PERCEPTIONS OF EMPLOYERS AND POTENTIAL EMPLOYERS TOWARD AN EXPANDED ROLE FOR OCCUPATIONAL HEALTH NURSES

by

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PERCEPTIONS OF EMPLOYERS AND POTENTIAL EMPLOYERS

TOWARD AN EXPANDED ROLE FOR OCCUPATIONAL HEALTH NURSES

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CHAPTER ONE

INTRODUCTION

Occupational disease has received relatively little attention from the health care industry in the past (Glasser, 1978). However our society is expressing increasing concern for the necessity of preventive health care as the only strategy to deal with the major diseases that are killing Americans (Kennedy, 1978). Job exposures are being increasingly identified as providing a significant contribution to the multifactorial pathogenesis of important health problems such as heart disease, hypertension, chronic lung disease and cancer of U.S. workers (Carnow, 1975).

As awareness of occupational exposures as a serious health hazard increases, a need for additional health professionals to deal with these problems will also increase. In addition, recent changes of emphasis by the Occupational Safety and Health Administration (OSHA) have stimulated an increasing concern for occupational health. New regulations have been proposed that will focus on preventing occupational exposures by requiring a variety of extensive biological and atmospheric monitoring procedures, careful records of such monitoring, extensive worker health education, and increased industrial health services (Brown, 1976). The impact of public health awareness together with the regulatory requirements on the health delivery system is still unmeasured and can only be conjectured. It seems reasonable to believe that the delivery of primary health care services to industry will be stressed.

The question of who will provide the increased health services has not been answered. In other health specialty areas, maldistribution of

personnel is often cited as an issue rather than scarcity of personnel. However in the specialty of occupational health this is not true. Not only does a marked shortage of occupational health workers exist, there is little evidence that this personnel scarcity will be corrected in the near future (Hannigan, 1976; Kerr, 1977).

The nurse in industry is one possible person to provide a partial solution to the scarcity problem. As the only health professional available in most industries, the nurse operates from a scientific base and is the logical person to provide primary health care (Key, 1971). However this can occur only when the nurse has the autonomy to define the expanded nursing role and is allowed to provide primary care. Evidence exists that how the employer perceives a role may greatly influence how the employer defines the role and, therefore, how the role is actually conducted (Argyris, 1973; Nuckolls, 1974).

Statement of the Problem

How does the employer or potential employer perceive the expanded role of the occupational health nurse? What potential problems does the employer believe would accompany an expanded nursing role? What value does an expanded nursing role have for employers or potential employers. This study addressed these questions.

Review of the Literature

The literature was reviewed for information about how the expanded role of the nurse was perceived and what kind of influence the employer had upon the role of the nurse.

As the first topic was examined, it became evident that two quite separate role perceptions exist. The first perception is that the nurse

in the expanded role is defined as an extension of the physician and, in fact, is often given the title, "physician extender." The second and less well defined perception is that the nurse who functions in the expanded role is practicing a mature nursing role in the delivery of primary health care.

The second major focus of the literature search was the effect of employer attitude on nursing practice. Unfortunately the literature was sparse in this area. Only one study was found that investigated the subject of employers attitudes. Several articles by eminent nursing leaders and other authorities provided additional insight on this subject.

The Expanded Role as Physician Extender

A popular interpretation of the expanded role is that the nurse is simply an extension of the physician. Justified by a shortage of physicians, this is often referred to as the "new" role and is usually described in terms of tasks performed, duties assumed, and judgments made that have historically been the responsibility of the physician. Often the functional component that differentiates traditional nursing from the expanded role is the task of performing a physical examination.

Bridges (1976) is one author who describes the content of such a role. She defined the expanded role as one in which,

> "...the nurse assumes many of the functions formerly reserved for the physician. In this role the emphasis tends to shift toward the prevention of illness and injury; and the nurse participates in health screening programs, performs physical examinations (in whole or part), and becomes proficient in the use of such equipment as the otoscope and the opthalmoscope, and in the interpretation of such examinations as the audiogram and the electrocardiogram. The occupational health nurse in the expanded role works under the general direction of a physician and refers the employee to the physician when referral is indicated" (p. 22).

Hannigan (1976) also describes the expanded role as being justified by an inadequate supply of physicians, and characterized by functional tasks such as history taking, physical examinations and referral.

Two industrial physicians who developed a continuing education program designed to provide for expanding the role of nurses employed by them also saw the expanded nursing role as an extension of the physician. The developed their program because they recognized the "requirement for nurses who can do more than direct patient traffic and record vital signs..." The physicians also believed that a "restless movement was present among nurses to be more involved in health care. Finally physicians have recognized that many traditional steps in the practice of medicine could be relinquished. The physicians described their course as consisting primarily of physical assessment, history taking, and treatment of the ill and the injured (Amundsen & Appelbaum, 1975 p.10).

There is evidence in the literature that nurses who function in the expanded role may tend to model their roles after that of the physician. For example, Korsch (1972) reported that nurse practitioners in a well-child clinic tended to limit their care to the physical care necessary to handle specific disease processes after the medical model instead of improving the scope of nursing care.

Evaluation of the performance of nurses in the expanded role implies that the role is often defined as an extension of the physician. Lawrence (1978) conducted a comprehensive review of the literature to identify the impact of nurse practitioners and physician assistants on health care accessibility, costs, and quality of care. In this review, which cited well over 50 authorities, the performance of the nurse prac-

titioner was consistently measured by comparison with physician performance. Despite the apparent incongruence of measuring nursing care by medical standards, it is noteworthy that, in general, nurse practitioners provided care in geographical areas previously not well served, at a lower cost, and with improved outcomes than the comparable physician providers in the type of care that was measured.

Particularly relevant to industrial nursing was one report of a statistically significant increase in return to work rates of patients treated by nurses. In contrast, patients managed by physicians (the control group) showed a decrease in return to work rates (Lewis, Resnick, Schmidt, and Waxman, 1969). It was suggested that differences in outcome were related to different processes of care and that the supporting role function of the nurse may be more consistent with the majority of needs of the chronically ill.

The inherent danger in perceiving nurses in the expanded role as physician extenders is that nurses may reinforce their low status image by attempting to assume physician functions (Ashley, 1975). Yeaworth (1976) points out that nurses are "...not junior doctors and if we try to be, we shall always be in an underdog position" (p.9).

Rogers (1972) is even more adamant about the dangerous consequences that may result from nurses adopting the role of physician extender. She warns that the role may be a "come on for the naive to leave nursing in order to play the handmaiden to medical mythology and machines" (p.42). Nurses who adopt this role are adroit at assisting the physician but are not furthering their own profession.

The Expanded Role as a Mature Nursing Role

To define precisely the expanded nursing role is not possible at this time because an accepted definition of nursing is not available (Lysaught, 1974). Even though an accepted definition of nursing has not been sanctioned by all members of the profession, conceptualizations and models of nursing practice have been developed, some of which have focused on the expanded role.

Lysaught has described the concept of "distributive care" nursing as the type of nursing practice designed to provide, "...health maintenance and disease prevention, generally continuous in nature, seldom acute, and most frequently operating in the community or in newly developing institutional settings" (Lysaught, 1970, p. 92).

The nurse in industry is uniquely positioned to provide distributive health care to a large part of the population. Members of this nursing specialty have access to millions of people who need primary care, health instruction, and preventive treatment. This is a position of critical importance because the industrial nurse is in contact with with those members of our society who experience higher hospitalization rates, increased work loss days, and other related costs primarily because most workers do not now have a comprehensive approach to health maintenance (Lysaught, 1972).

