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AN ETHNOECOLOGICAL INQUIRY OF CANCER CARE EDUCATION AND PRACTICE IN THE AMERICAN MEDICAL CULTURE

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AN ETHNOECOLOGICAL INQUIRY OF CANCER CARE EDUCATION AND PRACTICE IN THE AMERICAN MEDICAL CULTURE

by

Patricia Mullan Scalzi

A DISSERTATION

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TABLE OF CONTENTS

List of Tables

CHAPTER 1

Statement of the Problem

What does it mean for the participants - patient and physician - responsible for cancer care to emerge from and function in a charged cultural context that considers cancer as mysterious, pervasive, fearful and intractable? How are the participants to proceed with cancer care, given the raised expectations but no concrete evidence of the promise of cure? The raison de d'etre of the institution of education is the preparation for effective human functioning in the practice site. What is the nature and adequacy of the American medical culture in providing training and care to the participants?

Evaluating the adequacy of education for cancer care is further complicated given the lack of consensus about what can or should constitute appropriate care. Upon cancer care training and practice converge disputing, contradictory concerns of seemingly irreconcilable persons and premises: doctor and patient; medical knowledge and psychosocial need; science and humanism; biomedical and sociomedical paradigms; power and vulnerability; and life and death. Differences are evident in the appearance of participants' language, dress, resources avoided or drawn upon, and the time and places in which their lives occur. Frustration and anger pose in carefully phrased references to patients' "*delays* in seeking treatment" and "*non-compliance*" to the

recommendations of a medical system that consumes an unprecedented 10% of the total market value of all the goods and services collectively produced by the nation. In addition to these passive indications of disaffection, such ubiquitous measures as "Informed Consent Forms", which "inform" the physician as well as the patient that physicians' activities constitute a potential source of harm to the patient, join with institutional and economic constraints, which attempt to limit the extent of treatment the physician can dispense, to actively confront the physician with an apparent loss of mandate. The existence of criticism - of profound and pervasive disappointment expressed in quiet despair or furious invectives - hardly constitutes a surprising reaction to the extraordinary stakes and claims of so human and bureaucratic an endeavor as medicine.

How are we to bridge the "tight little cultural islands" of knowledge, perception and behavior in health care training and practice? Pellegrino and Thomasma stress that the patient's values, as well as the physician's perception of what medicine values as appropriate action, co-determine medically competent clinical action:

> competence is a necessary but not a sufficient condition of a moral medical transaction and an authentic profession. Competence must itself be shaped by the end of the medical act - a right and good healing action for the particular patient. Competence must be employed in the best interest of the patient and wherever possible that interest must conform to the patient's values and sense of what it is to be healthy

(Pellegrino and Thomasma, 1981:214).

Maretzki (1981), in calling for medical behavioral research which includes the physician, joins the ranks of other behavioral scientists who have been concerned about the bias in, and, then, lack of scientific adequacy, in fieldwork which "studies down," i.e., studies the presumed "recipients" rather than the "providers" of cultural services. Maretzki's (1981) premise is that study which includes the physician offers a chance for (cross-cultural) comparative studies of healing systems, since the presence of a specially designated healer is a universal with Azjen and Fischbein feature of cultures. This direction is congruent with that proposed by Laura Nader. Nader's (1972) concern is for establishing a knowledge base about cultural institutions (such as medicine) which is able to account for those who are "in power" by providing these services. The perspective and subject of the predominace of studies which have shaped theoretical explication of interactive care behavior have focused on those who are presumably served (or underserved) by those cultural institutions and agents.

Shall we then add the implicit perceptions of practice, practitioner or patient to the list of existing variables necessary for mediating clinical training and practice? As the experience with interventions in individual projects or large-scale health care system reorganizations have shown, attempts to change current content or organization of training and/or practice requires knowledge of medicine as

an embodied cultural organization. The institution of medicine is defined as the *entire process of disease recognition, organization of treatment and social organization of practice* (Fabrega, 1975). How is that knowledge of situated human health care behavior to be achieved?

Current and cumulative investigations in the evaluation of human behavior support the adoption of naturalistic methodologies for the study of human behavior in the context in which situated behavior occurs. Constructivist approaches in evaluation methodology as a whole coincide with a growing consensus in educational evaluation in general and health education evaluation in particular toward adaption of naturalistic methodologies for the study of human behavior in the context in which it actually occurs.

As a naturalistic inquiry of a critical interactive care event, this study

> seeks to improve concepts by naturalistic research, that is to direct study of our natural social world wherein empirical instances are accepted in their concrete and distinctive form. It depends on faithful reportorial depiction of the instances and on analytic probing into their character...While its progress may be slow and tedious, it has the virtue of remaining in close and continuing relations with the natural social world...It also poses, I suspect, the primary line of issue in our discipline with regard to becoming an empirical science of our natural world (Blumer IN Denzin, 1978:79).

This thesis attempts to share an account of the sequence, process and findings encompassed in an extended

inquiry into the training for and practice of cancer care in the American medical culture. The study began with a commissioned investigation of the content and impact of a cancer education curriculum presented within a particular American medical school. Initially, the resulting evaluation product and process provided information critical for both the immediate evaluation needs of the oncology curriculum and the continuing investigation of oncology training and practice. The initial outcomes included both a product (an empirical map of the content and impact of cancer education against the context of the medical school's overall curriculum) and a process of dialogue and mutual responsibility for cancer education planning and evaluation among interdisciplinary faculty members and groups. The evaluation inquiry and the reaction to its findings provided the impetus and context for further exploration of embedded evaluation issues. These issues include the reflective evaluation of external professional standards for cancer care, against which the conduct of cancer training and practice sites is evaluated.

The recency and prominence of the case made for bringing the resources of the American culture to the care of cancer allows us to see the social formation of the medical curriculum. It is not only "their" behavior - the content and conduct of professional medical practitioners - which is then available for critical examination. The

explicit content and conduct of the sites of active cancer care training and practice provide empirical occasions from which to consider the adequacy of our accounts of interactive care of chronic illness.

A critical component of this inquiry was the selection and testing of a theoretical perspective capable of guiding a minimally adequate account from which one could consider the medical institution's preparation of students for dealing with the issues raised in the social context of practice. This thesis will explore the potential and achieved insights of a particular form of naturalistic inquiry (ethnoecology) for the explication of the content, conduct and organization (sociocultural context) of cancer care training and practice. It is within this context that cancer education - the formation of its content, inclusion in the medical school curriculum and congruence with interactive practice site experience - is used as a case study for examining the workings of the American medical culture.

CHAPTER 2

Importance of the Problem

What is the magnitude of the problem included in the training and practice of cancer care? What has been the history of the recognition of and participation in cancer care within the American medical culture? What recurring concerns and issues emerge in the current social and political treatment of cancer? What problems are posed for the individuals responsible for cancer care operating with this particular set of information and within this larger ecological framework?

The Incidence and Prevalence of Cancer Within the American Medical Culture

The importance of the problem of cancer care in the United States can be seen in the number of ways cancer's incidence and impact is counted. The magnitude of the cancer problem may be considered in terms of both mortality (death) and the incidene and prevalence of the disease. In 1980, about 415,000 of the 1,986,000 deaths which occurred in the United States were due to cancer (United States National Center for Health Statistics, 1982). One in every five deaths in the United States is due to cancer. Cancer is thus second only to circulatory diseases in accounting for overall deaths in the population, as well as potential years of life lost and economic cost (Rice, Feldman and White, 1976; Hodgson, 1975). The age-adjusted death rate

from cancer has been steadily increasing. The age-adjusted death rate for cancer has risen from 125.8 per 100,000 in 1960; 129.2 per 100,000 in 1968; 133.8 per 100,000 in 1978 to 134.2 per 100,000 in 1980 (Shapiro, 1983). Nearly one in three people will develop some type of cancer during their lifetime.

Cairns (1975) argues that an index of cancer's impact more appropriate than total number of deaths is loss of life span, given that "the death of a 90-year-old man from cancer of the prostrate is less of a tragedy than the death of a young man from leukemia." The latter index begins to indicate the value judgment implicit in the recognition and treatment of cancer. As indicated within these "counting systems" for cancer, the interference cancer imposes on productive life span is of great concern within the American culture. The increasing recognition that cancer occurs throughout the life span challenges the medical apologist's who have been willing to ascribe the historically recent dramatic increase in cancer's prevalence to explanations which posit cancer as simply a disease of biological deterioration; in a population maintained by a medical system which brings them to old age, cancer simply has more time to develop and be diagnosed. In this account of the genesis of cancer, appropriate care would leave little to do but stress early detection and medical management. The gradual realization that cancer is actively produced carries

the uncomfortable implication that the search for etiology might need to indict ways of life (Hiatt, 1980; McElroy and Townsend, 1979; Burkitt, 1978; Doll, 1977; and Higginson, 1976). Rene Dubos attributes his own "conversion" in operating paradigm to the realization of the shift in the distribution of problems in interacting social and physical environments:

> I should perhaps briefly state the reasons that have progressively led me - a microbiologist not trained in medicine - to explore some of the biological and social implication of man's (sic) response to his total environment. My concern with such problems emerged from an increasing awareness of the fact that the prevalence and severity of microbial diseases are conditioned more by ways of life of the persons afflicted than by the virulence and other properties of the etiological agents. Hence the need to learn more of man and of his societies in order to try to make sense of the patterns of his diseases (Dubos 1965).

As Hunt (1975) notes, few investigators have asked whether the division of labor in a given culture constitutes an efficient use of human resources. The exploration of the costs of energy and health in patterns of work has only begun. While the epidemiological investigation of cancer is cited as a "hallmark" of the science (Pfifferling, 1978), the notion of *high-risk work environments* shares little attention with the more traditional focus on high-risk *persons*. As then Secretary of Health, Education and Welfare, Joseph Califano clarified his early pronouncement of "no health threat" from the 1979 Three Mile Island radiation exposure:

> Uncertainties must be highlighted - not papered over, and risks must be clearly acknowledged, to allow

> individuals to judge for themselves whether risks are worth taking ... Although one additional fatal cancer or even ten fatal cancers may seem small statistically ... it is nonetheless ultimately significant for the individuals who become these statistics.

Stressing the evaluation inherent in formulating determination of exposure of populations to hazards that affect their health status, Brownlea (1981) argues that political activities share primacy with medical and epidemiological insights in the determination of health hazards. The problems plaguing determination of attributable risk in mobile human populations make it more likely that such groups as the Army veterans exposed to Agent Orange (herbicide 245T) will find political and legal resolutions, rather than answers of causality from medical and epidemiologic determinations. The problems confronting the epidemiologists formulating these counts include coping with information derived from inadequate design and data, and the limitations of Type 2 error (i.e., an error which consists of failing to reject the null hypothesis when it is false) problem solving (Brownlea, 1981).

Epstein's Politics of Cancer finds the modesty of epidemiological confidence seems weighed to favor statistical non-significance. The indeterminancy seems less a function of *how* we count, and more of *what* we count. These constraints are posed by the pervasity of the carcinogenic risks in the environment. How then do we compare incidence of studied groups against a background

population exposed to other carcinogens? Given the latency of many carcinogens, how are we to glean critical information from the selective recall and spotty or missing documentation of agents which exposed individuals may not have realized constituted a hazard? The more deliberate manipulation of methodology, Epstein (1979) charges, comes in determining the appropriate population at risk. The "general population rate" often used as a standard reflects the bias of illness counts from its inclusion of disabled and chronically ill. Epstein (1979) argues that control groups should be other workers. Follow-up studies of latent activity of carcinogens have been clouded by inclusion of too few subjects, too little time. Industry manufacturing or using suspected carcinogens has persistently insisted that these human study findings (which less frequently find indisputable causal relation) be the criteria for determining toxicity. For example, in gauging the affect of aldrin and dialdrin on humans, Shell Oil promoted the findings of its human subjects study, characterized by these methodological flaws, to discount the findings of toxicity from rodent studies (Epstein, 1979). An incredulous American population, on hearing how animal studies seemed to betray unlimited environmental risks, laughed nervously as comic routines described earnest white-coated laboratory researchers dressing up legions of little mice to confirm that leisure suits cause cancer. Epstein (1979) recounts the less comic alternative account of the industry

spokespersons who counseled the need for further study, which would consist of waiting for the findings of the "natural experiments" in carcinogenic exposure.

Cancer as a Case Study in the Investigation Of the Cultural Organization of American Medicine

Acknowledging cancer as an event of frequent occurrence and enormous resource allocation may not be sufficient grounds for determining cancer care training and practice as an important *problem*. Might it not appear as just, responsive and rational to concentrate continuing attention, resources and activities in the care of so pervasive a disease? This picture of a system working hard but working right is accepted as a given in the current literature about the "crisis" in the American health care system which considers the problem limited to the continuing availability of that side effect, money (Callahan, 1981, Ingelfinger, 1978; Eisenberg, 1977). The response of rationing care presupposes the legitimacy of what constitutes care.

Beyond its status as a "problem", cancer care training and practice provides a critical content and context for insight into the American culture. What are the characteristics of cancer care training and practice which suggest that it constitutes a concern worthy of and amenable to study?

Cancer care education and practice, as aspects of the medical system, constitute a compelling site of purposeful, interactive human behavior. Throughout history, every culture has contained a system of caring for their sick. The medical historian Virchow declared medicine to be a social science to its very marrow. As Pellegrino offers:

> Medicine is an exquisitely sensitive indicator of the dominant cultural characteristics of any era, for man's (sic) behavior before the threats and realities of illness is necessarily rooted in the conception he has constructed of himself and his universe.... Every culture has developed a system of medicine which bears an indissoluble and reciprocal relationship to the prevailing world view. The medical behavior of individuals and groups is incomprehensible apart from a general cultural history (Pellegrino, 1963:10).

Fabrega calls for research which acknowledges medicine as the entire process of the way a culture defines disease, the way in which the group organizes themselves toward the treatment and the social organization of the treatment. Zola (1972) and Fabrega (1975) note that a group defines a disease in order to combat it. Armelagos, Goodman and Jacobs (1978) note that the ecological perspective has failed to consider these ethnomedical factors; instead, investigators in the behavior of medicine have traditionally viewed disease as a given, and attempted to study the cultural responses to disease in a closed system. Little effort has been made to examine how perceptions may influence the disease process. Kunitz's (1974) historical analysis stresses that what comes to be defined as disease is not always the condition which represent the greatest

threat to the adaptation of the group, but is often a reflection of the social-political factors affecting the social units. Mahler cites the examples of allocation of 70% of a city's health expenditures on people who are going to die in twelve months, and the construction and staffing of sophisticated renal dialysis centers to care for a few hundred people instead of supporting a network of rural centers to serve hundreds of thousands of people. Mahler concludes that such examples reflect "an obsessional concern of the medical profession - my *own* profession - with marginal disease, and tends to pervert the very conception of health" (Mahler, 1980).

As a medical event, cancer embodies the intersection of compelling, often contradictory, behaviors, perceptions and persons. The attribution of the etiology of cancer ranges from a temporary negative side effect of the medical system which is thought to be resonsible for increasing longevity and, then, the incidence of degenerative diseases which now have enough time to "show up"; to indictments of conspiratorially polluted petrochemical macroenvironments; to microenvironments of aberrant individual human culpability in ingesting tobacco, sugar or emotions. The realm of human activity for which blame is attributed affects the way individuals responsible for health care seek and conduct individual care encounters (Zola, 1973; Chalfant and Kurtz, 1977; Papper, 1970; Reynolds and Bice, 1971).

Cancer is an example of the chronic, systemic diseases which have replaced infectious diseases as major causes of death in the American culture. Unlike the other chronic systemic diseases threatening Americans' health, cancer is the only one of these entities whose incidence is increasing (McFate,1979). What are the chances an individual in the American medical culture will develop or survive cancer? The competition for formulating these counts range among the stakeholding audiences who denigrate each other's sites and units of study - laboratory controlled animal experiments or epidemiologically analyzed human populations (Epstein, 1979).

The allocation of resources for cancer care and training has depended upon these disputed claims. The allocation has reflected as well the symbolic significance of cancer. Lally (1977) and Peters-Golden (1982) point out that, while there are diseases more common, more likely to be terminal, to cause more pain and disfigurement or are more elusive of treatment, "it is cancer which our society fears most, which disrupts social ties, which has become the metaphorical Evil of our day" (Peter-Golden,1982). What are the components of cancer which combine to produce this effect? Cancer can occur without warning; spread to and deteriorate other body tissues; cause intractable pain and elude ready diagnosis or treatment. Finally, the cooperation of the patient with therapies which can

themselves be exhausting, painful and mutilative does not guarantee success. (Clark in McFate, 1979; Peters-Golden, 1982). These characteristics contribute to the fear of cancer in the general American public and despair of the patient, physician and their support units.

As a literary critic and treated cancer patient, Sontag has examined the further cultural connotation of cancer from the use of cancer as a metaphor. Her anger and anguish are directed to the use of the word cancer as "the very epitome of evil". Sontag calls attention to the impact on persons with cancer who are lied to "not just because the disease is (or thought to be) a death sentence, but because it is felt to be obscene - in the original meaning of that word: ill-omened, abominable, repugnant to the senses"; who hear their care and cure procedures described in the language of violence ("bombarding" patients with x-rays to "kill" cells) and hear cancer used as a call to incite violence (so that the Gang of Four are the "cancer of China", Watergate the "cancer of the presidency", or the Jews as Hitler"s "cancer of Europe").

A clear example of the contiguity of cancer with the rhetoric of violence is the 1971 National Cancer Act which declared a "national *war* on cancer". The National Cancer Act also offers corroboration of the decision to examine cancer as a culturally reflective occurrence. The National Cancer Act authorized $1.6 billion in cancer research, care

and training, making cancer the most highly funded of all disease research. The National Cancer Act provisions also granted unprecedented autonomy to the National Cancer Institute. The rhetoric of violence which Sontag decries fits well with the call to arms in the face of perceived threat.

The enormous expenditures of public and private funds for the education of health care professionals is justified by health care professionals' declaring that they act in the public interest (Pellegrino and Thomasma, 1981; Strickland in Kunitz, 1974). What is the process of determining that a concentrated attack on a disease is in the public interest? Strickland's analysis of this process traces the influences which culminated in the National Cancer Act. An initial criterion for legitimation is the perception of a feared, pervasive disease; cancer would certainly appear to meet this initial condition. An additional requirement for obtaining the political interest of Congress and the President in supporting the new "crusade against cancer" was necessary. This requirement was the proof - or the appearance - the medical community was "close to a breakthrough in cancer", so close that "one final push" would attain victory (New York Times, 1971).

Ten years later, what is the objective, empirical evidence of the impact of that allocation? The odds for long-term survival have not been improved more than 1% since

the 1940's; the incidence of cancer, unlike the other chronic, degeneratice diseases dominating the American health culture, is known to be rising (McFate, 1979). What are the conditions that suggest that the declaration of "war on cancer" has not been the rational, straightforward allocation of resources? With what information can one consider that the perception of federal decision makers that cancer was "close to a breakthrough" not justified? In the conception of cancer as a cultural phenomena, one can discern the active process by which a particular disease event consumes national attention and resources beyond the evidence of its severity and extent. In the acknowledgement of an open system of active exchange, one can discover national decisionmakers unintentionally *creating* the conditions from which the perception of the proximity to a "breakthrough in cancer" could seem to be justified and for which further concentration of resources would be called.

The strong, successful suit for attending to cancer made to federal funding agencies might be expected to have selectively presented its evidence. The representation of what is known and what can be expected to be done for cancer care holds a different meaning in the medical school. Among students committed to medicine, the presentation of information would seem to be based less on selling need and promise and more on sharing information considered critical for providing care with those who will be conducting

research and care by those who currently research and practice cancer care. The medical school, as a primary site of medical professional socialization, imparts the knowledge, technical skills and attitudes which allow students to enter into this shared responsibility. Education about cancer can, however, be expected to pose difficulties for medical students. Medical oncology, as an officially recognized subspecialty of internal medicine concerned with the care of cancer, has only recently been in existence (Cassileth, 1979 and Kennedy, 1973). As a related facet of the recency of the organized information about oncology available to the medical school, the opportunity for students to witness or share cancer care practice has been charged as "inadequate" by "those of us who have a specific interest in oncology" (Lawrence et. al. IN Smith and Alvarez, 1978). The citations made for funding clinical manpower for cancer stressed the scarcity of models and sites for students to obtain oncology care training.

Raising charges of limited opportunity for receiving cancer training within the medical school obscures a more pervasive pattern of missed cancer care training. It is the medical students themselves who are persistently and pervasively avoiding intensive exposure to cancer training. The prospect of entering a therapeutic relationship with cancer patients confronts medical students and practitioners with tasks for which their hard-earned knowledge of disease

progress and technical medical management skills may provide little preparation. These problems include sharing with patients a diagnosis of a condition which both participants, as cultural members, have come to dread. The prospect of uncertain outcome and fear of side effects of cancer therapies complicate the determination of appropriate aggressive or palliative treatment regimens. Unlike the management of diseases limited in time, the course of illness in cancer typically follows a series of remissions and exacerbations. This indeterminable course can impose a sense of unending responsibility. The death of a patient conveys a potentially enormous sense of professional and personal loss. The death of a patient confronts the medical practitioner and student, professionally, with the limits of medical competence and their own medical management skills. Further, clinical detachment, assumed to be a necessary posture for effective clinical performance, is difficult to maintain in the face of evidence of shared mortality.

This thesis explores the formation of the context and patterns of the content constituting cancer care education within the American medical culture. The domain for the definition of cancer care training and practice is the actual practice and the implications of that cancer care and training. What is the relative attention, resources and activities which constitute cancer training and practice? Against what comparative base can this training and care be

defined? A determination of the meaning the participants assign to the cancer experience calls for the active scrutiny of the actual behavior of those participants in the interactive setting in which the behavior occurs. This study is conducted within an ecological framework which considers the implications of that ethnographically investigated experience in its historical and cultural context.

A review of the literature can indicate what the current understanding of this problem is and has been. A review of the literature can also reveal what has been the conduct of inquiry - the assumptions, methods and extent of questions and evidence considered - about the training and care process. Reviewing previous research facilitates the reformulation and further concretization of the proposed study to build upon established understanding.

CHAPTER 3

General Background and Review of the Literature Studying the Implicit Culture of Medicine

In their own attempts to provide responsive health care, what domains have health care planners progressively targeted as problems to incorporate? In the recent history of health care research, one can discern successive phases of problem bracketing (McNerney, 1983; Young, 1980 and Foster, 1978). Health care providers first assumed that the problem of health care delivery was simply providing *access* to *sufficient* resources (either technology or knowledge). The primary or exclusive attention on access reflects the assumption of convergent perception and (dis)valuing of what constitutes a disease entity. Health care planners then acknowledged a need to acquire knowledge about the proposed recipients of care. Current formulations recognize that what may require study (and then we will know everything there is to know) is the possibility that the "functionaries", the health care providers, might themselves pose a barrier to health care delivery.

Donald Kennedy adds his review to the relatively recent attention on implicit culture in health care. Kennedy counsels concentrating serious study on the *implicit* cultures of professional medicine:

> more studies of implicit culture and value orientation need to be made in the health field, especially with reference to the service groups. One gets the

> impression that we know more about latent assumptions in the area of folk medicine than we do of scientific medicine or public health. Do (the values) people in the United States place, on activism, mastery over nature, youth, and a future time orientation ... produce specific lacunae in our controlling ideas about health care and biomedical research? Do they help to explain the differential allocation of resources among the specialties of medicine and for different types of health servies? These questions and others suggest the strategic importance in studies of 'implicit culture' (Kennedy, 1973:803).

Mechanic stresses that in formulating policy to provide medical care,

> Just as the patients' behavior must be understood in its social context, so must the doctor's. The physician's response to the patient reflects not only his (sic) perception of the patient's symptoms and needs, but also his own background and medical training, the organization of health care delivery, and the particular incentives and constraints that affect the way he works .... To be effective, therefore, medical-social policy must take into account how the health care encounter is seen by professionals as by patients (Mechanic, 1980).

Drawing Tenets of Study: Direction from Existing Research

What direction or tenets of study are found in the current and cumulative evaluations of interactive human behavior? An early caveat for study emerges from the pervasive findings of studies which have - often inadvertantly - documented the diversity of beliefs, behaviors and assumptions within a particular mediccal culture.

Pelto and Pelto criticize studies of professional and folk medical culture which consider the (professional or folk) medical culture as if it were a monolithic bloc, with

homogenous views and common assumptions about health care. This "uniformist fallacy" is challenged in studies of health and disease. Hessler, Nolan, Ogbru and New (1978) and Pelto and Pelto (1978) have demonstrated significant intragroup differences in health care beliefs and behaviors.

A further study tenet seeks to consider the appropriateness of delimiting evaluation of an educational experience on the basis of a priori assumptions of what areas of human behavior the intervention will influence. Dixon's (1978) exhaustive search of the literature in medical education concluded that the current state of knowledge about the relationship between "components" of interactive performance would render decidedly premature the a priori determination of how - or even which - area an educational intervention will affect and be expressed in interactive clinical performance:

> While the case for continuing education in the health professions must be made in terms of its impact on patient outcomes, most evaluation data remains one or two steps removed from this criterion. To the extent that conclusive evidence demonstrating the links between perceptions, attitudes, knowledge, clinical process and patient outcomes is lacking, evaluation which is based on use of such variables is dependent on validity assumptions of which the accuracy may be open to question (Dixon in Woog and Hyman, 1980).

Not only in educational interventions has a perplexing disjunction been found among health care beliefs, behaviors and outcomes. In medical anthropology, the work of Pelto and Jerome (1978), Browner (1976) and Hessler et. al.

(1978) find evidence of considerable incongruity between a groups' beliefs and behaviors, in medical practices ranging from nutrition to abortion.

Nor is the disjunction between beliefs and behaviors limited to health care behavior. Azjen and Fishbein's metaevaluation of empirical research on the relation between an evaluative measure of attitude and some behavioral criterion find these studies generally obtain inconsistent and low correlations. A more encouraging finding - reports of strong attitude-behavior relations - obtains in studies with high correspondence between four critical elements of attitude and behavior. These elements are: the *action*; the *target* at which the action is performed; the *context* in which the action is performed; and the *time* at which it is performed (Azjen and Fishbein, 1977:889).

Research exhibiting high correspondence between these attitude-behavior entities include Veevers' (1971) investigation of drinking behaviors, and Kothandapani's study of birth control practices of black women. High correlations were obtained between instruments measuring attitudes toward personal use and subjects' self-reported use. Janis and Hoffman (1970) found that subjects whose measured attitudes toward smoking were above the mean were, six months after participating in a smoking-cessation program, smoking 29 cigarettes per day. In contrast, subjects whose attitudes were measured below the mean smoked

only 9.4 cigarettes per day. High correspondence between the critical attitude-behavior elements (target, action, context and time) also yielded strong correlations in studies measuring attitudes toward multiple-act criteria. Examples of this occurrence include Potter and Klein's study of maternal attitudes and behavior and Goodmenson and Glaudin's (1971) study of posthumous organ transplants.

Dixon's (1978) work (with a chain of events model) would concur that there are levels of criteria against which medical education programs can be evaluated. The criteria Dixon derives, which focus on the impact of an educational intervention on the learner, include: "participants' perceptions and opinions of the course; participants' professional knowledge and attitudes; participants' professional behavior in their actual clinical work; and impact on client status."

The conclusion of Dixon (1978) and Azjen and Fishbein (1977) echoes a major theme in the current literature on evaluation of education and practice in the health care professions. This theme cautions that "*what* competence is follows from a recognition of *where* it is" (La Duca, 1980:254). In the evaluation of behavior in health care, the "where" of evaluation is the clinical encounter. Locating the site of care and training study within the actual occasion of its performance recognizes:

the criticalness of the health professionals'

> performance cannot be established without attending to the circumstances under which the performance occurs. Furthermore, not only is the importance of the performance context-bound, the very identity of the performance is context-bound as well.... What the health professional *should* do is a consequence of the demands of the professional situation (La Duca, 1980:255).

La Duca proposes a

> relational model in which competence in health professions is seen as the aggregated adaptations of practitioners to the set of special social circumstances that obtain within the situational boundaries of their profession. It is argued that a thorough understanding of the content of professional situations is a necessary prerequisite for successful evaluation of professional competence, since competent behavior is lodged in a network of probabalistic relationships with the surroundings (LaDuca, 1980:253).

Within the American medical system, the clinical encounter is an event of extraordinary ritual significance and frequency. Wilson holds out the hope that a focus on the "therapeutic interview" (i.e., the formal interaction occurring between a person who suspects or knows s/he is ill and an individual designated by their culture as qualified to aid the sick") will facilitate cross-cultural analyses of medical systems, given that the therapeutic interview forms "the crux of medicine, and, by virtue of this, the constant that links all medical systems" (Wilson, 1963:273).

The medical "facts" of patients' coditions, however, have proven notoriously poor predictors of this patient flow (the movement and acceptance of persons from the community into the health care system). The highly selected sample of patients who constitute the patient population of the

university-affiliated teaching hospitals raises the concern of bias embedded in this central site of medical education. If the expression of patient care problems observable at the university-affiliated clinic can not be expected to represent the care problems of the general population, what generalizable cultural occurrences can they be expected to inform? Mechanic (1983) stresses that patient flow represents, instead, a prime instance of the pervasive process of social selection. As the studies of Zola (1972, 1973), Gould (1965) and Landy (1977) indicate, the clinical encounter represents an event of active care system analysis on the part of the care seeker in cosmopolitan or traditional medical systems. The clinical encounter is the locus of professional medical behavior; the clinical encounter also represents an event of significance to the persons seeking medical care. The clinical encounter provides an occasion in which the therapeutic interview can be recognized and studied as "an interactive and interpersonal event" (Hogan et. al., 1979).

The proposed study considers the subject of study as an exchange process, emerging from and occurring in a particular historical and cultural location, between persons assuming responsibility for care of cancer. One may note in this description characteristics of the study phenomena for which the proposed study would consider responsibility; one may also note a direction and study characteristics which

have not been posited. The direction not taken is that which constitutes a considerable portion of the tradition of evaluation research in medical training, practice and their intersection. This study intends neither to ignore that body of research, nor cast aspersions on its continuing applicability for selected areas of concern. Instead, the resolve of this study is simply to select an approach and method of study sensitive for illumining the concerns and issues of the phenomena of study. This portion of the review of that literature, in reporting the findings of that research, also reports the frustration elicited for those seeking to understand, predict and affect care training and practice.

The Evaluation of Medical Education: What has been the Tradition of Study

The evaluation of medical education is not a new phenomena. Indeed, the centrality of medical education and its evaluation constitutes a universal feature of cultures throughout their history. However, just as the definition of what constitutes an appropriate domain for medicine is historically and culturally bound, so does the determination of what is or should be the criteria for the evaluation of medical education reveal critical information about what or whom the practice or practitioners of medicine consider critical sources and subjects of service. In medieval Europe, the instruction and evaluation of medical students were based on textual explication. The majority of students

did not come in contact with actual patients. Student skills to be gained and evaluated were those of "refined, elegant argumentation. The demonstrated ability to excel in rhetoric and dialectic was prized above manual dexterity, diagnostic skills and other quotidian evidence of medical excellence." The university medical schools themselves were evaluated by ecclesiastical and civil authorities. Here, too, the school's facilities needed to establish their ability to foster skills in textual interpretation and demonstration (Samph and Templeton, 1979:42).

What has constituted the approach and conduct of the (more recent) tradition of professional medical eduation and evaluation? The training sources of the overwhelming majority of professional medical educators, as indicated in Engel and Fillings's (1981) review of the 1975-1980 professional conference proceedings, are the disciplines of psychology and education. Singleton stresses that the academic disciplines which provide training continue to mark the conduct of its members:

> in many ways our academic disciplines as social collectives are like the primitive tribes with which anthropologists have traditionally dealt. They are composed of people who identify themselves and are identified by others as belonging to a particular tribe. Each disciplinary "tribe" has a certain territory, a language, a set of rules for guiding behavior, a mythology, a pattern for cultural transimission, a process of initiation, a social order, a series of rituals, and a system of social stratification. In academia - or more specifically the modern university - disciplinary loyalties are strong and meaningful to many individuals and the physical and social structure of the university is usually built

around these "tribal" groupings (Singleton in Spindler, 1974:26).

Engel and Filling describe the common grounding of the training sites (psychology and education) of medical educators as working: " in a research paradigm emphasizing controlled laboratory work and in a static linear model transferred from the physical sciences" (Petrinovich, 1970 cited in Engel and Filling). The contrastive analyses of Ianni and Orr (1979) Rucci and Tweeney (1980) have discerned little difference in the approach to and practice of research between psychologists and educators in the American culture. LaDuca's review (1980) of critical references in educational evaluation (Isaac and Michael, 1971; Struening and Guttentag, 1975; Guttentag and Struening, 1975; Weiss, 1972) indicate the derivation of educational evaluation and evaluation research from the tradition, paradigm and technologies of American psychology. The favored paradigm of psychology has been the *linear process experiment* (Engel and Filling, 1981).

Patton (1975:29) has commented on the appearance of experimentation and educational research:

> Treatment in educational research are usually some type of new hardware, a specific curriculum innovation, variations in class size, or some specific type of teaching style. One of the major problems in experimental educational research is clear specification of what the treatment actually is, which infers controlling all other possible causal variables and the corresponding problem of multiple treatment interference and interaction effects. It is the constraints posed by controlling the specific treatment under study that necessitiates simplifying and breaking

> down the totality of the reality into small component parts. A great deal of the scientific enterprise revolves around this process of simplifying the complexity of reality (Patton, 1975:29).

Engel and Filling concur that "much research in health professions education has chosen questions that involve variables at a level which is molecular and controllable... the results of such generalizations have been dismal". They posit this outcome to "the dominant research approach with its focus on the specification of variables prior to experimental manipulation (which is, then,) essentially a hypothesis-testing model. The questions asked are necessarily narrow and often contrived."

The Missing Questions

The dominance of the experimental method limits the kind of research questions asked and the types of problems studied. Critics have noted that "educational research does focus on the testing of relations among variables without much regard to sociocultural context" (Hymes, 1980).

The omission of sociocultural context represents deliberate choice rather than oversight. For example, much of the research in medical problem solving competency has attempted to isolate a clinical problem-solving trait. Elsteins's attempts to distinguish types of clinical problem solvers have been frustrated by the unanticipated outcome of variability of performance across clinical problems, irrespective of presentation format (Elstein, 1978; McGuire

and Page, 1973). As Elstein has acknowledged: "physicians are not consistent in their performance in these tasks" (Elstein, 1978:275). While one response to this considered that acknowledging and exploring the person-test interaction more appropriately yields patterns of (intra) individual differences (Hogan et al 1975; Hogan, Sirotkin and Gallagher 1977), a more common approach has been to "collapse" the content by averaging across problems (Donnelly et al 1974; Juul et al 1977). What has been the response to this evidence of variation? The council of deliberate omission can be seen in Hilard Jason's recent call for the evaluation of medical problem solving behavior in *content-free contexts* (Engel and Filling, 1981).

Do the practitioners of medical education evaluation share a continued affection with this evaluation approach? The Stanford Evaluation Consortium undertook a thoughtful review of the seminal Handbook of Evaluation Research. The review essay took the opportunity of reviewing this definitive evaluation handbook to review the efficacy and impact of the assumptions and conduct of evaluation research. Their analysis finds:

> the model that dominates the field as a whole and much of the present Handbook views evaluation as an event that begins, runs alongside a program for a time as the evaluator makes observations and collects data, and ends rather abruptly. This effort ends in a report to an all-powerful decision-maker... This report assesses the extent to which the program as a whole, or particular innovations within the program, satisfied the objectives and expectations of the decision-maker (and those who provide resources) (1979:15).

In assessing the ability of workers operating on these premises to render needed information, the Consortium authors concluded that "evaluators trained in the traditional research skills have relied heavily on tests of significance and have been guilty of equating statistical significance with social importance" (1979:15).

Chapman and Guyette summarize the difficulties posed for administrators with experimental and quasi-experimental evaluation approaches, given that they:

> seldom can be carried out without disruption of regular schedules and very careful and very often complicated administration arrangements; ... the administrative requirements for implementing and running the program are not taken into account. Third, the relationship of the new program to other elements of the curriculum, both horizontally and vertically, are not considered. The small differences in learning between programs which evaluators typically discover seldom are sufficient to demonstrate that one program is better than the other. Finally, in view of the relative importance of the questions answered compared with those left unanswerable, the high cost of conducting such evaluations seem unwarranted to administrators (Churchman and Guyette, 1981:2-3).

What has been the impact for study of the fealty to the control-research paradigm in medical education and evaluation? What has been the contribution of this research to the illumination of ongoing activities, individual program interventions, or the formulation of large-scale policy or theory building?

An embarrassing syllepsis has been the inability of educational evaluation research in general, and health

education research in particular, to discern statistically significant results from education interventions. The growing recognition of the frequent inability of experimental methods to document or detect change is the subject of reviews by Gebhardt 1980; Campbell 1974; Guttentag 1971; Weiss 1972; Rist 1977 and Cronbach 1975. The failure of conventional research to detect or explain the outcome of innovation is particularly problematic in program evaluations which have relied on summative measures (Miles and Lake, 1967; Sarason 1971; Goodlad 1977; Goetz 1981). Churchman and Guyette point out the practical problems, posed in the operation of experimental and quasi-experimental approaches to evaluations, which contribute to findings of "no findings":

> Objectives of treatment and control programs frequently are not comparable; consequently tests used to collect achievement data often favor one program. The comparison group provides no more than an arbitrary standard. In sufficient attenion is given to verifying the extent to which the program syllabus was adhered to, leaving ambiguous exactly what must be done to achieve the same effects again. Halo effects, Hawthorne effects and contamination of the experimental program by the control program and vice-versa frequently complicate interpretation of results. Finally, the reporting of results statistically, with numbers usually reported to two decimal points, gives many readers an exaggerated impression of the accuracy and objectivity of the method. In a word, the experimental approach is simplistic in its view of education, subtly biased by any difficulties encountered in carrying out the approach under real world conditions and in effect an elaborate appeal to authority.

Gebhardt's review (1980) searched for both the pervasiveness of this "no finding finding" and the source of

attribution proposed by prominent evaluators in the professional literature. Gebhardt's review finds the inability to proove intervention effect continues to plague evaluators. Despite their inability to produce convincing statistical results, these evaluators often consider their experiential evidence indicates that the designated programs have produced some very desirable results. Her review of the evaluation literature reports the frustration of current study limits, in the work of such "experienced investigators" as Donald Campbell (1974), Marcia Guttenberg (1971) and Carol Weiss (1972); Gebhardt also notes their consensus in urging movement away from studies confined to "surface behavior" (Gebhardt, 1980:206).

What has been the contribution of this research to policy formulation? Mitchell's (1976) "Reflections on the current state of knowledge of physician career development" presents a scathing indictment of the failure of medical education research to make an impact on policy decisions regarding medical education. Engel and Filling's review of the operation of the dominant research approach in health professions education charges that

> in the interest of control, many variables of importance are removed and consequently the magnitude of their influence is not known, nor is the interacting influence of such variables in settings where the behavior is normally exhibited (1981:15-16)

The 1969 keynote address to the Eighth Annual Conference on Research in Medical Education on the state of educational research in medicine declared:

> We are too concerned with the trappings of science and not enough with its spirit... we are more concerned with the legitimacy of our work than with the impact it may have; more concerned with the accumulation of new data than the explanation of old truth; more concerned with the study of little things that can be controlled than with the explanation of large things that have meaning (Miller, 1970:698).

