- ☐ unfamiliarity with the benefits of word processing
- ☐ volume of work does not demand word processing
- ☐ type of work does not demand word processing
- ☐ initial price too costly
- ☐ service contracts and maintenance too costly
- ☐ lack of space
- ☐ lack of trained personnel
- ☐ too difficult to train personnel
- ☐ salary scale of trained personnel too high
- ☐ equipment development not sophisticated enough
- ☐ awaiting future developments
- ☐ other (Please specify) _____

11. If the above situation(s) were to change, would you consider installing word processing equipment within

- ☐ 1 year?
- ☐ 1-3 years?
- ☐ 4-5 years?
- ☐ not at all

THANK YOU FOR ANSWERING THIS QUESTIONNAIRE.

APPENDIX E

LETTER FOR SECOND MAILING

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear Colleague:

Would you be kind enough to complete the enclosed questionnaire and send it to me by return mail.

Perhaps you overlooked the previous questionnaire. I realize how valuable your time is, but this will take only a few minutes to complete.

Your response will most certainly be appreciated in order to bring this important research to its successful conclusion.

I sincerely thank you for your participation in this study.

Sincerely yours,

Naomi Platt, Ed. D.
Associate Professor

Administered by the Board of Higher Education
Under the Program of the State University of New York

APPENDIX F

LETTER FOR THIRD MAILING

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
ORIENTAL BOULEVARD, MANHATTAN BEACH
BROOKLYN, NEW YORK 11235

Dear Colleague:

Enrollment in the Medical Secretarial Science curriculum has been declining in recent years. Perhaps our course of study is in need of revision.

Would you please help us to determine the secretarial needs of the medical profession by completing the enclosed questionnaire today? With your help, we hope to modernize our curriculum so that we can more effectively meet your present and future needs.

Thank you for your assistance.

Sincerely yours,

Naomi Platt

Naomi Platt, Ed. D.
Associate Professor
Secretarial Science Department

APPENDIX G

WORKING TITLES OF RESPONDENT HOSPITAL ADMINISTRATORS

WORKING TITLES OF RESPONDENT HOSPITAL ADMINISTRATORS

Top Management	Middle Management	Bottom Management
Executive Director	Administrator	Administrative Assistant
Associate Executive Director	Assistant Vice President	Assistant Administrative Controller
Associate Vice President	Associate Director, Purchasing Services	Assistant to the Director
Deputy Executive Director	Project Director, Data Processing	Assistant to the Vice President of Planning
Director, Medical Records	Director of Planning and Community Services	Associate Administrator
		Executive Assistant, Administrative Services
		Management Information Analyst
		Principal Stenographer
		Procedures Analyst

APPENDIX H

WRITE-IN RESPONSES GIVEN AS REASONS FOR NOT CONSIDERING WORD PROCESSING

WRITE-IN RESPONSES GIVEN AS REASONS FOR NOT CONSIDERING USING WORD PROCESSING

-- Plan to retire
-- Semi-retired
-- Solo practitioner with no nurse, secretary, or receptionist
-- Not personalized enough
-- I have to "process" the words
-- My age
-- Word processing available elsewhere
-- Would make more work, not less
-- No power of decision
-- Never heard of word processing
-- Makes no sense to me