Not only would nursing skills be utilized to the highest point of challenge and satisfaction by the expansion of the role of the occupational health nurse, of far greater benefit would be the increased accessibility to the health care industry for workers. The number of health care "institutions" would be dramatically increased with

comparatively little further social investment (Lysaught, 1972). Lysaught warns, however, that the expanded role concept requires a "reorganized perception of what is nursing practice -- to include the entire continuum of nursing behaviors..." (1973, p. 11).

Some nursing leaders claim that the expanded role calls for the nurse to function as a primary care provider (McClure, 1977; Trail, 1976). Former Secretary of the Department of Health, Education, and Welfare (DHEW) Richardson's report on "Extending the Scope of Nursing Practice," (1971) defined primary care as having two dimensions: first, as a person's initial contact with a health care provider during a particular illness episode; and second, responsibility for the continuum of care, ie., maintenance of health, evaluation and management of symptoms, and appropriate referrals.

The area of primary care was considered by the report to be one of the most important opportunities for change in the current health care system. It was implied that for the most part, primary care usually takes place in a community based system. Nurses in public health agencies have traditionally functioned independently in a variety of community based settings. Even though nurses were assessing, treating, counselling, supervising, and educating, these independent functions were not "...institutionalized by common agreement of nurses and physicians or by medical and nursing educators"(Extending the Scope, 1971, p.9).

Other nursing leaders concur that while the expanded role is not "new", it is legitimatized as an independent and an interdependent role. The Fontier Nursing Service has been the most publicized example of nurses who have practiced in rural areas successfully for many years

(Creighton, 1974; McClure, 1977; Yeaworth, 1976). It is reasonable to assume that with the years of positive experience already accumulated, acceptance of the expanded role will be more readily accepted in distributive care settings.

Yeaworth (1976) maintains that even in more structured care settings, nurses have practiced with considerable independence. She cites as evidence the fact that physicians usually write numerous standing orders to cover all anticipated contingencies. However it is seldom considered that a remarkable amount of judgment, assessment skills, and knowledge are used in the implementation of standing orders.

McClure (1977) identifies several specialty areas in addition to the Frontier Nursing Service where nurses have taken additional training and have functioned in expanded roles. She listed anesthesia, psychiatry, and obstetrics as nursing specialty areas that have for many years provided an avenue for expanded role nursing functions. She claims that the "new" part is that the expanded role is developing for nurses outside these special areas and in geographical areas that are not rural. In fact, nurses are functionally independent in some of the largest teaching centers in metropolitan areas.

The unfulfilled primary care needs of the population can be met by nurses who are legally able and professionally competent to do so. However nursing leaders stress that important differences separate nursing delivery of primary care from that of the medical model.

The major goal and primary interest of the physician is diagnosis and treatment of disease. While traditional physician tasks such as examination, diagnosis, and treatment may become a part of the role of

of the nurse practitioner, medical tasks are not the primary interest or major goal of the "new" role. The major nursing focus must be on viewing any health condition within the context of the individual's total life situation (McClure, 1977).

To the nurse in occupational health the expanded role must include functions that will be unique to nursing practice in industry. For instance, assessment of the work environment was one of the nurse's primary care functional responsibilities identified by the Secretary's Committee (Extending the..,1971). Tinkham (1977) believes that highly developed skills in assessment of the work environment will lead to the major efforts of primary prevention by the occupational health nurse and, in fact, may be the model of the occupational health nurse practitioner in the 1980's.

The role of a primary care practitioner in occupational health nursing has been described as one that is "...not in competition with physicians but one which will enhance the total health care system in industry. One in which the Occupational Health Nurse is free to work as people need her" (Trail, 1976, p.10).

Employers Influence of Nursing Role

The major focus of research that has been conducted on the subject of nursing role expansion has been done to evaluate the impact, effectiveness, and cost benefit of such a role. The underlying premise seems to be that the nurse has the opportunity to function to the fullest extent that is allowed by virtue of educational preparation and legal license. It does not consider other constraints such as organizational control that have historically influenced work practices in general.

Argyris (1973) maintains that public and private organizations are designed and managed in a manner that contributes to "organizational entropy" or slow disintegration. Such organizations are often characterized by the following practices.

1. "Work is highly specialized and fractionalized. It is assumed that people do not want challenge or responsibility".

2. "Responsibility for planning work, defining production, and maintaining control is considered the domain of management rather than those actually producing the work".

3. "Responsibility for hiring employees, issuing orders, changing work, shifting employees, evaluating performance, defining and disbursing rewards and penalties is vested in top management" (Argyris, 1973, p.9).

These characteristics can be translated into generalizations about supervision and management of nursing. The employer customarily prepares the job description that defines nursing function. The employer customarily either works with the nurse to prepare the work plan or in some institutions may prepare the work plan without nursing input. The employer customarily evaluates the nursing performance thereby determining not only promotion but salary increases. Finally the employer provides the paycheck that reimburses the work performed. These are all symbols of power that ultimately define much of nursing practice. Managers of health care institutions claim that they should be able to assert accepted managerial prerogatives having to do with the composition of the work force, reassignment of tasks, creation and elimination of jobs, and so on (Robbins, 1972).

It would follow that how the employer perceives the expanded role

would greatly influence the actual practice. It would also follow that whether or not the employer perceives the expanded role to be beneficial may be a determinant factor in any decision to hire a nurse in such a role or provide support to a nurse employe who attempts to expand the nursing role.

Studies to evaluate the national experience of expanded role nursing education and practice have been part of the United States Department Health, Education, and Welfare's (DHEW) effort. A major contribution has been the "Longitudinal Study of Nurse Practitioners," funded by DHEW Division of Nursing in 1973 and conducted by Dr. Henry Sultz of the State University of New York at Buffalo. As with many studies, the questions raised are provocative and point to areas needing further investigation. Jellinek (1978) points out that one of the most important issues that has been raised by the DHEW study is the affect of the work setting upon practice. Nurses who are working in an expanded role are questioning how to modify the administrative environment in order to be allowed to practice to the full capacity of the expanded role.

Earlier Nuckolls (1974) claimed that "to a large extent, what the nurse can do is determined by the employing agency" (p. 629). Not only do the policies of the employing agency largely limit nursing practice, but any attempt to change the nursing role must consider this. Policy changes alone may not allow the nurse to take on a new role. Employing organizations may influence actual role adoption by failing to provide adequate support services, space, or equipment. Nursing functions may be limited by additional record keeping and housekeeping assignments that are necessary to the system. At times the nurse may continue to

provide nonnursing functions rather than confront the problems. The nurse may feel powerless to change the situation (Nuckolls, 1974).

In industry as in all parts of society, nurses face the problem of having relatively little power. Nurses face additional conflict in achieving legitimate independence because of the "double-bind" of a predominantly female profession caught in trying to free itself of restraints resulting from both the female role and the traditionally subservient nursing role (Ashley, 1975; Grissum & Spengler, 1976; Yeaworth, 1976).

Ashley (1975) contends that the most outstanding determinant of the nature and growth of nursing practice in industry, as well as other settings, is the extent to which groups outside of nursing have influenced the development of nursing. As a predominantly feminine occupation, nurses have been subjected to prejudice, bias, and stereotyped views which have had profound effects on functioning and on the contributions nurses are allowed to make.

While terms such as occupational "health" and the "health care system" are frequently used, the concept is a lack of health and what is a "sickness" system. Nurses have traditionally practiced and thought in terms of disease and treatments for problems according to the medical model of what is or what is not worthy of attention (Ashley, 1975).