In 1980, Miller stressed that he maintained his original assessment, given that the apparent growth in the field meant only an expansion in the numbers of researchers and the further entrenchment of experimental approaches to microcosmic study:

> Many more individuals are now involved in the medical education research and development enterprise, yet it is difficult to avoid a feeling that growth in numbers has been accompanied by a growth in professionalism, one that identifies these works even more closely with those committed primarily to microcosmic studies (Miller, 1980 and Engel and Filling, 1981).

What has been the impact for building or maintaining a constituency of the narrow conception of what constitutes an appropriate problem and audience? Strike laments the dearth of education research which is

> responsive to the needs of the educational community and to educational and educational decision-makers... The result was that research lost touch with public values and these values failed to receive sophisticated expression and discussion. We need to develop research efforts which are rooted in sophisticated and systematic expression of public values. Such intellectual artifacts may be necessary not only in generating research questions of practical import, but in creating the climate in which continuity of interest between decision-makers, researchers and practitioners

is possible (Strike, 1979).

Miller concurs that the prevalent methodology of study has contributed to "the seeming isolation of the medical education research and development community from the world medical education is intended to serve" (Miller, 1980). Ironically, then, the deliberate distance of the experimental approaches from sociocultural context may have alienated the very constituency the evaluation profession sought to impress.

Proposals for Context-Sensitive Medical Education Evaluation Research

Mitchell's proposal for ameliorating the problem of inconsequential or ineffective research stresses two points:

1) a need for ongoing research; and

2)research which is grounded in a cohesive theoretical framework.

The development of a grounded, cumulative body of knowledge is not, Mitchell argues, incompatible with the policymaker's needs, among which is to coordinate policies in desirable and predictable ways:

> Given the complexity of modern social systems, policy-making based on inadequate knowledge is usually destructive because it nearly always produces results which are both unintended and undesirable... Constructive policy-making based on adequate knowledge cannot be limited to manipulating only those controls or incentives which are easiest to operate or nearest at hand or which are based on "quick and dirty research" (Miller, 1976:680).

Policy makers have indicated a need for research and evaluation techniques that describe the actual conduct of program activities as well as the usual contrasting of pre-established objectives and results (Buckley 1968; Schutz 1970; Brofenbrenner 1976; LeCompte 1981). What are the characteristics of research which could contribute to particular medical education phenomena and policy and theoretical explication? Mitchell (1976) insists that the research effort can and should be in

> stimulating the kind of new conceptual, theoretical and methodological developments which could provide a unifying paradigm ... which relates three areas of medical education:
>
> a) the characteristics of situations in which medical training experiences occur;
> b) the individual charcteristics of actors in those situations; and
> c) the characteristics of the information processing mechanisms used by individuals (Mitchell, 1976:681).

Engel and Filling report the emergence of such an "alternative" perspective capable of "refocusing of research in health professional education." Engel and Filling describe the alternative research strategy as capable of framing and eliciting "questions ... more appropriate to the needs of educational practice in the health professions ... The alternative paradigm emphasizes a descriptive account of a situation allowing the important factors to become apparent through observation."

The conduct of the evaluator in forming and participating in these research efforts is considered by the

Stanford Evaluation Consortium. The Consortium members emphasize the change implied in the scope of evaluator's own (inter)active contact with the program and the definition of what constitutes the program:

> the evaluator need not limit his concerns to objectives stated in advance; instead he (sic) can also function as a naturalistic observer whose inquiries grow out of his observations ... the evaluator should not concentrate on outcomes; ultimately it may prove more profitable to study just how people interacted during the treatment process (1976:18).

These researchers are joined by others who also counsel the adaption of *"an alternative"* - qualitative research approaches (Azrin, 1977; Bogdan and Taylor, 1975; Brofenbrenner, 1976; Cronbach 1975; Guba, 1978; Guba and Licoln, 1981; Patton, 1975; Rist, 1977; Stake, 1978; Scriven, 1975; and Tikunoff and Ward (1978). Engel and Filling indicate that this "alternative perspective (which) demands a refocusing of research in health professional education" draws "largely on the work of anthropologists, sociologists, and, to some extent, a small, but active band of social psychologists" working within an "alternative research strategy" which attempts " to explain the complexity of human behavior" (1981:16-17).

Naturalistic inquiry goes beyond the intention to include elements of context. Rather, a basic premise of naturalistic inquiry is that the context which occasions the behavior itself constitutes part of the unit of study. The works of Glaser and Strauss have capitalized on the

tradition of naturalistic inquiry in proposing a concept of "grounded theory"; i.e., exploring the data as a source for the generation of theory. Glaser and Strauss contrast inquiry in this discovery mode of theory-generation to the verification purpose of theory-testing. "Ungrounded theory", then, is any set of (hypothesis-deductive) assumptions which is not data-based, used to frame research. Glaser and Strauss insist:

> that the adequacy of a theory for sociology today cannot be divorced from the process by which it is generated - and we suggest that it is likely to be a better theory to the degree that it has been inductively developed from social research.
>
> Generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research. *Generating a theory involves a process of research.* By contrast, the *source* of certain ideas, or even *models*, can come from sources other than the data ... But the generation of theory from such other sources must then be brought into relation to the data, or there is great danger that theory and empirical world will mismatch (Glaser and Strauss IN Guba 1978:19).

Blurton-Jones presaged the emphasis on "ecological validity" in his counsel regarding the necessity of establishing data-based frames for investigation:

> it is hard to know whether factors shown to be able to work in experiments actually account for anything in real life. One can argue too that research aimed only at testing hypotheses about human behavior which are derived from our everyday experiences or cultural knowledge and biases can never fail to prove the obvious. The unexpected associations will be found only by noticing unexpected associations as they occur before one's eyes, or as they are presented by analyses of the data.

We may consider an example which draws from the cross-cultural and historical human experience of the "natural" social experiments which permit us to see the impact on human health when particular assumptions of human motivation are made. Why did North American public health officials advocate programs ensuring sufficient food for factory workers? American health officials cited humanistic concerns, but they also pointed to the "medical" findings on the laboring poor in nineteenth-century England. England's "natural experiments" in food deprivation provided an occasion to observe the attendant continuing disruption of an expected division of labor. So abominable was the physical condition of their laboring poor that England had difficulty raising an army for the Crimean War in the 1850s. The calls from English liberals (as indicated in the examination of Parliamentary papers and public correspondence) for restrictions on the exploitation of women and children were a direct result of this experience (Mayhew IN Birrenbaum, 1981). What further psychosocial impact could the provision of an adequate food supply make? The prevailing opinion was that the regular return of workers to their jobs could only be expected if the fear of starvation motivated a day-to-day commitment to acquire sustenance. Nineteenth-century factory owners and political economists insisted that the cost of food had to be kept high to insure factory workers' steady attendance and persistent effort in daily routines of long work hours. The

recanting of inflated bread prices occurred only after extensive rioting in England and France in which workers broke into bakeries and distributed bread and flour.

Building for Responsive Evaluation with Naturalistic Inquiry

At present, the field of naturalistic inquiry is now frequently cited as a relatively domesticated/able venture, accorded the status of an "alternative" or "complementary" evaluation approach, by the bastions of polite educational evaluation society. Before it became fashionable, Robert Stake was a consistent and persistent proponent of "responsive evaluation", which sought to reveal ("illuminate") not only the sponsors' or administrators' hopes for an educational program, but the needs of all those who have a stake in the issue for which an educational intervention was presumed to resolve. was presumed to resolve. Despite the impression conveyed in many education evaluation writings advocating adoption/adaption of *the* anthropological approach, the field of anthropology includes diverse theoretical approaches and methods (Overhalt and Stallings, 1976). From this array, Stake's early formulation joins two traditions: naturalistic inquiry and responsive evaluation.

This discussion readily acknowledges the impact of the extant Stake prototype. The potential limits of its epistemology (i.e, how we learn), however, ought not to be ignored. The epistemological stance of the model proposed

by Stake (1978) and developed by Guba and Lincoln (1981), describes truth as *emergent*; there is a truth to be known which the analyst can discover. This model of truth as a simple discovery made manifest to the situated investigator ignores the extent to which what is availale to be seen in a carefully circumscribed study situation reflects not only its own organizing priniciples; the ecological premise of this evaluation considers that phenomena also reflect their relationship to the environment in which they are embedded. For example, in the study of maternal responsiveness cited earlier (Richards and Bernal IN Blurton-Jones, 1975:73), the perception and behavior of the mothers in being in physical contact with their second-born children reflects both the developing relation and immediate needs of the individual mother-infant dyad and the cultural premises about how mothers should behave with infants. Had the investigators simply accepted the mothers' reports about the relative responsiveness to their second-born children, the investigators would have reified the cultural cliche about spending less time with second-born children. The extent that the exchange between cultural members with their larger social organization is not actively confronted limits naturalistic inquiry to noncritical accounts. The current and historical tendency of naturalistic inquiries in general and ethnographies in particular toward this bias is considered in Hymes (1980), Ogbu (1981) and Harris (1968). While the ethnoecological approach of this thesis departs

from the model of responsive evaluation (as it is decribed by Stake, 1978; House, 1978; Guba, 1978; Guba and Lincoln, 1981) on some epistemological grounds, the responsive evaluation model clearly provided a critical precedent for a more open systems approach to evaluation.

The hallmark of Stake's use of naturalistic inquiry in responsive evaluation is this concern for selecting an approach, scale of inquiry, instrument and report capable of capturing and sharing information about an issue with the persons who are affected by it. Within the existing domain of evaluation approaches, responsive evaluation constituted a critical precedent. What are the range and premises of evaluation models against which responsive evaluation emerged? House's taxonomy of evaluation models compares their major elements ("their ethics, their epistemology and their political ramifications") in the historical and cultural context of liberalism: "all the evaluation models are based on variations in the assmptions of liberal ideology, or if one prefers, the conceptions of liberal democracy." The essential features of all the evaluation models, given their derivation from liberalism include: freedom of choice ("although whose choice, what choices and the grounds upon which choices are made are matters of difference"); the primacy of the individual and an empiricist orientation. How do these evaluation models see the operation of the individual's ability to "evaluate", to

make these free choices? House describes the premises of consumer activity in:

> the evaluation models also assume a free marketplace of ideas in which consumers will *buy* the best ideas. They assume that competition of ideas strengthens the truth. Ultimately they assume that knowledge will make people happy or better in some way. So the evaluation models (variously) partake of the ideas of a competitive, individualist, market society. But the most fundamental idea is of freedom of choice, for without choice, of what use is evaluation? (House, 1978:5)

The freedom of choice, whether it occurs as informed consent within a medical regimen or appropriate self care in the folk culture, depends upon both acquisition and access to a valuable, if scarce, resource: knowledge. How can such information be gleaned and shared? Nader assumes that the role of the social investigator must be in educating the cultural participants about the workings of their culture.

> A democratic framework implies that citizens should have access to decision-makers, institutions of government, and so on. This implies that citizens need to know something about the major institutions, government or otherwise, that affect their lives. Most members of complex societies and certainly most Americans do not know enough about, nor do they know how to cope with, the people, institutions and organizations which most affect their lives (Nader, 1972:294).

Beginning with her work on the anthropology of another major institution (the judicial system), the work of Nader and her student-associates indicates that the exact workings of particular service institutions within this highly complex culture (i.e., *complex* in its high degree of division of labor) may be obscured. Nader insists that the

credibility and social responsibility of anthropologists directs their attention to the process of illumining the pervasive but poorly understood workings of the American culture for all its participants. In their studies of major institutions and organizations of everyday American life, students attribute their motivation to an attempt to render more observable "these 'things' ... made of vast networks of people who have effects on many aspects (in) the lives of people" (Serber In Nader, 1972:286). Eaton describes the limited extent of knowledge which is routinely available to cultural participants of a complex culture's services and products:

> In our complex society, we obtain many goods and services in a prepackaged state. Like the proverbial city child who grows up believing that milk grows in paper cartons, most consumers know little about what their purchases are made of, how they work and how to evaluate their potential before buying them, and how to repair them if they break down. This ignorance is not limited to goods but extends to services, investments, charities, to say nothing of the legal and medical professions... We depend upon specialists to provide services and often even to give us the criteria by which we are to judge their work. Many of our transactions take place infrequently, which means that the consumer may be totally inexperienced in evaluating what he pays for when he buys a large appliance, an insurance policy, or a vacation trip (Eaton In Nader, 1972:287-288).

Nader traces the etiology of native cultural reflection to anger. Certainly, within the history of anthropology, indignation at the plight of the oppressed has served to arouse the analyst's curiosity and determination to critically examine compelling social problems.

A similar tradition of the angry critic exists in the analysis of medicine. Ivan Illich's Medical Nemesis (1975) makes the activities and the very institution of medicine the equivalent of the *expropriation* of health. Kunitz's (1974) historical analyses finds that what comes to be accepted as a medical problem is not always what constitutes a threat to the health of the members. Illich's more aggressive premise is that it is "the medical establishment which has become a threat to health". The existence of medicine becomes a buffer which distracts people from either constructing healthy environments or readily recognizing and experiencing the repercussions of unhealthy environments. He charges that:

> the true miracle of medicine is diabolical. It consists not only of making individuals but whole populations survive on inhumanly low levels of personal health...The need for specialized, professional health care beyond a certain point can be taken as an indication of the unhealthy goals pursued by society (Illich, 1975).

Although the perception of a spoiled physical environment is a recent American cultural occurrence, it is now pervasive and well entrenched. The changed perception has been brought about, in part, by such works of popular science explication as Rachel Carson's Silent Spring,which provided a referent for individuals living in the environment to consider as pervasive and threatening the specific environmental changes they noted. In Risk and Culture, Mary Douglas and Aaron Wildavsky preface their work

on current perceptions of risk by noting how radical a change within the American culture is the pervasive perception of a dangerous environment: "What are Americans afraid of? Nothing much really, except the food they eat, the air they breathe, the land they live on, and the energy they use. In the amazingly short space of fifteen to twenty years, confidence about the physical world has turned into doubt" (Douglas and Wildavsky, 1982).

While the recognition of the existence of an "unhealthy environment" at a biochemical level has entered our cultural folklore, Illich insists that an additional characteristic, present in the social environment of current medical premises, makes the iatrogenesis of medical nemesis more devasting and insidious. Illich charges that the recognition of the limits of life and the experience of sufferring are integral parts of human existence. The efficacy of medicine in obscuring these limits, in anesthesizing the individual and the collective to the experience of pain, is the *hubris* - the overbearing arrogance - of a medicalized society which provokes relentless vengenace and destruction (medical *nemesis*). Carlson's The End of Medicine also decries the loss of personal autonomy to professional dominance. While Illich's theme lambasts the perversion of human integrity to a state of alienation from our own suffering, Carlson fears not that we have attempted to transcend limits, but that we have

allowed ourselves to become dependent to the dinosaur which is medicine. He looks forward to "the end of medicine (which) is not the end of health but the beginning" (Carlson, 1975). The perspective offered in the medical criticism of Szasz offers no such vision of peacefully achieved liberation on the inevitable passage of an anachronism. Szasz, noting with other critics of medicine the pattern of apparent oppression of those "served" by the dcminant medical profession, concludes that the institution of medicine is alive and well and continuing to operate as a primary agent of social control.

The sense of drama created in these accounts is unmistakable. Presenting large-scale, extreme situations (such as mental institutions or the (literally) manufactured demand for specialized cardiac care units) however, leaves untouched the more pervasive and mundane encounters of seeking and acquiring medical care and knowledge. An implicit supposition of the tradition of confrontation is the acceptance that the position of the medical profession is real power, of medical education, real knowledge. This position, in ignoring the work of the patient in negotiating and achieving care attention, in characterizing information in medical exchanges as that which is volunteered or corresponds to current professional medical wisdom, *reifies* the knowledge and practices of medical professionals as the appropriate and exclusive base of "scientific medicine".

The distance of these critical perspectives from the sites of interactive care teaching and practice limit our ability to recognize medical information or practice as socially achieved products. Further, medical practitioners and students are not only members of a dominant profession within medicine; they are also members in the general American culture. Given their status as cultural members, is it appropriate to approach the study of their practices and premises as if they were in a closed system of professional medicine, untouched and untouchable by a general medical culture greatly concerned with the culpability of members for their own health, existing in an environment in which the empirical and perceived perception of carcinogenic risk is pervasive?

This assumption, of the actually exclusive ownership of an intrinsically difficult body of scientific medical knowledge is imbued even in the behavioral science literature which seeks to "correct ethnocentric elements in our accounts of illness. Consider, for example, the counsel of Pfifferling:

> Health care institutions in our societies have generated a mediocentrism with the result that culturally shaped illness experiences of patients are fitted into a rigid biomedical frame with its own beliefs and values .... Patients, even if they accept enthusiastically or at least accomodatingly the powerful results of science and medical technology, do not share with physicians the biomedical knowledge base, nor the rules of operation. Instead, they rely on folk models of illness which vary greatly and may or may not include valid biomedical information. Their edge of knowledge is influenced by the popular

> presentation of biomedical facts and clinical practice. The analogy with contact situations of other anthropological investigations is apparent as is the contrast with the practice of other healers. In traditional cultures, healers share with the patient a common world view and healing techniques which are usually public, utilize familiar strategies and metaphors (1976:137).

The premise of this thesis or any "responsive evaluation" of constructive criticism is how to hear the anger or the applause and go beyond it; the "response" of responsive evaluation, then, implies a commitment not merely to provide (ac)counts of the criticism, but to actively assess the appearance, distribution and implications of observed exchanges. Drawing on naturalistic inquiry methods allows us to determine what constitutes the actual activities of the participants in the interactive settings investigated. Since actual training site activities and content may not correspond to preordinate, idealized program descriptions (as contained, for example, in formal statements of expected procedures, materials and outcomes), a process of active scrutiny is used to discover the actual (implicit and explicit) training content and activities.

Ethnoecology: What Does the Ethnography (Re)present

Given that there is an existing history of the use of naturalistic observation methods in behavioral science fields, of what caveats ought the potential investigator to be aware?

Ogbu (1979, 1981) provides a conceptual framework in which we can consider the scope and adequacy of school ethnography for understanding the process of education and for theory building in educational anthropology. Ogbu's cautions derive from his analysis of what is/not bounded in the conceptual definition of what constitutes schooling. The perspectives which educational anthropologists have inherited from the history of anthropological investigations in education are:

> primarily commentaries on schooling as a social problem for "natives" in colonial and trust territories and for immigrants and ethnic and racial minorities in their own countries... Educational anthropologists have inherited this perspective so that today they still define education as cultural transmission or enculturation. In this conceptualization the relative school failure of some racial and ethnic minorities and the lower class is often attributed to culture conflict in school and classroom (Ogbu, 1981:7).

Gearing (1973) notes that the motivation of anthropologists, particularly in the wake of the social and political activism of the 1960's, was to challenge the caricature of the "cultural deprivation" model as a basis for remedial education programs for the poor and minorities. Anthropologists or sociologists utilizing this perspective attribute differential school success as the result of culture conflict arising from cultural differences in classroom teaching and learning.

Within the work conducted in the culture conflict perspective, Ogbu identifies an additional problem, in that:

> as presently formulated, these microethnograpies do not

> really help us to understand *why* differences in communicative etiquettes should result in academic failures among castelike minorities but not among immigrant minorities ... Furthermore, although microethnographers argue that school failure and especially failure to learn to read among subordinate minorities is due to mismatch in communicative style between teacher and student, they present no convincing evidence that blacks, chicanos and Indians do better in school when taught by teachers from their respective ethnic or racial backgrounds who, presumable, may share the same communicative styles. If the source of their academic failure were primarily one of a mismatch in communicative etiquette, the policy implication would be quite straightforward: replace Anglo teachers with those of the children's ethnic or racial backrounds. However, this is not necessarily evident in communities where black children or chicano children are taught mostly by black or chicano teachers, respectively (see Ogbu, 1978; Silversteen and Krate, 1975) (Ogbu 1981).

Ogbu notes a further difficulty in that the frame of such studies are not *holistic*. That is, they do not deal with the interrelation between schooling and other social institutions and how such interrelationships may affect classroom processes. While the classroom is:

> "the scene of the battle" (Roberts, 1971), the cause of the battle may well lie elsewhere. Differences in communicative etiquettes may be the instruments or weapons with which the battle is fought between teachers and students. But certainly, if we want to discover the causes of these battles and know how to eliminate their occurrence and reoccurrence, we will make little progress by studying primarily the actual processes of battles in the classroom and the instruments used by the combatants. We need to go beyond the battlescene and beyond the instruments of war (Ogbu 1981).

What has been defined and studied as problems in the American culture? The distribution within the research based on field work in the United States finds "a relatively abundant literature on the poor, the ethnic groups, the

disadvantaged; there is comparatively little field research on the middle class and very little first hand work on the upper classes." (Nader, 1972:289). Nader voices a concern that the pervasive posture of "studying down" calls into question the scientific adequacy of these inquiries. Why are the native "hoarding patterns of the American rich and middle class" (Nader) less curious than "irrational orgiastic consumption and destruction of material surplus" by the Kwakituil (Benedict)?

How has this previous focus of study affected the utility of evaluation research for policy formation? Nader illustrates the difficulty of attempting to understand a particular problem (street crime) "as products of the value system of that subculture alone":

> Let's assume that the taxpaying public in a democracy, after listening to a presidential speech calling for more tax money for enforcement and protection from street crimes, decides to see for itself. No matter what library they went to, the most they could get is some information on crimes committed by the lower class. (Missing is a) perspective on white-collar crime (which indicates how) gang delinquency might be correspondingly affected by ... the banks and the insurance industry that mark out areas of the city to which they wil not sell insurance or extend credit... the landlord class that "pays off" or "influences enforcement" of municipal officials so that building codes are not enforced. Slums are technically illegal; if building codes and other municipal laws were enforced, our slums would not be slums (if enforcement were successful) or they might be called by another name which would indicate that they were results of white-collar crime...(The taxpaying public) would have no way of evaluating, given present descriptive materials, whether, in a situation of limited money, they would do better to put their money on street crime or on white collar crime, both of which, after all, imperil the lives of all taxpayers everyday in many

ways (Nader, 1972:289-291).

The literature challenging the myopic ethnographic views of "isolated" communities includes Mitchell's stress on "social fields" which recognizes that the effect of groups and institutions not physically present is a fact of "complex" or "tribal" existence (Mitchell in Nader, 1972).

An Ethnoecological Inquiry of Cancer Care Education

This thesis seeks to explore the content, conduct and organization (sociocultural context) of cancer care training and practice in the American medical culture. Within this study, cancer care education is conceived of as an exchange process, emerging from and occurring in a particular historical and cultural location, among persons assuming responsibility for care of cancer. This inquiry is designed as generative (concerned with discovering constructs and propositions) and inductive (in that it begins with empirical observations in order to discern relationships among data). Within the study's ecological framework, the naturalistic inquiry of the patterns of observable conduct in interactive sites allows one to discern the cultural-organizational context in which the specific occasions of care and training are generated.

In keeping with proposals of relational models of (medical) situational competence (e.g., Good and Good, 1980; Hogan 1979; La Duca, 1980), this naturalistic inquiry

considers the evaluation criteria which can be derived from the examination of activities within their social context as the unit of study.

CHAPTER 4

Methodology

This study employs multiple methods of naturalistic inquiry from different data sources. The study's initial activities took the form of mapping the distribution of attention among cancer topics, relative to the overall medical school curriculum structure, within a particular medical school, Wayne State University School of Medicine. Since the study was conducted with the cooperation of a school-sanctioned interdisciplinary Cancer Education committee, access to extensive curriculum presentation and evaluation materials was occasioned. This phase of evaluative research sought to produce an empirical map of the relative attention on oncology in sources of curriculum instruction and evaluation.

Oncology Education in the Medical School Curriculum

The formal training site of the medical school curriculum provides a critical locus from which to discern the explicit content and organization of material which constitutes cancer care education in the American Medical culture. Considered, then, is the cancer care training available *within* the undergraduate univeristy medical school. The study analyzes the changes over time in the curriculum's content inclusion, concentration and attendant student performance. This evaluation effort was designed to

detect the occurrence and impact of oncology content within the curriculum at particular points in time and over time for successive academic years. The study examines the explicit form and developing trends during the 1973-1974 through 1977-1978 academic years.

An evaluation format sensitive to changes over time was needed, given that medical education's knowledge base, presentation format and expected level of acquisition are constantly changing. The amount and character of oncology material varies within the curriculm's initial focus on basic science (in the freshman and sophomore years) to its eventual emphasis on clinical application (in the third and fourth years).

An additional complication arises in that the oncology curriculum occurs within an interdisciplinary, organ-based curriculum; information about cancer is diffused throughout the four year curriculum.

The Tracer Method of Evaluating Medical Training and Practice Behavior

An evaluation approach of "mapping" content joins work, in both medical practice and training, which seeks to determine the extent and efficacy of ongoing medical training and practice behavior. In 1974, David Kessner reported on his work, conducted with colleagues from the Institute of Medicine of the National Academy of Sciences,

culminating in the development of a quality assessment technique termed the "tracer method". In their attempts to characterize the quality of care given to a sample of children in different areas of Washington D.C., Kessner and his associates selected a single, common condition (eg., middle-ear infections) on which the appropriateness and efficacy of medical process and outcome measures could be compared. The tracer method provides tangible evidence of the often nebuolous concept of quality of care in the overall medical system. Kessner's investigation, for example, determined that, in the treatment of middle-ear infections, "regardless of the diagnosis, inappropriate antibiotics were given to 20% of the patients"; in the treatment of vision problems, "more that 70% of the children with glasses did not actually benefit from them. Moreover, 40% of the children who were tested with their glasses failed the (vision) test" (Kessner, 1974:4; Jonas, 1978).

As Philips, Costanzi, Smith and Mahan explain, the tracer method for evaluating curriculum content constitutes "an empirical method somewhat analogous to tracing one thread through a tapestry, as a method for identifying the subject matter that is being taught in a curriculum" (1982:278).

Curriculum evaluation at the University of Texas Medical Branch stresses the practical accomplishments which can be achieved in using a tracer method of curriculum

analysis of cancer education. In their initial work, Mahan, Costanzi and Levine (1976) admitted that the development of a method of evaluating cancer coursework presented throughout the curriculum came about because their initial efforts to obtain time in the curriculum for a new course in oncology were defeated. The voices of school resistance to the introduction of an oncology course pointed out the growing number of independent courses in the curriculum; introducing a new course on oncology could set a precedent for courses on other specific disease processes. Unable to present - and, then, evaluate - a discrete oncology course, the authors sought a method "to gain the advantages of an oncology course without creating a new one" (1976).

The sequence of these tracer method procedures determined the materials included; i.e., the investigators first asked course instructors and clerkship directors what curriculum materials would contain oncology. On the premise that these preceptors are "content experts", "the persons most familiar with (course or clerkship) activities", these individuals can "pinpoint the experiences during which material about cancer is taught and thereby save much search time."

Certainly, the involvement of the teaching faculty (in directing the search and confirming the findings of the curriculum descriptions they have formulated) facilitates the production of a convergent account, an analytic which

the school community can feel is theirs. Missing from this closed account is the evidence of the oncology material's impact (on student learning, subsequent specialty choices, or school-affiliated research and care activities) or the influences on the oncology curriculum material. The latter consideration would seem to be particularly critical given the resistance to oncology's "expansion" to which the investigators allude. If the presentation of oncology material does not represent the school's endorsement of oncology education, what relationship to inter- or intra-professional care training does the oncology material represent?

In the tracer evaluation studies, correcting data characterizations of written curriculum descriptions accordin to their authors' explanation fosters, at best, a myopic and uncritical account of the influences on and conduct of actual curriculum exchanges.

A growing body of evaluation research literature calls into question the dependence on written statements of teaching intent or curriculum organization as appropriate or adequate representation of the actual conduct and social organization of the learning environment of the school (Chapman and Guyette, 1981; Guba and Lincoln, 1981; Guba, 1978; Stake, 1978; Stanford Evaluation Consortium, 1976 and Scriven, 1975). Document based evaluation is a poor measure of silence, or of voices raised but never heard.

The WSU Oncology Curriculum Mapping: Agonistic Structures as Critical Distribution Perspectives

The evaluation of the cancer education component of the curriculum is beset by sources of potential confounding. These sources include the disparity between stated objectives and actual curriculum conduct; changes in topic presentation which occur when new or different faculty within a department or in different departments are asssigned responsibility for a curriculum component presentation; and the perceived need to describe or structure curriculum topics to reflect developing trends in oncology research or education promoted by federal or professional agencies. The resolve of this thesis was to use these sources of potential confounding as multiple indices from which the formation and conduct of the cancer curriculum could be described.

While academic disciplines are acknowledged as a primary source of organization within the School, Wayne State University's Medical School describes its curriculum as one which corresponds to a Body Systems organization. The organization by body organ systems, moreover, more closely corresponds to the way in which information about the medical knowledge of cancer - its incidence, prevalence and response to programs of medical intervention - is investigated and presented. Table 1 presents such an analysis from Shapiro (1982) which summarizes the changes in

Table 1

Changes in Cancer Death Rates for Specific Cancer Sites
1968-1978

Cancer Site[1]	Death Rate in 1978[2]	Change Since 1968	Relationship to Age	Ratio Between Death Rates[3]	
				Male/ Female	Non-white/ White
Digestive system (150-159)	33.4	-1%	Low rates under 45 years; large increases extend through very advanced ages.	1.50	1.22
Respiratory system (160-163)	35.4	+29%	Among men, rates exceptionally high at ages 45-64 years compared with other cancers; in both sexes, rate increases with age through 65-74 years.	3.53	1.19
Breast (female) (174)	23.1	0	Rates highest of all cancers among women at ages 25-54 years; increases with age through advanced years.	--	0.97
Male genital organs (185-187)	15.2	+5%	Rates at comparatively high level at ages 65 and over; large increases with age among older men.	--	1.90
Female genital organs (180-284)	14.6	-21%	At ages 35-54 years, rates close to those for lung and digestive system; substantially below only breast cancer's rate; rate increases into older ages.	--	1.39
Urinary organs (188,189)	5.5	-4%	Very low rates under age 55 years; large increases through advanced ages.	2.77	0.91
Lukemia (204-207)	5.3	-10%	Rate low among children but a significant factor compared with other cancers; marked increases in rate starting at 35-44 years.	1.66	0.87
Other lymph and blood tissues (200-203, 208,209)	7.4	-3%	Rare among children and young adults; age gradient starts in middle adult years.	1.52	0.96

[1]Numbers below cancer site are rubrics in the eighth Revision of International Classification of Diseases, adapted. Excluded from the table are cancers of buccal cavity and pharynx (death rate in 1978, 3.0 per 100,000; no change since 1963) and "malignant neoplasms of all other and unspecified sites" (death rate in 1978, 17.1 per 100,000; 9 percent increase since 1968).
[2]Death rates per 100,000 age adjusted to 1940 population.
[3]Ratios based on 1978 age-adjusted death rates.

Source: Shapiro, 1982.

cancer death rates during 1968-1978. As it draws from standard sources of disease definition and analysis, Shapiro's presentation typifies the assumption of how that medical information about cancer is to be organized - by "cancer sites" of body organ systems.

The Body Organ Sytem Classifications included in the evaluation scheme of this study are:

1. Cardiovascular
2. Endocrine
3. Gastrointestinal
4. Genitourinary
5. Head and Neck
6. Hematology
7. Nervous System
8. Respiratory
9. Renal
10. Skeletal
11. Skin and Soft Tissue

Within Wayne State University, as in the American Medical School system as a whole, academic disciplines are a primary source of organization. The elements of the Discipline Category classification in this evaluation research include: Anatomy; Anesthesiology; Audiology; Biochemistry; Cardiology; Community Medicine; Comparative Medicine; Dermatology and Syphilology; Endocrniology; Family Medicine; Gastroenterology; General Surgery; Gynecology; Hematology; Immunology and Microbiology; Infectious Diseases; Internal Medicine; Nephrology; Neurology; Neurosurgery; Obstetrics; Oncology; Opthamology; Orthopedic Surgery; Otolaryngology; Pathology; Pediatrics; Pharmacology; Physical Medicine and Rehabilitation;

Table 2

Three-Way Classification Schema for Medical School Instruction and Evaluation Material Related to Oncology

I. Classification by Function

1. Cell Metabolism
2. Cell Cycles
3. Tumor Growth Characteristics
4. Cancer Spread
5. Chemical Carcinogenesis
6. Viral Carcinogenesis
7. Radiation Carcinogenesis
8. Genetic Carcinogenesis
9. Paraneoplastic Syndromes
10. Diagnosis
11. Physical Findings
12. Symptoms
13. Laboratory Findings
14. Surgical Treatment
15. Chemotherapy
16. Radiation Treatment
17. Immunologic Treatment
18. Psychological Treatment
19. Psychosocial Aspects of Cancer

II. Classification by Discipline

1. Anatomy
2. Anesthesiology
3. Audiology
4. Biochemistry
5. Cardiology
6. Community Medicine
7. Comparative Medicine
8. Dermatology & Syphilology
9. Endocrinology
10. Family Medicine
11. Gastroenterology
12. General Surgery
13. Gynecology
14. Hematology
15. Immunology & Microbiology
16. Infectious Diseases
17. Internal Medicine
18. Nephrology
19. Neurology
20. Neurosurgery
21. Obstetrics
22. Oncology
23. Opthalmology
24. Orthopedic Surgery
25. Otolaryngology
26. Pathology
27. Pediatrics
28. Pharmacology
29. Physical Medicine & Rehabilitation
30. Physiology
31. Psychiatry
32. Radiology
33. Rheumatology
34. Urology
35. Other

III. Classification by Organ System

1. Cardiovascular
2. Endocrine
3. Gastrointestinal
4. Genitourinary
5. Head & Neck
6. Hematology
7. Nervous System
8. Respiratory
9. Renal
10. Skeletal
11. Skin & Soft Tissue

Physiology; Psychiatry; Radiology; Rheumatology and Urology.

The measures of attention - primarily curriculum time and student examination performance - reflect the ways in which Medical School members evidence attention. In determining the structure of the classification system, the inclusion of *Body Organ Systems* corresponds to the category scheme with which the extent of cancer's incidence and prevalence is noted in national indices of population morbidity and disease-specific control programs. The Body Organ Systems Classification scheme also represents the organizational premise of the Wayne State University Medical School curriculum. *Academic Discipline* notes the faculty-affiliation source from which cancer education is disseminated in the Medical School.

The general features of the *Functional Classification* entries correspond to pervasive medical education concerns of determining disease cause, impact, diagnosis and treatment. The particular elements of the Functional Category were selected for their correspondance to those which described a set of nationally prepared recommendations for oncology education. The composite map of oncology education produced enabled comparison of the achieved Wayne State University Medical School curriculum with that proposed by professional oncology education associations (The Interinstitutional Group for Oncology Education's Handbook of Objectives In Oncology, 1976), with which

members of the Wayne State University Medical School associated.

Table 3 illustrates the overall structure of the oncology curriculum evaluation, which considers the distribution of curriculum attention in the classification systems (function, discipline and organ system) by (nationally formulated) objectives, (curriculum) time and (medical student) performance. As indicated in the entries of the first column, the analysis first considers the concentration accorded a given classification element by the Interinstitutional Oncology Objectives. The remaining columns of Table 3 indicate how these prescribed oncology materials are reflected in the Wayne State University Medical School curriculum. The evaluation of the undergraduate curriculum proceeds by examining the relative concentration of oncology material (representing these classifications of function, academic disciplines and body system classifications) on the dimensions of:

1) time allocation, as indicated both by

   a) relative curriculum hours of topic presentation, and

   b) representation (e.g., number of oncology items relative to total number of examination items) on performance/examination procedures;

2) student performance, as indicated by (average) scores on both internally prepared multiple choice

Table 3

Relative Attention On Oncology
In Sources of Curriculum Instruction and Evaluation By Functional Classification

Functional Classification	% of Oncology Objectives	% of Curriculum Hours				% of Multiple Choice Items				Average Score on Multiple Choice Exams			
		YR I	YR II	YR III	Combined	YR I	YR II	YR III	Combined	YR I	YR II	YR III	Combined
CELL BIOLOGY													
1. Cell Metabolism													
2. Cell Cycles													
3. Tumor Growth Characteristics													
4. Cancer Spread													
CARCINOGENESIS													
5. Chemical													
6. Viral													
7. Radiation													
8. Genetic													
9. Paraneoplastic Syndromes													
DIAGNOSIS													
10. Diagnosis													
11. Physical Findings													
12. Symptoms													
13. Lab Findings													
TREATMENT													
14. Surgical													
15. Chemotherapy													
16. Radiation													
17. Immunological													
18. Psychological													
19. Psychosocial Characteristics													

examinations and National Board of Medical Examiners (certifying) item performance; and

3) affective engagement, as indicated by the selection of oncology as elective or specialty choice, and expressed satisfaction with that choice.

The sources and procedures for determining what was actually being taught in the WSU undergraduate curriculum began with a comprehensive review of curriculum and unit outlines, scribe lecture notes, as well as laboratory and self-instructional materials for each undergraduate year during the academic years of 1973-1974 through 1976-1977. The evaluation gauged the emphasis on oncology relative to total curriculum time and within particular units for a given academic year. Changes in time spent and topics covered were noted for both progressive academic (first, second and third year classes) and chronological (1973-1974 through 1977-1978) time. To insure the accuracy of the time expenditures allocated to oncology topics embedded in multidisciplinary presentations, the evaluation process included reviewing the topics and time estimates with curriculum unit leaders and individual lecturers. It was particularly critical during this interview process that the evaluation be conducted and perceived as one which sought to discover the content and extent of the oncology curriculum in its entirety. The initial portion of the interview with faculty emphasized that there was no attempt to imply what an individual lecturer *should* be teaching, or that there was

a need for oncology to usurp additional curriculum time. This portion of the curriculum evaluation yielded the time dimension;i.e., attention accorded oncology in curriculum hours. The resulting curriculum evaluation provided an indication of time in hours devoted to oncology. The presence of the internal multiple choice examinations provided another index of oncology emphasis in the undergraduate curriculum: the number of examination items pertinent to oncology. Faculty experts in oncology material reviewed the Years I, II and III multiple choice examinations to identify items related to oncology. The proportion of exam items representing a particular (function, discipline or organ system) classification relative to the total number of oncology-classified items has been determined.

The oncology examination items also provide a performance measure through computation of the average (mean) scores for each unit of the undergraduate curriculum. To avoid problems of data misinterpretation, several precautions are noted. The number of items entering into the computation of a given mean score was included so that inappropriate conclusions would not be drawn from too small a sampling. The average difficulty of the entire unit exam from which the items were drawn was computed so that the acquisition level of oncology knowledge could be seen in the context of student performance on a given unit. The

examinations from which oncology items were drawn had an average of 139 items with a standard reliability coefficient of 0.66.

Additional measures of oncology knowledge acquistion were also examined. The student's performance on the National Board's Medical Examination for neoplastic items was evaluated by discipline. A battery of ten simulated patient mangement problems, (PMP's), developed by WSU Medical School faculty, was administered annually to third year WSU medical school students. Two of these PMP's describe persons with cancer problems. In three other PMP's, cancer is a possible medical problem description, although cancer is not the eventual "correct" diagnosis. Student performance on oncology versus non-oncology PMP's were compared by problem and dimensions within problems.

The evidence of students' active expression of interest in acquiring further knowledge in oncology was indicated in the number of students choosing oncology electives or specializing in oncology. Satisfaction with chosen electives was assessed from responses to questionnaires administered to all Year IV students.