Trail (1976) believes that management is convinced that the traditional medical model is the correct one and that nursing will have to deal with this bias. Freeman (1974) concurs that the disease oriented philosophy of an agency's management team seriously intrudes upon the nurse's ability to practice according to nursing theory.

In view of this review of the literature, it is surprising that

the administrative attitude toward the expanded role of nursing has been studied so little. Only one study was found that addressed this subject. Fottler and Pinchoff (1976) questioned whether acceptance by administrators had impacted upon the relatively slow adoption of the nurse practitioner concept in Western New York. Fottler and Pinchoff surveyed hospitals, nursing homes, and public health departments in an attempt to determine if the administrators perceived a nurse in the expanded role to be an asset; if administrators would hire a person in such a role; and what, if any, degree of salary differential administrators would believe necessary.

Fottler and Pinchoff's survey provided the opportunity to compare responses of employers of nurses with respect to place of employment and type of care given. Only 50% of nursing home administrators and 59% of hospital administrators perceived the nurse in the expanded role as an asset. This was in marked contrast to 100% of public health administrators who believed such a role to be an asset.

More discerning was the stated willingness to employ a nurse in such a role. While only 39% of hospital and nursing home administrators expressed a willingness to employ nurses in the expanded role, 100% of public health administrators indicated a willingness to do so.

The question of salary differential was less enthusiastically received. Only 50% of the total respondents were willing to pay a salary differential, while 33% were uncertain, and 17% were unwilling. The authors did not differentiate among the respondents as to which type of employer would be willing to pay a salary increase for a nurse practitioner.

The Fottler and Pinchoff study was small in that only 13 hospitals, 14 nursing homes, and 6 health departments were surveyed. Nevertheless, the authors believed that the greater expressed acceptance of the expanded role by public health department administrators was significant and concluded that the expanded role concept was more compatible with the traditional nursing role, values, and technology in public health departments than in other types of institutions. It was recognized that public health nursing operates more independently with less direct supervision than nurses in traditional settings. One reason suggested for increased acceptance was that centers which provide services to low income areas tend to be less constrained and more innovative than the traditional institutions.

Other reasons were suggested as to why the role was considered to be so much more of an asset by administrators of public health departments. Financial risks are considered less, i.e., if the new program is a failure, the tax base is likely to continue support. In addition, decision-making in hospitals is considered to be strongly influenced by the dominant physician influence not present in public health agencies or nursing homes. On the other hand, nursing homes can not expect reimbursement from Welfare or Medicare for expanded role nursing services, a fact which may inhibit acceptance of the role by administrators of these institutions.

Of particular relevance to the expanded nursing role in industry is an additional factor identified by Fottler and Pinchoff. Respondents in institutions with specialized clinics viewed the expanded role significantly more positively than those without specialty clinics. One

interpretation of this phenomenon could be that the distributive care setting is more receptive to the function of the nurse in the expanded role.

Fottler and Pinchoff also compared geographical location and perceived needs for nurse practitioners. Surprisingly, the rural area administrators did not consider the expanded nursing role to be more of an asset than those in urban and suburban areas. This finding was not considered statistically significant, but it was hypothesized that innovation may be better accepted where decision makers are cosmopolitan. Since most industries are urban or suburban, this conclusion may also have relevance for industrys' acceptance of the expanded role.

Summary

The subject of expanded roles for occupational health nurses has been examined from three perspectives: 1) the view that the expanded role is that of an extension of the physician; 2) the perception that the expanded role is an evolutionary maturing process that makes delivery of primary nursing care possible; and 3) the influence of the employers perceptions upon the nursing role.

Increased awareness of occupational disease has precipitated action by regulatory agencies as well as public health agencies. Present and future serious problems in delivery of services to industry resulting from scarcity of trained personnel have been documented. Expanding the role of the occupational health nurse for the provision of primary nursing care according to a health maintenance and disease prevention model rather than from a disease oriented medical model has been suggested as

one method of dealing with the problems of delivery of health service to industry.

A major concern in the development of such a role is that employers of nurses may have a large impact upon the actual role definition and therefore the practice of nursing. This concern has been the focus of some publications by nursing leaders but very little research has been conducted. Therefore, much of the literature is speculative in basis. Results of one study that was found indicated that the expanded role of the nurse in the distributive care setting may be perceived by administrators as an asset, with an acceptable degree of employability, but worth little additional financial reward. The expanded role also may be more readily accepted by employers in specialty clinics located in urban or suburban areas.

Purpose

The purpose of this study was to examine the perceptions of a specific employer population toward an expanded role of the occupational health nurse. Employer perceptions toward the role were compared to geographical location, size of industry, and type of industry. Whether or not the industry employed a nurse at the time of the study was also examined.

CHAPTER TWO

METHODOLOGY

Design

The study was descriptive and comparative in design. Independent variables included location of industry, size of industry, number of employes, type of industry, and whether or not a nurse was employed. These were compared with the dependent variables of the employers perceptions of previous difficulties in obtaining non-emergency health care services, potential problems in the utilization of nurse practitioners in industry, nursing functions employers would allow, perceived benefits of the expanded nursing, support of education for nurse employes, and salary increase for nurse practitioners.

Data for this study were gathered as part of a feasibility study that had been conducted one year earlier to help determine projected nursing education needs for nurses who are employed in industry as well as for nurses who may be employed by industry in the future. A cover letter accompanied the questionnaire and explained the purpose and procedure of the study (See Appendices A and B).

Subjects

The population that was surveyed consisted of representatives of industries listed in the Directory of Oregon Manufacturers as having 300 or more employes as well as employers who were known to employ nurses. Industries with less than 300 employes were considered unlikely to hire a nurse. The employers who were known to hire nurses were identified

from mailing lists of the Columbia Region Association of Occupational Health Nurses and the Occupational Health Section, Workers Compensation Department, State of Oregon.

Instrument

Since employers perceptions of an expanded nursing role have apparently not been well studied, a standardized data collection instrument was not available. The investigator constructed a tool with the assistance and advice from the Dean of the School of Nursing, University of Oregon Health Sciences Center, several nurses from the Columbia Region Association of Occupational Health Nurses, and administrative personnel from the Oregon State Occupational Health Section, Workers Compensation Department.

In general, the Likert format questionnaire elicited employers' perceptions of the expanded nursing role in four major categories.

1. The industry's past experience in obtaining health services.
2. Potential problems in implementation of an expanded nursing role.
3. The functional responsibilities that the responding employer perceived to be consistent with the expanded nursing role.
4. The value the respondents associated with the expanded nursing role as identified by both direct questions that asked the respondents to rate benefits the industry might receive from nursing practice in such a role and indirect estimates of respondents valuation of the nursing role as indicated by the respondents willingness to support education and provide an increased salary for nurse practitioners.

Procedure

Since it had been identified that most occupational health nurses are administratively responsible to the personnel director of the industry, the questionnaire and cover letter was addressed to the personnel director of each industry employing 300 or more employes as well as to those industries who were known to employ nurses. Demographic data describing each industry as copied from the Directory of Oregon Manufacturers was supplied on each questionnaire and respondents were requested to correct any errors noted. A stamped, addressed return envelope was provided.

Analysis of the Data

Information gathered through the use of the data gathering instrument is presented descriptively. Percentage of responses to questions are noted in tables. Relationships between variables were assessed by chi square tests, Pearson'a product moment coefficient, Kendall and Spearman correlation coefficients. Since a Likert-format was utilized, scales were constructed for some responses which were assigned a numerical value. Converting ordinal data into a scale requires testing to determine if the scale has the desired reliability. The Cronbach alpha is the reliability statistic reported in the discussion of those questions so analyzed.