The analysis of these data allows an examination of the actual oncology information presented, elected, and evaluated in the WSU Medical School undergraduate curriculum. These evaluation measures take advantage of

existing or available curriculum description data to minimize disruption of the curriculum monitored. Norming the oncology curriculum to other elements of the curriculum, both horizontally and vertically, enables the mapping of the relationships between oncology and other curriculum experiences over time.

Extending the Evaluation of the Local Curriculum: An Opportunity for Critical Reflection

The interactive process of establishing, corroborating and presenting this oncology curriculum referrent raised more pervasive issues about the premises and conduct of cancer care education and evaluation. These questions prompted further exploration into the representativess of the findings which had emerged in the intensive study of a single school. In this phase of study, the researcher examined national cancer education surveys conducted during this time. The results of the survey information provided referrential corroboration of the generalizability of the study's findings about cancer education within Wayne State University's Medical School. The survey's structure, conduct and findings, however, raised further issues. These issues included the focus on particular organizational characteristics which persons responsible for formulating, supporting and extending oncology education continued to pose as educational evaluation criteria, despite the consistent and pervasive report from students that this

training did not adequately prepare them for meeting critical care needs. Students stressed that the area termed "psychosocial characteristics of cancer" constituted a critical gap in their formal preparation for medical practice. The "psychosocial characteristics of cancer" had emerged in the initial study of the Wayne State University Medical School curriculum as an area receiving less than 1% of the time given to oncology education; this minimal level of attention was reflected in the Interinstitutional Objectives for Oncology Education (1976) used as an external criteria in the evaluation study.

At this point, the study sought to determine not just the content needed to represent this area, but what format would foster the engagement of cancer care education participants.

The educational evaluation literature provided a bleak prognosis for the probability of changing so entrenched a pattern of inattention. Critics within the field of education evaluation noted the limitations of traditional educational evaluation research in providing evidence of achieved program impact, or directing future educational policy. This criticism converged on the need to incorporate attention to the context in which educational programs and their evaluations are to occur.

The theoretical perspective guiding this study is provided in John Ogbu's multilevel approach to the study of education in a cultural ecological perspective. In Ogbu's formulation, the study of current processes of exchange within the school is combined with the study of the historical and current cultural influences affecting the present processes of education. This approach, which Ogbu terms *ethnoecology*, assumes that persons' knowledge and orientation to such cultural institutions as medicine or education is acquired not just in the formal site of education, but "through the actual texture of life". Ogbu's ethnoecological approach stresses combining studies of events within the school with studies of their historical and cultural context.

The ethnoecological inquiry of cancer care education in this study used the characteristics determined in the intensive study of the extant Wayne State University Medical School oncology curriculum as an empirical referrent from which to guide the exploration of the historical and cultural influences influencing the appearance of cancer education in the American medical culture.

The historical component of analysis sought to determine the actual character and impact of influences currently considered critical and entrenched within the cultural context of current cancer education. The explicit content and patterns of curriculum attention and student

participation within this particular medical school is used as a referrent from which to study the social formation of medical education curriculum design and evaluation.

The Cultural Formation Of the Medical School Oncology Curriculum

In this thesis, the comparative historical analysis of the medical school curriculum's formation guides the determination of the boundaries used to map cancer education's current appearance and extent. Formulating an account of the cultural history of the school was not a primary objective of the thesis. Rather, in selecting the parameters of concern within the current form of the oncology curriculum, the thesis sought to examine the presence, prevalence and impact of characteristics and influences which American medical education accounts cite as determing current forms and functions.

Beach's review of historical research in education (1969) characterizes this form of historical inquiry in education as one which seeks to interpret occurrences within and between components of a field through examination of relationships which had not been considered previously. Borg and Gall (1979) provide an example of such research in which a researcher can examine the separate appearances of histories of textbook publishing and the (independently formulated) histories of school curriculum. The researcher may then discern their relationships and the unique

questions which their comparison raise. In the tradition of cultural anthropology from which ethnoecology derives, the comparative analysis of the impact attainable by (presumed) functions of existing structures has been used as a means of discerning differential contributions to cultural evolution. For example, Lancaster's work in primate behavior sought to determine the sustained functional antecedents which led to bipedalism (the two-legged human gait). Although scientists have long concurred on the dramatic impact which the two-legged gait brought to human social behavior, the attribution of its origin remained unclear. Lancaster's analysis reviewed the structural requirements and functional capabilities of each of the candidates proposed as bringing about bipedalism. Lancaster's analysis was able to remove from consideration those candidates (which included inter and intrapecies aggression, scanning the horizon for predators or tool usage) which would either not require a sustained upright posture or would not be immediately aided by the wobbly walk afforded by the primitive pelvic structure. In contrast, *carrying*, especially in food gathering and caring for children, "afforded the immediate advantage necessary to initiate these changes as well as the long-term advantage necessary to perpetuate them. Unlike hunting skills or aggression directed toward other hominids, carrying did not endanger our ancestors during the species' early, clumsy stages of development" (Lancaster, 1978:25).

In guiding the naturalistic inquiry of cancer education in the American medical culture, the impetus for comparative review of historical antecedents reflects the precedent of the cultural ecologists who have cautioned that, while there is a continual interplay between components of cultural systems, "not all aspects are equally interdependent" (Goetz and Hansen, 1974). Cultural members' practices and perceptions are not simply the passive result of large-scale cultural determinants. The examination of the formation of current cultural influences on the medical school stresses their active accomplishment by cultural members. These characteristics include the professional dominance of medicine achieved through medicine's licensing and training requirements, the determining influence of professional medical associations in imposing these licensing and training requirements upon the American medical culture, the traditions of heroic measures in American medicine, and the relationship of medical training and research activities to the differential support of the American public.

Analysis of Current Premises of Oncology Education In Professional Oncology Curriculum Objectives And Interactive Care Behavior

The explicit content and implicit premises of influential professional oncology education organizations' recommendations for Psychosocial Cancer Care Education are examined.

The concrete occurrences of professional activity in directing and evaluating cancer education curricula include nationally formulated prescriptions for oncology education, in the form of objectives (Interinstitutional Group for Oncology Education, 1976); and a national survey of medical administrators, faculty and students, of the perceived adequacy of extant oncology education within the medical school (Bakemeier, Deegan and the Cancer Education Survey Supervisory Committee for the American Association for Cancer Education, 1976).

Finally, the observational data derived from participant observation of a university-affiliated oncology outpatient clinic provide a measure of the care implications in the attempts to practice interactive cancer care on the basis of these culturally achieved premises.

Research Activities: Selecting, Observing, Recording

The active process of field research includes selecting and gaining access to observations relevant to the study concern and theoretical explication.

The selection of the medical school oncology curriculum and outpatient clinic does not represent a random sampling and observational strategy of cancer care. Indeed, given that the majority of American medical care occurs without formal contact with the professional medical culture (White, 1961, 1973), Chrisman (1977, 1981) contends that the study

of <u>any</u> medical face-to-face encounter must be considered as the study of a minority-contact situation.

Mechanic (1978) concurs that the sites of medical training in the American medical culture draw upon a patient population and social context of practice which may selectively represent the range of medical care problems and practices in the general American culture. Mechanic adds, however, that the university-affiliated practice and training site offers a promising site from which to study the pervasive process of active social selection. The university affiliated training and practice site represent the site to which cultural members actively seeking involvement in cancer care both select and are selected. The oncology outpatient clinic is affiliated with the university medical school and with a specially designated Comprehensive Cancer Center, and, so, has access to additional cancer care resources. The medical personnel who opened their clinical practice to this study are university-based oncology specialists who choose and have been chosen by their medical culture to represent and generate the knowledge and skills to face the demands of their oncology patient practice and research. The protocols for care established in these sites will constitute the expectations for cancer care practice in the larger American medical culture.

The setting and situation sampled represent an attempt to make the sampling frame as theoretically informed as possible, through the selection of dense sites of naturally occurring, focused social occasions of cancer care. The analysis of the observational data drawn from these sites attempts to trace the pattern of attention presented and elicited in the sites culturally designated as the exemplars of cancer care training and practice.

Gaining Entrance

This study occured under the aegis of a medical behavior and evaluation research unit within the medical school. Gaining entrance to curriculum or clinic data does not reflect an individual "alien" investigator's ability to acquire access to these persons, sites and activities. Rather, the individual investigator shared access to these sites as a representative and a member of a small group of persons with whom they (the academic faculty and clinic staff) had a history of collaborative work.

The danger of working in territory in which one is considered part of the landscape is the danger of allowing oneself to be co-opted; to accept and reify by study someone else's definition of the problem. The resolve of this study was to consider that the professional statements (about what constitutes the problem or solution to cancer care training and practice) constitutes part of the domain of study; the

distribution of actually occurring events within training and practice sites provides a measure against which the adequacy of the medical profession's template can be considered.

The advantage to the study of working in sites in which one is recognized include tempering the often less than open mien greeting the evaluation process or person. In addition, the evaluator has the opportunity to aquire language proficiency in the particular professional argot. The intent in acquiring recognition or shared language is not to attempt the facade of clinician. Rather, it forms a sign of commitment to better understand the full meaning of the exchanges among participants.

Settings, Sources and Materials

The actual sites of active information acquisition and action provide the "where" of study. The selection of school and clinic as the sites of evaluation does not indicate that education or practice of cancer care occurs only within the walls of these institutions; rather, the clinic and school are recognized as formal solutions to the problem of transmitting knowledge about what cancer care can or should be. The school and the clinic are simply the "scene of the battle" (Roberts 1970); i.e., the sites in which the attention patterns of what constitutes cancer care need and resolution are contained.

Actual training site activities and content may not correspond to preordinate, idealized program descriptions as contained, for example, in formal statements of expected procedures, materials and outcomes (Scriven, 1975). This investigation, then, considers that a process of active scrutiny is an appropriate approach for discovering the actual (implicit and explicit) training content and activities. This study draws upon naturalistic inquiries for its methods of discovering and describing these activities in the contexts in which they occur. While the naturalistic approach to (educational) program evaluation which Scriven (1975) has promoted calls for ignoring objectives in order to make an unbiased assessment of the actual impact of a program, this study considers that the intended goals of a program, particularly those ostensibly designed in response to external (funded) stipulations, constitute a critical component of the curriculum's social environment. The expectations for the impact of an educational intervention contribute to its (ethnoecological) experience. Rather than ignoring the publicly professed hopes (objectives) for a program, this study considered that the analysis of the distribution of attention for which a set of external standards calls may allow the adequacy of the criteria to be discerned.

The educational design and evaluation products contained in these Interinstitutional Objectives and

National Cancer Survey represent sources of authority and expertise for mandating the content and process of training for the individuals who will assume professional responsibility for cancer care. The sites of professional formation, presentation and evaluation of cancer education are, however, not the sites from which evidence of the professional training's implications for the actual exchanges of cancer care can be seen. The clinical encounter between patient and physician provides the empirical instance of members who have actively moved through the cultural process of seeking and aquiring professional medical care for cancer. The naturalistic inquiry of mapping the presence and impact of the oncology curriculum seeks to determine the actual knowledge base presented in the training site. The naturalistic study of the interactive clinical encounter allows us to determine the issues and concerns raised by the actual participants actively responsible for cancer care.

Observations of the Oncology Outpatient Clinic Encounters Approach to the Clinic

The notion of a naturalistic observation of the oncology outpatient clinic was first developed in the context of working, with a member of the Medical Education and Evaluation unit and the Oncology department, on designing educational experiences for undergraduate medical students to develop students' interactive care skills.

Student observations of actual occasions of care indicated in the negotiated exchanges between (nonhospitalized) patients and experienced clinicians actually responsible for their care would, it was hoped, capitalize on the student's (usually frustrated) interest in seeing the actual "stuff" of clinical interaction, without requiring a role of active responsibility for care. The choice of nonhospitalized patients would permit students to see and hear the actual, embodied expressions of interactive care seeking (presumably more readily and frequently displayed than in the literal confines of the hospital bed) as they are presented in the clinic. The impetus for an exploratory study of naturalistic observation of the oncology outpatient clinic included this need to determine the appropriateness of this site as an occasion for student discovery and discussion of the actual problems and resources occurring in interactive care seeking.

In verification studies, researchers employ standardized instruments to determine their predictive control. In analytic systems using standardized observational protocols, selected phenomena are recorded as instances of previously designated categories of behavior. Flanders system (1970), for example, provides a protocol for analyzing teacher-student exchanges. Such standardized observational protocols are appropriate for verification research. As Denzin notes, the methods of research each

seek to examine or generate descriptions of relationships between occurrences. In addition, these methods each seek to confront sources of potential distortion imposed on observed events by the action of time, situations, observers and observed. In comparison to the methods of the experiment and survey, in analytic induction, the investigator follow the events studied over time:

> Rather than snap-shooting the relationship between variables as the survey method does, the user of analytic technique engages in long-term studies that permit the direct identification of time order, covariance and rival causal factors. Here too, experimental control is lacking. But while experimental and survey models lead to causal propositions that treat propositions of events subsumed under a proposition (e.g., 90 percent of those college-educated favor permissive sexual attitudes, while only 35 percent of those high-school-educated favor such permisiveness), analytic induction generates propositions that attempt to cover every case analyzed; it leads to universal-interactive propositions. Another important feature of analytic induction is its emphasis on negative cases that refute the investigator's propositions (Denzin, 1978:27).

The method of naturalistic inquiry used in the study of the interactive care encounters contained in the Oncology Outpatient Department (OPD) was that of participant observation. Wax and Wax call attention to the <u>process</u> of attaining entry and provisional membership in the host community. Wax and Wax define fieldwork as "a process of social research in which the investigator attempts to enter into the universe of meanings and participate in the moral system of this host community" (Wax and Wax, 1980:29). Their attention to the process of attaining the status of

participant observer stands in marked contrast to the tendency in the writings and work of cultural investigators which describes entry into a culture as simple, individual and voluntary; as though fieldworkers could "immerse" themselves or "step into" a cultural bath. Instead, Wax and Wax stress that becoming a member is a joint process, involving complex social and psychological accommodations by both the fieldworker and the host group. Researcher and host jointly construct a suitable role as an instrumental membership.

Spradley notes: "no matter how unobtrusive, ethnographic research always pries into the lives of informants" (Spradley, 1980:22). In "complete participant" approaches, the role of the observer is concealed in an attempt to enter as fully as possible in the social world of those studied. In Buckingham's (1976) study of the treatment of terminal cancer patients, Buckingham went to the extent of having abdominal surgery to obtain the scar which would enable his passing as a patient. The "complete participant" role, however, poses the ethical problem of precluding the opportunity of cultural members to refuse to serve as the object of study. In this study, the instrumental membership jointly established for the reseacher most closely fits the model of participant as observer (Gold, 1958 and Denzin, 1978).

In this study, the efforts directed at ensuring the unobtrusiveness of the observer sought to establish the appearance of the observer as a part of the clinic, not as a medical oncologist. While, at the suggestion of the senior clinician, the observer wore the standard white coat of the clinic staff, there was no attempt to conceal the identity of the observer as an observer. During the initial greetings and introduction on meeting patients, the observer was introduced by the clinician as a "student" or "colleague" who was attending the clinic as part of a project for "determining better ways for medical students to learn about taking care of patients." Particularly in the early stages of the observation period, clinic participants were encouraged to request that any particular clinic encounter not be observed. The number and characteristics of any of these occasions were entered into the field record.

A comparable threat was posed in the potential willingness of academic-based based clinicians to cooperate with medical behavioral research, evidenced in eagerness to display or produce ("behavioral science") clinic material assumed to be of interest to the study. Again, in the extended time of contact, the appearance of these occasions diminished as the presence of the observer was allowed to become part of the setting. An additional precaution was taken in the periodic monitoring of field notes to insure

that particular areas of behavior were not simply occasioned by the observer's pattern of questions or comments. Additional unobtrusive measures of potential observer reactivity were employed. In the security measures required in the Health Care Institute which housed the Oncology Outpatient Department, log sheets which noted the arrival and departure time of the staff (with the exception of the physician) provided a rough measure of the elapsed clinic day times prior to the study's initiation. Additionally, patient schedules for the calendar year provided an opportunity to detect whether the number of patients or the scheduled amount of time for a clinic day had changed with the onset of the study.

The persons shadowed as access points to the observation of interactive cancer care encounters included two physician-oncologists, who were senior clinical staff, experienced in oncology research and practice and tenured academic faculty, and a clinical nurse-oncologist, who had received her oncology specialty training with the clinical oncologist in whose clinical practice she now participated. While the original intent of the investigator was to sample the clinical encounters of a greater number of clinicians, it gradually became evident in the course of the initial observations, that critical issues of this study (these issues included the possibility for continuity of care in chronic illness, the allocation of (physical and

information) resources requested and distributed, and the unfolding doctor-patient information exchanges in a developing healing relationship) required following the clinical practices over time. Following a limited number (three) of clinicians over the long clinic days for the extended observation period also served to diminish threats posed to the study's internal validity. These (reactive) sources of threat to internal validity included the clinicians' guardedness in displaying or sharing some aspects of clinic participants (treating other physicians or prominent community members) or duties (performing infrequently used exam procedures).

The observation periods covered the time of the physician-patient clinic encounters on days (Tuesdays and Saturdays) for which the clinicians were assigned outpatient clinic duty. The period of participant observation at the oncology outpatient clinic extended for a six-month period during November 1979 to April 1980.

During the six months of the active process of situated observations in the oncology outpatient department clinic, twenty-seven patient contact days provided observational data of 183 patient exchanges. Of these care exchanges, 105 were initial visits between patients and physicians. In terms of the opportunity for observing continuing doctor-patient exchanges, the observational period afforded twenty-one occasions to witness a second visit, four were

third visits and six were fourth visits.

The times of observation began approximately one hour before the first patient-clinican interview (which coincided with the time the clinic staff began to arrive at the clinic) and concluded with the departure of the oncologist from the outpatient clinic. Arriving at the clinic before the oncologist allowed observations of setting up the physical staging of the clinic, inspection of scheduled visits and requests for unscheduled visits. While contact with other clinic staff was extremely limited on the initial clinic contact day, the early arrival at the clinic provided an opportunity in subsequent contacts to share in conversation and informal interviews the experience and expectations of other members of the clinic staff.

The primary recording method of clinic observations was field notes taken at the clinic site. The availability of the clinic schedule prior to the onset of the patient-physician encounters helped to organize these records and to quickly recognize departures from expected clinic routine (in, for example, "intrusions" from persistent requests for unscheduled clinic visits from patient, clinician or university members). The potential intrusiveness of note-taking during the physician-patient exchanges did not seem to disrupt the flow of interactive exchange between participants. The pervasive habit of note-taking by the (clinical) members provided the context

in which a participant observer within this context could maintain field notes during sessions. Given the empirically established dependency on the validity and reliability of field notes on recording times as close as possible to the observations they represent, simultaneous observation and recording of notes was attempted.

While, prior to the study's onset, the oncologists had voiced a concern that the oncology outpatient care events might not contain "enough psychosocial material" to provide a student training format, the problem in providing description becomes that of presenting the texture of their pervasive occurrence.

The level of description which can be provided reflects both the complexity of the events portrayed and the power and constraints of the data-gathering method. Commenting on the limits of his own data, Moore (1981) notes that written field notes preclude the fine-grained analysis of the moment-to-moment exchanges at the level of eye-gaze or intonation. Moore argues, however, that

> participants in a social event organize their interactions as much on the level of physical co-presence in a room as on the level of eye gaze or intonation. Field notes represent reasonably reliable records of those grosser levels of structuring. Clearly, field notes cannot provide the detail of tapes. At the same time, videotapes often miss the broader contextual features of events, if only because of their limited portability and their high cost (Moore, 1981:157).

In the planning and early phases of this study, the

researcher investigated the potential for videotaping the interactive care exchanges. In the process of study, however, it became apparent that such issues as participants' physical placement and movement in the clinic setting would be considerably limited with the imposition of a camera-mediated placement of participants. Family members waited in hallways to catch the oncologist as s/he passed through the corridor between the consulting and physical examination rooms. The oncologist left the patient in the exam room, during stages within the exam or in response to the signal of the electronic "beeper" page, to consult with staff or written records.

The intrusion posed by the presence of a camera is not necessarily greater than that posed by the presence of an observer; the sensitivity of the non-human recording instrument affords fewer social occasions for opportunistic placement in obtaining data. The camera cannot engage persons in discussion while walking them over to the elevator, washing hands before and after conducting a physical examination, or scanning the horizon for landmarks to guide patients' passage back to home terrain. The *participant* observer recognizes, then, that presence during the exchanges enabled follow-up discussions with the participants during the time provided by the physical activity of affecting transitions from one clinic event to another. While the cost and transciption time necessitated

in the use of videotapes were factors in the decision not to base the data-gathering on videotape in the exploratory study, the adherence to the participant observer method of inquiry marked the resolve to to follow moving, interactive occasions of exchange and interpretation.

In formulating accounts of interactive cancer care drawn from the naturalistic observations in which these activities occur, the choice of analytic strategy confronts the issues common to research endeavors of establishing reliability and validity. In addition, the applied research impetus of these observational studies recognizes the concern for sharing accounts with the particular audience of the medical school participants.

In generative studies, analytic induction provides a method for discerning patterns of occurrences and hypotheses based on an examination of initial cases. Occurrences which do not fit the initially posited pattern ("negative instances"), are consciously sought to challenge or refine the original premise. (Goetz and LeCompte, 1981, and Denzin, 1978). Analytic induction does not mandate the use of a particular unit of analysis. Mehan (1979, 1980) has incorporated the use of analytic induction into an approach termed "constitutive ethnography". Mehan has demonstrated the use of analytic induction in his analysis of a mutiethnic inner-city school. While the report format of much work in interactional study takes the form of

sequential presentation of utterances or activities (Denzin, 1978; Goetz and LeCompte, 1981), Mehan notes that this presentation format well represents the activities following the direction of a single source. In the case of classroom activity, for example, the assumption of teacher-led activities is congruent with the report format which presents a transcript form for depicting teacher-directed activities. Mehan notes that the occurrence of

> less official but equally organized student-student activity occur simultaneously during these events.... The mutiple foci of action, ... overlapping realms of activity and the amount of important body movement also operate against presenting materials in the transcript form used to depict teacher-directed activities" (Mehan, 1980:140).

Mehan proposes that the presentation of these activities take the form of "a running account of the unfolding action", with quotes and interpretations set off from descriptions of behavior. This presentation format is congruent with the premise that cancer care events are interactively accomplished by the participants. This format is supplemented with the incorporation in the discussion of case vignettes, to more fully present the diversity in appearance of the interactive care forms achieved.

The format for the clinic behaviors observed and recorded noted the date, time, identity of the interactants, location within a setting, and the materials introduced into the clinic setting. The observational record noted when each participant came into an interactional sequence.

The raw field notes included the identities of the participants. The retention of person's identities in the field log was necessary to detect the prevalence within the continuity (continued relationship) of physician-patient contact observable within the outpatient clinic. In the transcription of the raw field notes, the identity of participants was systematically altered to preserve confidentiality. In the data-gathering process, all information was treated confidentially. In data reporting, the use of pseudonyms maintains person's anonymity. The study unit of socially assembled encounters, rather than individuals, helps to preserve confidentiality of participants of study. The analysis of these exchanges explored the variations and patterns in the content and conduct of interactive cancer care. The relationship between the pattern of these occurrences and the larger sociocultural issues referenced in the clinic exchanges was then considered.

As a naturalistic inquiry of a critical interactive care event, this study enters the sites in which empirical instances of cancer care training and practice occur. The application of methods of naturalistic inquiry in the study of the interactive sites of training and practice focus on the actual material of human exchanges. This material has both an explicit form and an implicit meaning for participants. As Erickson's (1982) analysis of educational

anthropology indicates, the anthropological investigations of schooling, which have usually focused on exotic settings and implicit curriculum, can and should include as well the actual "manifest curriculum" prepared for and presented in a particular environment over time. Following the natural history of medical training and practice illumines both the explicit content and implicit values of participants actively responsible for cancer care.

CHAPTER 5

The Cultural Formation Of the University Affiliated Medical School Within the American Medical Culture

Since its inception, the medical school has contributed to an extent unequalled in other practice fields to the establishment of American medical practice as a profession. The school and university-affiliated clinic continue to reflect and provide the model for what current medical care practice and training can hope to be. The cultural history of the medical school's formation, in terms of its relationship to the larger medical establishment, considers the continuing direction and obdurance to redirection of its assumptions and practices. The examination of the cultural history of American medicine provides a critical context against which the emerging problem of cancer education is contained.

Pfifferling (1983) suggests a paradox: the study of medicine which includes the study of medical practices and practitioners can help to correct the mediocentric bias of our accounts of individual and collective healing relationships. The key to the paradox is offered in the realization that the activity of those studied reveals the social formation of the paradigms in which their activities and premises are contained. The critical reflection of these situated accounts, then, goes beyond a criticism of the popular presentation of medicine's presumed character.

The cultural historical component of ethnoecological inquiry follows the formation, presentation and implications of medicine's behavior over time.

Derivative Base of A Diverse Medical Culture

McQueen stamps a caveat on the credibility of most medical historical accounts. Extreme fear of contamination should be noted by those who would heed accounts of medicine's history, given that their non-social scientist authors are likely to produce uncritical, teleological accounts of hard-won but determined progress to current states of medical achievement. What critical knowledge can be gleaned from typical histories of medicine, given that:

> Most history of science and history of medicine in particular appears to be atheoretical... the focus of the writing has been so powerfullly on the science or medicine itself, i.e., the narrative, that little effort is usually given to what was happening in the world surrounding the science or how to write the history to explain it... (Since) most historians of medicine are usually Western trained allopathic physicians with little or no historical or social science training ... much of the history of medicine reduces to being engaged in discovering how Western medicine became what is is today... many histories of science and medicine proceed on a sort of "great man" theory of history, i.e., chronicling one "hero" of medicine or science after another.

Despite McQueen's determination to maintain a critical posture toward medicine's cultural history, McQueen's distance from the actual emic accounts of its members limits his critical perspective. For example, McQueen's otherwise insightful account of Western medicine errs in acceptance of

the characterization of the medical profession's constituency and organizing care premises as those of the "dominant allopaths". Professional Western medicine is often referred to in terms of its dominant allopathic, mechanistic model. "Allopaths" was not a term physicians used to refer to themselves; "allopaths" was an appelation which practitioners of competing medical theories used. The "allopaths" called themselves the "regulars" or the "orthodox physicians". The scientific category by which the "regulars" referred to their competitors was variously "quacks", "charlatans", "fakes", or members of "sects" (Jonas, 1978).

Given the actual diversity within Western medicine, Montgomery (1976) objects to the use of "allopathic medicine" as synonymous with the practice of professional medicine in the United States. To illustrate the range of traditions routinely available to the Western practitioner in the "dominant" mode of practice, Moore, Van Arsdale, Glittenberg and Aldrich (1980) provide an example of a physician in the United States who could prescribe an antibiotic (in keeping with the allopathic premise that when a substance deviates from the normal, a counteracting procedure should be applied), a polio vaccination (on the homeopathic premise, promoted by Hahnemann, in which small doses of substances are administered to stimulate the sick person's body to restore normal functioning), and a natural

food diet (from natuopathic and herbalism sects which maintain that the "natural ingredients" of exercise, fresh air, meditation and unadultered food substances enable the body to avoid or recover from illness). The presentation of current Western medicine as allopathic is a misrepresentation. Futher, in tracing its history, medicine's procedures and products are seen to derive from an "intricate complex of trends, beliefs and practices that date back over thousands of years" (Moore et. al., 1980). Oliver Wendell Holmes wrote of the eclectic syncretism constituting the current practice of healing, given that:

> medicine learned from a monk how to use antimony, from a Jesuit how to cure agues, from a friar how to cut stone, from a soldier how to treat gout, from a sailor how to keep off scurvy, from a postmaster how to sound the Eustachian tube, from a dairy maid how to prevent small pox and from an old market woman how to catch the itch-insect. It borrowed accupuncture and the moxa from the Japanese heathen, and was taught the use of lobelia by the American Savage (Holmes in Coe:162).

Moore et. al. (1980) note that the current criticisms of modern medicine as "monopolisitc" reiterate responses from "as far back as 1224 A.D. (when) it was decreed that no one should practice medicine without having passed an examination before the masters of Salerno." As Moore et al. indicate, the existence of this exclusivity trend continues another cherished medical tradition: the paradox of *a* system of medicine which is "in fact an outgrowth of contributions of multiple (and at times disparate) belief systems and medical studies over the centuries."

The apparently derivative notion of disease in the history of the American medical culture reflects the pluralistic constituency of its practitioners. As a nation of immigrants, the medical premises and practices of its university-trained members were those of the dominant German, French and English physiologists in the European medical schools. The apprentice-based remainder of the medical practitioners were also unlikely to develop and foster expansive formal accounts of disease. The explanatory premises under which the apprentice-based physicians operated tended to coincide with the prevalent folk theories (Gebhard, 1976).

McQueen notes the importance of recognizing revisionist histories for understanding the coherence of the "residuals". One can also consider that obscuring the range of practices and premises in its history composes a continuing moral of need for enduring caution to current medical practitioners or observers. Appreciation of the diverse practices absorbed by the mainstream practitioners blurs their practice distinctions.

What can be recognized in the medically produced historical accounts is a contintuing theme. The recurring theme renders medicine's "dominance" or "popular acceptance" dependent on how they are formally or ideally distinct from their competitors. While McQueen's point of continuing skepticism is well taken, the ken of even well trained

historical and social scientist's criticism is not necessarily enhanced by avoiding models which one is eager to criticize. It is only on actively entering into these accounts that credibility can be confirmed or challenged.

Cultural Evaluation of Medical Training And Professional Practice

Historical accounts have sought to trace the lineage of current American medical school and practice formation to the prototypes of current notions of what would have constituted a respectable training site: the Western European university system (Samph and Templeton, 1979; Friedson, 1970; Harvey, 1976; Henry, 1975 and Hubbard, 1971). This version, however, does not account for: 1) the existence of the then dominant apprentice-trained American practitioners; or 2) the relative efficiency of the healing practices of the apprentice-trained American practitioners compared with their university-educated colleagues. The provisions for and enforcement of licensing examinations for American medical practitioners is a relatively recent phenomena (Duffy, 1976). If American practitioners offered no professionally formulated, objective, standardized measures on which to compare the theoretical purity or practice competency of university against appentice-trained practitioners, the existence of alternative evaluation measures can be considered. These measures include the evaluation accorded medical practitioners by their

colleagues and public within their shared historical and cultural milieu, and the retrospective determination of the medical efficacy of the curing practices the medical records described.

Shyrock (1966) notes that the basic science research from which disease theories could be developed would have been an unlikely occurrence in 19th Century America. Shyrock attributes Americans' "essential indifference to basic scientific research" in any field to the underlying "American desire to explore the applied. The American mentality in the 19th Century, one that is still very much with us is to "exploit the resources of the moment without regard to the long-run consequence" (Shyrock, 1966:85).

Shyrock's account of American "indifference" may exaggerate the extent to which research was an expected and accessible component of university training; it also underrepresents the extent to which the American people were openly skeptical of the alleged competency of either set of pracitioners - the university-trained or apprentice-trained groups. Further, if American medical practitioners offered no abstract, formal system of disease and healing, it does not necessarily follow that the practice of medicine in America was unaware or inferior to university-based systems associated with Europe. Rather, the

> American emphasis upon practicality has led many American historians to assume that common sense and sound practical experience provided a better basis for

> learning medicine in the eigtheenth century than years of formal academic study and reading - particularly when university-trained physicians seemed better versed in the subtle philosophical distinctions between the various medical theories than in clinical medicine...The assumption that apprentice-based American practitioners were at least as good as their university-educated colleagues was strengthened by the fact that the eighteenth century was preeminently an age of medical theories, and too many physicians were guilty of practicing theoretical medicine regardless of its consequences to their patients. Fortunately only a few were like the eighteenth-century Scottish physician reported to have said that he was not going to practice unphilosophical medicine merely because his patients died (Duffy, 1976).

The quality of training extended to American medical students throughout the next century was equally uninspiring. American medical schools were basically proprietary institutions in which the admission of tuition-paying students took precedence over any entrance requirements. As late as 1887, an eight-year old girl applied in her own handwriting to a number of medical schools. Although her application indicated that she met none of the admission requirements, over half of the schools accepted her application. Even in the most prominent medical schools, medical schools seemed to expect or offer little to medical students' scholarly achievement. Until 1870, final examination at Harvard's Medical School consisted of a student successfully answering at least five of nine professors' inquiries. Each examiner was limited to inquiries of five minutes per candidate. When the president of Harvard medical school introduced written medical examinations in 1871, he was informed that half of the

medical students could barely write and that it was ridiculous to expect them to pass written examinations. The initial attempts to upgrade the image of medical training and evaluation rigor did not excite the professional instincts of students; on the introduction of training and evaluation reforms, Harvard's medical school enrollment dropped by 43 percent (Duffy, 1976).

The unsavory reputation of medical training did not reflect a pervsasive American pattern of inattention to scholarly effort and display. Other academic disciplines frequently decried the unruly demeanor of medical students. "The ignorance and general incompetency of the average graduate of American Medical Schools, at the time when he receives the degree which turns him loose upon the community, is something to contemplate", Eliot wrote (cited in Starr, 1982:113). The findings of European medical researchers more often appeared in such general scientific journals as Scientific American and Popular Science Monthly than medical journals per se. McIntyre's studies found that the percentage of college graduates who entered the medical profession was never high and actually declined during the first few years of the twentieth century.

While medical historians and sociologists have frequently cited the lobbying effort of the American Medical Association in reversing these trends by instituting uniform requirements for medical school training and licensure, this

attribution distorts the historical pattern of attention within the professional medical associations. When the American Medical Association eventually became involved in medical school reform, it followed, rather than initiated, a more general cultural concern and demand for medical school change. Established in 1847, the American Medical Association (AMA) concentrated its attention for the first fifty years of its existence on attempts to suppress rival medical groups. The American Medical Association cautiously avoided direct confrontation with the medical schools. The American Medical Association's own decline in membership and the bitterness of the schools which had participated in an early reform experiment occasioned, in part, the reluctance to sponsor medical school reform.

The basis of the initial reform experiment began with an 1845 study of about half of the existing American medical schools. The committee engaged in the study submitted its recommendations for curriculum change at the first National Medical Convention in 1846. These recommendations consisted of lengthening the academic year to six months, requiring students to attend (lecture) classes for two consecutive six-month semesters, and present evidence of having served an apprenticeship with an established physician. The committee further recommended that schools consist of at least seven faculty members. These faculty should be capable of representing the following content areas:

medicine; surgery; physiology; pathology; materia medica and pharmacy; midwifery and gynecology; chemistry and medical jurisprudence. The committee emphasized the necessity of schools incorporating clinical instruction, including dissection, and hospital practice. Impressed with the committee's presentation, two schools - the University of Pennsylvania and the College of Physicians and Surgeons in New York - lengthened their curriculum to the recommended six-month term, and publicized the higher standards which they could offer students. To the involved schools and the American Medical Association, the most germane outcome was the increase in enrollment, at the expense of the study schools, in neighboring rivals. The retreat of the schools back to shorter curriculum, and the American Medical Association from directly confonting training reform, indicate that "while most medical colleges favored reform in principle, they had no intention of raising standards at the cost of student enrollment - and fees!" (Duffy, 1976:175).

If the professional associations and schools were hesitant to apply too harsh a judgment on the evaluation of its members, the popular sector was less restrained. The collective esteem and attendant power of medicine's practitioners is frequently cited in current accounts concerned with medical practioners' activites as agents of social control. The power and esteem mark a transient, rather than a continuing, character in medicine.

The evaluation of the American public about the worth in which to hold medical practitioners is indicated in the frequent expression of derision by the American public, and in the inability of the practice of medicine to provide a livelihood to its members. Duffy's profile of the *average* American physician through the first years of the 20th century described a life of "relative poverty and limited status":

> The aim of nearly all young physicians was to establish themselves in a comfortable family practice, preferably among the well-to-do, but the number of physicians far exceeded the demand, and the majority eked out a bare living, supplementing their income by operating a pharmacy or some other business or else by farming. While the middle and upper classes expected to be treated in their homes, and the physician who treated the family members and their servants was guaranteed a good income and social acceptability, young doctors without family connections were forced to rely upon an office practice or else serve as a dispensary physician or visiting physician attending the poor. An office practice itself carried some stigma, since it was the resort of the poorer classes who could not afford to have the doctor visit them in their homes. Moreover, the physician with an office practice faced keen competition not only from colleagues, but from druggists ... and a host of quacks, folk practitioners and irregulars (Duffy, 1979:234).

Not only historians consider the tenuous reputation accorded to the medical institution and its practitioners as well deserved. The notoriously uneven or poor training and inability of physicians to deal with the major diseases guaranteed that the medical profession would be held in low esteem (Duffy, 1976). In 1977, Lewis Thomas, who was then President and Chief Executive Officer of the Sloan-Kettering Memorial Cancer Center and professor of pathology and

medicine at the Medical College of Cornell University, published a thoughtful and comprehensive review of the last century of American medicine. Thomas is, then, an instance of the allopath-historian whom McQueen suspects are constitutionally ill-suited for producing critical medical history. Thomas evidences, however, a cheerful willingness to suspend belief in the necessity and efficacy of medicine's precursors. Thomas insists that the modesty of medical practitioners in claiming their historical precedents is well occasioned:

> the history of medicine has never been a particularly attractive subject in medical education, and one reason for this is that it is so unrelievedly deplorable a story. For century after century, all the way into the remote millenia of its origins, medicine got along by sheer guesswork and the crudest sort of empiricism. It is hard to conceive of a less scientific enterprise among human endeavors. Virtually anything that could be thought up for the treatment of disease was tried out at one time or another, and, once tried, lasted decades or even centuries before being given up. It was, in retrospect, the most frivolous and irresponsible kind of experimentation, based on nothing but trial and error, and usually resulting in precisely that sequence (Thomas, 1977:163).

Concurrent Changes in American Health and Medicine

Were the early trials with innoculations (variolation) responsible for stemming the disastrous toll of infectious disease morbidity and mortality in America? Thoughtful cultural historical analyses have examined the prevalence and virulence of disease against the background of medical and environmental conditions in effect. Retrospective

analyses of medical practices in history have enabled tracing what sources of change were responsible for dramatic changes in health experienced in twentieth century America. It was not medicine that changed this picture of health, but improved public health measures of adequate nutrition, housing and waste disposal (Grob, 1983; McKeown, 1979; Dowling, 1977; Spink 1978 and Dubos and Dubos, 1952).

It was not the dramatic breakthroughs of innoculations which changed the practice and cultural perception of medicine, but the cautious evaluation of its own efficacy:

> the real revolution in medicine ... did not begin with the introduction of science into medicine...(rather) it was (the realization), sometime in the 1830's, that the greater part of medicine was nonsense... sometime in the early nineteenth century, it was realized by a few of the leading figures in medicine that almost all of the complicated treatments then available for disease did not really work, and the suggestion was made by several courageous physicians, here and abroad, that most of them did more harm than good. Simultaneously, the suprising discovery was made that certain diseases were self-limited, got better by themselves, possessed, so to speak, a "natural history". It is hard for us now to imagine the magnitude of this discovery and its effect on the practice of medicine. The long habit of medicine, extending back into the distant past, had been to treat everyone with something, and it was taken for granted that every disease demanded treatment and might in fact end fatally if not treated. In a sober essay written on this topic in 1876, Professor Edward H. Clarke of Harvard reviewed what he regarded as the major scientific accomplishment of medicine in the preceding fifty years, which consisted of studies proving that patients with typhoid and typhus fever could recover all by themselves, without medical intervention, and often did better for being untreated than when they received the bizarre herbs, heavy metals and fomentations that were popular at that time (Thomas, 1977).