CHAPTER THREE

RESULTS AND DISCUSSION

The results of the survey and an analysis of the implications are presented in this chapter.

The questionnaire addressed four major categories of information. Utilizing a Likert-format, the respondents perceptions of the following items were elicited.

1. The industry's past experience in obtaining non-emergency health care services.
2. Potential problems the employer or potential employer might anticipate in implementation of an expanded nursing role.
3. The functional responsibilities that the respondents perceived to be consistent with the expanded nursing role.
4. The value the respondents' associated with the expanded role in terms of the benefits the industry might receive as the result of employment of a nurse practitioner as well as indirect evidence of perceived values as indicated by the respondents' estimation of salary increase appropriate for a nurse in an expanded role; educational support an employer might offer a nurse employe who expanded his/her role; and whether employers envisioned a need for nurses in the future.

Percentage of responses to some questions are noted in tables. In some cases, scores are averaged and presented in tabular form. Responses to Likert-format questions are scaled and scores are correlated with other variables.

Population Studied

The data for this study were collected from mail questionnaires. One hundred twenty-five questionnaires were mailed. Eight were returned as "non-deliverable" by the U.S. Mail. Fifty-one questionnaires were returned for a return rate of 44%.

Type of Industry and Respondents versus Non-Respondents

Because the universe of Oregon employers of occupational health nurses as well as manufacturers employing 300 or more employes were the target populations of this survey, certain comparisons of respondents to non-respondents are in order. Most questionnaires (93%) were sent to the manufacturing sector of industry. In part, the reason for this was design. Another important reason was that most Oregon nurses who are employed by industry are employed by the manufacturing sector. A third and also important reason was that manufacturing is the sector that is responsible for almost half the total injuries and illnesses that occur in industry on a national basis. Manufacturing is also known to employ one-third of the non-private workers in the United States (Ashford, 1977).

Despite the fact that manufacturing received most of the questionnaires, they were less likely to respond to the questionnaire ($\chi^2 = 3.96$, $p \leq .05$). The non-manufacturing industries that tended to have a higher response rate were larger sized industries in categories such as Service (e.g. health care institutions) and Transportation and Public Utilities. Since larger industries in general had a higher response rate, this may account for the lower response rate of the manufacturing sector.

Location and Respondents versus Non-respondents

No significant differences were found in comparing location and respondents versus non-respondents. A slight trend was noted for rural industries to have a higher response rate but this was not statistically significant.

Employers of Nurses and Respondents versus Non-respondents

The absolute accuracy of determining whether or not the non-respondents employed nurses is somewhat questionable. Known employers of nurses were identified from mailing lists of the Columbia Region Association of Occupational Health Nurses and from the Occupational Health Section of the Workers Compensation Department. It is possible that these lists do not contain all nurses employed by industry. It can only be assumed that the list is reasonably accurate. It appears that 32% of the non-respondents employed nurses versus 55% of the respondents ($\chi^2 = 5.64$, $p \leq .05$).

Type of Industry

Respondents were from four types of industry. Construction accounted for 2%, Public Utilites and Transportation 4%, Service Industries 8%, and Manufacturing 86% of respondents, respectively.

Location of Industry

Forty-one percent of the respondents were from the greater Portland area. Twelve percent were from "medium sized" cities, and 47% were from rural areas. Location as a variable was originally separated into these three classifications in order to separate those areas that were known to have adequate health care services immediately available from areas where health care services might be less readily available.

When data were carefully examined, it was determined that the metropolitan Portland area and the "medium sized cities" were very similar in respect to availability of health services. For this reason, the metropolitan area and the medium sized cities were reclassified as a single category.

No significant differences were obtained in cross-tabulating location of respondents and non-respondents. A tendency existed for those from rural areas to have a higher response rate than those from urban areas. This was only a trend however and was not statistically significant.

Size of Industry

The majority of respondents were from smaller industries with 50% of the respondents employing less than 500 employes. However when respondents were compared to the total population surveyed, it was evident that the larger industries were more likely to respond (tau = .17, $p \leq .05$). It was also noted that larger industries tend to be located in urban areas (tau = .20, $p \leq .05$).

Nurse Employed

Whether or not a nurse was employed by the respondents was the most significant independent variable. Twenty-three (45%) of respondents did not employ a nurse and 28 (55%) of respondents employed at least one nurse. Employers of nurses tended to respond to the questionnaire more often than those who did not employ nurses ($\chi^2 = 5.38$, $p \leq .05$) Employment of a nurse was compared with independent variables of location and size as well as the dependent variables. Respondents who employed a nurse tended to be located in urban areas and respondents from larger industries

tended to employ nurses more than the smaller industries (tau = .28, $p \leq .01$). No significant difference was noted when comparing respondents who employed nurses with salary, functional tasks, or potential problems. However, significant differences were noted in comparing those who employed nurses with perceived benefits as well as support of education. Those respondents who employed a nurse were much more likely to rate perceived benefits as higher (rho = .34, $p \leq .01$). Those respondents who employed a nurse were also more supportive of education for a nurse employe (tau = .23, $p \leq .05$).

Despite what could be interpreted as employers of nurses placing a higher value on the concept of a nurse practitioner, employers of nurses did not indicate a willingness to give a higher salary to a nurse practitioner than a non-employer of nurses would give. Employers of nurses were apparently not ready to allow a nurse to function in a wider range of activities than non-employers of nurses. Neither were employers of nurses noted to perceive problems accompanying the expanded nursing role differently than non-employers of nurses.

This similarity between employers and non-employers could be interpreted positively. That is, the concept of the nurse practitioner has been recognized by much of the public and is seen to have value. The similarity could also be interpreted negatively. That is, employers of nurses are not ready to allow the nurse to define the nursing role, nor are employers willing to offer greater financial rewards for the nurse practitioner than the non-nurse employer. Further research is necessary to answer these questions more completely.

Analysis of Response to Questions

Previous Difficulty in Obtaining Health Services

Very few employers reported difficulty in obtaining non-emergency health care services. Eleven reported having had "frequent" or "usual" difficulty in obtaining any of the health services that were listed. Percentages of responses to this question are presented in Table 1.

An "other" category was provided. Three respondents added comments. One person reported "frequent" difficulty in monitoring employes for waste anesthetic gas exposures; one reported "little" difficulty in obtaining two services, (blood pressure screening and influenza immunizations); and the third reported "little" difficulty in obtaining biological monitoring for employes exposed to lead.

It was anticipated that respondents would report a relatively high degree of previous difficulty in obtaining non-emergency health care. This was not the case. This finding is not consistent with the documentation of scarcity of prepared occupational health specialists (Hannigan, 1976; Kerr, 1977).

In re-evaluating the question of health services, it is noted that only four possible answers were allowed for response to the question. The responses were: "not applicable", "little or no difficulty", "frequent difficulty", and "usually have difficulty". The difference between "little" and "frequent" may be too great. If an additional response such as "moderate difficulty" had been provided, it is possible that the results of this question may have been different. Respondents may have felt that "frequent" was too strong a word. The term "moderate" may have been a more acceptable choice.