The positivistic and aggressive character of medicine, which current criticisms of medicine cite, is a recurrent - but not a continuous - trait of professional American medical training and care practices.

Attaining a respect for and curiosity about the natural history of disease was a major medical accomplishment. Establishing knowledge of the medical profession's own implication, in thwarting or complicating the conditions for which it attempted to care, continued to elude intraprofessional assessments of even the most mundane medical practices. Semmelweiss was driven insane in his battle against the assumption, popular in professional medical journals, that the disproportionate deaths sufferred by women giving birth in hospitals reflected womens' overweening modesty in the face of male examiners; not to the fact that these male examiners were coming to these clinic beds unwashed from their autoposy duties in the morgue. Semmelweiss pointed to the constrastive mortality statistics between the teaching hospitals, where childbirth mortality ranged from 10 to over 30 percent, and the neighboring hospital, with an obstetrics unit attended by midwives with little ocasion for dissection, with a mortality rate of 3 percent. In his clinic, Semmelweiss insisted that all practitioners wash their hands with chlorine water before conducting a physical examination; this procedure brought a marked decline in childbed fever

(puerperal fever) mortality. The medical profession ignored Semmelweis' theory of puerpal fever as a form of wound infection, his findings of diminished motality, and his recommendations for antisepsis. Instead, some prominent teaching hospitals, on the continuing scientific premise that the emotional strain of male examiners was precipitating shock, responded by excluding foreign students (Mechanic, 1978).

Duffy's historical review of American medicine finds that alternative medical sects have been able to promote their practice on the strength of their refusal to participate in the drastic therapeutic practices practiced by the dominant medical professionals. Conversely, the care practices or premises practiced outside the confines of the professional medical culture at any given time are often seen as a danger against which the public needs to be defended. The threat these external practices pose are described as medical, not cultural, problems. If a medical basis is found for the extraprofessional medical practices, the institution of medicine has, historically, incorporated the practice and, then, continued to defend its clients against the intrusion other agents now pose to that practice. In terms of medicine's treatment of chilbirth, when the importance of antisepsis was accepted in medicine, American medical institutions stressed the necessity of isolating the mother and child from a dangerous source of

infection - the father. In the treatment of cancer patients, the medical necessity of isolating cancer patients during the course of their treatment obfuscates the attribution of such occurrences as depression and anger to the impact of disease or institutionalization. The natural history of illness, disease and treatment are confounded.

In heroic medicine, it is the patient who is the hero; the eptiome of heroic medicine is indicated in the judgment of Dr. Haynie of Louisana. Haynie notes with contempt the contrast between the Louisana French healers who were "extremely adverse to the use of mercury in any form; and generally, as much opposed to the use of the lancet" against his own practice of extensive bleeding and administration of mercury in doses of 100 to 200 grains an hour: "It is but trifling with the life of a man, to give him less of a remedy than his disease calls for" (cited in Duffy, 1976:100).

The alternative focus on "natural history" of diseases reflects the influence of post-Revolutionary French and German medical schools. The French and German medical schools were notable participants in the formation of a new medical science. The emphasis of the content of medical science was on the internal environment, as articulated in the work of Claude Bernard. The working conditions of Western European medical school research joined in collaborative study the work of pathology (the study of

disease processes) with clinical observations of expressed disease signs. The explication of the internal environment was facilitated by the introduction of such practices as auscultation and the use of such diagnostic instruments as the opthalmoscope, laryngoscope and stethoscope. An example of the new power of medicine to describe health from the examination of the internal environment is found in the declaration of the British physician, who, having developed the sirometer to measure lung capacity, announced that it would allow doctors to empirically evaluate physical fitness for military service (Starr, 1982:137). In Medicine and the Reign of Technology, Stanley Reiser notes that the use of the stethoscope requires the physician "to isolate himself in a world of sounds, inaudible to the patient", and worked to "move (the physician) further away from involvement with the patient's experiences and sensations, to a more detached relation, less with the patient but more with the sounds from the body." Since the patient is seldom given the opportunity to hear or interpret these sounds, the increasing use of diagnostic instruments to explore the patient's internal environment exacerbated an asymmetry of information.

Beyond a dexterity with diagnostic skills that called medical attention to patients' internal environment, American students returned with the French emphasis on therapeutic skeptism. This new characteristic in medicine

had been given credence in Europe from the Paris school which began to evaluate the effectiveness of therapeutic techniques statistically (Starr, 1976) and promoted the discovery of "self-limited diseases".

Joseph Bigelow of Harvard echoed in America the questions raised about the appropriateness of the pervasive use of heroic treatment regimens. While Oliver Wendell Holmes decried the historical introduction of "therapeutic nihilism" in the "nature-trusting heresy" (Warner, 1978), the American public, long skeptical of arduous medical regimens, welcomed Bigelow's introduction into medical education the admonition of "the unbiased opinion of most medical men of sound judgment and long experience" that "the amount of death and disaster in the world would be less, if all disease were left to itself" (cited in Starr, 1982:55).

Identification of the University-Affiliated Medical School With American Professional Medicine

The requirement of graduation from standardized medical schools based on the German and French models of medical training occurred in the years immediately following the release of Abraham Flexner's evaluation report of the American and Canadian medical training sites. The Flexner Report was published in 1910 as "Bulletin #4 of the Carnegie Foundation for the Advancement of Teaching: Medical Education in the United States and Canada" (Flexner, 1960). Flexner's report consists of two sections. The first

section describes the state of education in the various components of the nation's medical education curricula; the second section details specific findings for each school.

While they disagree about the desirability of the outcome, both conservative and radical accounts of the formation and pre-eminent status of the medical schools and profession attribute much of the responsibility for this outcome to the impact of the Flexner Report (Samph and Templeton, 1979; Brown, 1979; Berliner, 1975; Markowitz and Rosener, 1973; and Banta, 1971). An example of the impact attributed to the 1910 publication of the Flexner report is that provided by Twaddle and Hessler:

> As a result of the Flexner Report, two thirds of the medical schools in the United States and Canada were closed. With few exceptions, the remainder affiliated with universities, and courses in basic sciences were uniformly adopted in all medical colleges. The result has been a marked improvement in the technical competence of the medical school graduate, so that Lawrence Henderson could say that between 1910 and 1912 "for the first time in human history, a random patient with a random disease consulting a doctor chosen at random stood better than a 50-50 chance of benefitting from the encounter" (Twaddle and Hessler, 1977).

The importance of Flexner's report is heightened, rather than diminished, in the consideration of the historical and cultural context in which it occurred. Previous pleas to state and federal legislators had failed to impress public representatives about the worth of one group of medical credentials over another.

The profession of medicine's own association, the American Medical Association, was unsuccessful in its previous attempts to enforce medical education reform. Prior to the Flexner report, the most recent medical school evaluation had found that, even on the basis of the medical schools' self-report, the majority of medical schools existing in 1906 were structurally unable to provide adequate medical training. Of the 160 schools surveyed by the American Medical Association's Council on Medical Education, only 50% were graded as "sufficiently equipped", 30% were "doing poor work" and 20% were deemed "unworthy of recognition" (Kaufman, 1976; Jonas, 1978). Two versions of the report were disseminated: a public version, which shared these summary statistics; and a confidential version to the individual medical school about its ranking. To the public, the severity of the American Medical Association's judgment enhanced its image of a profession seriously committed to evaluating its ability to provide responsible care; to its members, the report was considered evidence of the oblique university-centered bias of the American Medical Association's Council on Medical Education.

While the idea that limiting the number of licensed physicians would financially benefit the remaining physicians received consensus, the direct moves of the American Medical Association to impose particular standards were viewed with distrust. Acamedicians, rather than

practicing clinicians, dominated the constituency of the American Medical Association. The reform attempts sponsored by the American Medical Association were effectively blocked by prominent, non-university affiliated physicians. The non-university affiliated physicians saw the American Medical Association's reform recommendations as threatening their non-university credentials, and the prestige and financial rewards of affiliation with proprietary medical schools. The objections of Dr. Bigelow, a prominent physician and Harvard faculty member, added the note that requiring a standardized training would suppress those with a "natural genius" for medicine.

The proprietary schools were already scrambling to maintain a competitive reputation with the university-affiliates.

The competition that had once deterred reform attempts of particular medical schools, however, came to be a pressure for systemic medical school change. The greater prosperity of America occasioned the greater exposure to the medical research structure, conduct and expectations of French and German medical schools. As members and graduates of these French and German institutions were recruited for faculty positions in American medical schools, more American medical schools began to commit their resources to research time, physical facilities and personnel. Private fortunes and foundations selectively contributed to the development

of American universities. The support of private contributions enabled Lind Medical School (later to become Northwestern) and the Universities of Harvard, Pennsylvania, Syracuse and Michigan to establish and maintain curriculum reform and inter-medical school organization.

In the wake of the progressive reform movement, the proprietary schools were ever less able to compete with the visible physical plants and the perceived advantage of a graded curriculum led by university-affiliated medical faculty. The cost to students in undertaking the prospect of lost earnings during the academic calendar, coupled with the rapidly higher tuition charges of the medical school, and the prospect of emerging with a degree of uncertain status, deterred more and more students from entering medicine. Those who could afford the extended training period were more often members of the upper class, who could expect to succeed in the university environment.

The establishment of privately endowed medical schools, which would not have to depend on students' tuition, further changed the organization of medical schools. John Hopkins, financed by private endowment, became the professional examplar in medical education. As Jonas notes, Hopkins was designed to be a "resource to the nation and to the world for training medical educators and researchers ... The training of 'mere practitioners' would be left to the other schools" (Jonas, 1978:193). Research was charted as a

primary function. Hopkins was intended to be selective in its choice of students and faculty. Full-time faculty would guide students in research, conducted with the resource of a hospital specifically designed for use by the medical school. The requirement of bedside teaching with an affiliated hospital was a dramatic innovation in American medical education. Previously, students were dependent on the character and extent of the practice load of the individual clinical faculty, not all of whom had hospital privileges.

A respect for and knowledge of the models of higher education embodied in the design of John Hopkins had characterized Abraham Flexner's studies and work prior to his involvement in the medical education evaluation project. The American Medical Association, recognizing the concern of its constituency with the univeristy-centered, liberal bias of the American Medical Association's Council on Medical Education, requested that the Carnegie Foundation for the Advancement of Teaching undertake a definitive evaluation of the medical education system in the United States. Flexner was neither a physician nor a medical educator; his appointment secured the relief of the professional medical constituency concerned with potenital bias of either the American Medical Association's Council members or physicians with community ties. As a representative of the Carnegie Foundation of Higher Education, which was known to have

guided the contributions of funds for the philanthropist, Flexner "no doubt had doors opened to him that otherwise would have been closed. To desperate deans and professors, the name Carnegie must have called up dancing visions of endowment plums" (Starr, 1982:119).

The profusion of medical schools, many in perilous financial straits, were facing uncomfortable options. Merging with university or college medical schools meant loss of autonomy. Meeting rising standards of curriculum reform and updating facilities meant immediate enrollment decline and greater capital expenses for the equipment and faculty. Ignoring the proposed standards for medical education risked disavowal by state licensing boards, and, then, loss of students. Many medical schools discovered another option: fraud. These schools simply misrepresented their compliance with medical education standards (Starr, 1982).

Blatant deception did not withstand the meticulous attention Flexner brought to the medical school evaluation project. Flexner visited each medical school. He even examined samples of individual students' transcripts and evidence of medical school preparation. Flexner's report is replete with caustic humor and exacting detail of libraries without book, faculty members who contributed only to the length of faculty roster postings, students who met only tuition requirements, decomposing cadavers in unwashed

dissecting rooms and laboratories non-existent or confined to the test tubes held in cigar boxes (Flexner, 1960).

While these omissions were far from extraordinary, the attempt to deceive indicates a perceived change in public and professional medical education standards. As Starr points out, in an earlier time, the medical schools would not have been expected to be held accountable for their lack of trained, full-time faculty, hospital appointments, library and research facilities or student admission requirements. In claiming to have facilities they did not, the schools "implicitly acknowledged the legitimacy of the standards Flexner was exacting of them and made themselves more vulnerable to public exposure and embarrassment" (Starr, 1982:120).

The American public's greater respect for the institution of medicine and its affiliated teaching sites reflected a combination of factors operating on public perception of professional institutions. Among these factors was the growing interest in higher education, as a means of establishing a palpable and penetrable body of knowledge and expertise in professions. In addition, the public held a grateful memory of the prominent involvement of physicians in the public health initiatives of improved nutrition, sanitation, housing and working conditions, which had so dramatically altered the length and quality of urban existence.

The Appearance of Medical Training and Science In the Post-Flexner Era

The Flexner report changed more than just which American medical schools would close, and which prosper. Medicine changed from a practice of dubious distinction to one of preeminent status. While the recognition and support of "scientific medicine" now seems well entrenched, the preeminent status is a rather recent and carefully negotiated development within the American medical culture. In recognition of the drastic change in the way members could conduct their lives, other professions turned to medicine's professional creation as a precedent from which to glean knowledge of how to achieve professional dominance through programs of higher education.

These accounts have looked to discover the germane activities of medicine in bringing about its professional dominance. In terms of its healing practices, medicine was at a point of relative dormancy; the empirical investigations, undertaken in the sites of European study of which it was most proud, of medicine's efficacy indicated that medicine's standard techniques had no evident therapeutic value. Effective alternatives were not yet available to replace them (Starr, 1976; Shyrock, 1966; Foucault, 1973). The change in medicine, apparent to its public and those who would be members, was the well-publicized "creation" and standardization of the

medical school. The extraordinary changes in the ability of its members to control the conditions in which they worked, and then, the social and economic status of its members, is seen to be connected with the entrenchment of a highly visible, carefully screened training process, directed by its members, and subject to extensive, but internally formulated, evaluation (Friedson,1970; Aiken, 1982; Light, 1982; Berliner, 1977; Shapiro and Lowenstein, 1979; Lippard, 1974; Samph and Templeton, 1979).

The charge of the training period includes the acquisition of both a body of knowledge and technical skills, and the beliefs and attitudes held by fellow members. Starr (1982) notes that, under the old system of apprenticeships with diverse practitioners, doctors were exposed to more idiosyncratic views of medicine. In the new system which followed the dissemination of the Flexner Report, the changes which occurred fostered the increasing homogeneity of basic premises among members. The economic profile of the students entering medicine and their economic prognosis on graduation underwent drastic change. Fewer schools, higher tuition and higher admission standards deterred the admission of a heterogenous population. The deliberate policies of discrimination of minorities brought further social homogeneity among those who could successfully seek admission and be admitted to practice. The extended period of training, among members committed to

a medical science, increased professional cohesiveness and the acquisition of common values and beliefs.

Thomas stresses that the period of comparatively dormant medical intervention prior to the dramatic breakthroughs in the late 1930's established two critical principles for medicine. The first principle cautions that a great deal of knowledge about underlying mechanisms is necessary before medicine can act effectively. The second principle - the doctrine of specific etiology - shapes the search for that knowledge: "for every disease there is a single key mechanism that dominates all others. If one can find it, and then think one's way around it, one can control the disorder."

What was the social appearance of these resolutions? The profession of medicine had been characterized by notable inconsistency among its members; the American public had ample opportunity to witness the diversity and indecorum of "professional" medical disputes, from duels, public pamphlets and failed legislation. The lack of a common study theme or empirical practice consensus on nearly any given medical problem was all too apparent. The sociologists who have attempted to look at who benefits from health care have emphasized that the tying of the medical professional credential to the university-affiliated medical school divested medicine from more accessible control. A complementary perspective can consider what was being

created. The impact of the emergence and allegiance to specific disease etiology, as an identifying tenet of professional medical practitioners and researchers, can be considered as immeasurably adding to the appearance of a new sociology of knowledge.

While established professional medicine is now, and has been, derisive and hostile towards percieved competitors, folk culture's attitude toward professional medicine has undergone radical change with the advent of what it has been led to perceive as "scientific medicine". Science provided a paradigm in which people could explore the natural environment and their relationship with it. In the Western European movement from theocentric accounts, science did not vanquish religion; rather, the problems which science sought to explain were gradually tolerated as permissible, and, eventually, accepted as central. In the transition to Augustian Platonism of early Christianity in Western Europe, the system of Aristotle had not been refuted by its successor; rather, the need for salvation, for a way of deliverance, grew more pressing than the desire to understand (Randall, 1977). The establishment of science began a dialectical counter-movement from an emphasis on personal salvation, with its passive appreciation of revelation, to a confident exploration of human conditions. Science emerged as an alternative paradigm which would deal with, explain and abet human conditions. If science was to

make sense of human problems, why shouldn't we expect to make sense of science, to make common sense of science? (Scalzi, 1979).

Karl Mannheim argues that the democratic ideal of knowledge in America has demanded the greatest possible accessibility and communicability: "democratic cultures have a deep suspicion of all kinds of "occult" knowledge cultivated in sects and secret coteries". "Mystification of meaning" (Barnlund, 1979) is a current charge of alienation from knowledge imposed by professional practitioners; from the beginning of American medicine, the popular expectations were that a tenet of valid medical knowledge was that it should be accessible and intelligible. The rejection of medical licensure prior to the Flexner era reflected the suspicion that licensure was "an expression of favor rather than competence" (Starr, 1982:58). Hostility to impenetrable private oganization as a foundation of power and privilege did not imply rejection of privilege, but, rather, a public process of access to power. Starr stresses that "the desire to remove mystery, personal control and special privileges resulted not in disorder or a leveling of inequalities, but in the development of a new order that was simultaneously capitalist, bureaucratic, and culturally and politically a democracy" (Starr, 1982:57).

Democratic principles of access and control challenged the spectrum of American institutions from government, law,

corporate business structure to medicine. In these challenges, the complexity of institutions, including medicine, was considered an artifice to protect privileges of current practitioners. The development of a public educational system was stressed as a means of obtaining public control and a population with technical skills in such areas as medicine. Ironically, the basing of medical education in science helped to reestablich professional authority. The complexity and specialization to which science in medicine gave rise helped restore to medicine a sense of *legitimate complexity* (Starr, 1982).

The cultural activity bringing about this perceived separation of spheres of responsibility and competence can be seen in the acceptance of the doctrine of specific etiology. Throughout America's history, medicine's practitioners and public have considered that their own observations might indict other and many causes of a disease. Now, with the adherence to the specific disease etiology, the distribution of attention within professional medicine informs them that scientific observation and management is to be directed to the "internal environment", in which a single mechanism triggering disease onset can be discerned.

Public and Federal Involvement In Medical Training and Research Support

Sustained and concerted public and professional attention was responsible for instituting a standardized procedure and content for the training of medical professionals. The contiguity of basic science research and affiliated clinical practice sites seemed to come together excitingly in the development of a series of medical discoveries and treatments.

Lewis Thomas characterized American medicine's temporary retreat to cautious observation and professed abstinence from unverified interventions as a time "of modified skepticism and therapy amounting finally to near nihilism". He emphasizes the contrast in which:

> almost overnight, it became possible with antibiotics to cure outright some of the most common and lethal illnesses of human beings ... overnight, we became optimists, enthusiasts. The realization that disease could be turned around by treatment, provided that one knew enough about the underlying mechanisms, was a totally new idea just forty years ago (Thomas, 1976:168).

The medical research providing these breakthroughs in efficacy and status were not, however, the results of federal funding. Before World War II, the American medical community, as had the general scientific community, tended to oppose large-scale federal financing or coordination of research. The primary sources of basic medical research were private foundations and universities. The sites of applied medical research during this period were the growing pharmaceutical companies and, to a lesser extent, voluntary

health agencies, professional medical socieites and such private group practices as the Mayo Clinic.

Federal financial support for health concerns were much more likely to be awarded to and received by agriculture. As incredulous critics have found, Congress was consistently prepared "to spend more money to figure out how to save hogs than how to save people" (Starr, 1982:339; Duffy, 1976). Today's space program proponents point to serendipitious outcomes of technological advances available to earthbound sponsors; yesterday's Agicultural fiefdom pointed to the appropriateness of its stewardship of early environmental research, given the soil chemistry work of Rene Dubos leading to the development of the antibiotic gramicidin and to work on streptomyocin. Even as late as 1930, the research budget for the Public Health Service (charged with the study and control of infectious and chronic diseases) totalled $2.8 million; the Department of Agriculutre recieved $26.3 million.

World War II set a new precedent for both the scope and conduct of federal sponsorship of medical research. Contracts with research institutes, universities, hospitals and other institutes commissioned the urgent development of such products as a synthetic substitute for quinine, seized by the Japanese, for the control of malaria. Additional work produced dramatic breakthroughs in the isolation of useful blood derivatives (such as gamma globulin). Probably

the most notable work of the wartime medical research was the development of improved strains and massive amounts of penicillin.

As Starr notes, the success in mass production of penicillin was seen as clear evidence of both the appropriateness of federal funding of extramural medical research, and the conditions under which that funding should be available. In the beginning decades of the twentieth century, American science and medical education had studied and emulated the models of German science and medical studies. When the Nazis gained control of Germany, they purged the universities and laboratories, and made them responsible to political demands and central control. In contrast, American medical research during the war was primarily carried out in independent laboratories. Scientific decisions were accorded to panels of independent scientists. After grants were awarded, there was relatively little interference or control of applied research work. Starr stresses that the pattern established was that of federal financial support with imposition of minimal control.

The organization of the National Research Defense Council and its successor, the Office of Scientific Research, made possible both dramatic gains in medical efficacy and the propagandistic promotion of those advances. The victories in wartime medical research added to the

euphoric judgment of preserving a system that accorded scientists autonomy. While the development of penicillin and other medical breakthroughs were immeasurably aided and hastened by the enormous backlog of research development and theory, the perceived sequence was that the simple availability of funds, with minimal constraints, enabled development of critically needed material. In contrast to the European experience of conducting research sponsored by the government in government-controlled laboratories, the war experience of the American culture strengthened the impression that American medicine, as should science and universities, be free to conduct government sponsored research in their own independent institutions. The resolve toward continuing government sponsorship of research with minimal constraints marked a critical point of structural choice. The perception and inferences of the American culture about how its medical and scientific advances had been achieved strengthened the case of American medical, educational and scientific institutions for greater private control and functional autonomy (Starr, 1982).

The federal government hastened to publicly assert its resolve to continue sponsorship of medical research in the successful resolution of a new campaign. Even before the war was over, President Roosevelt, in a public letter to the Office of Scientific Research and Development, asked how best to channel government support to science, and,

specifically, to "the war of science against disease". Vannevar Bush, the head of the OSRD, compiled his recommendations in a report entitled Science: The Endless Frontier. Bush's report stressed the need for providing support for science and preserving its autonomy. Bush characterized basic research as "scientific capital", such that "more and better scientific research is one essential to the achievement of our goal of full employment." Bush advocated federal allocations for scholarships as well as research projects.

Starr stresses that Bush's report continues the insistence that federal support should not be confused with federal control: "science had to be kept free: free from the influence of pressure groups, free from the necessity of producing immediate results" (Starr, 1982:343). Starr's penetrating analysis does not, however, consider the oblique but powerful shaping influence the unexamined distribution of funding would have in the context of mission-oriented research. The groups which could lobby for federal support of medical research represented disease-specific control efforts. When the research was conducted in the discipline based research setting of the medical school, the influx of funding promoted the extraordinary growth of the basic science research enterprise in the medical school.

The strategy for requesting public and federal funds which directed attention to a particular disease ignored the

earlier reviews (as provided, for example, by Bush) which had recommended a unified national program of scientific research. The strategy of single-disease attention is termed the "categorical approach" (Duffy, 1976 and Starr, 1982) or "mission-oriented" (Lally, 1977). The single disease strategy is reflected in the creation of the categorical organization of the National Institute of Health (eg., National Heart Institute, National Cancer Institute, National Institute of Mental Health).

The public's impression of the appropriateness of this single-disease research focus was demonstrated and apparently rewarded in the development of the polio vaccine. While polio was not the most prevalent disease at the time and had a relatively small impact on the overall pattern of mortality, its hold on the public's attention was firm. Money raised by voluntary donations sponsored medical research which led to the development of the Salk vaccine. The further evidence of the public's commitment to support of medical research is indicated in the voluntary participation of millions of famililes in the double-blind trials (i.e, the doctors, teachers, parents and children did not know if they were receiving the experimental vaccine or a placebo) of the Salk vaccine. Richard Cater's biography of Salk indicates the extent to which the April 12, 1955 announcement, by the epidemiologists at the University of Michigan, that the vaccine worked was received as the

people's own victory:

> More than a scientific achievement, the vaccine was a folk victory... People observed moments of silence, rang bells, honked horns, blew factory whistles, fired salutes, kept their traffic lights red in brief periods of tribute, took the rest of the day off, closed their schools or convoked fervid assemblies therein, drank toasts, hugged children, attended church, smiled at strangers, forgave enemies.

The stage had been set for enthusiastic commitment to provide considerable financial support, with due deference to the scientific community's determination of how best it should conduct that research. Into this setting marched the determined lay lobby led by Mary Lasker and Florence Mahoney.

In 1892, a small, but determined, influential and finanicially profound group had called John Hopkins' bluff in its frequently proferred interest in providing baccalureate-trained medical school education. Their patronage came, however, at a cost Hopkins had been previously unwilling to consider. When John Hopkins University found that it lacked the money to begin the medical school which it had determined to establish and for which a faculty had already been appointed, a group of women led by Mary Thomas, Mary Garrett, Elizabeth King and Mary Gwinn offered $100,000 to John Hopkins - on the condition that women be given an equal basis with men for admission to the school. The less than enthusiastic administration informed the group that their offer would be considered, but

only if $500,000 could be included. Garrett added $300,000 of her own money to that raised publicly, but added the requirement that entering students must have a baccalureate degree or its equivalent, a knowledge of French and German, and some premedical studies. A reluctant administration accepted the money and the constraints.

In 1944, Lasker brought her commitment, influence and financial means to the organization of a drive which could rally the sympathy of a general public. The Lasker group evidenced an uncanny ability to elicit evidence of public concern in disease control research; the actual funds and the implicit evidence of public concern apparent in these contributions were, in turn, used to garner ever greater federal government funding and participation in medical research on disease control. In the first weeks of 1945, for example, Lasker began a special fund-raising drive for the American Society for the Control of Cancer. As Strickland (1977) notes, the appelation of "special" was, indeed, justified: in accepting Lasker's support, the American Society for the Control of Cancer submitted to Lasker's conditions that at least one-fourth of the funds raised would be allocated to research, and at least one-half of the board of directors of the Society would be chaired by lay-persons. Both conditions constituted radical departures for the Society. By March, the Lasker group raised over a hundred thousand dollors in public contributions. Most of

the money was contributed in response to an article which Lasker had arranged in Reader's Digest (1945). While maintaining a focus on the need for funding a solution to the specific problem of "Cancer, The Great Darkness", the presentation also reminded the populace that the pre-war National Health Survey (1936) and the draft rejection statistics of the early years of mobilization provided evidence of an American population caught in a state of precariously poor health. By the end of 1945, the Lasker group compared the four million dollars they had raised for cancer control to the $780,000 raised by the Society in the previous year. In 1946, the Lasker group took over the control of the American Society for the Control of Cancer, renaming it the American Cancer Society.

Dr. Rosemary Steven's book, American Medicine and the Public Interest, notes that the "public interest" served by medicine has often been one which medicine has first worked to cultivate as a perceived need in the public. Modern advertising techniques for garnering public support and funds, already proven a successful strategy in the work of the National Foundation for Infantile Paralysis' March of Dimes, were utilized by the Lasker-Mahoney cancer control lobby constituency. The Lasker organization persistently brought to the attention of reigning politicians the evidence of their constituents' interest in disease control research. The political support for this particular health

concern served to allay the criticism of opponents of systemic structural change (such as national health insurance). The display of research support helps to quell charges of calloused indifference to public health. The Lasker lobby effectively courted pivotal members of Congress. The Surgeon General, Leonard Scheele, worked with these key members of Congress and the Lasker lobby; their interaction was variously termed the "noble conspiracy" or "Mary and her little lambs".

While Lasker made clear her policy of not interfering with the particular conduct of scientific activites once initiated, the patron made equally clear to her adopted clients that their overly modest funding requests were imposing too small a scale of activity. Lasker urged her adopted clients to enormously increase the amount of federal funding for research projects. Somewhat to their amazement, Congress appropriated these unprecedented funding requests (Starr, 1982; Lally, 1977; and Strickland, 1972).

The Impact of Federal Research Funding On the Working and Learning Environment Of the Medical School

For the first three decades following World War II, the American medical complex enormously increased the extent and scope of its activities. This growth reflected both the overall prosperity of postwar America and, in particular, the burgeoning American enthusiasm for the "scientific

supremacy" medicine seemed to embody.

The vast increases in medical research at first only indirectly affected medical education. Despite the attempts of Congress to provide additional programs of grants and scholarships, and the attempts of many returning veterans to apply their GI tuition credits, the American Medical Association blocked the attempt to advance changes affecting the number of physicians through the 1950s (Strickland, 1972; Starr, 1982).

The provision of increasing research money radically changed, however, the working environment of the medical school. Making a living in the medical school meant confronting a pattern of few openings, scarce research resources, and slow advancement. This pattern of uncertain career success characterized the working environment of the medical school through the 1930's. Vernon Lippard, a dean of Yale's Medical School, cites consistently high attrition rates as typical of service units in teaching hospitals. The number of interns would be double or triple the number of first year residents; the number of residents would be halved with each progressive year of competition. At the end of three to five years, one survivor would be annointed chief resident, and begin the slow progression for competitive progression to instructor and assistant professor. Given the scarcity of money for research from which one could establish a career, security would rarely be

accomplished before the age of forty. (Lippard, 1974; Starr, 1982).

The vast sums of money available from NIH research grants provided for new research centers, and stipends for more numbers and types of researchers. Additionally, as the areas of funded clinical investigation and the number of investigators grew, the emergence of subspecialties imploded the extant pattern of clinical organization in the hospitals and universities. The greater number of specialty areas increased both the number of openings and the possibility for promotion and tenure of new researchers.

The subtle and overdetermined influence on students to abandon general practice for ever increasing specialization reflected a changed focus apparent in the medical school's internal organization. The internal organization is reflected both in the constituency of its faculty and the concentration of its explicit curriculum.

The expansion of these schools (to house these research facilities and personnel) physically dislocated surrounding communities and community hospitals. No love was lost between the local doctors and the new kids who usurped patients, publicity and privileges. To maintain their income and practice, many private doctors migrated to the suburbs, leaving sprawling university affiliated medical complexes in the city. Students entering this arena did not

miss the lower respect accorded to the "outdated" practices assumed to characterize the plebian concerns of general practice in the community. Further, the increasing use of full-time clinical faculty in clinical departments limited the representation of doctors from the community. Students were less and less exposed to models of community practice.

In the medical school, the shift from using basic science as a means of explicating clinical phenomena to progressively more esoteric research concerns occurred throughout the disciplines:

> The anatomists lost interest in gross anatomy and became electron microscopists and cellular biologists; the biochemists turned from nutrition and intermediary metabolism to molecular structure and enzymology, and the physiologists from the function of mammalian organ systems to cells; the bacteriologists became microbiologists concerned with microbial physiology and genetics; and the pharmacologists turned from studying the effect of drugs on intact animals to chemistry and the effect of chemical agents at the cellular level (Lippard, 1974:47-48).

Against the externally supported strength of the research entrepreneurs housed in the disciplines, what counterbalancing influence could argue for clinical linkage or organizational integration as an inclusion criteria for medical school curricula? The Medical Schools' resistance to oblique "interference" posed in attempts to support clinical "manpower" considerations, as well as individual research projects, coupled with the burgeoning strength of the disparate disciplines, mediated against constraints on separate disciplines' representation in the medical school

environment. The area which was to have represented the behavioral sciences in this arena - psychiatry - fell into the same pattern of protecting its own research concerns and representation in the curriculum.

The incredible volume of disparate and rapidly changing information contained in the curriculum presented an undeniable problem to students and faculty. Students decried the amount and relevance of material. Faculty were concerned that their own particular specialty area was not given enough attention in the curriculum. Curriculum time in congested schedules was zealously defended.

Chronic Disease Presentation in the American Medical Culture

Ebert (1977) notes that both sites of medical education (the medical school and university-affiliated clinic sites) often largely ignore the detection, follow-up and monitoring of chronic illness. The formal education of physicians within the American medical school and practice site concentrate on situations perceived as immediate problem-solving tasks.

The knowledge base and practice expectancies formed in training-practice sites, however, do not coincide with the actual concentration of attention called for in the practice sites. McDermott (1977) finds that physicians in practice spend most of their time caring for patients who have a chronic disease. The increasing prevalence of these

conditions combines with the prolonged (by medical intervention) life span of the chronically ill to bring about this increasing proportion of chronic illness presentation which has come to dominate the collective and individual medical professional's care attention.

Chronic, systemic diseases progressively constitute the dominant threat to American health (Grob, 1983; Knowles, 1977; McKeown 1979; Ashby, 1979; U.S. Dept. of Health and Human Services, 1980, 1981). Nevertheless, the professional medical culture continues to emphasize the treatment of trauma or acute illness, immediate life and death situations (Birrenbaum, 1981). Professional American medical care has focused on acute care to the individual patient, with easily recognizable somatic conditions, and a pathological process which is demonstrable, and, preferably, may be sectioned and illustrated on a slide under a microscope. Even in conditions recognized as chronic, professional medical concern focuses on the acute manifestations of these chronic disorders (McQueen, 1978). Medical care of cancer, heart disease, arthritis or alcoholism becomes medical attention to tumors, "attacks", pain or cirrhosis.

The medical training sites dispense the current body of knowledge considered appropriate for its practitioners to function effectively in the practice site. In addition, the medical school and affiliated clinics are both the models of and active sites for the research conduct which generates

continuing knowledge. A lack of correspondence exists between the way the body of knowledge about these chronic diseases is generated within professional medical sites and the cumulative epidemiological evidence, derived from naturalistic observations, about how these diseases emerge in the population. This incongruity stems, in part, from medicine's continued dependence and promotion of the *doctrine of specific etiology* construct from which to organize disease cause and control investigations. This doctrine assumes that a single disease mechanism, which can be isolated, is responsible for disease onset. Certainly, specific etiology has provided a powerful organizing concept; the premise of specific etiology underlying diseases is reflected in medicine's knowledge base, practitioner training, research investigation, funding allocations, and treatment practices.

The still entrenched specific disease etiology paradigm maintains that a specific disease mechanism, whose elusive understanding may require years of collective professional research, will eventually enable specially trained practitioners to prevent or cure a disease onset in a single intervention. Lewis Thomas reveals this assumption in his account of the redemptive power to be brought about by adherence to specific disease etiology:

> (Many diseases have appeared) to be affected by a variety of environmental influences. Before they came under scientific appraisal each was thought to be what we now call a "multifactorial" disease, far too complex

> to allow for any single causative mechanism. And yet, when all the necessary facts were in, it was clear that by simply switching off one thing - the sphirochete, the tubercle bacillus, or a single vitamin deficiency - the whole array of disordered and seemingly unrelated pathologic mechanisms could be switched off, at once. I believe that a prospect something like this is the future of medicine. I have no doubt that there will turn out to be dozens of separate influences that can launch cancer, including all sorts of environmental carcinogens and very likely many sorts of virus, but I think there will turn out to be a single switch at the very center of things, there for the finding... to be sure, we have a higher incidence of chronic illness among older people than we had in the early years of this century, but that is because more of us have survived to become older people (Thomas 1977:168).

Writing on the formative history of American medicine, Lewis Thomas concedes that the specific etiology concept is an assertion, not a tenet of science or scientific medicine. As Thomas' thesis indicates, the assumption of the existence of specific etiology is an arguable positon, on the order of an act of faith. The basis of Thomas' argument for continuing use of the specific etiology doctrine rests on the presumed historical utility of the specific etiology searches in quelling previously disastrous infectious disease mortality rates. Thomas provides the example of tuberculosis as illustrative of medicine's conquest of infectious disease.

Even the cited case of tuberculosis, however, presents at best an ambiguous case for the superiority of the specific etiology program. The epidemiologist McKeown (1979) has used medically produced accounts of its practices to examine the accuracy of established medical claims.

McKeown provides one of the first historical analyses of the contribution of Western medicine in reversing the dreary trend of infectious disease's contribution to diminished life-expectancy. In the case of tuberculosis, McKeown finds that the virulence of the disease diminished well before the insititution of medicine had developed appropriate (vaccination) prevention tools. While the occurrence of tuberculosis is indeed dependent upon a specific disease agent amenable to innoculation, the exposure to the tuberculosis bacillus is a necessary but not sufficient cause of the tuberculosis disease.

As Dubos notes, when Koch isolated the tuberculosis microbe, "most of the persons present in the very room where he read his epoch-making paper in 1882 had been at some time infected with the tubercle bacilli and probably still carried virulent infection in their bodies," and yet they did not have tuberculosis. The rise of tuberculosis as a major killer followed the large population movements to crowded urban dwellings, with closer physical contact and poor nutrition, sanitation and hygiene conditions. With the amelioration of the most grevious housing, nutrition and sanitation problems, the mortality associated with tuberculosis fell (Dubos and Dubos, 1952; Mechanic, 1978; McKeown, 1979). The defeat of tuberculosis upon which medicine has congratulated itself, however, appears only as a displacement of tuberculosis; tuberculosis is still an

endemic problem in urban blight conditions.

Thomas' explication of the specific disease etiology, which defers tuberculosis management to altering the biochemical response of the individual, reveals the centrality of the *individual* in medicine; i.e., the notion of immunity as an individual possession is still at the very center of what medicine considers its utility. Even if, as Thomas holds, the cure for cancer is discovered (or at least discoverable) tomorrow, the assumption that collective resource attention is best directed to specific biochemical disease mechanisms, reveals the extent of faith which medicine still holds in the specific disease etiology doctrine.

The utility of the specific disease etiology for chronic disease seems even more problematic. The variability in the expression and impact of cancer makes this evident. All cancers are characterized by uncontrolled growth and spread of abnormal cells and eventual destruction of normal cells. Despite these shared characteristics, the variance in incidence, mortality, patient prognosis, correlation with age, sex, race and environmental risk factors challenges the consideration of "cancer" as a *single* disease.

Noting the pervasity of chronic diseases for which a single pathogen has yet to be identified, Kelman's (1977)

review charges that the adherence to the orientation of specific etiology postulates has impeded the research on causative, control and treatment factors for chronic disease. This allegiance to specific disease etiology as a framework for disease research and control efforts is maintained despite the epidemiological evidence that disease is a consequence of *multiple* interacting aspects of the physical and social environment (Doll, 1976; Waldron, 1983; Sterling and Eyer, 1981; McQueen and Siegrist, 1982; McQueen and Celentano, 1982; Henry, 1982).

Shifman's analysis of mortality rates for particular cancer sites indicates this variability by disease site, patient age, sex and race. The cancer site classification reflects the category scheme of the standard for disease classification and comparison, the International Classification of Diseases. In addition, this analysis presents the changes in death rates over time. These changes include both increases for diseases (including colorectal, breast and uterine cancer) which have been the focus of intensive primary and secondary screening and prevention programs, as well as sites (such as stomach cancer) of diminished mortality in the absence of program efforts.