Table 1

Respondents Reporting Previous Problems

in Obtaining Selected Non-Emergency Health Care Services

	Not Applicable		Little or no Difficulty		Frequent Difficulty		Usually Have Difficulty	
	N	%	N	%	N	%	N	%
Pre-employment exams	13	26	36	71	1	2	1	2
Asbestos exams	34	67	14	28	1	2		
Audiometric testing	3	6	46	90	1	2		
Chromic acid exams	36	71	9	18	1	2		
Carcinogen monitoring	29	57	15	29	1	2	1	2
Vinyl Chloride exams	37	73	8	16	1	2		
Lung Function test	28	55	21	41	2	4		
Other			3	6	1	2		

Potential Problems

The following question was asked. To what extent do you see the following potential problems as being a handicap to the utilization of nurse practitioners in industry?" Once again respondents were asked to rate each of six potential problem areas on a four point Likert scale. The responses were weighted as follows: None = 0; Very little = 1; Some = 2; and Considerable = 3.

Respondents identification and scoring of each potential problem area that might handicap the utilization of nurse practitioners in industry is summarized in Table 2. Legal problems appeared to be the most obvious problem and acceptance by other nurses was the problem area of least concern. The mean response to each of the six problem items is seen in Table 3.

In addition to calculating individual scores for each of the potential problems, the total scores for all six problem items had the potential for ranging from 0 to 18 and ranged from 0 to 15. The mean score was 7.4, the median 7.9, and one standard deviation was 3.9. This scale had a reliability coefficient of .78.

The scores were compared with the independent variables of size of industry, location of industry, and employment of a nurse. Using the Kendall correlation coefficient, no significant differences were found.

The potential problem scores were also compared with dependent variables of salary increase, estimated educational support, perceived benefits, and the functional activities that an employer would allow a nurse practitioner to assume. Again, no significant differences were found between the potential problems and these dependent variables.

Since no correlation was shown betwen potential problems and any other variable, independent or dependent, the response to this question may be appropriate for generalization. It would appear that for the most part, employers do not perceive the problems accompanying innovation of an expanded role to be insurmountable.

Nursing Functions Employers Would Allow

The question that assessed nursing functions as perceived by the employer was phrased as follows. "The following activities have been identified as being consistent with a nurse practitioner's preparation. To what extent do you feel you would be willing to allow an Occupational Health Nurse Practitioner to assume these responsibilities in your industry?" This question was followed by a list of nine functional tasks. Respondents were asked to rate each of these tasks and responses were scored on a four point Likert scale. The responses were weighted as follows: Would not allow = 0; Very Little = 1; Some = 2; Considerable =3. Each item could receive a maximum possible score of 3. In Table 4 the percent of responses to each nursing function item is presented and the mean score for each item of the question is shown in Table 5.

The maximum total possible score for the nine items was 27 which would indicate considerable use of nursing functions. Scores for this question ranged from a low of 5 to a high of 27, with the mean score being 18.06, median 18.58, and one standard deviation equal to 5.1. This scale had a reliability coefficient of .74.

The total scores were compared with the independent variables of size of industry, location of industry, and whether or not a nurse was employed. Using Kendall Correlation Coefficient, no significant differ-

Table 2

Employers Perceptions of Potential Problems of Utilization of Nurse Practitioner

	None		Very Little		Some		Considerable	
	N	%	N	%	N	%	N	%
Lack of worker acceptance	13	27	16	33	14	29	6	12
Lack of physician acceptance	9	18	16	33	16	33	8	16
Lack of other nurses acceptance	18	39	19	41	8	17	1	2
Acceptance of medical groups	10	20	18	37	14	29	7	14
Legal problems	9	18	14	28	16	31	12	24
Lack of management support	15	30	21	42	8	16	6	12

Table 3

Respondents' Ratings of Potential Problems

Means and Standard Deviations

	$\bar{X}$	S.D.
Lack of worker acceptance	1.27	1.00
Lack of physician acceptance	1.47	.98
Lack of other nurses' acceptance	.83	.80
Acceptance of established medical groups	1.37	.97
Legal problems	1.61	1.04
Lack of management support	1.10	.96
Total	1.28	.96

Note: Scores ranged from 0 = None to 3 = Considerable

ences were found in comparing size and location. Industries employing a nurse showed a slight tendency to allow a greater range of activities but this was not statistically significant at a confidence level of .05.

When the question of nursing functions was compared to dependent variables, no significant relationship was found to exist between tasks employers would allow and support of education or potential problems.

A trend toward statistical significance was noted however in that employers who were willing to pay a higher salary differential were somewhat more willing to allow a greater range of activities ($p \leq 10$, but $\geq .05$). Those respondents who tended to attribute greater perceived benefits as a result of employment of a nurse practitioner also indicated a willingness to allow a greater range of activities. Pearson's correlation was used to test this relationship and it was found to be strongly significant ($p \leq .001$).

The functional tasks were arbitrarily divided by the researcher into those that were more consistent with the "physician extender" concept and those that were more representative of the "mature nursing role". It was noted that there was no statistical difference between employers ratings of the two categories and the tendency to prefer "physician extender" functions to "mature nursing role" functions did not exist.

The two areas that employers apparently are least likely to allow are "atmospheric monitoring" and "suturing of minor cuts." These functions are consistent with the expanded role but may not be recognized as such by employers. The questionnaire did not identify the background of the person filling out the questionnaire and one question that arises is, "did the person completing the questionnaire see role encroachment as a

Table 4

Nursing Functions Respondents Would Allow

	Would Not Allow		Very Little		Some		Considerable	
	N	%	N	%	N	%	N	%
Physical examination	10	20	5	10	12	25	22	45
Partial examination (biological monitoring)	3	6	6	13	17	35	22	46
Periodic assessment of pregnant workers	7	14	9	18	15	30	19	38
Employe counseling			8	16	27	54	15	30
Recognize, evaluate & treat minor illness and injuries			2	4	16	21	33	65
Suture minor cuts	11	23	3	6	12	25	22	46
Atmospheric monitoring	8	17	12	28	16	34	10	21
Active participation in plant health & safety decisions & policies	2	4	5	10	16	33	26	53
Manage health unit, including budgeting, planning, etc.	3	6	9	18	19	39	18	37

Table 5

Nursing Function Employer Would Allow

Mean Scores and Standard Deviations of Respondents' Ratings

	$\bar{X}$	S.D.
Physical examination	1.94	1.18
Partial exam (biological monitoring)	2.21	.90
Periodic assessment of pregnant workers	1.92	1.07
Employe counseling	2.14	.67
Recognize, evaluate and treat minor acute illnesses and injuries	2.61	.57
Suturing of minor cuts	1.94	1.21
Atmospheric monitoring	1.60	1.01
Active participation in plant health and safety decisions and policies	2.35	.83
Management of health unit, including budgeting, planning, etc.	2.06	.90
Total	2.08	.93

Note: Scores ranged from 0 = Would Not Allow to 3 = Considerable

possible result of the expanded nursing role?" Further research in this area would be enlightening.

Perceived Benefits of the Expanded Nursing Role

The value that the respondents would associate with an expanded role for nurses was assessed by both direct and indirect questions. The direct question was prefaced with a short paragraph that described how a nurse practitioner might function in an industrial setting. This paragraph was followed by the question, "To what extent do you see the occupational health nurse practitioner as being of value to your industry in the following areas?" This question was followed by 11 possible benefits that an industry might realize as a result of employment of a nurse practitioner. Respondents were asked to rate each of these 11 items. Responses were scored as follows: Not at all =0; Very Little = 1; Some = 2; Considerable Value = 3. The mean scores for each of the 11 perceived benefit items are seen in Table 6.

The total scores for all 11 "Perceived Benefit" items ranged from 5 to 33, with the mean score being 23.2, the median 24.6, and one standard deviation equal to 8.4. The scale was examined for reliability and was found to be very acceptable with a Cronbach alpha of .94.

Perceived benefit scores were compared with the independent variables of size of industry, location of industry, and whether or not a nurse was employed. Correlation of perceived benefits with location was not statistically significant but correlation of perceived benefits with both size of industry and employment of a nurse did show significant differences. Larger industries perceived greater benefits to result from employment of a nurse practitioner than small industries (rho=.34, $p \leq .01$).

Those industries employing a nurse also perceived greater benefits associated with the expanded nursing role (rho = .35, $p \leq .01$).

Benefits of the proposed expanded role were also compared with dependent variables of potential problems, nursing functions, salary increase, and support of education. No correlation was found between perceived benefits and potential problems or support of education. A slight but statistically insignificant trend was seen between perceived benefits and salary increase. As mentioned previously, a very strong correlation was seen between perceived benefits and the nursing functions that an employer would recognize as consistent with the expanded nursing role ($r = .62$, $p \leq .001$).

The benefits that received the highest ratings by respondents were "general asset to company" and "convenience to worker and management." It is noted that the foregoing are not easily translated into cost items. In contrast, perceived benefits that received the lowest scores were those that are directly translatable into financial costs to industry. Decreased employe absenteeism, which is obviously an overhead cost, was rated as the least perceived benefit. Easier compliance with regulations and decreased health care costs were also rated lower than other perceived benefits. Two of these items have been addressed by research. Lewis, Resnick, et al, (1969) found that individuals who were seen and "managed" by nurse practitioners returned to work sooner than those cared for by other health care providers. Lawrence (1978) cited numerous studies indicating that nurse practitioners provide higher qualities of care with improved outcomes at lower costs than other health care providers. Employers response to the question of perceived benefits may indicate a need for improved

communication of the benefits of the expanded nursing role to employers and potential employers. It should also be noted that while employers rated certain items lower than others, the overall scores for all of the perceived benefit items were relatively high. Percent of responses are shown in Table 7.

In general, larger industries perceived a greater benefit from the nurse practitioner role than respondents from smaller industries. This is consistent with Fottler and Pinchoff (1976) who also found that larger institutions were significantly more positive toward the potential utility and employability of nurse practitioners than were smaller institutions.

Respondents who employed a nurse also responded more positively to the perceived benefits of a nurse practitioner. This finding is not unexpected since employment of a nurse was positively correlated with larger sized industries. This finding is also comparable to Fottler and Pinchoff's findings that institutions with a high percentage of physicians and nurses were more likely to consider nurse practitioners to be an asset.

The very strong correlation that was seen between the benefits the employers perceived that would result from the nurse practitioner's activities and the nursing functions that the employer would allow can be interpreted with some degree of optimism. It may be that the employer who is convinced of the benefit resulting to industry as a result of the employment of a nurse practitioner would allow more freedom to the nurse who is prepared to function in an expanded nursing role.

Table 6

Perceived Benefits of the Expanded Nursing Role

Mean Scores and Standard Deviations of Respondents' Ratings

	$\bar{X}$	S.D.
Decrease in employe absenteeism	1.69	1.12
Decreased workers' compensation claims	2.12	.97
Decreased health care costs to management	1.98	1.01
Time savings for worker seen at work	2.29	.86
Convenience to worker	2.39	.85
General asset to company	2.31	.86
Convenience to management	2.31	.86
Earlier recognition of employe health problems	2.25	.93
Earlier recognition of job health problems	2.02	.99
Central maintenance of health records	2.07	1.11
Easier compliance with regulations	1.76	1.03
Total	2.11	.96

Note: Scores could range from 0 = No value to 3 = Considerable value

Table 7

Respondents Rating of Perceived Benefit

of Nurse Practitioner in Selected Activities

	Not at All		Very Little		Some		Considerable Value	
	N	%	N	%	N	%	N	%
Decrease in employe absenteeism	8	16	12	25	13	27	16	30
Decreased workers' compensation claims	3	6	9	18	15	30	23	46
Decreased health care costs to management	5	10	8	16	18	36	19	38
Time savings for worker seen at work	1	2	7	14	16	32	26	52
Convenience to worker	1	2	3	6	16	32	29	59
Convenience to management	2	4	1	2	21	43	25	51
General asset to company	1	2	4	8	18	37	26	53
Earlier recognition of job health problems	3	6	12	24	14	28	21	42
Central maintenance of health records	4	8	11	22	7	14	27	55
Easier compliance with regulations	6	12	13	26	16	32	15	30

Indirect Value of Expanded Nursing Role

The value the respondents associated with the expanded role was also addressed by indirect questions. The amount of support of education that employers would provide to employed nurses who were preparing for the expanded role was considered an indication of value. Also measures of value were the salary increase employers estimated as appropriate for the nurse in the expanded role, and whether or not respondents believed that more nurses would be needed by industry in the future.

Support of Education

Seven of those returning the questionnaire did not respond to the question of support of education. Of those who responded to the question, 50% indicated they would provide at least some support (tuition and/or salary) and 21% indicated they would provide both tuition and salary while a nurse employe was being prepared for the expanded role. Further breakdown of the responses to the question of educational support is seen in Table 8.

Industries who employed nurses were more likely to respond favorably to support of education than those who did not (tau = .23, $p \leq .05$). No correlation was shown between size or location of industry and support of education.

The amount of support employers indicated might be offered a nurse entering a program to expand the nursing role was surprisingly positive. Only six of those who responded indicated that no support or leave of absence would be provided. The large percentage (71%) who indicated support of tuition, salary or both is encouraging.

Salary

Thirteen of the respondents did not answer the question of salary.

Most of those who responded, 55%, (N=21) indicated that a salary increase of 10% or more was appropriate for a nurse in the expanded role. Of these 21 respondents, five (13%) indicated that an increase of more than 15% was appropriate. A summary of the responses to the question of salary is seen in Table 9.

Salary was compared to the independent variables. No correlation was seen between size of industry and salary. A weak correlation was seen between industries who employed a nurse and salary increase although this was not statistically significant. A strong correlation was seen between salary and location. Industries located in urban areas indicated that a higher salary was appropriate for a nurse in an expanded role (tau = .25, $p \leq .01$).

The amount of salary increase the respondents perceived to be appropriate for a nurse in the expanded role was surprising. It should be noted however that a rather large percentage (25%) of respondents abstained from answering this question. No "undecided" category was provided and it is possible that respondents hesitated to "make a guess." Of those who did answer this question, the percentage of salary increase estimated was positive. This is in contrast to the Fottler and Pinchoff (1978) study that indicated relatively few financial rewards for the nurse practitioner.

Future Need for Nurses

The question of whether more nurses will be needed by industry in the future was answered "yes" by 23% of the respondents. Thirty-eight percent indicated "no" to this question and 38% indicated a "possible" response. It appears that the question of anticipation of

Table 8

Respondents' Who Estimated Positive Support for
Nurse Employe Entering a Nurse Practitioner Program

	N	%
Considerable (Tuition & Salary)	9	21
Some (Tuition and/or Partial Salary)	22	50
Little (Leave of Absence)	7	16
None (No Financial Support or Leave of Absence)	6	13

Table 9

Respondents' Estimate of Appropriate
Salary Increase for Nurse Practitioners

	N	%
Less than 5% increase	2	5
5% to 10% increase	15	40
10% to 15% increase	16	42
More than 15% increase	5	13

future need for nurses by industry was poorly worded and responses to this question are probably not significant. Two separate questions were asked and responses could be interpreted differently.