Birrenbaum logically posits that "various kinds of redesign (of the medical system) are necessary if the needs of a changing population are to be met. Enriching medical

education to include more knowledge on the natural history and treatment of chronic illness may be easy to undertake" (Birrenbaum, 1981). Empirical assessments of the medical school continue to cite and recite the medical school curriculum's neglect of social, psychological and economic aspects underlying differential disease distribution and medical care (Macy Study Group, 1980). Other prominent medical educators have added their voices to the calls for a need to change the medical curriculum to better reflect the needs of a chronically ill patient population and encourage students as future practitioners to perceive their delivery of these care needs as possible and appropriate (Kutner, 1978; Cassileth, 1979; Engel, 1973; and Nurge, 1978). The characterization of the *ease* of changing the content and social context of training and practice is decidedly less optimistic among those who have attempted or studied such reform efforts. In response to Merton's structured inteview inquiries on the sociology of medical education, one medical school dean provided a metaphor for curriculum resistance: "It's easier to move a cemetery than to change the curriculum" (cited in Starr, 1982).

In the history of American medical education reform, the activites leading to the adoption of the Flexner Report recommendations are emulated as a potent procedure for instituting reform. The sequence of organized professional activities featured the combination of problem

documentation, and proposal of rigorous ideal and more modest minimum standards for remedial action. As an additional pressure towards compliance with proposed changes, considerable publicity accompanied the problem and proposal statements. Rosemary Stevens describes this sequence of activities adopted by by the American Medical Association's Council on Medical Education:

> As a first move, the council adopted its own "ideal standard" for schools: preliminary education of university entrance level; a five-year medical course (one year of physics, chemistry, and biology, two years of laboratory sciences, two years in the clinical branches); and a sixth year as an intern. These standards were much higher than those required for membership in the Association of American Medical Colleges. At the same time the council realistically also set minimum standards: four years of high school for admission; a four-year medical course; and satisfactory performance in a state licensing examination (this being known through the lists of state board results by schools already being published in the Journal). Thus the existing movements of publicity and regulation were combined (Stevens, 1971:65).

In the subsequent efforts to alter medical curricula which directly impinged on cancer education, the procedure for instituting medical curriculum change added an additional element: the demand for external financial support. In these requests for federal sponsorship, the institution of medicine continued to stress the need for autonomy within the medical care and training sites.

Federal legislation not only typically met funding requests; the legislation, in response to reports from constituents citing medically underserved areas, initiated

their own proposal for providing direct support to medical education, in the hopes of providing a sufficient number of doctors to serve the entire population. In the 1950's, two separate federal government reports (The Advancement of Medical Research and Education through the Department of Health, Education and Welfare in 1958 and Physicians for a Growing America in 1959) cited projections of a serious doctor shortage. Despite this evidence, the American Medical Association and conservative components of the federal legislature consistently blocked the frequent attempts to increase the openings in medical school through federal support of medical education. In 1963, the Association of American Medical Colleges worked with the new administration to break the American Medical Association block of medical school construction, and student loan and scholarship programs.

The money which supported medical education helped to offset the levelling off and actual decline in NIH appropriations as medical funding faced, first, the competition of the escalating Vietnam war expenses, and, later, the 1969 introduction of a Federal Administration less hospitable to federal support of social programs. Research grants to medical school declined; schools who had become heavily dependent on "soft" research money for faculty and program support were severely hurt. At the same time, however, the availability of federal and state money

for medical school expansion encouraged established schools to undertake building programs and increased the creation of new schools. The provision of funds directly related to the number of enrolled students, and with requirements for expansion, brought quick and dramatic changes in the number of medical schools and students. For the period of 1933 through 1948, the number of schools had stayed at 77. In 1948 these schools graduated 5,543 students. A slow increase in the number of schools, created primarily by state governments, brought the number of schools to 87 over the next ten year period. A 13% expansion in existing schools, coupled with the slightly greater number of schools, brought the number of graduates in 1963 to 7,264. With the onset of federal support for medical education, a 75% increase in the number of graduates occurred during the period from 1963 to 1975. The number of medical schools and students continued to increase through 1975.

In 1970, an independent study corroborated the assessment that the number of physicians in the United States needed to be increased. This report was conducted by the Carnegie Foundation, who had sponsored Flexner's pivotal study of the American medical system. In the 1970 report, the Carnegie Foundation based their conclusion of physician shortage on doctor-population ratios. The doctor-population ratio obscures the extent to which physicians are unequally distributed throughout the population. While the 1970

Carnegie Report dwelt mainly with numbers and money (Jonas, 1978), the Report raised additional issues which were not acted upon. The first point noted the bifurcation between medical schools entering into community care versus the medical schools progressively more removed from community care to the nearly exclusive concern with arcane basic science research. The second point is related to the first, for the 1970 Carnegie Report called for improved health manpower planning through increasing medical school's involvement with the community, and increasing and regularizing financial support for medical education. As Jonas notes, "increases were forthcoming; regularity was not" (Jonas, 1978:253).

The character of federal support was further changed with the introduction of Public Law 92-157. Enacted in 1970, this law marked the first time that federal money was made available to all medical schools, not just those who were in a position to rapidly expand their student enrollment and physical plant. The extent to which schools could expect to depend on these funds was, however, unreliable. While the uncertain status of NIH funds encouraged more schools' dependency on capitation grants (i.e., general support funds related to the number of enrolled students), the actual award of funds was subject to the vagaries of congressional increases, vetoes, impoundments, fund releases and court cases (Jonas, 1978).

The medical school and research community experienced the further variability of federal funding imposed by political adoption of specific diseases for special consideration. Cancer conveyed to the medical school and student the uncertain status accorded it from its selection as a target upon which Nixon would wage "war" and unprecedented federal attention and funds. In the context of uncertain funding for overall medical school and research expenditure, the attention on cancer did not necessarily inspire the confidence of the medical community. The medical community found it necessary to exert more and more lobbying effort, with less certainty of continued funding success, to maintain the scale of operations which previous allocations had initiated. Within this context, the availability of extraordinary cancer research funding allocations and, then, attendant pressure to emphasize its instruction in the medical school could be expected to be viewed with a decidedly jaundiced eye.

CHAPTER 6

Mapping the Distribution of Attention In Oncology Curriculum Instruction and Evaluation Within the Wayne State University Medical School

The Setting: Wayne State University School of Medicine

The School of Medicine at Wayne State University provides a site from which to examine the impact of the trends described in the cultural formation of the American Medical School and practice. These trends include the emergence of professional dominance in the provision of medical care, and legitimation of complexity in the context of university affiliation. The infusion of capital, burgeoning research enterprise and attendant entrenchment of disciplines and clinical specialties have marked the patterns of expansion and redirection within the Medical School. Wayne State's Medical School, in turn, has made its influence on the direction of the larger professional, government and community organizations. The current activities of the School reflect its struggle to maintain its status as a source of care to the Detroit community and of medical knowledge to the scientific research community.

Established in 1868, the School of Medicine is the oldest component of Wayne State University. The School was accredited as a degree granting college of medicine. In 1870, the Detroit College of Medicine graduated it first physicians. Known as the "Detroit Medical College", the

school was affiliated with Harper Hospital, one of Detroit's two existing hospitals at the time. In 1879, an additional medical school, the Michigan College of Medicine, opened in Detroit. The two schools merged to form the Detroit College of Medicine. In 1919, the Detroit College of Medicine entered the college system of the city of Detroit. In 1933, the Detroit Board of Education announced the formation of the university system, including the College of Medicine.

With the development of an expandedetroit Medical Center in 1971, the Wayne State University School of Medicine moved from its dontown location at 1400 Chrysler. The size of the entering class - 256 students - which could be admitted to this facility made Wayne State University School of Medicine one of the largest medical schools in the United States. Its total enrollment has remained at over one thousand students throughout the 1970's and early 1980's.

The current location of the School of Medicine and its affiliated teaching hospitals and clinics are located within the city of Detroit, southeast of the Wayne State University (WSU) main campus. The Detroit Medical Center projects encompass 236 acres in the city of Detroit. The units in the complex include Scott Hall, housing the basic science departments with teaching facilities for the first two years of medical training, the ambulatory care center of the Health Care Institute (also known as the "University Clinics

Building"), and Detroit Receiving Hospital, replacing the older Detroit General Hospital. These newer buildings are physically proximate to the existing, affiliated sites of the Detroit Medical Center campus. These sites include Harper-Grace Hospital, Children's Hospital of Michigan and Hutzel Hospital. At the time of the study, WSU Medical School's additional clinical training facilities included the Rehabilitation Institute, Lafayette Clinic, Wayne County General Hospital, Veterans' Administration Hospital in Allen Park and Sinai Hospital.

During the time covered in this study, the Medical School Center was completing its physical expansion program. The expansion was undertaken in response to federal and state directives and funding for ambulatory care (described in the previous chapter). Medical school building programs also enable display of increased material commitment, to attract and compete for patient practice, clinical research personnel and, then, additional fundable research and service projects.

The decline in the patient population upon which the Medical School's practice base could draw reflected the overall diminishing Detroit population and the sheer number of metropolitan Detroit medical institutions which compete for the population's care services. Detroit's medical institutions mirror the profile of the nationwide trend, which has charted a nationwide excess of 100,000 hospital

beds. To meet costs or earn a surplus, hospitals require a daily occupancy percentage rate of 70% to 80%. Teaching hospitals, whose employee per bed ratio exceeds that of the 3.7 full-time ratio of non-teaching hospitals, are particularly vulnerable to drops in occupancy rates (Rich, 1984). The merging of Harper and Grace Hospitals into a single hospital was read, not as a sign of a diminished overall population, but as a portend of a more competitive market, the need for a different image. Ironically, the infusion of capital and focused attention on reorganization which the school attempted to impose at the time of the building program further intensified conflicts in the practice base premises of the affiliated faculty. Bringing together under one roof the diverse specialties laying claim to the appropriate care of the patient exacerbated the perception of competition between medical specialties for an increasingly scarce resource: the patient population.

The well publicized calls for eminent reorganization were often received by members with skepticism and alarm. To redirect practice meant to many practitioners slighting areas to which they are personally committed and which, they feel, make an integral contibution to medicine. The cost to patients of the more intensive care provided in the Health Care Institute was raised as a challenge to the claim that the new facilities and organization would provide care to an underserved medical area. The premise that a middle and

upper class population would seek the university sponsored ambulatory care was challenged with the charge that the middle and upper class clientel would be unwilling to share a clinical environment with the lower class black population presumed to constitute the bulk of practice in the inner-city location of the university-affiliated medical center. The impact of this economic pressure and flurry of sometimes contradictory behavior of an organization attempting to be perceived as meeting the needs of whatever was defined as its current, most viable constituency, reverberated throughout the university and medical community.

The Medical School: Requirements and Studies

The Medical School describes its admission requirements as completion of the Medical College Admission Test (MCAT) and a bachelors or equivalent degree. The applicant's training is to include: one year each of organic and inorganic chemistry; one year of general biology or zoology; one course of genetics; one year of general physics and one year of English (literature). In addition, embryology, psychology and social sciences are suggested as electives. An interview is required of the applicant, but is not inevitably granted to all applicants. Students who have spent their last two years of undergraduate training outside the United States "are discouraged".

On admission, the students' calendar schedule for the first two years resembles that of a typical nine-month school year, with Thanksgiving, winter, spring and extended summer breaks. There is considerably less elapsed time between the rotations of the final two years.

The undergraduate medical curriculum consists of a four year program, which begins with a core curriculum of basic science and human biology, followed by clerkships in clinical medicine and a year of elective experiences. The clerkships in the third year include internal medicine, surgery, obstetrics-gynecology, pediatrics, neuroscience, psychiatry and family medicine. In the fourth year, students determine all eight of their elective choices.

As indicated in the Methodology Section, Wayne State University Medical School charges six basic science and twenty-one clinical science departments with the responsibility for disseminating information in the curriculum. With the exception of the deletion of Occuapational and Environmental Health in the 1977-78 academic year, and the addition of Radiation Therapy in the 1978-79 academic year, the formal departmental structure of the medical school remained constant throughout the years covered in the study.

Sources of Curriculum Reactivity with Content Learning

Determining the extent and impact of the cancer education component is confounded by the character of the curriculum context in which it is embedded. Medical educators and evaluators have frequently noted the caveat on interpreting the affective response of students to material as dependent, in part, on the format of its presentation. The material of the small seminar elicits greater student involvement than does the same material delivered in a large, impersonal lecture hall. In medical education, the forum for presentation is more diverse, and more recognized to reflect political priority. Material relegated to serendipitous discovery in self-instructional modules is considered material which failed to pass curriculum committee screening for more standard instructional delivery. Information imparted during pressured grand rounds is flagged with all the medical training indicators of importance: a clinical preceptor is holding you personally, publicly and immediately responsible for knowledge. While the salience of the material for maintaining career credibility is alarmingly evident, the pressure of needing to appear, to the patient, colleagues and preceptor, as in command of the situation make the clinic rounds an equivocal site of learning. Information disseminated during pressured grand rounds is less amenable to reflective assimlilation and corrective reflection; in medical education, the bedside is a place to display knowledge, not acquire it.

The format and timing of medical curriculum material reflects its perceived political priority, as well as the philosphical and educational rationale it conveys. Material "integrated" into the curriculum reflcts, presumably, a premise that the content is connected to issues faced throughout the curriculum. Unlike material "isolated" in its own niche, recurring references to the relevance of an issue in many contexts and academic times can be seen as a way of fostering an image of the material's pervasive relevance. In addition, the very organization which stresses the connection of the material to other issues is considered a means of increasing retention of the material.

Weed (1976) has charged that the information in training for clinical practice is often fragmented into discrete "facts" which are difficult to remember. The difficulty posed for long term retention parallels that found in studies of the information exchanged in the clinical encounter. These studies have found that 50% of the information given to patients is forgotten within five minutes (Green, 1976; Ley, 1973). This retention curve corroborates the experience in basic and applied educational research with student volunteers, in the role of patients, provided with fictitious medical information. By simply reorganizing the medical information into categories, Ley, Bradshaw, Eaves and Walker (1973) were able to increase recall by 50%.

Organizing Concepts in the Medical Curriculum: The Organ-Based System

Proponents of various programs of medical education decry the current disorganization of the medical school curriculum. Harnack describes the flurry of reorganization efforts: "Changing curriculum in the medical school is like rearranging lifeboats on the Titanic" (cited in Abrahamson, 1977:778).

The exploration of the cultural history of the medical school indicates that, rather than simple disorganization, the curriculum's implicit organization has reflected the influence of the individual disciplines housed in the medical school. Morton Creditor, Associate Dean at the University of Illiniois College of Medicine at Urbana-Champaign, describes the effect of the immersion of students in sequentially presented, intensive discplinary indoctrination:

> The medical student (is) taught to think and do like an internist, a surgeon, a psychiatrist, an orthopedist, a pediatrician, etc. (This organization) assumed that the student synthesize all of this into being a "Doctor", but that basic, undifferentiated role model (does) not exist in the high status positions of the medical school if it (does) exist at all. Small wonder that the majority of medical students gravitate toward specialty training and that even those who (enter) into "primary specialties" such as internal medicine subspecialize at increasing rates (Creditor, cited in Jonas, 1978:283).

The educational rationale supporting this organization assumed that sequential learning of medical science components constitutes a prerequisite to clinical science

learning (Neufeld and Barrows, 1974).

For the longest part of its history, the WSU Medical School curriculum was organized according to the basic science disciplines and medical practice specialties comprising current medical research and practice. This "traditional" or "Flexnerian" model featured the "lock-step two-plus-two basic science-clinic-science curriculum" (Jonas, 1978). The progression from basic science to clinical applications does correspond to the general features of Flexner's report, which recommended including: "anatomy, including histology and embryology, physiology, including biochemistry" in the first year; "pharmacology, pathology, bacteriology and physical diagnosis" in the second year; time "in the clinics" in the third year; and time "on the wards" during the fourth year. Missed in this deference to the Flexner model, however, was Flexner's insistence on explicating the correspondance between basic science and clinical instruction (Flexner, 1960). Medical school reform efforts have sought to challenge the sequence of course and clinical work, the organizing premise of curriculum material, and the explication of basic and clinical science linkage.

In 1968, the WSU Medical School changed the orienting concept of its curriculum to a multidisciplinary, organ-based system approach. While the organization of school members maintains traditional discipline boundaries

(for example, faculty appointments are to given basic or clinical science departments), the existence of the organ-based system notably impacts the curriculum and working environment of the school. That the philosophical concept of the organ-based system could capture and maintain the support necessary to realign an existing medical school curriculum irrefutably attests to its vitality.

The precedent upon which Wayne State's Medical School based its curriculum model, Case Western Reserve, arranges the presentation of its material by *organ systems*. Instead of taking separate courses in anatomy, biochemistry, physiology, and pathology, the students study the body system, circulatory system, respiratory system, gastrointestinal system, and so on. This organization attempts to allow the presentation of material to reflect its presumed ontological status. As Jonas describes, the systems approach, used in conjunction with clinical correlations, "is intended to make the material 'stick' better in the minds of the students" (1978:255).

Although the practice of presenting medical curriculum material by a systems oganization has been in existence since the early 1950's, relatively little literature exists on it (Jonas, 1978; Light, 1982; Chapman, 1979). As Jonas' review of medical education curricula indicates, integrating departments' contributions into organ system presentations is indeed possible. The integrated systems approach

requires developing common educational objectives, particular class session outlines, and joint evaluation and program revision to insure total coverage and avoid duplication. Unfortunately, interdigitation, rather than integration of disciplines and topics, often is adopted as an alternative maneuver for avoiding the confrontation and time in establishing a consensus on a coherent, relevant curriculum. "Interdigitation" of material consists of simply scheduling a sequence of presentations by the concerned disciplines; relations between disparate, but sequentially contiguous, topics are not established. Kane, the editor of Journal of Community Health, has noted that reshuffling medical curricula, with good intentions but little empirical grounding, is unlikely to bring significant, sustained results:

> Curricula in medical schools across the country have been in a state of constant ferment. In seeking beneficial change, many medical schools have concentrated attention on the sequence of courses. Too often proposals urge a rather arbitrary new structure, such as organ systems or early clinical experience, which represents only a repackaging and renaming of old information. The same lecture or the same ideas may be delivered through a different department or some other individual or perhaps at a different time. Yet changes, to be significant, must not be dictated by fashion, whim, or even desire for improvement; they must be solidly founded on a clear concept of the desired outcome in terms of the expected behavior of the student after he (sic) has successfully completed the medical school curriculum and enters practice (Kane In Jonas, 1978:279).

About thirty American medical schools describe the organization of the basic science component of their

curriculum as the "systems mode". In some schools, the systems mode is used from the beginning of the first year. The more common pattern "adapts" the systems approach by teaching by department in a "core curriculum" for the first year, and later presenting material by systems.

At Wayne State University, the presentation of material in the basic science component of the curriculum generally follows the oganization into units of information. Each teaching unit contains clinical correlations which demonstrate the clinical relevance of the basic science material. Hogan's (1972) analysis of the impact of the WSU curriculum innovation used data from the National Board of Medical Examiners "Minitest" to discern changes in student performance during the phases of the new curriculum's gradual introduction. Given that no decrements in the pattern of student scores emerged in the comparison of pre- and post-systems based curriculum, the introduction of the organ-based curriculum seems to offer a curriculum organization competitive with that provided in "traditional" formats. Indeed, the finding of improved learning rates for basic and clinical science knowledge provides evidence to the school that the attention given to the studied curriculum change enhanced the learning environment contained in the school.

Mapping the Oncology Curriculum

The opportunity for conducting an evaluation of the cancer education presented within the WSU Medical School curriculum occurred in the context of the ongoing planning and evaluation activities of the School's Cancer Education Committee.

The WSU Medical School Cancer Education Committee commissioned an evaluation which would help them make the cancer training component "more effective". As Rosalie Wax (Wax and Wax, 1971) has noted about education in the American school system, the question of how education can be made "more effective" can be translated as "How do we teach more kids more stuff faster?" In the case of the cancer education evaluation, what was accepted as a means of getting to that point was to first find out exactly of what the cancer curriculum did consist.

The initial task of the evaluation project became the decision on how to map the occurrence and impact of a particular disease topic (cancer), which is diffusd throughout a multidisciplinary curriculum, and for which the contributing body of medical knowledge is changing.

The task of evaluating a particular curriculum content in an organ-based curriculum is one shared in evaluation of other embedded curriculum material. "Novel" medical education topics, such as gerontology, nutrition, exercise physiology or alcoholism, find that the compromise method of

obtaining time in the medical curriculum often takes the form of placing fragments of the new material throughout the curriculum.

The "mapping" of a curriculum refers here to the attempt to locate and represent the occurrence of topics within the curriculum, the extent of their presentation, and the evidence of the appearance of this material to students and faculty. The "appearance" of a given subject to curriculum participants considers whether the subject is presented as dis/connected to clinical material and other coursework, the perceived difficulty and importance of the material, and the evidence of the effort required in defending or maintaining that knowledge in the curriculum. but never heard.

The Work of the Cancer Education Committee: An Interactively Achieved Definition of Oncology

The face-to-face encounter of faculty, appointed to the Cancer Education Committee by the Dean of the School of Medicine, is one mechanism employed by funding agencies to encourage interactive development and evaluation of cancer education activities. The Dean's invitation informs new members that the committee meets once or twice a year to discuss matters relevant to the cancer education programs of the school, particularly as they relate to the (NCI) training grant. The WSU Cancer Education Committee met as a group on the average of once a month.

The Cancer Education Committee's members include faculty from the Medical School Departments of Oncology, Otolaryngology, Gynecology and Obstetrics, Radiation Therapy, Radiology, Pediatrics, Biochemistry, Pharmacology, Community Medicine, Immunology and Microbiology, Pathology, Surgery, Family Medicine, the Division of Educational Services and Research, the College of Nursing and the School of Social Work. The scope of the committee's coordination task is partially indicated in the number of persons involved in Cancer Education projects. In 1980, these persons included the 1,015 students in the four-year Medical School; 33 Year IV Students in the Oncology Rotation; 15 Oncology Fellows (8 in Medical Oncology, 2 in Gynecologic Oncology, 2 in Pediatric Oncology and 3 in Radiation Oncology); 85 Residents (63 in Medical Oncology, 10 in Gynecologic Oncology and 12 in Pediatric Oncology); and 413 full time faculty in clinical departments, of whom 35 (15 in Oncology, 4 in Radiation Therapy, 3 in Pediatrics, 2 in Gynecology-Obstetrics, 3 in Otolaryngology, 6 in Surgery and 2 from Educational Services and Research) are classified as full time faculty engaged primarily in cancer activities. The number of persons directly affected by their care training and practice behavior include the 1,202 new cancer patients admitted to the university-affiliated hospitals of the Detroit Medical Center (1979).

While the formal establishment of intraschool committees to meet external funding directives can take the form of an honorific appointment, the membership of the Cancer Education Committee were actively involved in cancer education assessment, evaluation and funding activities. The range of topics covered within the Cancer Education Committee's meetings included review and revision of interinstitutional cancer objectives and examination systems, the generation and review of oncology teaching materials, monitoring indices of cancer education in sites throughout the Medical School curriculum and its affiliated resources, participation in external reviews of cancer education, generation of oncology teaching concepts in areas perceived as underrepresented in the curriculum (eg., radiation and psycho-social areas), identification of new sites in the training process in which oncology material could be introduced, and representing the Committee's interests with internal school offices (eg., the Curriculum Office or the planning department of the new ambulatory care clinic) and external agencies (eg., the National Cancer Institute, the American Association of Cancer Education, the Comprehensive Cancer Center and media's coverage on topical cancer-related issues).

It was on the basis of the verabal exchange of personal information that the Cancer Education Committee's previous shared knowledge of the extent of oncology's curriculum

representation had been achieved. For example, in the September 20, 1976 meeting of the Cancer Education Committee, a member noted that Year I's Unit VII (Family and Community Medicine) provided the opportunity for students to observe or participate in screening at the Michigan Cancer Foundation. The Chairperson cautioned that this *elective* experience was infrequently undertaken. Another committee noted that the Family Practice Unit was considering establishing a screening clinic, which would become a base for student teaching, at the Health Care Institute.

The level at which this information is built is subject to the challenge or corroboration of the diverse Cancer Education Committee faculty members. While the range of experience represented in this group is considerable, the knowledge base their verbal exchanges build is dependent on the presence, memory, attention, participation, and history of curriculum participation of Cancer Education Committee members at a given meeting.

The perceived level of curriculum data description changed dramtically with the introduction of the empirical distribution data. Certainly the performance scores were expected to bring quantitative rigor to the question of "how well are our students learning cancer material in the curriculum?" Beyond this outcome measure status, introduction of the time expenditure and examination data base served as a catalyst in the Cancer Education

Committee's curriculum evaluation activities. The examination data provided a reliable measure of *extent* of curriculum attention on cancer. The number and performance on examination items provides an index from which the extent and impact of curriculum attention can be discerned.

Eventually, the committee's participation in the WSU cancer education evaluation project involved faculty's screening of all examination items used in WSU Medical School exams for the identification of oncology related material. Initally, however, a third year medical student identified oncology material in the curriculum. In this phase of the evaluation project, the student, under the supervision of an oncologist, reviewed the first and second year class notes. The survey of the third year's oncology content drew from the extensive set of objectives surgery has compiled; to derive the oncology education base offered in other specialties, written descriptions of the clerkships were obtained from the unit leaders.

The delegation to a third year medical student the oncology classification task seemed to represent the choice of a person with knowledge of both medicine and the medical curriculum. The greater availability and more reasonable cost of employing medical students were also factors in recruiting a student, rather than a senior faculty member, for the oncology classification. Clinical faculty time and, usually, enthusiasm for intensive participation in

evaluation projects are typically quite limited.

When the preliminary descriptive data from this material was presented to the Cancer Education Committee, the chairperson and members of the committee challenged the amount of material identified as substantially underrespresenting the extent of oncology material in the curriculum. The Cancer Education Committee includes members who serve on the Curriculum Committee, as well as members who participate in the development or presentation of curriculum material in the organ-based system. Drawing from their experiential knowledge of the curriculum content, the members considered that additional oncology material was included in the curriculum.

As the tracer studies indicated, document-based evaluation represents the use of material which can be re-examined. In the WSU Cancer Education Committee, the introduction of the extent of examination coverage, with its precise curriculum location, acted as a catalyst in providing an exploded view of the oncology curriculum.

The availability of the concrete representation of curriculum attention provided in the exam data reports expanded the extent to which the Cancer Education Committee could become involved in the active curriculum evaluation. This enhanced involvement was not occasioned by the perception of the data's infallibility; rather, the concrete

representation provided in the exam distribution report provided an empirical basis from which the Committee members could recognize critical questions underlying the possibility of measurement, as well as evaluation, of oncology in the curriculum. This development can be seen in the Cancer Education Committee's response to an initial presentation of the examination data base. This presentation took the form of a three page report, compiled by a faculty member of the Division of Educational Services and Research who had participated in previous oncology evaluation projects, which reported that of the 3,357 items on the collective Year I, II and III examinations, 468 (13.9%) were oncology related questions. In addition, the reported that WSU medical students performed at the national average level on items on the National Board of Medical Examiner's examination.

On the examination of how identified items were distributed in the curriculum, the report indicated that only two questions seen as oncology-related occurred during Year I's Unit I. Cancer Education Committee members challenged the basis on which so slight an amount of oncology information could be considered to occur.

The chairperson stressed use of a sensitive oncology-related index; i.e, an identification which captures as much of the material which is related to oncology as possible. This approach would include, for

instance, properties of cell metabolism or cell biology of the "normal" cell against which the metabolic properties of cancer cells could be distinguished.

The scope of this definition of oncology would be expected to increase the amount of didactic oncology instruction and the number of examination items identifiable as oncology-related. A qualitative change in the range of student encounters with oncology was brought about as well. This index would enable location of material in the early phases of the curriculum, which focuses on "normal" human biological structure and function. This classification, then, enables the inclusion of the performance of students on these oncology-related items which students encounter in the early phases of their academic trajectory, prior to their experience of oncology as a clinical subspecialty.

The Cancer Education Chairperson urged the Cancer Education Committee faculty, representing their various medical specialties, to take on the responsibility of reviewing examination items from their area to identify oncology material. Given the extent of the medical examination system at WSU's Medical School, the Committee's resolve to intensively examine the widest range of curriculum material meant the commitment of extensive faculty time. Given that the previous report of little oncology representation had been rejected, the faculty members involved in the subsequent review effort were under

pressure to bring careful, sustained attention to the nuances of medical material which convey oncology information. Given the completeness of the examination system at WSU School of Medicine, the examination base allows comparisons between the oncology component against the curriculum as a whole.

Retrieving exam items is facilitated by the examination system's organization. Each examination item used in the Medical School's unit and final exams is catalogued in a system that records its faculty author(s); the academic discipline whose knowledge it represents; and the chronological and academic year and unit in which it was administered. A statistical breakdown of students' performance on the individual item notes how many students, from groups representing those who did well versus those who did poorly on the exam as a whole, choose each of the response alternatives, the item's difficulty index and discrimination index. The files of the Testing Unit of the Division of Educational Services and Research also maintain (computer-generated) breakdowns of the individual and collective examination items for each Unit and Comprehensive Exam. This data base has provided a rich resource for the ongoing, collaborative research activities of the Division of Educational Services and Research and the Medical School as a whole.

The sharing of concrete forms of data reduction describing the curriculum of which Cancer Education Committee members were a part did not preclude the earlier methods of intermember challenge or corroboration. Now, however, committee members responded to the precedent of precise public forms of curriculum information. No member suggested that personal knowledge constituted an adequate form for characterizing the curriculum, and, that, given the work involved in participating in the Evaluation Report, the evaluation should be dropped. Instead, challenges and suggestions took the form of increasing the range of sites (eg., Psyciatry and Family Medicine third year clerkships might be expected to contain educational material and examination items on death and dying), and persons (particularly unit leaders) as a means of increasing the scope of curriculum material which the survey described.

As critical as the directed sensitivity of the search was the expressed intention of the search. The chairperson stressed that the collection and analysis of oncology material was not to castigate or exalt individual sites of training, but as a part of the continuing attempt of the Cancer Unit to carry out its mission of improving students' educational attainment in oncology.

Mapping the Internal Oncology Distribution: Distribution Within Academic Discipline; Body Organ and Function Categories

A simple listing of oncology material would have limited the extent to which the pattern of attention on oncology could be discerned. The listing of topics or even behavioral objectives, common approaches to curriculum "defintion", diverts attention from the impact of the clustering and sequencing of the material, the orientation of students at the time the material was presented to them, and the interactive affect of the particular faculty member and the competing curriculum events and demands.

This evaluation sought to place the occurrences of oncology attention within the context of more general systems in which an academic medical setting can be considered to organize its material. A classification scheme reflecting organizing influences across the sites of the medical school environment, not just the individual characteristics of the oncology discipline or oncology disease characteristics, seems better suited for the task of mapping oncology's occurrence and impact in the disparate curriculum contexts in which it appears. Additionally, the theme of general organizing classification opens the possibility of extending a model which could be generalized to evaluation research in "tracing" or "mapping" other medical training topics (eg., prevention or human aging).

As has been described in the cultural history of the medical school, the academic disciplines housed in the medical school have been a powerful source for organizing

the activities and content of the medical school. Indeed, so great has been the perceived power of the disciplines to imprint their concerns on the medical school, that the ability of different entities to provide a comparable organizing impact is questioned by critics and proponents of the "natural" organization of the medical school. The medical evaluation literature does little to elevate the status of organization schemes by simply lumping them together as "alternative" or "non-traditional". The ability of such "alternative" organizations to change the conduct of medical training or practice behavior is particularly challenged in schools, as was the case at Wayne State Universiy's Medical School, in which the "alternative" organization was introduced as an innovation, after the discipline-bases had been entrenced.

The resolve in selecting measures of curriculum attention was to incorporate the conditions which, in an experimental study, would have consititued sources of confounding to the study. The resolve in selecting a classification scheme for tracing the location of these attention measures was to use the organizing premises within the medical school. These organizing features include both academic disciplines and the body organ systems. Academic disciplines represent the sites from which medical knowledge has, in the American medical culture, been assimilated and shared; the body organ systems are the physical referrents

of that knowledge - what the knowledge is of. The final element of the classification scheme considers what activity the knowledge enables; what work it allows to be done; i.e., its "function".

While the categories in academic disciplines and body organ systems are defined within the medical school's organization, the problem of classifiying the functional status of bits of oncology information had no precedent in the school. Hogan (1976) recommended inclusion of such functional categories as:

1. Diagnosis or Identification of Neloplasm
2. Treatment of neoplasm
   a. Surgical
   b. Chemotherpay
   c. Radiation Therpay
3. Socio-cultural characteristics of neoplasm
4. Physical findings of neoplasm

Tentatively, the classification scheme chosen featured the three-way classification scheme describing material in terms of the function, academic discipline and body organ system represented. This classification scheme seems to allow critical reflection of oncology's distribution on these emic (i.e., a term derived from phonemics which refers to attempts to view the behavior of people in terms of the meaningful distinctions they themselves make; contrast with *etic*, the "outside" view) categories.

The Work of Collaborative Evaluation: Maintaining a Critical Posture In the Context of Continuing Dialogue

The additional "problem" this evaluation research problem shares with other evaluations of programs of professional education is how to gain access to the curriculum data, while maintaining a critical perspective of the data base.

The Cancer Education Committee members had collaboratively initiated the study and portions of its conduct. A classification system incorporating the categories of the discipline structures and body organ system referrents which frame faculty members' everyday work at the medical center was seen as facilitating their continuing participation in the study.

Levine, Brinkley and Bryan's (1977) "Internal Review As A Means of Maintaining Quality Education in a Medical School", describe the process by which a medical school's own members review their curriculum as a process which calls forth the activity - but not the sanctions - of the (external) accreditation process. Since it is has greater access to curriculum sites and can stay in more continuous contact with curriculum activities, Levine et. al. see the internal review process as constituting a more valid source of evaluation and remediation. Levine et. al. also characterize the school's members as having greater, more exact knowledge of their curriculum compared to "the superficiality of their (external agencies') knowledge" (1977:479).

While the premise of an institution proceeding on the basis of the self-knowledge generated by the institution's members is not challenged here, the limit on the insights into external curriculum influences is. The time and effort members spend on determining the actual conduct and impact of its differential, collective behavior can be used to illumine the school's correspondance to other, external sites of actual or proscribed medical school behavior. Pragmatically, the exclusive definition of internal review as self-knowledge ignores the extent to which the medical school members and the institution as a whole are attempting to anticipate or better be able to respond to external exigencies (eg., the announcement of Request for Proposals (RFPs), offering funds to schools which can provide evidence that the school's resources can take on a particular problem's resolution). In the case of WSU's Cancer Education Committee, the Chair characterized its internal curriculum assessment activities as enabling the Committee to discharge its responsibility for the efficacy of the school's oncology training; the Chairperson also worked to encourage faculty participation in the proposed review efforts by reminding them, however, of the Committee's pattern of successfully obtaining external funding by this work of documenting problems for which it could propose and implement (with appropriate funding) remediations. Within the ethnoecological perspective, the evaluation of the "internal" appearance of the school's cumulative behavior

actively searches for the evidence of interactive relationships with other, external forms of organization. Exploring the character and direction of the exchanges affecting the school's programs can be part of the "self-knowledge" which the members produce.

The "External" Mapping Referrent: Interinstitutional Oncology Objectives

In wading through the mass of curriculum material in search of oncology-related topics, the Handbook of Objectives in Oncology (1976) surfaced as a clear candidate for a referrent referrent for the WSU Cancer Education evaluation. The Handbook had been introduced to the Cancer Education Committee, by Wayne State University faculty who had participated in the Interinstitutional Oncology Education Group, as a promising source of professionally derived recommendations for oncology education in medical schools.

The oncology curriculum content recommendations contained in the Handbook of Objectives in Oncology were formulated by a committee of oncologists and medical educators representing faculty from the Medical College of Virginia, Wayne State University School of Medicine, the Medical College of Georgia, the University of Virginia and Southern Illinois University. The authors ascribe the initiative for their work to a perceived need for improving cancer education in the medical school. The Virginia

Division of the American Cancer Society, Inc. provided the support for their work in formulating the oncology curriculum material. The authors describe the product of their work as one which "grew from our committee effort (and) outlines those instructional objectives that we considered appropriate goals by the time the students had completed undergraduate medical education" (Interinstitutional Group for Oncology Education, 1976: i).

Within the Medical School, the profusion of educational objectives confirms that objectives are perceived as evidence of educational planning and the basis for evaluation (Silber, 1978). In Oncology education, individual medical schools, interinstitutional oncology education organizations, and National Cancer Institute Guidelines (containing the criteria for the award of cancer education funds) all feature or assume that objectives will be the basis by which cancer education programs are organized.

The oncology objectives within the Handbook (1976) are organized into twenty-three sections. The sections consist of items classified as:

Categories Represented In
The Interinstitutional Oncology Objectives
I. Cancer Cell Biology
A. Cancer Cell Metabolism
B. Cell Cycle in Normal and Cancer Cells
C. Tumor Growth Characteristics
D. Cancer "Spread"
II. Carcinogenesis
A. Chemical Carcinogens

B. Viral Carcinogens
C. Radiation
III. Pathology - Practical Aspects
IV. Diagnostic Procedures in Reference to Cancer
V. Cancer Screening
VI. Principles of Early Cancer Management
VII. Principles of Cancer Chemotherapy
VIII. Principles of Radiation Therapy
IX. Principles of Immunology
A. Immunobiology
B. Immunogenetics
C. Tumor Immunology
X. Head and Neck Cancer
A. Upper Respiratory and Alimentary Tract Cancer
B. Neoplasms of the Salivary Glands and Thyroid Gland
XI. Carcinoma of the Lung
XII. Cancer of the Gastrointestinal Tract
A. Carcinoma of the Esophagus
B. Gastric Cancer
C. Pancreato-billary Cancer
D. Neoplasms of the Liver and Small Intestine
E. Cancer of the Colon and Rectum
XIII. Breast Cancer
A. Primary
B. Recurrent or Metastatic Breast Cancer
XIV. Genito-Urinary Tract Cancer
XV. Gynecologic Cancer
XVI. Neoplasms of the Skin and Soft Parts
XVII. The Leukemias
XVIII. The Lymphomas
XIX. Solid Tumors in Children
XX. Paraneoplastic Syndromes
XXI. The Patient with an Unknown Primary Cancer
XXII. Supportive and Palliative Management of Cancer Management
XXIII. Psycho-Social Aspects of Cancer

Confronting Problems in the Professionally Formulated External Referrents

While the expectation for the Handbook was that it would provide the template for assessing or designing a complete oncology curriculum, there were problems within the Handbook.

Entries within the category scheme were ambiguously bracketted. The range of material included in the "psychosocial" category, for example, included material on the extent to which compliance to therapeutic regimens will depend on the extent to which the regimen has been appropriately described to and understood by the patient, to the pervasive side-affects of chemotherapy or radiation treatment, including nausea or hair-loss.

An additional problem in the category system was that some categories were clearly not mutually exclusive. The ranking of "neoplastic syndromes", for example, as a unique category is difficult to defend, given that the items included in this category were also represented in other categories (eg., treatment or diagnosis).

As two oncologists with the WSU Cancer Education Committee had participated in the formation of these Objectives, I took the opportunity of discussing with them the apparent problems in the category schemes. The oncologists sought to assure me that, though it was true that the neoplastic items could be subsumed in other category appelations, the *importance* of these items warranted their special bracketting.

At that point, the status of the Handbook within the evaluation changed. The Interinstitutional Handbook of Objectives did not constitute a careless category

construction in the face of an otherwise competent professional reference. Rather, the Handbook represented the oncology educators' knowledge, from their training and clinical experience, of what would constitute important curriculum entries, *and*, from their participation in funding submission and review efforts, what would constitute fundable areas of cancer education or research development to be flagged for reviewers.