Mix of Safety and Health Personnel

Nineteen of the 28 respondents who employed nurses were from "one nurse" industries. The range of number of nurses employed was from 0.5 to 9 full time equivalent positions. The mean number of nurses employed by the respondents who employed a nurse was 1.7. However the median and mode scores were both one. (See Table 10)

Only one industry reported a full time physician. In addition, 22 had contractual arrangements with one or more physicians and 28 did not indicate any formal arrangement with a physician.

A full time industrial hygienist was reportedly employed by three respondents. Five respondents reported employment of a corporate hygienist.

Forty-three of the respondents indicated the employment of at least a part-time person who was responsible for safety. However 11 of these were 0.25 to 0.5 time positions. Additionally, 32 reported at least one and several industries reported more than one full time safety person. A mean of 1.2 safety persons per industry was reported.

Identification of numbers and mix of safety and health employes presently employed by industries yielded few surprises and tend to reinforce beliefs that the nurse is the major provider of health care in Oregon workplaces. Only one industry reported hiring a full time company physician, 43% reported physician coverage on a contractual basis and 55% reported no physician coverage. On the basis of these data, it appears that most nurses may be functioning independently and providing

health care without formal arrangements for medical coverage.

In addition to nursing and medicine, the other professional that can be classified as health personnel, the industrial hygienist, is also apparently a rarity in Oregon industry. Only three industries reported hiring a full time industrial hygienist and five reported that an industrial hygienist was employed at the corporate level. One industry that employs a corporate industrial hygienist in another state reported that the nurse in the Oregon plant performs industrial hygiene activities and is responsible for evaluation of the environment in addition to her nursing responsibilities.

Safety is of course a very important component of the health program. It was anticipated that most industries would have at least one full time safety person. However, only 32 (63%) reported at least one full time safety person.

On the basis of the data relative to the mix of safety and health professionals in industry, it would appear that the nurse in the expanded role would need a broad background in industrial hygiene and safety in order to function most effectively in industry. This is not to imply that the nurse must be prepared to perform all safety and health duties. However, since the occupational health nurse is the only health professional in most industries, (Key, 1971) the nurse must have sufficient working knowledge of the principles to organize and supervise an adequate safety and health program.

Table 10

Number of Full Time Equivalent

Registered Nurses Employed by Respondents

Number of nurses employed by respondent	Respondents' N	%
0	23	45
1	19	37
2	4	8
3	3	6
4	1	2
9	1	2
Total N =	51	

CHAPTER FOUR

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

This study addressed the potential problem of acceptance and utilization of occupational health nurses in the expanded role by employers or potential employers. A review of the literature indicated that the expanded nursing role is not well defined by either health professionals or by the public. Since how the employer perceives a role may greatly influence the actual practice of that role, further study of employers' perceptions is needed.

Questionnaires were completed by representatives of 51 Oregon industries. The response rate was higher from larger industries, industries from the industrial classifications of "Service" and "Transportation/Public Utilities," and from those industries who employed a nurse.

In general, most respondents perceived the expanded role for nurses positively. Potential problems were not perceived by the respondents as being a handicap to the utilization of nurse practitioners in industry. Sixty percent of the respondents rated six problem areas as being of little or no significance. Only 14% considered the potential problems accompanying the adoption of the nurse practitioner role as "considerable."

Most of the respondents would allow the nurse practitioner to assume the responsibility for nursing functions consistent with the expanded role. Seventy six percent of the respondents would allow "some" or "considerable" assumption of expanded role function and only

10% would not allow the nurse in an expanded role to assume expanded role duties.

At least 78% of the respondents perceived the occupational health nurse practitioner as being of "some" or "considerable" value in terms of the benefit to their industry as the result of employment of such a nurse. Only 6% perceived no benefit resulting from employment of a nurse practitioner.

Most of the respondents indicated they would provide educational support for a nurse employee. Over 70% of respondents indicated they would provide salary, tuition, or both to a nurse employee who enrolled in an educational program to become a nurse practitioner.

A salary increase for a nurse practitioner would be supported by respondents. A 10% or more increase in salary was indicated to be considered appropriate by the majority of respondents.

Whether or not a nurse was employed by the responding industry was the most significant independent variable in evaluating results of this study. Nurses tended to be employed in larger industries, nurse employers rated perceived benefits from the employment of a nurse practitioner significantly higher than non-nurse employers, and nurse employers were more likely to support nursing education.

The most significant dependent variable was the question of value to the company. Larger industries rated perceived benefits to the industry as the result of employment of a nurse practitioner to be significantly higher than smaller industries and those employers who would allow a nurse practitioner to assume responsibility for a wider range of tasks also perceived benefits resulting to the industry as a result of

employment of a nurse practitioner to be significantly higher.

More nurses were employed by respondents than any other member of the health team. This study also indicates that the occupational health nurse is the only health professional in most Oregon industries.

Conclusions

Employers and potential employers of occupational health nurses in Oregon industries hold a generally positive view of the utilization of nurse practitioners for delivery of health services to industry. Especially positive are the perceptions of employers in larger industries, located in urban areas, who already employ an industrial nurse.

Previous problems in obtaining non-emergency health care services do not appear to be a factor in employers acceptance of the concept of the expanded nursing role. On the other hand, it would appear that perceived benefits resulting to an industry from the employment of the occupational health nurse practitioner would be a greater inducement to innovation of the expanded nursing role by employers.

This is not to say that employers and potential employers do not see potential problems as being a handicap in the utilization of nurse practitioners. Potential problems were recognized by the respondents. However the mean potential problem score was less than 50% of the total potential problem score which indicates that these problems are not insurmountable. It is also noted that problems do not correlate significantly with any other variable.

Employers perceptions of nursing functions consistent with an expanded nursing role indicate that employers may be relatively conservative in the tasks they would allow the nurse practitioner to assume

responsibility for. Tasks such as atmospheric monitoring, suturing of minor lacerations, periodic assessment of pregnant workers, and physical examinations may be less likely to be "allowed" than administrative tasks, biological monitoring, and evaluation and treatment of minor illnesses and injuries.

Results of this study indicate that the industrial nurse wishing to expand her/his role may anticipate the receipt of substantial educational support as well as a reasonable increase in salary.

Limitations

Several inherent weaknesses are characteristic of the self administered questionnaire. The investigator is not present to explain and clarify any questions the respondent may have while completing the questionnaire. At least one of the questions in this study contained more than one idea and this undoubtedly affected some responses. Had the investigator been physically present, this limitation could have been minimized.

Other problems are also encountered with the self-administered questionnaire. No control is possible over who actually completes the questions. The intended respondent may pass the questionnaire on to another person and the investigator has little guarantee that the intended respondent has, in fact, completed the questionnaire.

An additional limitation is the inability to analyze the non-respondents. Non-response is not a random process and the bias that is almost unavoidably introduced as a result can not be readily eliminated. Although an attempt was made in the data analysis of this study to compare certain characteristics of respondents and non-respondents, it is

recognized that the non-response process is a limitation.

Recommendations for Further Study

1. Replicate the study selecting a random sample of employers rather than the universe of employers. Utilize an interview format to get more in-depth information and to insure that respondents understand the questions.
2. Revise the questions to increase the number of possible responses.
3. Further test the questionnaire and revise as necessary to improve its validity and reliability.
4. Survey Oregon industries to determine if specific needs for non-emergency health care services exist and compare the findings to the findings of this study.

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APPENDIX A

Cover Letter

OFFICE OF THE DEAN
SCHOOL OF NURSING

Area Code 503 225-7790

Portland, Oregon 97201

UNIVERSITY OF OREGON

HEALTH SCIENCES CENTER

December, 1977

Dear Employer:

The University of Oregon Health Sciences Center, School of Nursing is conducting a feasibility study to help determine projected nursing education needs for nurses who are presently employed in industry as well as for nurses who may be employed by industry in the future.

It is believed that future OSHA emphasis on occupational health will greatly affect the health delivery system, and especially the role of the occupational health nurse. Before plans can be made for additional educational programs for the occupational health nurse, it is important to identify how the employer perceived the registered nurse functioning in an expanded role and the value that would be associated with the expanded role. Your response will be of great help to us.

Questionnaires are being sent to all industries listed in the Index of Oregon Manufacutrers as having more than 300 employees and to employers who are known to employ registered nurses. If you receive more than one questionnaire due to multiple listing in the Index please discard the extra forms. To assist you, we have filled out the preliminary demographic data as listed in the Index. Please correct any errors noted.

Thank you for your cooperation.

Sincerely,

[redacted]

Carol A. Lindeman, RN, PhD
Dean, School of Nursing

CAL/cs

APPENDIX B

Questionnaire Form

Attention:_____

Industry Name:_____

Address:_____

Phone:_____ SIC Code #:_____

Number of employees (Full time equivalent positions):_____

Do you want to receive a copy of the results of this study?

Yes ( )

No ( )

To what extent has your company experienced difficulty in obtaining the following non-emergency health services for workers? If you do not have processes requiring specific monitoring in your industry, check the "not applicable" column.

	NOT APPLICABLE	LITTLE OR NO DIFFICULTY	FREQUENT DIFFICULTY	USUALLY HAVE DIFFICULTY
Pre-employment exams				
Asbestos exams				
Audiometric testing				
Chromic acid exams				
Carcinogen monitoring				
Vinyl Chloride exams				
Lung function tests				
Other _____				
_____				

It has been proposed that one method of providing health services in industry would be to prepare the registered industrial nurse as an Occupational Health Nurse Practitioner. This person would be prepared to do physical examinations, biological monitoring and atmospheric monitoring as well as actively participate with other health professionals in health hazard recognition, evaluation and control.

To what extent do you see the occupational health nurse practitioner as being of value to your industry in the following areas?

	NOT AT ALL	VERY LITTLE	SOME	CONSIDERABLE VALUE
Decrease in employee absenteeism				
Decreased worker's compensation insurance claims				
Decreased health care costs to management				
Time savings for worker seen at work				
Convenience to worker				
Convenience to management				
General asset to company				
Earlier recognition of employee health problems				
Earlier recognition of job health hazards				
Central maintenance of health records				
Easier compliance with regulations				
Other _____				
_____				

To what extent do you see the following potential problems as being a handicap to the utilization of nurse practitioners in industry?

	NONE	VERY LITTLE	SOME	CONSIDER-ABLE
Lack of worker acceptance				
Lack of physician acceptance				
Lack of other nurses' acceptance				
Acceptance of established medical groups				
Legal problems (malpractice, licensure, etc.)				
Lack of management support				

The following activities have been identified as being consistent with a nurse practitioner's preparation. To what extent do you feel you would be willing to allow an Occupation Health Nurse Practitioner to assume these responsibilities in your industry?

	WOULD NOT ALLOW	VERY LITTLE	SOME	CONSIDER-ABLE
Physical examination				
Partial exam (biological monitoring)				
Periodic assessment of pregnant workers				
Employee Counseling				
Recognize, evaluate and treat minor acute illnesses & injuries				
Suturing of minor cuts				
Atmospheric monitoring				
Active participation in plant health & safety decisions & policies				
Management of health unit, including budgeting, planning, etc.				

The following methods of complying with the proposed requirements for biological monitoring have all been identified as being of potential use to industry. Which of these do you believe your industry would be most likely to choose?

	MOST LIKELY CHOICE	LEAST LIKELY CHOICE	DON'T KNOW
Send workers to own private physician			
Hire full-time company physician			
Hire part-time company physician			
Send workers out of plant to contracted physician			
Contract with a propietary screening service (mobile van)			
Contract with a local public health dept.			
Hire occupational health nurse practitioner (if available)			
Seek additional education and training for nurses presently employed			
Other _____			
_____			

How do you anticipate that you will meet the requirements for atmospheric monitoring (air sampling)?

	MOST LIKELY CHOICE	LEAST LIKELY CHOICE	DON'T KNOW
Contract with health consulting firm			
Hire industrial hygienist			
Train presently employed safety people			
Hire occupational health nurse practitioner (if available)			
Seek additional training for nurses presently employed			
Other _____			
_____			

What amount of financial assistance do you believe your industry might offer a nurse employee entering a practitioner program if one became available? (Estimate only.)

Considerable support	(Tuition & salary)	( )
Some support	(Tuition and/or partial salary)	( )
Little support	(Would provide leave of absence)	( )
None	(No financial support or leave of absence)	( )

The salary for a nurse practitioner would be higher than for nurses not so prepared. What percent increase in salary over the average registered nurse would you consider appropriate?

Less than 5% increase	( )
5% to 10% increase	( )
10% to 15% increase	( )
More than 15% increase	( )

Do you believe that more nurses will be needed in industry? That is, do you anticipate hiring a nurse if you do not presently employ one or increasing the nursing staff if you do presently employ nurses?

Yes	( )
No	( )
Possible	( )

What is the mix of health and safety people presently in your employ? (Give the number of employees in the appropriate category)

	FULLTIME	HALFTIME	ONE-FOURTH TIME OR LESS	CONTRACTUAL BASIS ONLY
Registered nurse				
Physician				
Industrial hygienist				
Health physicist				
Safety director				
Other_____				

An Abstract of the Clinical Investigation of

Marion Williams Keefer

For the: Master of Nursing

Date of receiving this degree: June 8, 1980

Title: Perceptions of Employers and Potential Employers Toward an Expanded Role for Occupational Health Nurses

Approved: [redacted] Advisor

Marie C. Berger, M.S.

This study addressed the question of how employers and potential employers perceived the role of the nurse practitioner in industry. The questionnaires that were mailed to all industries listed in the Directory of Oregon Manufacturers as having 300 or more employes as well as to known employers of occupational health nurses, elicited the respondents' perceptions of 1) the industry's past experience in obtaining health services; 2) potential problems that might be anticipated in implementation of an expanded nursing role; 3) nursing tasks that the respondents would allow a nurse practitioner to conduct; and 4) the value the respondents associated with the expanded nursing role. Fifty-one respondents reported relatively few previous problems in obtaining non-emergency health services and did not perceive the potential problems associated with adoption of the expanded nursing role as being excessive. Respondents indicated that some restraint would be placed on nursing activities, and they would be especially reluctant to allow a nurse practitioner to engage in certain

tasks such as atmospheric monitoring and suturing of minor lacerations. However, the majority of respondents anticipated that industry would benefit from the employment of a nurse practitioner. At least 55% of respondents believed a salary increase of 10% or more was appropriate for a nurse practitioner, and 71% would provide educational support for a nurse employe entering a practitioner program. Responses to questions were compared with size, type, and location of industry and whether or not a nurse was employed. Larger industries and those employing a nurse perceived significantly greater benefits would result from employment of a nurse practitioner. Respondents who perceived a greater benefit from employment of a nurse in an expanded role also were significantly more willing to allow the nurse to assume a wider range of activities ($p \leq .0001$). This study indicates the nurse is the major provider of health care in Oregon industries. A mean of 1.7 registered nurses per industry were employed by the respondents. In contrast, a mean of 1.2 safety persons were employed. Only one industry reported a full time physician and three reported full time industrial hygienists.