In incorporating the functional category scheme underlying the Handbook, then, the evaluation posture was not confined to the premise that the "template" would constitute an "ideal" base against which the local curriculum's deficits could be revealed. Rather, the Handbook provided a source in which the referential adequacy of professional oncology recommendations could be compared to those locally produced. The provision for exploring an emergent concern in the evaluation literature is met in the incorporation of both the "ideal" objective set and the actual WSU cancer curriculum content. Scriven's (1976) criticism of reliance on objectives for educational design or evaluation is that the objectives themselves are not subjected to evaluation. What would constitute a basis for evaluating the adequacy of the National Objectives to meet training and practice needs? Grover and Ravitch (1975) and Snow (1974) note that, within the medical school curriculum, *in vitro* studies enable the evaluation of referent

generality and ecological validity. This evaluation research project sought to explore the potential of explicit (WSU) curriculum content, for which "impact" evidence (in the form of student performance, subscription to elective or optional seminar presentations, and the sustained ability of the oncology material to maintain its representation in the curriculum) might, in turn, provide evidence about the adequacy of the proposed ideal curriculum in meeting an actual condition.

Measures of Differential Attention in the Curriulum

This evaluation research project recognizes that health education program evaluation needs to assess information beyond documenting the presence of medical content and students' knowledge of that content. In medicine, the base of knowledge changes rapidly. Despite complaints of fossilized medical curricula, changes over time occur in what constitutes medical knowledge of oncology and in the expected level of student's acquisition of that knowledge.

The evaluation of the WSU oncology curriculum examines the actual oncology information presented, elected, and evaluated in the WSU Medical School undergraduate curriculum. The evaluation measures take advantage of existing or available curriculum description data, to minimize disruption of the curriculum monitored. Norming the oncology curriculum to other elements of the curriculum,

both horizontally and vertically, enables the mapping of the relationships between oncology and other curriculum experiences over time.

The measures used are measures which reflect the way a medical school curriculum pays attention to - or buries - a topic in its curriculum: the relative time in the curriculum; the number of examination items; performance on these items; and the number of students choosing electives in the content area.

The intent in mapping oncology material was not just to note whether or not a particular disease topic was squeezed in ("do they mention paraneoplastic syndromes") but in determining: what is the actual location of topics within students' academic trajectory, the format and extent of cancer topics' presentation and development and sustained or changing emphasis over time.

Analysis of the Oncology Curriculum Data

The evaluation of the cancer curriculum examines the attention given to cancer in curriculum time, student test performance and student elective choices. The consideration of each of these attention and impact measures is presented in the context of the distribution of the overall medical school curriculum's instruction and evaluation behavior. The distribution of these measures is presented from the point of view of Function, Academic Discipline and Organ

Systems. The elements underlying each of the major categories (function, academic discipline and body organ) in the three-way classification system is presented in Table 2.

The sequence and grouping of the nineteen individual Functional categories are presented in a sequence which coincides with the sequence of curriculum topic presentation; i.e., the "cell biology" components of the first four functional classifications (cell metabolism, cell cycles, tumor growth characteristics and cancer spread) correspond to the curriculum's early focus on "Cell Biology"; the carcinogenesis categories represent the curriculum's later inquiry into disease etiology; "paraneoplastic syndromes" is an instance of the mid-curriculum's consideration of specific disease pathology; the curriculum concludes with the components of medical *diagnosis* (the actual diagnosis, with its attendant physical findings, symptoms and laboratory findings) and *treatment* (represented in the Interinstitutional Objectives as consisting of Surgical, Chemotherapy, Radiation, Immunologic and Psychological approaches). The Functional Classification system used in this evaluation research project maintains the Interinstitutional Group for Oncology Education's use of "Psycho-Social Aspects of Cancer" as a uniquely acknowledged - however anomalous - category from which to consider functional aspects of the knowledge about cancer and its care.

The two remaining categories define thirty-five Academic Disciplines and eleven Body Organ Systems, corresponding to the representation of these areas previously discussed in the organization of the curriculum.

While the data defining the patterns of curriculum attention will be presented in subsequent analysis, an overview of the measures used to trace the distribution of curriculum attention within a given classification tier can be seen in the inspection of a sample summary table. Table 3 presents the outlines of a summary table of curriculum attention for Functional Categories.

Table 3's first column indicates each element within the "Functional Category", from *Cell Metabolism*, as the first entry, to the final entry of *Psychosocial Characteristics*. Values in individual (functional) categories represent the proportion of attention for a given functional entry (eg., cell metabolism) compared to the combined attention for all (19) functional classifications.

Column 2, *% of Oncology Objectives*, notes that the first source from which attention given to a specific functional class of oncology material is considered is that provided in the Handbook of Objectives in Oncology (1976). *% of Oncology Objectives* computed for a given functional category is equal to the number of objectives for that category contained in the Handbook of Objectives in

Oncology, divided by the total number of objectives in the entire set of the Oncology Objectives Handbook. These objectives, formulated by the Interinstitutional Group for Oncology Education, provide an external referrent against which subsequent WSU-curriculum attention indices can be compared.

Columns 3-6 present the *% of Curriculum Hours*, within Academic Undergraduate Academic Years I, II, III, and Years I to III combined. The *% of Curriculum Hours* represents, from the total WSU curriculum time accorded to oncology, the proportion of time given to a specific category within the classification system. The determination of the oncology curriculum time base began with an empirical time estimate derived from the inventory of curriculum and unit outlines, syllabi, written statements of objectives, scribe lecture notes, laboratory and self-instructional materials for the undergraduate Medical School curriculum. The empirical time estimate in hours derived from these written materials was corroborated by curriculum unit leaders and individual faculty members.

A complementary index of curriculum attention is discerned from the multiple choice examinations. Columns 7-10 consider the curriculum attention evident from the index of *% of Multiple Choice (Examination) Items* given in Undergraduate Academic Years I, II III and Years I-III combined. The oncology-related examination items embedded

in the School's unit and comprehensive exam system were identified. Their extent and curriculum location provides an index of the extent to which the school marks oncology education as an essential base of medical training knowledge. The differential distribution of these items, in particular curriculum contexts, marks the extent to which the source of knowledge and concern about cancer education is confined or diffused throughout the curriculum.

The last column entries, columns 11-14, present the *Average Score on Multiple Choice Examinations* for Academic Years I, II III and Years I to III combined. These scores represent students' performance on oncology-related items contained in WSU Medical School's unit and comprehensive examinations. These performance scores provide an empirical measure of the extent to which students are acquiring the knowledge base of oncology during the course of their academic career.

In addition to the curriculum time and multiple choice examination performance measures, other measures of the oncology education's presentation and acquistion are considered. These measures include student performance on the battery of Patient Management Problems (PMPs). The PMP's written simulations of information gathering, diagnosis and management tasks for hypothetical patients' medical problems are offered during Year III as a recommended but "ungraded" (i.e., while the students are

provided with a standardized score, indicating their efficiency and proficiency on the overall problems and their underlying clinical problem solving, these scores do not enter in the determination of the students' academic standing) curriculum preparation for the National Board's Medical Examination and other medical certification examinations. Patient Managmenent Problems were incoporated into Part III of the three-part National Board's Medical Examination as a replacement for the NBME'S previous practice of directly observing medical students' clinical competence with patients (Samph and Templeton, 1979). Since most medical schools require their students to take and pass Parts I and II of the NBME, an index of the competitive adequacy of the preparation for licensure provided in the WSU Medical School curriculum can be seen. WSU medical students' performance on NBME examination items, conditionally released to the WSU faculty to permit their oncologic classification, provides a measure from which the cumulative oncology curriculum's impact can be compared to the WSU student performance on the other medical specialties represented in the NBME.

As with the previously cited measures, changes over curriculum and chronological time are explored.

Sequence of Oncology Curriculum Data Presentation

The general sequence of oncology curriculum data clusters the material for successive academic years. Beginning with the 1974-75 Academic Year, Year I's data is followed by the data for Years II and III. To establish the appearance of cancer education in the curriculum at a given academic year, the combined Year I-III's data follows the presentation of the progressive presentations of Years I through III. This sequence is followed for succeeding academic years (1975-76 through 1977-78). The changes over time between academic years is then examined.

Within a curriculum year (eg., Year I) for a given academic year (eg., 1974-75) the presentation of oncology curriculum data first considers the explicit curriculum topics, with their embedded oncology topics and time expenditures (eg., Table 4's "Undergraduate Curriculum Time Concerned with Oncology Topics, Year I, Academic Year 1974-75). This content definition and clock time is followed by analyses of the distribution of oncology-related exam items within indicvidual and collective unit exams. These reports of the relative frequency and curriculum location of exam items consider oncology materials' distribution by, succesively, Function, Discipline and Organ System classifications. The interaction of the classification schemes is considered in the examination of the distribution of the frequency and attendant performance scores of *cross-classified* oncology item characterizations.

Table 4

Undergraduate Curriculum Time Concerned with Oncology Topics
Year I
Academic Year 1974-75

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introduction.	
	Purine and Pyrimidine Nucleatides.	
	Cell Structure and Function.	
Unit II	Gastrointestinal System	
Unit III	Excitable and Contractile Tissues	
	Peripheral Nervous Control	
	Heart and Circulation. Hemostasis.	
	Immunological Functions. Lymphoid Tissues.	
Unit IV	Acid-Base Balance. Renal and Respiratory System	
Unit V	Endocrinology. Reproduction and Sexuality.	1 hr. lecture -
	Structure of Pituitary and Pineal Gland.	
	Biosynthesis of Steroid Hormones.	
	Structure of Adrenal Gland.	
	Clinical Correlation: Cushing's Syndrome.	
	Clinical Correlation: Pheochromocytoma.	
	Structure of Male Reproductive Organs	
Unit VI	Specialized Receptors.	
	Central Nervous System and Behavior	
	Lymphatic Drainage of the Neck	
	Central Olfactory System	
	Central Pathways of Auditory System	
	Total Curriculum Time on Oncology	2 hours

The Presentation and Acquistion of Cancer Education For Successive Academic and Curriculum Years

Table 4 introduces the major curriculum topics covered in the unit presentations of Year I. With the exception of a one hour lecture from the clinical correlation material, the remaining (hour) of oncology-related time in the 1974-75 Year I curriculum occurred as brief (.25 hours or less) references to cancer in the context of establishing other lecture and laboratory demonstrations. Tables 5 through 7 examine the frequency and distribution of cancer-related exam topics in the 1974-75's Year I unit examinations.

As indicated in Table 5 (the classification by Function of oncology test items), cancer related exam items appear on students' very first medical school unit exam. The proportion of attention the oncology-related items consume is 11.3 % of the total number of items on the Unit I exam. Oncology-related exam items continue to appear on subsequent Year I unit exams, but their frequency is unevenly distributed, with Unit I and Unit V containing the highest number of oncology-related exam items (35 and 32 respectively). Cumulatively, of the 1346 unit exam items administered to Year I students, 7.3% (98/1346) are oncology-related exams. The faculty classifying these 98 items found that, in each unit, oncology-related exam items were characterized by more than one functional classification; these 98 oncology-related exam items, then,

Table 5

Classification by Function of Oncology Test Items
Year I
Academic Year 1974-75

Functional Classification	Unit							N	% of Total
	I	II	III	IV	V	VI	VII		
1. Cell Metabolism	1	0	0	0	1	0	0	2	2
2. Cell Cycles	2	0	0	0	0	0	0	2	2
3. Tumor Growth Characteristics	0	0	0	0	5	0	0	5	5
4. Cancer Spread	0	0	1	2	2	0	0	5	5
5. Chemical Carcinogenesis	0	0	0	0	1	0	1	2	2
6. Viral Carcinogenesis	1	0	0	0	0	0	0	1	1
7. Radiation Carcinogenesis	0	0	0	0	0	0	0	0	0
8. Genetic Caricinogenesis	5	0	0	1	0	0	0	6	6
9. Paraneoplastic Syndromes	1	0	0	1	4	0	0	6	6
10. Diagnosis	2	5	1	2	3	0	2	15	15
11. Physical Findings	0	0	0	2	8	0	0	10	0
12. Symptoms	1	0	2	2	0	4	0	18	18
13. Lab Findings	0	0	0	2	3	0	0	5	5
14. Surgical Treatment	0	3	0	0	4	0	0	7	7
15. Chemotherapy	21	1	0	0	3	0	0	25	25
16. Radiation	3	1	0	0	1	0	0	5	5
17. Immunologic	4	1	2	0	0	0	0	7	7
18. Psychological	0	0	0	0	0	2	3	5	5
19. Psychosocial Characteristics	0	0	0	0	0	0	2	2	2
N of classified oncology items on total test	41	11	6	12	44	6	8	128	
N of items on total test	309	86	134	335	120	200	162	1346	
N of oncology items on total test	35	8	4	5	32	4	10	98	
% of oncology items on total test	11	9	3	1	26	2	6	7	

Unit Key
I = Introductory
II = Gastrointestinal System
III = Cardiovascular System
IV = Renal & Respiratory Biology
V = Endocrinology
VI = Central Nervous System
VII = Family & Community Medicine

correspond to 128 cross-classified oncology items. The oncology items do not assume a constant proportion of exam items; the range of the proportion of oncology items to total exam items varies from 1% to 26%. In addition, the ranking by size (number of exam items) of unit exams does not correspond to the ranking of oncology-represented exams. Unit 4's 335 items make it the largest unit exam, yet Unit IV has the lowest proportion of the Year I's oncology-related exam items. The unit exam which contains the highest proportion of the Year I's oncology-related exam items (Unit V) ranks sixth in terms of the number of exam items each of the seven unit exams contain. The greatest representation of oncology material does not follow, then, a simple inflation in the number of oncology items in the context of larger unit exams.

The row entries of Table 5 describe the representation of components of functional classifications within the oncology items, from *cell metabolism* to *psychosocial aspects*. The range of attention given to individual elements represented in the Functional Classification range from the 25% given to Chemotherapy Treatment related oncology items to 0% on Radiation Carcinogenesis. Within the groups of functional classification, the ranking of attention in oncology exam items accords the greatest attention to treatment and diagnosis categories. In contrast, the Psychosocial Aspects category receives the

least amount of examination attention; the Psychosocial items which are included are isolated in a single unit's (Unit VII) examination. The classification of these oncology test items by academic discipline, contained in Table 6, indicate that the disciplines of biochemistry, endocrinology, and oncology are responsible for the introduction of most of these oncology exam items. Table 7 indicates that the organ systems described in these oncology-related exam items are most frequently those of the endocrine, gastrointestinal and genitourinary systems. Table 8's cross classification of function by organ system represents the extent to which the faculty reviewers considered the functional concerns of a given exam item to be located within a given organ system. Cell metabolism was the functional characteristic most frequently seen in the evaluation of the endocrine system, tumor-growth characteristics is a functional characteristic contained in the oncology-related examination information about the gastrointestinal, genitourinary and hematology systems. The elements of diagnosis and treatment are more frequently and pervasively seen as ways of describing the oncology-related items on endocrine, renal, hematology, genitourinary and central nervous sytem. The lack of interaction acknowledged in the occurrence of cross-classification of function by organ system is not problematic (in terms of what cancer education needs to cover) in the organ systems (eg., head and neck) in which the incidence and prevalence of cancer is

Table 6

Classification by Discipline of Oncology Test Items
Year I
Academic Year 1974-75

Disciplines	Unit[1]							N	% of Total
	I	II	III	IV	V	VI	VII		
1. Anatomy	0	5	2	2	0	0	0	9	9
2. Anesthesiology	0	0	0	0	0	0	0	0	0
3. Audiology	0	0	0	0	0	0	0	0	0
4. Biochemistry	24	1	1	0	3	0	0	29	29
5. Cardiology	0	0	0	0	0	0	0	0	0
6. Community Medicine	0	0	0	0	0	0	4	4	4
7. Comparative Medicine	0	0	0	0	0	0	0	0	0
8. Dermatology & Syphilology	0	0	0	0	0	0	0	0	0
9. Endocrinology	3	0	0	1	27	1	0	32	32
10. Family Medicine	0	0	0	0	0	0	0	0	0
11. Gastroenterology	0	1	0	1	0	0	0	2	2
12. General Surgery	0	0	0	0	2	0	0	2	2
13. Gynecology	3	0	0	10	0	0	0	13	13
14. Hematology	5	1	2	1	0	0	0	9	9
15. Immunology & Microbiology	6	1	2	0	0	0	0	9	9
16. Infectious Diseases	0	0	0	0	0	0	0	0	0
17. Internal Medicine	0	1	0	0	0	0	0	1	1
18. Nephrology	0	0	0	0	0	0	0	0	0
19. Neurology	0	0	0	0	0	4	0	4	4
20. Neurosurgery	0	0	0	0	0	0	0	0	0
21. Obstetrics	0	0	0	0	0	0	0	0	0
22. Oncology	2	0	2	5	8	4	8	29	29
23. Ophthalmology	0	0	0	0	0	0	0	0	0
24. Orthopedic Surgery	0	0	0	0	0	0	0	0	0
25. Otolaryngology	0	0	0	0	0	0	1	1	1
26. Pathology	2	3	0	0	0	0	0	5	5
27. Pediatrics	3	0	0	0	1	0	1	5	5
28. Pharmacology	3	1	0	0	0	0	0	4	4
29. Physical Medicine & Rehabilitation	0	0	0	0	0	0	0	0	0
30. Physiology	0	0	0	0	0	0	0	0	0
31. Psychiatry	0	0	0	0	0	0	5	5	5
32. Radiology	3	1	0	0	0	0	0	4	4
33. Rheumatology	0	0	0	0	0	0	0	0	0
34. Urology	1	0	0	0	1	0	0	2	2
35. Other	0	0	0	0	0	0	0	0	
N of classified oncology items on total test	55	15	9	10	52	9	19	169	
N of items on total test	309	86	134	335	120	200	162	1346	
N of oncology items on total test	35	8	4	5	32	4	10	98	
% of oncology items on total test	11	9	3	1	26	2	6	7	

[1]The unit key referrents are constant for Year I. See Table 5.

Table 7

Classification by Organ System of Oncology Test Items
Year I
Academic Year 1974-75

Organ Systems	Unit[1]							N	% of Total
	I	II	III	IV	V	VI	VII		
1. Cardiovascular	0	0	0	0	2	0	0	2	2
2. Endocrine	1	0	0	1	26	0	0	28	28
3. Gastrointestinal	0	7	0	1	1	0	1	10	10
4. Genitourinary	4	0	0	0	8	0	0	12	12
5. Head & Neck	0	1	0	0	0	0	0	1	1
6. Hematologic	5	2	2	0	0	0	0	9	9
7. Nervous System	1	0	0	0	0	4	1	6	6
8. Renal	0	0	0	1	0	0	0	1	1
9. Respiratory	0	1	2	3	0	0	0	6	6
10. Skeletal	0	0	0	1	0	0	0	1	1
11. Skin & Soft Tissue	0	0	0	0	0	0	0	0	0
N of classified oncology items on total test	11	11	4	7	37	4	2	76	
N of items on total test	309	86	134	335	120	200	162	1346	
N of oncology items on total test	35	8	4	5	32	4	10	98	
% of oncology items on total test	11	9	3	1	26	2	6	7	

[1]The unit key referrents are constant for Year I. See Table 5.

Table 8

Cross Classification of Function By Organ System
Frequency of Oncology Test Items For Year I
Academic Year 1974-75

Functional Classification	Organ System											Total
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	0	1	0	0	0	0	0	0	0	0	0	1
2. Cell Cycles	0	0	0	0	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	0	2	0	1	0	1	0	0	0	0	0	4
4. Cancer Spread	0	0	1	1	0	0	0	0	2	0	0	4
5. Chemical Carcinogenesis	0	0	0	0	0	0	0	0	0	0	0	0
6. Viral	0	0	0	0	0	0	0	0	0	0	0	0
7. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
8. Genetic	0	1	0	2	0	1	1	0	0	0	0	5
9. Paraneoplastic Syndromes	0	4	0	0	0	0	0	0	0	1	0	5
10. Diagnosis	1	3	3	1	1	2	1	0	2	0	0	14
11. Physical Findings	0	7	0	1	0	0	0	0	2	0	0	10
12. Symptoms	1	6	0	3	0	1	4	0	2	1	0	18
13. Lab Findings	1	2	0	0	0	1	0	0	0	0	0	4
14. Surgical Treatment	0	2	2	1	0	0	0	0	0	0	0	5
15. Chemotherapy	0	3	1	2	0	0	0	0	0	0	0	6
16. Radiation	0	0	0	1	0	2	0	0	0	0	0	3
17. Immunologic	0	0	0	0	0	6	0	0	0	0	0	6
18. Psychological	0	0	0	0	0	0	1	0	0	0	0	1
19. Psychosocial Characteristics	0	0	0	0	0	0	0	0	0	0	0	0
n of oncology items on total test	3	31	7	13	1	14	7	0	9	2	0	86

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

infrequent. Given, however, the enormous contribution of respiratory cancer to the American population's cancer incidence and prevalence, the lack of examination attenion given this unit, in interaction with other functional concerns, is striking.

Table 9's data examines the evidence of students' knowledge of the cancer curriculum, through the analysis of their performance scores on the cross-classified function by organ system oncology exam items. Within the body of the table's matrix, the average (mean) performance scores on cross-classified items ranges from 36% to 100%. The range of students' mean exam performance on individual function classification items ranges from 12% (immunologic treatment) to 93% (on cell metabolism questions); on individual organ systems, the students' average scores were more narrowly distributed (from gastrointestinal's 62% to the skeletal system's 94% average perfomance score). While the number of exam items represented in Year I's cross-classified Function by Organ System exam items is not homeogenously distributed (as indicated in Table 8), Table 9's mean performance scores indicate a trend of lower examination performance for the components (diagnosis and treatment) of oncology education most highly represented in Year I of the Medical School curriculum.

Table 10's presentation of the occurrence of oncology topics within Year II of the curriculum substantially

Table 9

Cross Classification of Function By Organ System
Average (Mean) Performance of Students on Oncology Test Items for Year I
Academic Year 1974-75

Functional Classification	Organ Systems											Mean
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	--	.93	--	--	--	--	--	--	--	--	--	.93
2. Cell Cycles	--	--	--	--	--	--	--	--	--	--	--	--
3. Tumor Growth Characteristics	--	.89	--	.81	--	.36	--	--	--	--	--	.74
4. Cancer Spread	--	--	.57	.89	--	--	--	--	.91	--	--	.82
5. Chemical Carcinogenesis	--	--	--	--	--	--	--	--	--	--	--	--
6. Viral	--	--	--	--	--	--	--	--	--	--	--	--
7. Radiation	--	--	--	--	--	--	--	--	--	--	--	--
8. Genetic	--	.80	--	.80	--	.38	.80	--	--	--	--	.72
9. Paraneoplastic Syndromes	--	.81	--	--	--	--	--	--	--	.94	--	.84
10. Diagnosis	1.00	.77	.65	.68	.59	.64	.38	--	.68	--	--	.68
11. Physical Findings	--	.72	--	.60	--	--	--	--	.86	--	--	.74
12. Symptoms	1.00	.90	--	.65	--	.61	.97	--	.78	.94	--	.85
13. Lab Findings	.56	.61	--	--	--	.61	--	--	--	--	--	.60
14. Surgical Treatment	--	.71	.51	.53	--	--	--	--	--	--	--	.59
15. Chemotherapy	--	.88	.84	.78	--	--	--	--	--	--	--	.84
16. Radiation	--	--	--	.90	--	.74	--	--	--	--	--	.79
17. Immunologic	--	--	--	--	--	.75	--	--	--	--	--	.12
18. Psychological	--	--	--	--	--	--	.86	--	--	--	--	.86
19. Psychosocial Characteristics	--	--	--	--	--	--	--	--	--	--	--	--
Mean Performance Score	.85	.80	.62	.73	.59	.66	.84	--	.81	.94	--	.73

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Table 10

Undergraduate Curriculum Time Concerned with Oncology Topics
Year II, Entry Year 1973-74
Academic Year 1974-75

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introductory Unit	
	Cell Injury	
	Neoplasia	.4 hour lecture
	Tumor Virus	.1 hour lecture
	Neoplasia	.4 hour lab
	Cancer Chemotherapy Clinic	.3 hour lecture
	Pharmacy Discussion	1 hour lecture
Unit II	Connective Tissue	
	Structure and Function of Immunoglobulins	
	Metabolism of Purines Gout	
Unit III	Hematology Unit	
	Classification of Leukemias	1 hour lecture
	Clinical Aspects, Treatment and Dynamics of Leukemia	.1 hour lecture
	Lymphocyte Structure and Function	1 hour lecture
	Dysproteinemias	.1 hour lecture
	Lymphomas, Non Hodgkins	
	Lymphomas, Hodgkins	1 hour lecture
	Hematology Laboratory Leukemia	.5 hour lab
Unit IV	Endocrinology	
	Pathology of the Thyroid	1 hour lecture
	Cushing's Syndrome	
	Pheochromocytoma	
	Pathology of the Adrenal Gland	1 hour lecture
	Testicular Pathology	.3 hour lecture
	Breast Cancer	
	Ectopic Pregnancy	
Unit V	Gastrointestinal	
	Diseases of the Mouth, Jaw and Salivary Glands	1.5 hours lecture
	Diseases of the Pharynx and Esophagus	
	Gastritis, Peptic Ulcer, Gastric Neoplasms (etiology and pathology)	
	Gastritis, Peptic Ulcer, Gastric Cancer (clinical aspects)	
	Intestinal Neoplasms	
	Additional Liver Diseases	
	Diseases of the Pancreas	
Unit VI	Urinary Tract	
	Pathology of Chronic Renal Diseases	
Unit VIII	Respiratory Unit	
	Significant Inhalation Diseases	.2 hour lecture
	Epidemiology of Air Pollution	
	Epidemiology of Lung and Airway Cancer	
	Pathology of Lung Tumors	1 hour lecture
	Clinical Pictures of Lung Tumors	1 hour lecture
Unit VIII	Neuroscience Unit	
	Gliomas	1 hour lecture
	Non Glial Tumors	1 hour lecture
Unit	Curriculum Topics	
	Tumors of the Spinal Cord: Case Study	1 hour lecture
Unit IX	Cardiovascular System	0 hours
	Total Curriculum Time on Oncology	39 hours

increases the amount of attention accorded to oncology. In comparison to Year I, the increase is true for the Years' overall time (from two hours to 39 hours), the time within units and the time within individual presentations. The context in which cancer education occurs in this year, then, is more concerned with the explication of cancer, rather than as a point of reference from which to establish the eventual clinical salience of basic science material.

Given that there are fewer (cumulative) items on the Year II unit II unit exams (686 items, in comparison to Year I's 1346 items), the absolute frequency of oncology exam items in Year II (89) is actually less than that classified for Year I (98). The proportion of exam items representing oncology-related material, however, increases from Year I's 7% to Year II's 13%. While these exam items are more homogeneously distributed throughout the Units of Year II's curriculum, the exam items represent almost exclusively the functional classifications concerned with diagnostic components. The academic disciplines (Table 12) most frequently presenting these oncology-related items represent, respectively, Pathology, Hematology and General Surgery and Oncology. By Year II, the oncology-related material to which the examination system calls attention is more evenly distributed among organ systems. The body organ systems most frequently presented in Year II's oncology exam items are different from those which received the greatest

Table 11

Classification by Function of Oncology Test Items
Year II
Academic Year 1974-75

Functional Classification	Unit						N	% of Total
	I	II	III	IV	V	VI		
1. Cell Metabolism	0	0	0	0	0	0	0	0
2. Cell Cycles	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	1	1	1	4	0	3	10	11
4. Cancer Spread	0	0	1	2	0	0	3	3
5. Chemical Carcinogenesis	0	1	0	0	0	0	1	1
6. Viral Carcinogenesis	2	0	0	0	0	0	2	2
7. Radiation Carcinogenesis	0	0	0	0	0	0	0	0
8. Genetic Carcinogenesis	0	1	0	0	0	0	1	1
9. Paraneoplastic Syndromes	0	0	0	0	0	0	0	0
10. Diagnosis	1	8	1	3	13	7	33	36
11. Physical Findings	0	2	1	1	0	2	6	7
12. Symptoms	5	1	3	3	1	0	13	15
13. Lab Findings	1	7	1	1	0	1	11	12
14. Surgical Treatment	0	0	0	0	0	0	0	0
15. Chemotherapy Treatment	1	0	0	0	0	0	1	1
16. Radiation Treatment	0	0	0	0	0	0	0	0
17. Immunologic Treatment	0	0	0	0	0	0	0	0
18. Psychological Treatment	0	0	0	0	0	0	0	0
19. Psychosocial Aspects	0	0	0	0	0	0	0	0
N of classified oncology items on total test	11	21	8	14	13	13	81	
N of items on total test	163	91	101	114	96	121	686	
N of oncology items on total test	12	18	10	19	14	16	89	
% of oncology items on total test	7	20	10	17	12	13	13	

Table 12

Classification by Discipline of Oncology Test Items
Year II
Academic Year 1974-75

Disciplines	Unit						N	% of Total
	I	II	III	IV	V	VI		
1. Anatomy	0	0	0	0	0	0	0	0
2. Anesthesiology	0	0	0	0	0	0	0	0
3. Audiology	0	0	0	0	0	0	0	0
4. Biochemistry	0	0	0	0	0	0	0	0
5. Cardiology	0	0	0	0	0	0	0	0
6. Community Medicine	0	0	0	0	0	0	0	0
7. Comparative Medicine	0	0	0	0	0	0	0	0
8. Dermatology & Syphilology	0	0	0	0	0	0	0	0
9. Endocrinology	0	0	0	0	0	0	0	0
10. Family Medicine	0	0	0	0	0	0	0	0
11. Gastroenterology	0	0	0	0	0	0	0	0
12. General Surgery	5	0	0	3	0	2	10	11
13. Gynecology	0	0	0	0	0	0	0	0
14. Hematology	4	17	1	0	0	0	22	25
15. Immunology & Microbiology	3	0	0	0	0	0	3	3
16. Infectious Diseases	0	0	0	0	0	0	0	0
17. Internal Medicine	1	0	0	0	0	2	3	3
18. Nephrology	0	0	0	0	0	0	0	0
19. Neurology	0	0	0	0	0	0	0	0
20. Neurosurgery	0	0	0	0	0	0	0	0
21. Obstetrics	0	0	0	0	0	0	0	0
22. Oncology	0	0	6	0	0	4	10	11
23. Ophthalmology	0	0	0	0	0	0	0	0
24. Orthopedic Surgery	0	0	0	0	0	0	0	0
25. Otolaryngology	0	0	0	1	0	0	1	1
26. Pathology	1	0	0	5	13	6	25	28
27. Pediatrics	0	0	0	0	0	0	0	0
28. Pharmacology	1	0	0	0	0	0	1	1
29. Physical Medicine & Rehabilitation	0	0	0	0	0	0	0	0
30. Physiology	0	0	0	0	0	0	0	0
31. Psychiatry	5	0	0	0	0	0	5	5
32. Radiology	0	0	1	0	1	0	2	2
33. Rheumatology	0	0	0	0	0	0	0	0
34. Urology	1	0	0	0	1	0	2	2
35. Other	0	0	0	0	0	0	0	0
N of classified oncology items on total test	21	17	8	9	15	14	84	
N of items on total test	163	91	101	114	96	121	686	
N of oncology items on total test	12	18	10	19	14	16	89	
% of oncology items on total test	7	20	10	17	17	13	13	

Table 13

Classification by Organ System of Oncology Test Items
Year II
Academic Year 1974-75

Organ Systems	Unit						N	% of Total
	I	II	III	IV	V	VI		
1. Cardiovascular	0	0	0	0	0	0	0	0
2. Endocrine	0	0	0	0	0	7	7	8
3. Gastrointestinal	5	1	0	7	0	0	13	15
4. Genitourinary	0	0	0	0	0	5	5	6
5. Head & Neck	0	0	0	1	0	0	1	1
6. Hematologic	5	15	1	0	0	4	25	28
7. Nervous System	0	0	0	0	13	0	13	15
8. Renal	0	0	0	7	0	0	7	8
9. Respiratory	5	0	8	0	0	0	13	15
10. Skeletal	0	0	0	0	0	0	0	0
11. Skin & Soft Tissue	0	0	0	0	0	0	0	0
N of classified oncology items on total test	15	17	9	14	13	16	84	
N of items on total test	163	91	101	114	96	121	686	
N of oncology items on total test	12	18	10	19	14	16	89	
% of oncology items on total test	7	20	10	17	12	13	13	

Table 14

Cross Classification of Function By Organ System
Frequency of Oncology Test Items for Year II
Academic Year 1974-75

Functional Classification	Organ Systems											Total.
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	0	0	0	0	0	0	0	0	0	0	0	0
2. Cell Cycles	0	0	0	0	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	0	2	2	1	0	0	0	2	1	0	0	8
4. Cancer Spread	0	0	0	0	0	0	0	2	1	0	0	3
5. Chemical Carcinogenesis	0	0	0	0	0	0	0	0	0	0	0	0
6. Viral	0	0	0	0	0	0	0	0	0	0	0	0
7. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
8. Genetic	0	0	0	0	0	0	0	0	0	0	0	0
9. Paraneoplastic Syndromes	0	0	0	0	0	0	0	0	0	0	0	0
10. Diagnosis	0	3	2	2	0	2	13	1	1	0	0	24
11. Physical Findings	0	1	0	0	0	1	0	1	1	0	0	4
12. Symptoms	0	0	6	0	1	0	1	1	8	0	0	17
13. Lab Findings	0	1	2	0	0	0	0	0	1	0	0	4
14. Surgical Treatment	0	0	0	0	0	0	0	0	0	0	0	0
15. Chemotherapy	0	0	0	0	0	0	0	0	0	0	0	0
16. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
17. Immunologic	0	0	0	0	0	0	0	0	0	0	0	0
18. Psychological	0	0	0	0	0	0	0	0	0	0	0	0
19. Psychosocial Characteristics	0	0	0	0	0	0	0	0	0	0	0	0
N of cross-classified oncology items	0	7	12	3	1	3	14	7	13	0	0	60

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Table 15

Cross Classification of Function By Organ System
Average (Mean) Performance of Students on Oncology Test Items for Year II
Academic Year 1974-75

Functional Classification	Organ Systems											Mean
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	--	--	--	--	--	--	--	--	--	--	--	--
2. Cell Cycles	--	--	--	--	--	--	--	--	--	--	--	--
3. Tumor Growth Characteristics	--	.46	.51	.89	--	--	--	.88	.71	--	--	.66
4. Cancer Spread	--	--	--	--	--	--	--	.72	.73	--	--	.72
5. Chemical Carcinogenesis	--	--	--	--	--	--	--	--	--	--	--	--
6. Viral	--	--	--	--	--	--	--	--	--	--	--	--
7. Radiation	--	--	--	--	--	--	--	--	--	--	--	--
8. Genetic	--	--	--	--	--	--	--	--	--	--	--	--
9. Paraneoplastic Syndromes	--	--	--	--	--	--	--	--	--	--	--	--
10. Diagnosis	--	.72	.84	.96	--	.96	.83	.51	.66	--	--	.82
11. Physical Findings	--	.86	--	--	--	.92	--	.97	.51	--	--	.82
12. Symptoms	--	--	.52	--	.88	--	.20	.68	.45	--	--	.50
13. Lab Findings	--	.81	.92	--	--	--	--	--	.80	--	--	.86
14. Surgical Treatment	--	--	--	--	--	--	--	--	--	--	--	--
15. Chemotherapy	--	--	--	--	--	--	--	--	--	--	--	--
16. Radiation	--	--	--	--	--	--	--	--	-	--	--	--
17. Immunologic	--	--	--	--	--	--	--	--	--	--	--	--
18. Psychological	--	--	--	--	--	--	--	--	--	--	--	--
19. Psychosocial Characteristics	--	--	--	--	--	--	--	--	--	--	--	--
Mean Performance Score	--	.68	.64	.94	.88	.95	.78	.76	.54	--	--	.75

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

proportion of oncology-exam attention in Year I. Table 14's Cross Classification of Function by Organ System oncology items reiterates the finding in Year I's data that these cross-classified items most frequently present the functional categories of Diagnosis elements.

Tables 16 through 24 present the frequency of Year III's oncology-related exam items, with the determination of the percentage of overall Year III clerkship exam attention, and particular classification entry exam proportion these frequencies represent. A fairly narrow range of frequency of oncology exam items occur on each of the clerkships (internal medicine, obstetrics and surgery) presented. Within the individual clerkships, the greatest frequency and highest proportion of oncology related material occurs in the context of diagnostic and treatment categories (Tables 17, 19 and 23). The greatest concentration of oncology exam attention for a functional category occurs with surgery's allocation of 83% of its oncology-related exam questions to the Physical Findings component of the Diagnostic categories. While the distribution between diagnostic and treatment considerations in Internal Medicine (Table 16) and Obstetrics (Table 19) is essentially equally distributed, the overwhelming proportion of exam attention within Surgery classified as explicating (diagnostic) Physical Findings reduces Surgery's presentation of surgery as treatment for cancer. Despite the fact that the Year III curriculum is

Table 16

Classification by Function of Oncology Test Items
Year III
Academic Year 1974-75
Internal Medicine Clerkship

Functional Classification	Frequency	% of Total
1. Cell Metabolism	1	1
2. Cell Cycles	0	0
3. Tumor Growth Characteristics	1	1
4. Cancer Spread	5	7
5. Chemical Carcinogenesis	2	3
6. Viral Carcinogenesis	0	0
7. Radiation Carcinogenesis	1	1
8. Genetic Carcinogenesis	0	0
9. Paraneoplastic Syndromes	2	3
10. Diagnosis	7	10
11. Physical Findings	5	7
12. Symptoms	20	28
13. Lab Findings	10	14
14. Surgical Treatment	1	1
15. Chemotherapy Treatment	16	22
16. Radiation Treatment	1	1
17. Immunologic Treatment	0	0
18. Psychological Treatment	0	0
19. Psychosocial Aspects	0	0
N of classified oncology items on total test	71	
N of items on total test	393	
N of oncology items on total test	71	
% of oncology items on total test	18	

Table 17

Classification by Discipline of Oncology Test Items
Year III
Academic Year 1974-75
Internal Medicine Clerkship

Disciplines	Frequency	% of Total
1. Anatomy	0	0
2. Anesthesiology	0	0
3. Audiology	0	0
4. Biochemistry	0	0
5. Cardiology	0	0
6. Community Medicine	0	0
7. Comparative Medicine	0	0
8. Dermatology & Syphilology	4	6
9. Endocrinology	11	15
10. Family Medicine	0	0
11. Gastroenterology	13	18
12. General Surgery	5	7
13. Gynecology	0	0
14. Hematology	19	27
15. Immunology & Microbiology	0	0
16. Infectious Diseases	1	1
17. Internal Medicine	2	3
18. Nephrology	1	1
19. Neurology	0	0
20. Neurosurgery	0	0
21. Obstetrics	0	0
22. Oncology	15	21
23. Ophthalmology	0	0
24. Orthopedic Surgery	0	0
25. Otolaryngology	0	0
26. Pathology	0	0
27. Pediatrics	0	0
28. Pharmacology	0	0
29. Physical Medicine & Rehabilitation	0	0
30. Physiology	0	0
31. Psychiatry	0	0
32. Radiology	0	0
33. Rheumatology	0	0
34. Urology	0	0
35. Others	0	0
N of classified oncology items on total test	71	
N of items on total test	393	
N of oncology items on total test	18	
% of oncology items on total test	14	

Table 18

Classification by Organ System of Oncology Test Items
Year III
Academic Year 1974-75
Internal Medicine Clerkship

Organ Systems	Frequency	% of Total
1. Cardiovascular	0	0
2. Endocrine	12	17
3. Gastrointestinal	15	21
4. Genitourinary	1	1
5. Head & Neck	0	0
6. Hematologic	20	28
7. Nervous System	0	0
8. Renal	0	0
9. Respiratory	6	8
10. Skeletal	0	0
11. Skin & Soft Tissue	4	6
N of classified oncology items on total test	58	
N of items on total test	393	
N of oncology items on total test	71	
% of oncology items on total test	18	

Table 19

Classification by Function of Oncology Test Items
Year III
Academic Year 1974-75
Obstetric Clerkship

Functional Classification	Frequency	% of Total
1. Cell Metabolism	0	0
2. Cell Cycles	1	2
3. Tumor Growth Characteristics	5	9
4. Cancer Spread	5	9
5. Chemical Carcinogenesis	1	2
6. Viral Carcinogenesis	0	0
7. Radiation Carcinogenesis	0	0
8. Genetic Carcinogenesis	0	0
9. Paraneoplastic Syndromes	1	2
10. Diagnosis	6	11
11. Physical Findings	7	13
12. Symptoms	2	4
13. Lab Findings	5	9
14. Surgical Treatment	13	23
15. Chemotherapy Treatment	5	9
16. Radiation Treatment	2	4
17. Immunologic Treatment	0	0
18. Psychological Treatment	0	0
19. Psychosocial Aspects	2	4
N of classified oncology items on total test	55	
N of items on total test	400	
N of oncology items on total test	55	
% of oncology items on total test	14	

Table 20

Classification by Discipline of Oncology Test Items
Year III
Academic Year 1974-75
Obstetric Clerkship

Disciplines	Frequency	% of Total
1. Anatomy	0	0
2. Anesthesiology	0	0
3. Audiology	0	0
4. Biochemistry	0	0
5. Cardiology	0	0
6. Community Medicine	0	0
7. Comparative Medicine	0	0
8. Dermatology & Syphilology	0	0
9. Endocrinology	2	4
10. Family Medicine	0	0
11. Gastroenterology	0	0
12. General Surgery	48	87
13. Gynecology	0	0
14. Hematology	0	0
15. Immunology & Microbiology	0	0
16. Infectious Diseases	0	0
17. Internal Medicine	0	0
18. Nephrology	0	0
19. Neurology	0	0
20. Neurosurgery	0	0
21. Obstetrics	0	0
22. Oncology	0	0
23. Ophthalmology	0	0
24. Orthopedic Surgery	0	0
25. Otolaryngology	0	0
26. Pathology	4	7
27. Pediatrics	0	0
28. Pharmacology	0	0
29. Physical Medicine & Rehabilitation	0	0
30. Physiology	0	0
31. Psychiatry	0	0
32. Radiology	1	2
33. Rheumatology	0	0
34. Urology	0	0
35. Others	0	0
N of classified oncology items on total test	55	
N of items on total test	400	
N of oncology items on total test	18	
% of oncology items on total test	14	

Table 21

Classification by Organ System of Oncology Test Items
Year III
Academic Year 1974-75
Obstetric Clerkship

Organ Systems	Frequency	% of Total
1. Cardiovascular	0	0
2. Endocrine	0	0
3. Gastrointestinal	0	0
4. Genitourinary	55	100
5. Head & Neck	0	0
6. Hematologic	0	0
7. Nervous System	0	0
8. Renal	0	0
9. Respiratory	0	0
10. Skeletal	0	0
11. Skin & Soft Tissue	0	0
N of classified oncology items on total test	55	
N of items on total test	400	
N of oncology items on total test	55	
% of oncology items on total test	14	

presented on the hospital wards, and, then, in the context of the embodied human form of cancers' presence, psychological components of treatment and Psychosocial Aspects of Cancer are given the least amount of attention represented in the Functional Category assignments. The two examination items which represent the total curriculum evaluation attention on Psychosocial Aspects of Cancer occur in Obstetrics. The Psychosocial Aspects of Cancer examination attention is, then, sex-specific as well as discipline bound.

The academic disciplines of Hematology, Oncology, Gastroenterology and Endocrinology contribute the oncology-related exam items in Internal Medicine (Table 17); in Obstetrics, a single Academic Discipline - General Surgery - presents 87% of oncology-related exam items (Table 20). The overwhelming presence of Surgery in Obstetrics is even greater than that which occurs in the Surgery Clerkship (69%), in which the disciplines of Radiology and Pathology share contributing influences (Table 23). All of Obstetrics oncology-related exam items are seen to describe the genitourinary system (Table 21). In Internal Medicine, oncology-related exams are most frequenltly classified as, respectively, hematology, gastrointestinal or endocrine system descriptions (Table 18); in Surgery's Clerkship, the greatest frequency and proportion of oncology-related exam items are accorded to gastrointestinal; skin and soft tissue

Table 22

Classification by Function of Oncology Test Items
Year III
Academic Year 1974-75
Surgery Clerkship

Functional Classification	Frequency	% of Total
1. Cell Metabolism	7	6
2. Cell Cycles	2	2
3. Tumor Growth Characteristics	4	3
4. Cancer Spread	2	2
5. Chemical Carcinogenesis	0	0
6. Viral Carcinogenesis	0	0
7. Radiation Carcinogenesis	0	0
8. Genetic Carcinogenesis	0	0
9. Paraneoplastic Syndromes	3	2
10. Diagnosis	39	33
11. Physical Findings	9	83
12. Symptoms	0	0
13. Lab Findings	1	1
14. Surgical Treatment	42	36
15. Chemotherapy Treatment	1	1
16. Radiation Treatment	7	6
17. Immunologic Treatment	0	0
18. Psychological Treatment	0	0
19. Psychosocial Aspects	0	0
N of classified oncology items on total test	117	
N of items on total test	650	
N of oncology items on total test	117	
% of oncology items on total test	18	

Table 23

Classification by Discipline of Oncology Test Items
Year III
Academic Year 1974-75
Surgery Clerkship

Disciplines	Frequency	% of Total
1. Anatomy	0	0
2. Anesthesiology	0	0
3. Audiology	0	0
4. Biochemistry	0	0
5. Cardiology	0	0
6. Community Medicine	0	0
7. Comparative Medicine	0	0
8. Dermatology & Syphilology	0	0
9. Endocrinology	0	0
10. Family Medicine	0	0
11. Gastroenterology	1	1
12. General Surgery	81	69
13. Gynecology	0	0
14. Hematology	0	0
15. Immunology & Microbiology	1	1
16. Infectious Diseases	1	1
17. Internal Medicine	7	6
18. Nephrology	0	0
19. Neurology	0	0
20. Neurosurgery	0	0
21. Obstetrics	0	0
22. Oncology	5	4
23. Ophthalmology	0	0
24. Orthopedic Surgery	0	0
25. Otolaryngology	0	0
26. Pathology	10	8
27. Pediatrics	2	1
28. Pharmacology	0	0
29. Physical Medicine & Rehabilitation	0	0
30. Physiology	0	0
31. Psychiatry	0	0
32. Radiology	9	8
33. Rheumatology	0	0
34. Urology	0	0
35. Others	0	0
N of classified oncology items on total test	117	
N of items on total test	650	
N of oncology items on total test	117	
% of oncology items on total test	18	

Table 24

Classification by Organ System of Oncology Test Items
Year III
Academic Year 1974-75
Surgery Clerkship

Organ Systems	Frequency	% of Total
1. Cardiovascular	0	0
2. Endocrine	1	1
3. Gastrointestinal	51	43
4. Genitourinary	8	7
5. Head & Neck	12	10
6. Hematologic	2	2
7. Nervous System	1	1
8. Renal	2	2
9. Respiratory	13	11
10. Skeletal	3	2
11. Skin & Soft Tissue	24	20
N of classified oncology items on total test	117	
N of items on total test	650	
N of oncology items on total test	117	
% of oncology items on total test	18	

and respiratory systems, respectively (Table 24). These patterns of attention distributed to the different organ systems more closely reflect patterns of medical treatment than disease-site incidence or patient distribution.

Tables 25-29 examine the frequency and distribution of oncology-related examination attention for the combined Year III clerkships. In the distribution of attention within functional categories, the diagnostic and treatment categories receive the greatest proportion of attention; psychosocial aspects receive only 1% of curriculum evaluation attention (Table 25). The greatest number of oncology-related items in the Year III examination are contributed by, respectively, the disciplines of Surgery, Gynecology, Oncology and Hematology (Table 26). In the classification by Organ Systems, the greatest frequency of exam items describe gastrointestinal, genitourinary and skin and soft tissue systems. The cross-classification of oncology items in the combined clerkships of Year III indicate the greatest proportion of cross-classification describes the functional categories of diagnosis and treatment (Table 28). The cross-classification of Function by Organ Systems in the consideration of mean performance of students on oncology-related material finds that the highest mean performance score occurs on the (diagnostically cross classified) items describing the respiratory system (Table 29).

Table 25

Classification by Function of Oncology Test Items
Year III
Academic Year 1974-75
Combined Clerkships

Functional Classification	Frequency	% of Total
1. Cell Metabolism	8	3
2. Cell Cycles	3	1
3. Tumor Growth Characteristics	10	4
4. Cancer Spread	12	5
5. Chemical Carcinogenesis	3	1
6. Viral Carcinogenesis	0	0
7. Radiation Carcinogenesis	1	1
8. Genetic Carcinogenesis	0	0
9. Paraneoplastic Syndromes	6	3
10. Diagnosis	52	21
11. Physical Findings	21	9
12. Symptoms	22	9
13. Lab Findings	16	7
14. Surgical Treatment	56	23
15. Chemotherapy Treatment	22	9
16. Radiation Treatment	10	4
17. Immunologic Treatment	1	1
18. Psychological Treatment	0	0
19. Psychosocial Aspects	2	1
N of classified oncology items on total test	243	
N of items on total test	1443	
N of oncology items on total test	243	
% of oncology items on total test	17	

Table 26

Classification by Discipline of Oncology Test Items
Year III
Academic Year 1974-75
Combined Clerkships

Disciplines	Frequency	% of Total
1. Anatomy	0	0
2. Anesthesiology	0	0
3. Audiology	0	0
4. Biochemistry	0	0
5. Cardiology	0	0
6. Community Medicine	0	0
7. Comparative Medicine	0	0
8. Dermatology & Syphilology	4	2
9. Endocrinology	13	5
10. Family Medicine	0	0
11. Gastroenterology	14	6
12. General Surgery	86	35
13. Gynecology	48	20
14. Hematology	19	8
15. Immunology & Microbiology	1	1
16. Infectious Diseases	2	1
17. Internal Medicine	9	4
18. Nephrology	1	1
19. Neurology	0	0
20. Neurosurgery	0	0
21. Obstetrics	0	0
22. Oncology	20	8
23. Ophthalmology	0	0
24. Orthopedic Surgery	0	0
25. Otolaryngology	0	0
26. Pathology	14	6
27. Pediatrics	2	1
28. Pharmacology	0	0
29. Physical Medicine & Rehabilitation	0	0
30. Physiology	0	0
31. Psychiatry	0	0
32. Radiology	10	4
33. Rheumatology	0	0
34. Urology	0	0
35. Others	0	0
N of classified oncology items on total test	243	
N of items on total test	1443	
N of oncology items on total test	243	
% of oncology items on total test	17	

Table 27

Classification by Organ System of Oncology Test Items
Year III
Academic Year 1974-75
Combined Clerkships

Organ Systems	Frequency	% of Total
1. Cardiovascular	0	0
2. Endocrine	13	5
3. Gastrointestinal	66	27
4. Genitourinary	64	26
5. Head & Neck	12	50
6. Hematologic	22	9
7. Nervous System	1	<1
8. Renal	2	1
9. Respiratory	19	8
10. Skeletal	3	1
11. Skin & Soft Tissue	28	12
N of classified oncology items on total test	230	
N of items on total test	1443	
N of oncology items on total test	243	
% of oncology items on total test	17	

Table 28

Cross Classification of Function By Organ System
Frequency of Oncology Test Items for Year III
Academic Year 1974-75

Functional Classification	Organ Systems											N of cross-classified oncology items
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	0	0	3	2	1	1	0	0	0	1	0	8
2. Cell Cycles	0	0	1	1	0	1	0	0	0	0	0	3
3. Tumor Growth Characteristics	0	1	3	5	0	0	0	0	1	1	1	12
4. Cancer Spread	0	0	5	6	0	0	0	0	2	0	1	14
5. Chemical Carcinogenesis	0	0	0	0	0	0	0	0	0	0	0	0
6. Viral	0	0	0	0	0	0	0	0	0	0	0	0
7. Radiation	0	0	0	0	0	0	0	0	0	0	1	1
8. Genetic	0	0	0	0	0	1	0	0	0	0	0	1
9. Paraneoplastic Syndromes	0	2	3	0	0	0	0	0	0	0	0	5
10. Diagnosis	0	2	24	7	4	4	1	1	7	1	6	57
11. Physical Findings	0	1	20	7	4	3	0	1	5	1	7	49
12. Symptoms	0	7	8	2	1	8	0	0	4	1	3	34
13. Lab Findings	0	0	4	5	0	10	0	1	0	0	0	20
14. Surgical Treatment	0	7	16	13	7	0	0	0	2	0	15	60
15. Chemotherapy	0	5	3	6	0	3	0	0	1	0	0	18
16. Radiation	0	1	1	5	0	0	0	0	3	0	6	16
17. Immunologic	0	0	0	0	0	1	0	0	0	0	0	1
18. Psychological	0	0	0	0	0	0	0	0	0	0	0	0
19. Psychosocial Characteristics	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	26	91	60	17	32	1	3	25	5	40	300

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Table 29

Cross Classification of Function By Organ System
Average (Mean) Performance of Students on Oncology Test Items for Year III
Academic Year 1974-75

Functional Classification	Organ Systems											Mean
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	--	--	.47	.44	.62	.00	--	--	--	.56	--	.42
2. Cell Cycles	--	--	.51	.00	--	.00	--	--	--	--	--	.17
3. Tumor Growth Characteristics	--	.82	.54	.65	--	--	--	--	.64	.56	.86	.68
4. Cancer Spread	--	--	.54	.72	--	--	--	--	.76	--	.64	.66
5. Chemical Carcinogenesis	--	--	--	--	--	--	--	--	--	--	--	--
6. Viral	--	--	--	--	--	--	--	--	--	--	--	--
7. Radiation	--	--	--	--	--	--	--	--	--	--	.62	.62
8. Genetic	--	--	--	--	--	.10	--	--	--	--	--	.10
9. Paraneoplastic Syndromes	--	.51	.62	--	--	--	--	--	--	--	--	.56
10. Diagnosis	--	.36	.56	.68	.56	.68	.34	.83	.45	.62	.44	.55
11. Physical Findings	--	.68	.56	.69	.49	.85	--	.78	.58	.62	.56	.64
12. Symptoms	--	.57	.55	.87	.32	.64	--	--	.60	.80	.62	.62
13. Lab Findings	--	--	.64	.71	--	.73	--	.78	--	--	--	.72
14. Surgical Treatment	--	.70	.54	.42	.60	--	--	--	.70	--	.66	.60
15. Chemotherapy	--	.78	.67	.83	--	.72	--	--	.65	--	--	.73
16. Radiation	--	.15	.28	.46	--	--	--	--	.61	--	.41	.38
17. Immunologic	--	--	--	--	--	.10	--	--	--	--	--	.10
18. Psychological	--	--	--	--	--	--	--	--	--	--	--	--
19. Psychosocial Characteristics	--	--	--	1.00	--	--	--	--	--	--	--	1.00
Mean Performance Score	--	.57	.54	.62	.52	.42	.34	.80	.62	.63	.60	.55

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Tables 30 through 35 examine the contrastive patterns of attention and performance on examination items among Years I, II and III. Examining the juxtaposed columns of Table 30 indicates that the steady increase in the relative proportion of oncology-related examination items (relative to the given Year's total number of unit exam questions) reflects mainly the increasing frequency of diagnosis questions through Years II and III, and treatment's dramatic increase in Year III's examination item, after a substantial decrease in Year II. The percent of oncology items contained in unit exams rises from Year I's 7% to 13% in Year II and 17% in Year III. The cumulative percent of oncology exam items in the combined 3,475 items on the unit exams of Years I through III is 12%. Students are challenged by the greatest number of oncology-related exam items (243) in the same year in which they face the most number of examination items (Year III). In Table 31, the frequency of oncology exam items is presented with the subsequent student mean performance scores on those oncology item components. These mean performance scores range from 10% to 93%. The pattern of overall average performance scores on oncology exam items decreases steadily during Years I through III.

In the cumulative tallies of Years I through III, the ranking of academic disciplines by their contribution of oncology-related exam items is, respectively, surgery,

Table 30

Classification By Function of Oncology Test Items
Years I, II and III
Academic Year 1974-75

Functional Classification	Year I	Year II	Year III	N	% of Total
1. Cell Metabolism	2	0	8	10	2
2. Cell Cycles	2	0	3	5	1
3. Tumor Growth Characteristics	5	10	10	25	6
4. Cancer Spread	5	3	12	20	5
5. Chemical Carcinogenesis	2	1	3	6	1
6. Viral	1	2	0	3	<1
7. Radiation	0	0	1	1	<1
8. Genetic	6	1	0	7	2
9. Paraneoplastic Syndromes	6	0	6	12	3
10. Diagnosis	15	33	52	100	23
11. Physical Findings	10	6	21	37	9
12. Symptoms	18	13	22	53	12
13. Lab Findings	5	11	16	32	7
14. Surgical Treatment	7	0	56	63	15
15. Chemotherapy	25	1	22	48	11
16. Radiation	5	0	10	15	4
17. Immunologic	7	0	1	8	2
18. Psychological	5	0	0	5	1
19. Psychosocial Characteristics	2	0	2	4	1
N of classified oncology items on total test	128	81	243	452	
N of items on total test	1346	686	1443	3475	
N of oncology items on total test	98	89	243	430	
% of oncology items on total test	7	13	17	12	

Table 31

Average (Mean) Mean Performance of Oncology Test Items by Function
Years I, II, III
Academic Year 1974-75

Functional Classification	Mean Performance Score		
	Year I	Year II	Year III
1. Cell Metabolism	.93	--	.46
2. Cell Cycles	.41	--	.17
3. Tumor Growth Characteristics	.72	.71	.65
4. Cancer Spread	.82	.72	.59
5. Chemical Carcinogenesis	.62	.47	.83
6. Viral	.62	.47	.--
7. Radiation	--	--	.62
8. Genetic	.69	.47	.10
9. Paraneoplastic Syndromes	.74	--	.60
10. Diagnosis	.70	.81	.55
11. Physical Findings	.74	.79	.60
12. Symptoms	.82	.52	.59
13. Lab Findings	.61	.68	.68
14. Surgical Treatment	.59	--	.60
15. Chemotherapy	.76	.85	.83
16. Radiation	.83	--	.47
17. Immunologic	.75	--	.10
18. Psychological	.67	--	--
19. Psychosocial Characteristics	.33	--	1.00

Table 32

Classification by Discipline of Oncology Test Items
Years I, II and III
Academic Year 1974-75

Disciplines	Frequency of Oncology Items			N	% of Total
	Year I	Year II	Year III		
1. Anatomy	9	0	0	9	2
2. Anesthesiology	0	0	0	0	0
3. Audiology	0	0	0	0	0
4. Biochemistry	29	0	0	29	7
5. Cardiology	0	0	0	0	0
6. Community Medicine	4	0	0	4	1
7. Comparative Medicine	0	0	0	0	0
8. Dermatology & Syphilology	0	0	4	4	1
9. Endocrinology	32	0	13	45	11
10. Family Medicine	0	0	0	0	0
11. Gastroenterology	2	0	14	16	4
12. General Surgery	2	10	86	98	23
13. Gynecology	13	0	48	61	14
14. Hematology	9	22	19	50	12
15. Immunology & Microbiology	9	3	1	13	2
16. Infectious Diseases	0	0	2	2	1
17. Internal Medicine	1	3	9	13	3
18. Nephrology	0	0	1	1	1
19. Neurology	4	0	0	4	1
20. Neurosurgery	0	0	0	0	0
21. Obstetrics	0	0	0	0	0
22. Oncology	29	10	20	59	14
23. Ophthalmology	0	0	0	0	0
24. Orthopedic Surgery	0	0	0	0	0
25. Otolaryngology	1	1	0	2	1
26. Pathology	5	25	14	44	10
27. Pediatrics	5	0	2	7	2
28. Pharmacology	4	1	0	5	1
29. Physical Medicine & Rehabilitation	0	0	0	0	0
30. Physiology	0	0	0	0	0
31. Psychiatry	5	5	0	10	1
32. Radiology	4	2	10	16	4
33. Rheumatology	0	0	0	0	0
34. Urology	2	2	0	4	2
35. Others	0	0	0	0	0
N of classified oncology items on total test	169	84	243	496	
N of items on total test	1346	686	1443	3475	
N of oncology items on total test	98	89	243	430	
% of oncology items on total test	7	10	17	12	

Table 33

Average (Mean) Performance on Oncology Test Items by Discipline
Years I, II and III
Academic Year 1974-75

Academic Discipline	Mean Performance Score		
	Year I	Year II	Year III
1. Anatomy	.69	--	--
2. Anesthesiology	--	--	--
3. Audiology	--	--	--
4. Biochemistry	.70	--	--
5. Cardiology	--	--	--
6. Community Medicine	.48	--	.95
7. Comparative Medicine	--	--	--
8. Dermatology & Syphilology	.90	--	.58
9. Endocrinology	.80	--	.66
10. Family Medicine	--	--	--
11. Gastroenterology	.16	--	.57
12. General Surgery	.49	.71	.47
13. Gynecology	.81	--	.66
14. Hematology	.79	.75	.66
15. Immunology & Microbiology	.76	.58	.54
16. Infectious Diseases	--	--	.40
17. Internal Medicine	.84	.48	.56
18. Nephrology	--	--	.57
19. Neurology	.97	--	--
20. Neurosurgery	--	--	--
21. Obstetrics	--	--	--
22. Oncology	.78	.69	.65
23. Opthalmology	--	--	--
24. Orthopedic Surgery	--	--	--
25. Otolaryngology	--	.88	--
26. Pathology	.77	.72	.65
27. Pediatrics	.74	--	.80
28. Pharmacology	.70	--	.72
29. Physical Medicine & Rehabilitation	--	--	--
30. Physiology	--	--	--
31. Psychiatry	.63	--	--
32. Radiology	.79	.75	.49
33. Rheumatology	--	--	--
34. Urology	.71	.75	--
35. Other	--	--	--

Table 34

Classification by Organ System of Oncology Test Items
Years I, II and III
Academic Year 1974-75

Organ Systems	Year			N	% of Total
	I	II	III		
1. Cardiovascular	2	0	0	2	<1
2. Endocrine	28	7	13	48	11
3. Gastrointestinal	10	13	66	89	21
4. Genitourinary	12	5	64	81	19
5. Head & Neck	1	1	12	13	3
6. Hematologic	9	25	22	56	13
7. Nervous System	6	13	1	20	5
8. Renal	1	7	2	10	2
9. Respiratory	6	13	19	38	9
10. Skeletal	1	0	3	4	1
11. Skin & Soft Tissue	0	0	28	23	7
N of classified oncology items on total test	75	84	230	389	
N of items on total test	1346	686	1443	3475	
N of oncology items on total test	98	89	243	430	
% of oncology items on total test	7	13	17	12	

Table 35

Average (Mean) Performance on Oncology
Test Items by Organ System
Years I, II, III
Academic Year 1974-75

Organ Systems	Mean Performance Score		
	Year I	Year II	Year III
1. Cardiovascular	.78	--	--
2. Endocrine	.81	.68	.62
3. Gastrointestinal	.62	.64	.57
4. Genitourinary	.75	.77	.61
5. Head & Neck	.59	.88	.64
6. Hematologic	.68	.96	.58
7. Nervous System	.85	.78	.34
8. Renal	--	.77	.81
9. Respiratory	.77	.54	.58
10. Skeletal	.94	--	.68
11. Skin & Soft Tissue	--	--	.62

gynecology, hematology and endocrinology (Table 32). These disciplines are not, however, uniformly represented in Years I through III. Instead, the pattern within academic disciplines strongly associated with cumulative contribution to oncology' representation is strong representation in Year I and, especially, Year III. Table 33 examines students' mean performance scores on these discipline-contributed oncology exam items. Focusing on the patterns presented by disciplines representing the greatest proportion of cumulative oncology-related exam attention in students' performance reveals that the performance scores for these disciplines reflect the overall curriculum trend of lower average performance scores in later curriculum locations (Years II and III). Table 34 presents of the frequency by organ systems of oncology exam items within individual curriculum years (I, II and III) and the cumulative curriculum (Years I through III). The organ systems receiving greatest attention in Years I and II coincide with the organ system unit base of the first two curriculum years. The greatest correspondance between an individual curriculum year's particular organ system focus and the ranking following the cumulative (Years I-III) frequency, however, is that of Year III. Year III so greatly contributes to the formation of the cumulative frequency of oncology materials' representation that the very ranking of organ system attention within its exams is then achieved in the overall curriculum ranking of organ system focus. Table

35's presentation of these organ system oncology items' frequency and affiliated mean performance scores. The range and values of mean exam performance scores from Year I (59% to 94%) to Year II (54% to 96%) are comparable, although the median performance scores for Year II items is slightly less than that of Year I's. The contrast with Year III's mean performance scores on these oncology-related organ system items is seen in the consistently lower values for its mean performance scores (34% to 81%).

Tables 36 and 37 present a summary of attention and performance indices, for the individual classification components, within: the Interinstitutinal Group for Oncology Education's set of objectives; the proportion of WSU Medical School examination items; and the average performance score on these multiple choice items for Years I, II and III and Years I-III combined.

As indicated in Table 36's entries for *% of Oncology Objectives*, recommended attention is not evenly distributed among the (19) individual or (six) groups of functional classifications. The distribution of objectives underlying the Interinstitutional Oncology Education's recommendations gives the individual elements of Diagnosis and Chemotherapy Treatment greatest attention. In terms of the ranking of attention between clustered groups of Interinstitutional Oncology Education's Objectives, the representation from most to least attention is accorded to Diagnosis, Treatment,

Table 36

Summary of Relative Attention
in Sources of Curriculum Instruction and Evaluation by Functional Classification

Functional Classification	% of Oncology Objectives	% of Multiple Choice Items				Average Score on Multiple Choice Exams			
		YR I	YR II	YR III	Combined	YR I	YR II	YR III	Combined
CELL BIOLOGY									
1. Cell Metabolism	1	2	0	8	2	93	--	46	70
2. Cell Cycles	2	2	0	3	1	41	--	17	29
3. Tumor Growth Characteristics	2	5	10	10	6	72	71	65	69
4. Cancer Spread	2	5	3	12	5	82	72	59	71
CARCINOGENESIS									
5. Chemical	4	2	1	3	1	62	47	83	64
6. Viral	3	1	2	0	1	62	47	--	54
7. Radiation	2	0	0	1	1	--	--	62	62
8. Genetic	<1	6	1	0	2	69	47	10	42
9. Paraneoplastic Syndromes	2	6	0	6	3	74	--	60	67
DIAGNOSIS									
10. Diagnosis	28	15	32	52	23	70	81	55	69
11. Physical Findings	12	10	6	21	9	74	79	60	71
12. Symptoms	<1	18	13	22	12	82	52	59	64
13. Lab Findings	4	5	11	16	7	61	68	68	66
TREATMENT									
14. Surgical	9	7	0	56	15	59	--	60	60
15. Chemotherapy	15	25	1	22	11	76	85	83	81
16. Radiation	4	5	0	10	4	83	--	47	65
17. Immunological	4	7	0	1	2	75	--	10	42
18. Psychological	5	5	0	0	1	67	--	--	67
19. Psychosocial Characteristics	<1	2	0	2	1	33	--	100	44

Table 37

Summary of Relative Attention
In Sources of Curriculum Instruction and Evaluation by Organ System Classification

Organ System Classification	% of Oncology Objectives	% of Curriculum Hours				% of Multiple Choice Items				Average Score on Multiple Choice Exams			
		YR I	YR II	YR III	Combined	YR I	YR II	YR III	Combined	YR I	YR II	YR III	Combined
1. Cardiovascular	0	1	0	0	1	2	0	0	1	78	--	--	78
2. Endocrine	2	80	22	7	36	28	7	13	11	81	68	62	70
3. Gastrointestinal	13	20	6	28	18	10	13	66	21	62	64	57	61
4. Genitourinary	23	0	6	14	7	12	5	64	19	75	77	61	71
5. Head & Neck	10	0	0	14	5	1	1	12	3	59	88	64	70
6. Hematology	21	0	37	0	12	9	25	22	13	68	96	58	74
7. Nervous System	1	1	12	1	4	6	13	1	5	85	78	34	66
8. Renal	1	0	1	1	1	1	7	2	2	--	77	81	79
9. Respiration	8	0	10	18	9	6	13	19	9	77	54	58	63
10. Skeletal	<1	0	2	0	1	1	0	3	1	94	--	68	81
11. Skin & Soft Tissue	20	0	5	14	6	0	0	28	7	--	--	62	62

Carcinogenesis, Cell Biology, Paraneoplastic Syndromes to Psychosocial Characteristics. Within the individual Functional Classification distributions in the WSU Medical School Examination system (i.e., the values recorded for the columns marked *% of Multiple Choice Items*, the Functional elements of Diagnosis and Surgical Treatment receive greatest representation. In the Combined % of Mutiple Choice Items representing groups of Functional Classifications, the relative ranking follows the order of Diagnosis, Treatment, Cell Biology, Carcinogenesis, Paraneoplastic Syndromes and Psychosocial Characteristics.

In assigning ranks to these individual and groups of Functional Classification elements, the degree of concordance between achieved attention measures can be computed. The *coefficient of concordance*, an analysis-of-variance method developed by Kendall, expresses the amount of agreement among k sets of r number of objects rated (Kendall IN Siegel, 1956; Guilford and Fruchter, 1973). The *coefficient of concordance*, represented by the symbol W, is obtained from the sums of squares for rows computed from ranks, divided by the sum of squares for the total computed from ranks.

In comparing the priority of oncology topics contained in the Interinstitutional Objectives set with that reflected in the WSU Medical School curriculum, the computation of the coefficient of concordance allows the extent of agreement,

between these two sources giving attention to cancer topics, on both the major Functional Classification groups and the individual (19) Functional Classification elements. In the calculation of the *coefficient of concordance* for the six Functional Groups, W = (179.5-21)/41 = 3.86.
For values of k less than 7 (i.e., for less than 7 groups of ratings), the test of significance of W is determined by the computation $k(r-1)W$, which is distributed as x with r-1 degrees of freedom. The determinatin of the significance of W for the sets of rankings of Functional Classifications is equal to 38.6, with 5 degrees of freedom, significant at the .01 level.

In the determination of the coefficient of concordance for each set of rankings on the total array of 19 Functional Categories, W=0.766. This extent of concordance approximates, but does not achieve, statistical significance for W. While the particular W determination is conservative, in that it does not correct for the frequent occurrence of tied rankings in these sets which would inflate the W value, the inability to achieve this measure of concordance additionally reflects the disparity of attention between the Interinstitutional and WSU groups on particular elements of the Functional Classifications. The WSU exam system, in comparison to the patterns of attention presented in the Interinstitutional Objectives, underrepresents chemical carcinogenesis. In contrast, WSU's

exam system brings more attention to genetic carcinogenesis and Symptoms relevent to diagnosis than does the Interinstitutional Oncology set.

The average performance scores on these Functional Groups of oncology material are highest in Year I, lowest in Year III. The combined Average Performance Scores on these items tend to cluster within the same range of values (the 60-70% decile range is the modal score for the distribution).

The anomalous category score within this distributon is that found for the Psychosocial Characteristics. The combined Average Score on Multiple Choice Exam Items for Psychosocial is 44% - considerably lower than the modal score for the remaining categories within the Functional Classification. The number of exam items reflected in this Combined Scores is, however, too small (n=3, Table 35) to allow for comparative analysis. That so few measures of Psychosocial Function exist in the cancer curriculum is itself, however, an index of the minimal curriculum attention accorded this area.

The determination of concordance in attention patterns evidenced by the Interinstitutional Group and the WSU Medical School exam system on specific Organ Systems can be seen in Table 37. The organ system given primary attention differs in each distribution determinant (Interinstitutional

Objectives, WSU curriculum time, and WSU examination system). In the Interinstitutional Objectives, greatest attention is given to the genitourinary system; in the curriculum time referrent, to the endocrine system; in the WSU examination system, gastrointestinal system. Despite the differences in the site of prime focus, the concurrence among the overall sets of attention is statistically confirmed , with *W*=6.91, with 10 degrees of freedom. The test for significance determines that this *W* value is signficant at the .01 level. The extent of concordance reflects, then, the congruence in the *overall* patterns of curriculum attention; it is not the case that congruity is an artifact of overwhelming concordance on a single, dominant area of concern, for the primary Organ Site focus in each distribution selected different candidates.

The age-adjusted death rates for specific sites of cancer (Table 1) reflects both the (epidemiological) distribution of cancer within the population and the relative efficacy of existing medical treatments to control that cancer. This source presents a base from which to consider the congruence of professional cancer education Body Organ System focus with epidemiological distribution measures. The primary sites of Body Organ focus mapped in the attention distribution of the national Interinstitutional Oncology Education Group and the WSU curriculum and evaluation indices are not those constituting

the three primary determinants of the 1978 cancer death rates.

The curriculum "epidemiology" underlying average performance scores - i.e., the extent of curriculum time, frequency of examination items and average difficulty of the Academic Year's unit exam in which the oncology items are embedded - provide critical caveats for interpreting individual oncology category performance scores. Table 38 outlines the curriculum context which tempers or encourages the interpretation of findings apparent in tracing the embedded oncology items extensiveness and aquisition difficulty against the context of the overall academic exams in which they occur. Table 38 presents the Average (Mean) Difficulty Level of Examinations Used to Classify Oncology Items. The direction of overall academic unit exam performance over curriculum time finds a decrement in average (mean) performance scores with successive curriculum years. The performance scores found on oncology-related material tend to be lower than those for the overall unit exam performance scores.

A further basis for determining the difficulty that oncology-related material poses for students occurs in the examination of performance score patterns contained on the Patient Management Problems (PMPs). The intent of these paper-and-pencil problems is to simulate the components of clinical problem solving for particular disease problems.

Table 38

Average (Mean) Difficulty Level of Examinations Used to Classify Oncology Items
Academic Year 1974-75

Year and Test	Number of Items	Average Difficulty	
YEAR I			
Introduction	309	.75	
Gastrointestinal	86	.83	
Cardiovascular	134	.80	
Renal and Respiratory	335	.76	Avg. Diff. = .77
Endocrinology	120	.76	
Nervous System	200	.77	
Family and Community Medicine	162	.70	
YEAR II			
Introductory	163	.67	
Hematology	91	.75	
Respiratory	101	.70	Avg. Diff. = .73
Urinary Tract	114	.78	
Neurosciences	96	.78	
Endocrinology	121	.69	
YEAR III			
Medicine 10/04/74	103	.60	
12/20/74	97	.65	Avg. Diff. = .65
03/21/75	97	.64	
06/05/75	96	.70	
Surgery 10/04/74	153	.60	
12/20/74	163	.64	Avg. Diff. = .61
03/21/75	160	.63	
06/05/75	174	.56	
OB/GYN 08/27/74	50	.72	
10/04/74	50	.58	Avg. Diff. = 67
11/12/74	50	.69	
12/20/74	50	.64	
02/06/75	50	.78	
03/21/75	50	.68	
04/29/75	50	.66	
06/05/75	50	.64	
Total	3475 Items	.70 Average (Mean) Difficulty	

The content of the PMPs begins with a brief description of a patient's presenting complaint; students then determine the sequence of clinical tasks (the "pathway" decisions of taking a history or physical examination, as opposed to ordering laboratory tests or instituting management); and, within sections, the choice of items presenting germane information in determining the medical profile, diagnosis and management for the patient. The PMPs can be seen as a technique for presenting the information acquisition and assessment alternatives, in a format comparable to the standardized multiple choice examination, contained in clinical encounters. The PMPs have been used as teaching tools, evaluation instruments and a research base from which to construct or corroborate statistical models of clinical problem solving. The PMPs, then, offer an evaluation format which provides all third year students - not just those who have chosen the oncology elective - with the challenge of exercising their knowledge of medicine in oncology as problems in comprehension, application and analysis. Given that the majority of (multiple choice) Medical School examinations evaluate students' recall of isolated medical "facts", the PMP scores form a complementary perspective from which to consider the ability of the curriculum to prepare students for medical problem solving in oncology.

The Year III PMPs were jointly developed by members of the WSU Medical School's Division of Educational Services

and Research and clinical faculty members representing the various academic disciplines and medical subspecialties. The description of the patient's presenting problem, and the expected sequence and values of the patient's germane history, physical examination, laboratory and radiograph test, diagnosis and management procedures used in caring for the patient, were culled from the medical charts of patients treated by the clinician-authors. Added to this outline are additional choices representing the status of distractors in a traditional multiple choice exam format. While a variety of scoring techniques are used in PMPs, the rating of the appropriateness of item choices in the WSU Year III PMPs represents the assignment, by clinical faculty representing the medical specialty of the problem's author, of a weight of *-1* to choices which are medically inappropriate, *0* to items which are part of the complete assessment routine of patients, and *+1* to choices critical in correctly identifying and treating the patient's particular medical problem (Donnelly, 1977). Within the internal medical school evaluation system, then, the PMPs present a base from which to assess the extent of medical students' knowledge about components of clinical problems, and their ability to use that medical knowledge in appropriately solving ("managing") patient disease states.

Tables 39 and 40 present the breakdowns of student performance on the three groups of PMPs: the PMPs (PMP IV

Table 39

Student Performance By Dimension and Problem
On Oncology Versus Non-Oncology Patient Management Problems (PMPs)
Academic Year 1971-72

Problem	Oncology Cases		Oncology As Possible Diagnosis			Avg. of Oncology PMPs	Avg. of Non-Oncology PMPs
	PMP IV	PMP V	PMP III	PMP IX	PMP X		
Dimension:							
History	3.36	3.27	2.91	3.58	3.03	3.23	3.74
Physical	3.42	3.53	2.80	3.62	2.99	3.27	3.59
Laboratory	2.88	2.52	2.30	2.42	2.74	2.57	3.28
Radiograph	3.16	--	2.50	3.40	2.61	2.92	3.62
Information-Gathering	3.29	3.22	2.77	3.10	2.87	3.05	3.62
Diagnosis	3.08	2.75	3.60	2.17	3.46	3.01	3.35
Management	2.42	2.53	2.40	1.23	3.87	2.49	2.79
Pathway	3.46	3.38	2.39	3.49	3.61	3.28	3.45
Total Problem Avg.	3.11	3.00	2.70	2.84	3.19	2.97	3.51
Academic Year 1972-73							
Dimension:							
History	3.12	2.98	2.50	3.53	2.52	2.93	3.46
Physical	3.14	3.53	2.74	3.50	2.69	3.12	3.50
Laboratory	2.66	2.59	2.37	2.57	2.60	2.56	3.33
Radiograph	2.96	--	2.37	3.46	2.49	2.82	3.65
Information-Gathering	3.03	3.03	2.55	3.17	2.59	2.87	3.41
Diagnosis	3.11	3.16	3.51	2.40	3.26	2.09	3.40
Management	2.46	2.38	2.41	2.98	3.93	2.81	2.92
Pathway	3.34	3.50	2.45	3.83	3.90	3.40	3.59
Total Problem Avg.	2.97	3.02	2.62	3.17	3.06	2.97	3.41

Role of Cancer in PMPs

PMP III = small bowel tumor as distractor
PMP IV = bronchogenic Ca with parabracheal metasteses
PMP V = invasive Ca of cervix
PMP IX = endometrial Ca as distractor
PMP X = Ca of stomach or cecum as distractors

Table 40

Student Performance By Dimension and Problem
On Oncology Versus Non-Oncology Patient Management Problems (PMPs)
Academic Year 1974-75

Problem	Oncology Cases		Oncology As Possible Diagnosis			Avg. of Oncology PMPs	Avg. of Non-Oncology PMPs
	PMP IV	PMP V	PMP III	PMP IX	PMP X		
Dimension:							
History	--	--	2.29	3.40	--	2.84	3.15
Physical	--	--	2.40	3.36	--	2.88	3.18
Laboratory	2.60	2.67	2.18	2.39	2.51	2.47	3.25
Radiograph	2.96	--	2.50	3.08	2.71	2.81	3.56
Information-Gathering	2.78	2.67	2.34	3.06	2.61	2.69	3.28
Diagnosis	3.05	2.99	3.49	2.06	3.28	2.97	3.40
Management	2.41	2.47	2.89	3.06	3.95	2.96	3.37
Pathway	3.34	3.48	2.49	3.85	3.88	3.41	3.55
Total Problem Avg.	2.89	2.90	2.80	3.01	3.43	3.01	3.35
Academic Year 1975-76							
Dimension:							
History	--	--	2.18	3.33	--	2.76	3.10
Physical	--	--	2.39	3.23	--	2.81	3.18
Laboratory	2.65	2.57	2.14	2.33	2.48	2.43	3.24
Radiograph	2.99	--	2.32	3.17	2.96	2.86	3.61
Information-Gathering	2.82	2.57	2.26	3.01	2.72	2.68	3.28
Diagnosis	3.02	2.91	3.39	2.01	3.31	2.93	3.34
Management	2.53	2.20	3.05	2.99	3.88	2.93	3.29
Pathway	3.31	3.39	2.58	3.83	3.84	3.39	3.55
Total Problem Avg.	2.92	2.77	2.82	2.96	3.44	2.98	3.33

Role of Cancer in PMPs
PMP III = small bowel tumor as distractor
PMP IV = bronchogenic Ca with parabracheal metasteses
PMP V = invasive Ca of cervix
PMP IX = endometrial Ca as distractor
PMP X = Ca of stomach or cecum as distractors

and PMP V) in which the patient's diagnosis is cancer; the PMPs (PMPs III, IX and X) in which cancer is not the actual diagnosis, but is a potential diagnosis presented as a (distractor) alternative in the diagnostic and management choices; and the PMPs in which the diagnosis is not related to oncology. The performance score on each dimension and the total problem is provided for the oncology and non-oncology problems for the Academic Years 1971-72 through 1974-75. Using Fisher's *t* formula for testing the difference between the dimension scores on the 1974-75 oncology PMPs versus the non-oncology PMPs, the magnitude of the difference between oncology and non-oncology performance scores is found to be statistically significant (t=12.43, s.d.=0.15, d.f.=6, p less than or equal to .01). The analysis of the difference between the oncology-related PMPs and non-oncology related PMPs for the successive Academic Years from 1971-1972 through 1975-76 finds that the lower scores characteristic for oncology-related problems remain, at a statistically significant level, over Academic Years. Tables 39 and 40 include data from PMPs admitted for the two years prior to the oncology curriculum data baseline. These 1971-72 and 1972-73 Academic Years' PMPs are included here to provide data on the PMP component scores which were potentially affected by a change instituted in the 1974-75 Academic Year. In the 1974-75 Academic Year, the instructions and scoring procedure for PMPs containing "non-emergency" cases were changed. Previously, students

were instructed and evaluated on their ability to efficiently elicit information. On the premise that the non-emergency case permits greater opportunity to elicit more history and physical examination information from the patient, students were told that, in these selected PMPs, they could "ask for all the information they wanted", without penalizing their overall problem efficiency score. Beginning with the 1974-75 administration, the history and physical examination dimensions of students' scores were dropped from the PMP reporting. As the two-way analysis of variance, which compares the difference between Oncology versus non-oncology PMP mean scores of successive (Academic Years') student groups, this procedure did not result in a statistically significant change in the mean total problem scores. Comparing performance on individual PMP dimensions, the "Pathway" score is inevitably the highest; students are quick to recognize and employ the clear expectation of choosing a "pathway" through problems which gathers information (in the sequence of history, physical, laboratory and radiograph studies) prior to admitting tentative diagnoses or management plans. Prior to the elimination of (reported) History and Physical Examination scores, the Physical Examination component of the PMPs elicited students' highest perfomance in PMPs in which Oncology is the diagnosis. After the testing instruction change, the consistently highest dimension score in the (1974-75 and 1975-76) PMPs was Diagnosis. As the two-way

analysis of variance for the distribution of effect of type of test (oncology versus non-oncology) and Academic Year groups indicates, the variance test for distribution of effect of type of test attains statistical significance (F=3.6, df=14, p less than or equal to .05).

Tables 41 and 42 present the results of students' responses to a rating scale of the quality of training received in their (students') clinical electives. On this scale, students rank their satisfaction on six traits of the clinical learning environment on a six-point scale from "excellent" to "not worthwhile". In Tables 41 and 42, the first two row entries for each trait present the frequency and percent of students' responses to these components of students' oncology electives; the last row entry for each trait provides the distribution over the six-point scale given by students on "all electives". Students' assessment of their oncology training experience can thus be compared to their assessment of their entire experience over all their elective training sites. The chi-square analysis of the distribution of scores for individual traits, which compares the observed frequency of category responses against the (randomly) expected frequencies, found no significant deviations among the responses. Students who take the Oncology Elective tend to rate that experience highly; their reported assessment of Oncology resembles their judgment of the other electives they have taken. The

Table 41

Student Evaluation of 1973-74 Oncology Electives

Trait		Excellent	Very Good	Satisfactory Plus	Satisfactory	Poor	Not Worthwhile
1. Overall Learning Value	#	9	16	3	0	0	0
	%	32.0	57.1	10.7	0.0	0.0	0.0
All Electives	%	33.0	39.2	19.9	4.0	3.2	0.6
2. Opportunity to Achieve	#	13	6	7	1	1	0
	%	46.4	21.4	25.0	3.6	3.6	0.0
All Electives	%	32.0	36.2	20.5	6.6	4.1	0.6
3. Stimulation toward Self Directed Study	#	10	10	6	0	1	0
	%	37.0	37.0	22.2	0.0	3.7	0.0
All Electives	%	29.3	32.5	26.9	6.4	3.6	1.4
4. Opportunity to Improve A. Clinical Analysis Ability	#	10	12	3	2	0	0
	%	37.0	44.4	11.1	7.4	0.0	0.0
All Electives	%	27.8	35.5	20.1	6.8	3.6	0.6
B. Patient Management Plan Ability	#	11	7	4	3	2	0
	%	40.7	25.9	14.8	11.1	7.4	0.0
All Electives	%	22.7	23.1	21.5	10.5	6.5	1.8
C. Diagnostic Procedure Skills	#	14	7	3	1	2	0
	%	51.8	25.9	11.1	3.7	7.4	0.0
All Electives	%	21.1	23.2	21.4	12.4	7.4	2.9
5. Contribution of: A. Attending Staff	#	10	8	5	2	1	0
	%	38.5	30.8	19.2	7.7	3.8	0.0
All Electives	%	34.5	27.7	16.7	6.7	5.2	2.5
B. Residents	#	10	8	4	3	1	0
	%	38.5	30.8	15.4	11.5	3.8	0.0
All Electives	%	28.9	31.0	16.1	7.6	4.2	1.7
C. Nursing Personnel	#	8	8	3	2	2	0
	%	34.8	34.8	13.0	8.7	8.7	0.0
All Electives	%	11.9	14.7	15.1	8.8	5.3	2.8
6. Examination at End of Elective A. Yes	%	50.0					
All Electives	%	19.3					
B. No		50.0					
All Electives	%	30.7					

Table 42

Student Evaluation of 1974-75 Oncology Electives

Trait		Excellent	Very Good	Satisfactory Plus	Satisfactory	Poor	Not Worthwhile
1. Overall Learning Value	#	28	20	6	1	0	0
	%	50.9	36.4	10.9	1.8	0.0	0.0
All Electives	%	34.0	38.6	18.7	5.5	2.4	0.8
2. Opportunity to Achieve	#	24	22	6	2	1	0
	%	43.6	40.0	10.9	3.6	1.8	0.0
All Electives	%	31.6	37.0	19.8	7.3	3.6	0.7
3. Stimulation toward Self Directed Study	#	22	24	7	1	2	0
	%	39.3	42.8	12.7	1.8	3.6	0.0
All Electives	%	29.8	33.6	22.1	9.1	4.5	0.8
4. Opportunity to Improve A. Clinical Analysis Ability	#	25	19	7	4	0	0
	%	45.4	34.5	12.7	7.3	0.0	0.0
All Electives	%	30.0	36.5	22.2	7.1	3.2	1.0
B. Patient Management Plan Ability	#	20	17	12	3	1	0
	%	37.7	32.1	22.6	5.7	1.9	0.0
All Electives	%	27.7	28.4	23.8	11.5	6.7	1.9
C. Diagnostic Procedure Skills	#	26	20	4	3	0	0
	%	49.0	37.7	7.3	5.4	0.0	0.0
All Electives	%	25.6	27.4	22.6	13.2	8.6	2.5
5. Contribution of: A. Attending Staff	#	35	14	4	2	0	0
	%	63.6	25.4	7.3	3.6	0.0	0.0
All Electives	%	43.0	30.5	15.3	6.3	3.0	1.9
B. Residents	#	21	19	9	4	0	0
	%	39.6	35.8	17.0	7.5	0.0	0.0
All Electives	%	35.5	33.5	17.1	7.3	4.7	1.9
C. Nursing Personnel	#	12	12	8	7	2	1
	%	28.6	28.6	19.0	16.7	4.8	2.4
All Electives	%	20.5	25.0	24.7	16.0	6.0	7.9
6. Examination at End of Elective A. Yes	%	87.5					
All Electives	%	25.4					
B. No		12.5					
All Electives	%	74.6					

interpretation which can be given to this outcome is, however, cautious. The outcome - of students who take Oncology rating highly the learning experience afforded - does not reflect the extent of social selection in the students who choose to enter oncology. The 55 students who choose the 1974-75 oncology elective represent 21% of their class. The extent to which these students, entering oncology on an elective basis, are representative of the entire medical class is not known. Further, as the students' rating of "All Electives" they have taken indicates, students infrequently evaluate their electives as less than "Satisfactory Plus"; students may, then, be simply unlikely to give oncology or any other elective suboptimal ratings, given the commitment required and learning opportunities achieved in any university-affiliated clinical training site.

Tables 43 through 67 present the appearance of the oncology curriculum over successive academic years. The proportion of change in curriculum time in Year I between successive Academic Years is substantial. In comparison to the baseline 1974-75 Academic Year's time expenditure, there is a 175% increase in 1975-76, and a 400% increase against 1976-77. The listing of oncology topics by Year I units (Tables 4, 43 and 46) indicates that these changes occur as elaborations of previously established themes; i.e., the units in which oncology topics previously occurred have

Table 43

Undergraduate Curriculum Time Concerned with Oncology Topics
Year I
Academic Year 1975-76

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introduction.	
	Cell Structure and Function.	
Unit II	Gastrointestinal System	0 hour
Unit III	Excitable and Contractile Tissues.	
	Peripheral Nervous Control.	
	Heart and Circulation. Hemostasis.	
	Immunological Function. Lymphoid Tissue.	
Unit IV	Acid-Base Balance. Renal and Respiratory Biology.	
Unit V	Endocrinology, Reproduction and Sexuality.	1 hour lecture
	Structure of Pituitary, Pineal Gland.	
	Biosynthesis and Metabolism of Steroid Hormones.	
	Clinical Correlation: Cushing's Syndrome	
	Clinical Correlation: Pheochromocytoma.	1 hour lecture
	Male Reproductive Physiology.	
	Structure and Development of Thyroid, Parathyroid and Pancreas.	
Unit VI	Specialized Receptors.	
	Central Nervous System and Behavior.	
	Lymphatic Drainage of the Neck.	
	Auditory System Central Connections.	
	Visual System Pathways.	
	Olfactory Systems.	
	Total curriculum time on Oncology	3.5 hours

Table 44

Undergraduate Curriculum Time Concerned with Oncology Topics
Year II, Entry Year 1974-75
Academic Year 1975-76

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introductory Unit	4 hour lecture
	Cell Injury	
	Cancer Chemotherapy Unit	
	Tumor Virus	1 hour lab
	Neoplasia	2.5 hour lab
Unit II	Connective Tissue	1 hour lecture
	Abnormalities of Immunoglobulins	
	Tumor Immunoglobulin	1 hour lecture
	Metabolism of Purines: Gout	1.5 hour lecture
	Immunosuppressive Therapy	
	Clinical Toxicology of Steroid Drugs	1 hour lecture
Unit III	Hematology	1 hour lecture
	Lymphomatic Lymphomas	
	Hogdkin's Lymphomas	1 hour lecture
	Classification of Leukemias	1 hour lecture
	Clinical Aspects of Leukemias	1 hour lecture
	Hematology Lab Leukemias	6 hour lab
Unit IV	Cardiovascular	
Unit V	Respiratory	1 hour lecture
	Pathology of Lung Tumors	
	Clinical Picture of Lung Tumors	1 hour lecture
Unit VI	Urinary Tract	1 hour lecture
	Cancer of the Kidney and Bladder	
	Clinical Pathological Correlations	1 hour lecture
	Cancer of the Prostrate	1.25 hour lecture
Unit VII	Gastrointestinal Unit	1.5 hour lecture
	Neoplams of the Liver	
	Diseases of Teeth, Oral Mucosa, Jaws and Salivary Glands	
	Gastric Neoplasms	
	Diseases of the Esophagus	
	Intestinal Neoplams	
	Diseases of the Pancreas	
Unit VIII	Neurology	1.5 hour lecture
	Central Nervous System: Neoplases, Gliomas	
	Central Nervous System: Non Glial Tumors and Metastases	1.5 hour lecture
	Case Study	2 hour lecture
Unit IV	Endocrinology	3 hour lecture
	Pathology of the Thyroid	
	Adrenal Patology	
	Breast Cancer Symposium	
	Pathology of Multiple Endocrine Neoplasia	1 hour lecture
	Testicular Pathology	1 hour lecture
	Endocrine Manifestations of Malignant Disease	
	Total Curriculum Time on Oncology	44 hours

Table 45

National Board's Medical Examination (NBME): Part II
Performance
Student Performance on Neoplastic Items by Clinical Specialty
Academic Year 1975-1976

Clinical Specialty	Number of Items	Mean WSU P Value	Mean NBME P Value
Community Medicine	3	83.00	82.33
Dermatology	2	62.00	69.50
Ears, Nose and Throat	6	54.00	52.50
Endocrinology	11	67.55	63.55
Gastroenterology	11	80.73	77.73
Gynecology	36	67.47	69.06
Hematology	9	50.56	56.11
Oncology	12	78.33	68.92
Pathology	4	62.00	67.00
Pulmonary	11	66.55	62.27
Radiology	12	60.83	61.67
Statistics	3	64.33	63.67
Surgery	11	63.44	64.18
N of oncology items on total test	142		
N of items on total test	231		
% of oncology items on total test	61		

Table 46

Undergraduate Curriculum Time Concerned with Oncology Topics
Year I
Academic Year 1976-77

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introduction.	0 hour
Unit II	Gastrointestinal System. Cancer of the Colon.	1 hour
Unit III	Thorax, Mediastinum. Excitable and Contractile Tissues. Peripheral Nervous Control. Heart and Circulation. Hemostasis.	0 hours
Unit IV	Acid-Base Balance. Renal and Respiratory System.	0 hours
Unit V	Endocrinology. Reproduction and Sexuality. Clinical Correlation: Cushing's Syndrome Clinical Correlation: Pheochromocytoma. Structure and Development of Thyroid, Parathyroid and Pancreas. Adrenal Cortex. Mechanisms of Activity of Steroid Hormones. Acromegaly. Adrenal Medulla	6 hours
Unit VI	Neuroscience Lymphatic Drainage of the Neck. Central Auditory Connection. Clinical Correlations: Arteriogram. Electrical Activity of Brain changes.	1 hour
	Total curriculum time on oncology	8 hours

Table 47

Undergraduate Curriculum Time Concerned with Oncology Topics
Year II, Entry Year 1975-76
Academic Year 1976-77

Academic Unit	Curriculum Topics	Time in Hours On Oncology
Unit I	Introductory Unit	15 hours Cell Injury
	Cell Injury Introduction to Cancer Chemotherapy Cancer Chemotherapy Biochemistry of Neoplasia Neoplasia Oncogenic Viruses Purine Metabolism and Gout Tumor Immunology	
Unit II	Hematology Leukokinetics Classification of Leukemias Clinical Aspects of Leukemias Lymphocyte Structure and Function Lymphocyctic Lymphomas Leukemia Hogdkin's Lymphomas Dysproteinemias Lymphomas Case Study: Leukemia and Lymphoma	14 hours
Unit III	Digestive System Diseases of the Pancreas Gastritis, Peptic Ulcer and Gastric Neoplasm Intestinal Neoplasms Esophagus, Liver, Gall Bladder Anal Rectal Disease	4 hours
Unit IV	Cardiovascular System	0 hour
Unit V	Urinary Tract Obstructive Uropathy Complications of Neoplasms Hematuria Cancer of the Kidney and Bladder Urology Techniques	6 hours
Unit VI	Respiratory System Epidemiology of Carcinoma of Lung Clinical Picture of Lung Cancer Pathology of Lung Cancer	3 hours
Unit VII	Endocrinology	7 hours
	Anterior Pituitary Disease Cushing's Syndrome Adrenal Pathology Pheochromocytoma Breast Cancer Symposium Testicular Pathology Endocrine Manifestations of Malignant Disease Gynecologic Pathology	
Unit VIII	Neurology Unit Cerebrospinal Fluid. Increased Neurocranial Pressure. X-ray, Electroencephalogam Expanding Mass Lesions. Hydrocephalus. Central Nervous System: Neoplasms, Glias and Case Study Epidemiology The Tumor and the Family	14 hours
	Total Curriculum Time on Oncology	63 hours

increased the time of these topics development. The oncology topics covered within these units are essentially the same; the units in which no or very little oncology-related material occurred in 1974-75 continue to omit oncology in succeeding academic years. The actual amount of curriculum time involved in these Year I oncology presentations moves from two hours, to 3.5 and 8 hours. Year II's curriculum changes over Academic Years follows a comparable path of increasing time in selective units. As indicated in the Year II curriculum topics and time presentations (Tables 10, 44 and 47), the time expenditure increases, normed to the 1974-75 baseline, represent changes of 113% and 161% increments. The actual amounts of time in these Academic Years are 39 hours, 44 hours and 63 hours, for the successive academic years. These curriculum presentations concentrate on disease characteristics of specific organ sites or systems. The epidemiological focus of the 1973-74's presentation of the Respiratory Unit (Unit VII), which featured the environmental exchanges resulting in the development of respiratory diseases distributed in the population, is de-emphasized in succeeding Academic Years. The presentation of respiratory cancer in succeeding academic years more closely fits the presentation of specific disease sites and proximate sources of etiology. At a School organizational level, it may be noted that the Department of Occupational and Environmental Health ceased to be a Medical School curriculum department in the 1977-78

Table 48

Undergraduate Curriculum Time Concerned with Oncology Topics
Year III, Entry Year 1974-75
Academic Year 1976-77

Clinical Clerkship	Curriculum Topics	Time in Hours On Oncology
Surgery		
	Stomach Carcinoma of the Stomach Lymphoma of the Stomach	
	Pancreatic - Duodenal Cancer Hashimoto's thyroiditis Carcinoma body and tail	
	Colon and Rectum Rectal prolapse Carcinoma of anus Carcinoma of colon Volvulus of colon Colonic polyp Inguinal hernia	
	Esophagus Carcinoma of Esophagus	
	Small Intestine Carcinoid tumor	
	Lung, Trachea and Pleura Bronchogenic carcinoma Carcinoma (periampullary) Lung abscess Carcinoma of the gallbladder Bile ducts and gallbladder	
	Thyroid Thyroid malignancy Multimodular goiter	
	Parathyroid Adenoma /hyperplasia	
	Adrenal Gland Pheochromocytoma Neuroblastoma Aldosteronoma	
	Breast Breast mass Introductal papilloma	
	Head and Neck Intra-oral carcinoma Tumors of larynx Carcinoma of pharynx Major salivary glands neoplasms	
	Skin Lipoma Fibrosracoma Basal cell and squamous cell carcinoma Rhabdomyosacoma Liposacoma Mediastinum Mediastinal mass	
	Liver Neoplasms, metastatic	
Family Medicine		0 hours
Obstetrics-Gynecology		6 hours
	Oncology-Pathology Conference Required (see Medicine) Obstetrics-Gynecology Cancer Daily Oncology Conference in Gynecology	
	Pediatrics Malignancy Hematology	6 hours
Psychiatry		0 hours
Internal Medicine		30 hours
	Pathology Conference at Harper Hospital Case Studies Carcinoma of the Lung Leukemia Lymphoma Colon Cancer Cancer Emergencies Hormonal Management of Breast Cancer Chemotherapy of Breast Cancer	
Neuroscience		6 hours
	Head and Neck Cancer Tumor Conferences (see Medicine) Neoplastic Conditions	
	Total Time on Oncology	63 hours

Table 49

Classification by Function of Oncology Test Items
Year I
Academic Year 1977-78

Functional Classification	Unit							f	% of Total
	I	II	III	IV	V	VI	VII		
1. Cell Metabolism	1	0	0	0	1	0	0	2	2
2. Cell Cycles	2	0	0	0	0	0	0	2	2
3. Tumor Growth Characteristics	0	0	0	0	5	0	0	5	5
4. Cancer Spread	0	0	1	2	2	0	0	5	5
5. Chemical Carcinogenesis	0	0	0	0	1	0	1	2	2
6. Viral Carcinogenesis	1	0	0	0	0	0	0	1	1
7. Radiation Carcinogenesis	0	0	0	0	0	0	0	0	0
8. Genetic Caricinogenesis	5	0	0	1	0	0	0	6	6
9. Paraneoplastic Syndromes	1	0	0	1	4	0	0	6	6
10. Diagnosis	2	5	1	2	3	0	2	15	15
11. Physical Findings	0	0	0	2	8	0	0	10	0
12. Symptoms	1	0	2	2	9	4	0	18	18
13. Lab Findings	0	0	0	2	3	0	0	5	5
14. Surgical Treatment	0	3	0	0	4	0	0	7	7
15. Chemotherapy	21	1	0	0	3	0	0	25	25
16. Radiation	3	1	0	0	1	0	0	5	5
17. Immunologic	4	1	2	0	0	0	0	7	7
18. Psychological	0	0	0	0	0	2	3	5	5
19. Psychosocial Characteristics	0	0	0	0	0	0	2	2	2
N of classified oncology items on total test	41	11	6	12	44	6	8	128	
N of items on total test	309	86	134	335	120	200	162	1346	
N of oncology items on total test	35	8	4	5	32	4	10	98	
% of oncology items on total test	11	9	3	1	26	2	6	7	

Unit Key
I = Introductory
II = Gastrointestinal System
III = Cardiovascular System
IV = Renal & Respiratory Biology
V = Endocrinology
VI = Central Nervous System
VII = Family & Community Medicine

Table 50

Classification by Discipline
Frequency of Oncology Test Items in Year I
Academic Year 1977-78

Disciplines	Unit[1]							N	% of Oncology Items
	I	II	III	IV	V	VI	VII		
1. Anatomy	24	11	0	3	6	30	1	75	32
2. Anesthesiology	0	0	0	0	0	0	0	0	0
3. Audiology	0	0	0	2	0	0	0	2	.84
4. Biochemistry	31	17	17	11	29	0	0	105	44
5. Cardiology	0	0	0	0	0	0	0	0	0
6. Community Medicine	0	0	0	0	0	0	3	3	1
7. Comparative Medicine	0	0	0	0	0	0	0	0	0
8. Dermatology & Syphilology	0	0	0	0	0	0	1	1	.42
9. Endocrinology	0	0	0	0	0	0	0	0	0
10. Family Medicine	0	0	0	0	0	0	30	30	13
11. Gastroenterology	0	0	0	0	0	0	0	0	0
12. General Surgery	0	0	0	0	0	0	0	0	0
13. Gynecology	0	0	0	0	0	0	0	0	0
14. Hematology	0	0	0	0	0	0	0	0	0
15. Immunology & Microbiology	0	0	0	0	0	0	0	0	0
16. Infectious Diseases	0	0	0	0	0	0	0	0	0
17. Internal Medicine	0	0	0	0	0	0	0	0	0
18. Nephrology	0	0	0	0	0	0	0	0	0
19. Neurology	0	0	0	0	0	0	0	0	0
20. Neurosurgery	0	0	0	0	0	0	0	0	0
21. Obstetrics	0	0	0	0	0	0	0	0	0
22. Oncology	0	0	0	0	0	0	0	0	0
23. Ophthalmology	0	0	0	0	0	0	0	0	0
24. Orthopedic Surgery	0	0	0	0	0	0	0	0	0
25. Otolaryngology	0	0	0	0	0	0	0	0	0
26. Pathology	0	0	0	0	0	0	0	0	0
27. Pediatrics	0	0	0	0	0	0	0	0	0
28. Pharmacology	0	0	0	0	0	0	0	0	0?
29. Physical Medicine & Rehabilitation	0	0	0	0	0	0	0	0	0
30. Physiology	0	0	7	13	0	0	0	20	8
31. Psychiatry	0	0	0	0	0	0	1	1	.42
32. Radiology	0	0	0	0	0	0	0	0	0
33. Rheumatology	0	0	0	0	0	0	0	0	0
34. Urology	0	0	0	0	0	0	0	0	0
35. Other	0	0	0	0	0	0	0	0	
N of classified oncology items on total test	55	28	24	29	35	30	36	237	
N of items on total test	217	142	177	115	161	199	112	1123	
% of oncology items on total test	25	18	14	25	22	15	32	21	

[1]The unit key referrents are constant for Year I. See Table 48.

Table 51

Classification by Organ System
Frequency of Oncology Test Items in Year I
Academic Year 1977-78

Organ Systems	Unit[1]							N	% of Oncology Items
	I	II	III	IV	V	VI	VII		
1. Cardiovascular	0	0	2	0	0	0	0	2	1
2. Endocrine	0	0	4	1	29	0	1	35	19
3. Gastrointestinal	3	15	1	1	1	0	3	24	13
4. Genitourinary	1	0	0	12	4	0	2	19	10
5. Head & Neck	0	0	0	0	0	0	3	3	2
6. Hematologic	3	6	10	2	0	0	1	21	11
7. Nervous System	5	0	6	0	1	30	4	46	25
8. Renal	0	0	0	13	0	0	5	18	10
9. Respiratory	0	0	0	0	0	0	0	0	0
10. Skeletal	5	0	1	0	0	0	1	7	4
11. Skin & Soft Tissue	5	1	0	0	0	0	1	7	4
N of cross-classified oncology items	22	22	24	29	35	30	21	183	
N of items on total test	217	142	177	115	161	199	112	1123	
% of oncology items on total test	10	15	14	25	22	15	19	16	

[1]The unit key referrents are constant for Year I. See Table 48.

Academic Year.

In terms of changes in the attention evident in the curriculum's evaluation system, the greatest proportion of oncology's curriculum presentation is distributed among more of the Year I units. The number of oncology exam items , in the comparison of 1976-77 exam item distribution with the 1975-75's baseline, increases in each unit, with the exception of endocrinology. In the Functional Category, the total number of oncology related exam items increased from 1974-75's n=128 to 1976-77's n=237. The changes in curriculum attention pattern evident in the Year I Functional Categories data over Academic Years - increasing amounts of curriculum instruction time and evaluation item representation - holds true for the perspectives provided in the Academic Disciplines and Body Sytems Classifications. In the presentation of the individual Academic Year's distributions, Tables 5 and 50 contain Year I's oncology exam distribution by Academic Discipline over the years' unit exams. Tables 6 and 51 describe the distribution of oncology evaluation attention from the perspective of the Organ Systems classification. As was true in the Functional Classification distribution, the evaluation attention discernible in the Discipline Classification increased substantially in each unit, with the exception of the Endocrine Unit system (Tables 5 and 50). In the Organ System Classification of Year I across these Academic Years,

Table 52

Cross Classification of Function By Organ System
Frequency of Oncology Test Items For Year I
Academic Year 1977-78

Functional Classification	Organ System											Total
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	0	0	0	0	0	0	0	0	0	0	0	0
2. Cell Cycles	0	0	0	0	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	0	0	6	0	0	0	6	0	0	2	1	15
4. Cancer Spread	0	1	1	2	0	0	20	0	0	1	0	25
5. Chemical Carcinogenesis	0	0	2	0	0	1	0	1	0	0	0	4
6. Viral	0	0	0	0	0	0	0	0	0	0	0	0
7. Radiation	0	0	0	0	0	0	0	0	0	0	1	1
8. Genetic	0	0	0	0	0	0	0	0	0	0	0	0
9. Paraneoplastic Syndromes	0	10	1	3	0	1	0	0	0	0	0	15
10. Diagnosis	0	0	0	0	0	0	0	1	0	0	0	1
11. Physical Findings	0	1	3	2	3	0	2	3	0	1	1	16
12. Symptoms	1	7	5	6	0	10	13	10	0	3	3	58
13. Lab Findings	0	1	1	0	0	3	1	0	0	0	0	6
14. Surgical Treatment	0	0	5	3	0	0	2	2	0	0	1	13
15. Chemotherapy	1	15	0	0	0	0	1	0	0	0	0	17
16. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
17. Immunologic	0	0	0	0	0	6	0	0	0	0	0	6
18. Psychological	0	0	0	0	0	0	0	0	0	0	0	0
19. Psychosocial Characteristics	0	0	0	0	0	0	1	1	0	0	0	2
N of classified oncology items on total test	2	35	24	16	3	21	46	18	0	7	7	179

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Renal
9=Respiratory
10=Skeletal
11=Skin & Soft Tissue

Table 53

Cross Classification of Function By Organ System
Average (Mean) Performance of Students on Oncology Test Items For Year I
Academic Year 1977-78

Functional Classification	Organ System											Mean Score
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	--	--	--	--	--	--	--	--	--	--	--	--
2. Cell Cycles	--	--	--	--	--	--	--	--	--	--	--	--
3. Tumor Growth Characteristics	--	--	.83	--	--	--	.73	--	--	.57	.96	.76
4. Cancer Spread	--	.42	.89	.61	--	--	.75	--	--	.85	--	.74
5. Chemical Carcinogensis	--	--	.67	--	--	.79	--	.96	--	--	--	.77
6. Viral	--	--	--	--	--	--	--	--	--	--	--	--
7. Radiation	--	--	--	--	--	--	--	--	--	--	.92	.92
8. Genetic	--	--	--	--	--	--	--	--	--	--	--	--
9. Paraneoplastic Syndromes	--	.85	.60	.90	--	.90	--	--	--	--	--	.85
10. Diagnosis	--	--	--	--	--	--	--	.06	--	--	--	.06
11. Physical Findings	--	.33	.38	.40	.76	--	.75	.44	--	.77	.98	.57
12. Symptoms	.72	.80	.71	.76	--	.78	.72	.73	--	.71	.67	.74
13. Lab Findings	--	.98	.88	--	--	.71	.46	--	--	--	--	.74
14. Surgical Treatment	--	--	.93	.66	--	--	.74	.79	--	--	.88	.82
15. Chemotherapy	.76	.78	--	--	--	--	.55	--	--	--	--	.77
16. Radiation	--	--	--	--	--	--	--	--	--	--	--	--
17. Immunologic	--	--	--	--	--	.77	--	--	--	--	--	.77
18. Psychological	--	--	--	--	--	--	--	--	--	--	--	--
19. Psychosocial Characteristics	--	--	--	--	--	--	.99	.21	--	--	--	.60
Mean Performance Score on Oncology Items	.74	.79	.75	.70	.76	.77	.73	.64	--	.70	.82	.74

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Renal
9=Respiratory
10=Skeletal
11=Skin & Soft Tissue

Table 54

Classification by Function
Frequency of Oncology Test Items in Year II
Academic Year 1977-78

Functional Classification	Unit										N	% of Oncology Items
	I	II	III	IV	V	VI	VII	VIII	IX	X		
1. Cell Metabolism	1	0	0	1	0	0	0	0	0	0	2	.65
2. Cell Cycles	0	0	0	0	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	0	0	1	0	2	0	0	0	0	0	3	1
4. Cancer Spread	0	0	0	0	0	0	0	0	0	2	2	.65
5. Chemical Carcinogenesis	0	0	1	4	0	0	0	5	0	0	10	3
6. Viral Carcinogenesis	1	0	0	0	0	0	0	0	0	0	1	.33
7. Radiation Carcinogenesis	0	0	0	0	0	0	0	0	0	0	0	0
8. Genetic Carcinogenesis	0	0	1	0	0	0	0	0	0	0	1	.33
9. Paraneoplastic Syndromes	5	0	1	16	1	2	0	2	0	1	28	9
10. Diagnosis	3	34	8	15	3	2	0	2	0	3	70	23
11. Physical Findings	0	0	1	0	0	0	0	4	0	9	14	5
12. Symptoms	17	19	18	14	6	8	4	0	6	3	95	31
13. Lab Findings	1	0	1	0	5	0	0	0	1	0	8	3
14. Surgical Treatment	0	0	1	0	0	0	0	0	0	0	1	.33
15. Chemotherapy Treatment	38	0	0	6	3	2	2	0	1	1	53	17
16. Radiation Treatment	0	0	0	0	0	0	0	0	0	0	0	0
17. Immunologic Treatment	14	0	0	1	0	1	0	1	0	0	17	5
18. Psychological Treatment	0	0	0	0	0	0	0	0	0	0	0	0
19. Psychosocial Aspects	0	0	0	0	0	0	0	1	0	0	1	.33
N of classified oncology items on total test	80	53	33	57	20	15	6	15	8	19	306	
N of items on total test	167	90	93	122	101	101	92	95	98	74	1003	
% of oncology items on total test	48	59	35	47	20	15	7	16	8	26	30	

Unit Key
I=Introduction
II=Hematology
III=Gastrointestinal
IV=Endocrine
V=Neurology
VI=Urinary
VII=Cardiovascular VIII=Respiratory IX=Psychiatry X=Physical Diagnosis

Table 55

Classification by Academic Discipline
Frequency of Oncology Test Items in Year II
Academic Year 1977-78

Disciplines	Unit[1]										N	% of Oncology Items
	I	II	III	IV	V	VI	VII	VIII	IX	X		
1. Anatomy	0	0	0	0	0	0	0	0	0	0	0	0
2. Anesthesiology	0	0	0	0	0	0	0	0	0	0	0	0
3. Audiology	0	0	0	0	0	0	0	0	0	0	0	0
4. Biochemistry	4	0	0	0	0	0	0	1	0	0	5	2
5. Cardiology	0	0	0	0	0	0	0	0	0	0	0	0
6. Community Medicine	12	0	0	0	0	0	0	2	0	0	14	5
7. Comparative Medicine	0	0	0	0	0	0	0	0	0	0	0	0
8. Dermatology & Syphilology	0	0	0	0	0	0	0	0	0	1	1	.33
9. Endocrinology	0	0	0	0	0	0	0	0	0	0	0	0
10. Family Medicine	0	0	0	0	0	0	0	0	0	0	0	0
11. Gastroenterology	0	0	0	0	0	0	0	0	0	0	0	0
12. General Surgery	0	0	16	0	0	0	0	0	0	1	17	6
13. Gynecology	0	0	0	0	0	0	0	0	0	0	0	0
14. Hematology	0	0	0	0	0	0	0	0	0	0	0	0
15. Immunology & Microbiology	22	0	0	2	0	0	0	2	0	0	26	9
16. Infectious Diseases	0	0	0	1	0	0	0	0	0	0	1	.33
17. Internal Medicine	0	0	0	54	0	0	6	6	0	12	78	26
18. Nephrology	0	0	0	0	0	12	0	0	0	0	12	4
19. Neurology	0	0	0	0	8	0	0	0	0	0	8	3
20. Neurosurgery	0	0	0	0	9	0	0	0	0	0	9	3
21. Obstetrics	0	0	0	0	0	0	0	0	0	0	0	0
22. Oncology	0	0	0	0	0	0	0	4	0	0	4	1
23. Ophthalmology	0	0	0	0	0	0	0	0	0	4	4	1
24. Orthopedic Surgery	0	0	0	0	0	0	0	0	0	0	0	0
25. Otolaryngology	0	0	0	0	0	0	0	0	0	0	0	0
26. Pathology	4	41	15	0	3	0	0	0	0	0	63	21
27. Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
28. Pharmacology	38	2	0	0	0	0	0	0	1	0	41	13
29. Physical Medicine & Rehabilitation	0	0	0	0	0	0	0	0	0	0	0	0
30. Physiology	0	7	1	0	0	0	0	0	0	0	8	3
31. Psychiatry	0	0	0	0	0	0	0	0	7	0	7	2
32. Radiology	0	3	1	0	0	0	0	0	7	0	7	2
33. Rheumatology	0	0	0	0	0	0	0	0	0	0	0	0
34. Urology	0	0	0	0	0	3	0	0	0	1	4	1
35. Other	0	0	0	0	0	0	0	0	0	0	0	0
N of classified oncology items on total test	80	53	33	37	20	15	6	15	8	19	306	
N of items on total test	167	90	93	122	101	101	92	95	98	74	1033	
% of oncology items on total test	48	59	35	47	20	15	7	16	8	26	30	

[1]The unit key referrents are constant for Year II in the 1977-78 Academic Year. See Table 53.

Table 56

Classification by Organ System
Frequency of Oncology Test Items in Year II
Academic Year 1977-78

Organ Systems	Unit[1]										N	% of Oncology Items
	I	II	III	IV	V	VI	VII	VIII	IX	X		
1. Cardiovascular	3	0	0	0	0	0	6	0	0	0	9	3
2. Endocrine	1	0	0	57	0	0	0	1	0	1	60	22
3. Gastrointestinal	3	0	31	0	0	0	0	0	0	4	38	14
4. Genitourinary	2	0	1	0	0	15	0	0	0	1	19	7
5. Head & Neck	0	0	0	0	0	0	0	0	0	0	0	0
6. Hematologic	19	53	0	0	0	0	0	3	0	2	77	28
7. Nervous System	20	0	0	0	20	0	0	0	8	6	54	19
8. Renal	3	0	0	0	0	0	0	10	0	2	15	5
9. Respiratory	1	0	0	0	0	0	0	0	0	0	1	.36
10. Skeletal	0	0	0	0	0	0	0	0	0	1	1	.36
11. Skin & Soft Tissue	2	0	1	0	0	0	0	0	0	2	5	2
N of classified oncology items on total test	54	53	33	57	20	15	6	14	8	19	279	
N of items on total test	167	90	93	122	101	101	92	95	98	74	1033	
% of oncology items on total test	32	59	35	47	20	15	7	15	8	26	27	

[1]The unit key referrents are constant for Year II in the 1977-78 Academic Year. See Table 53.

Table 57

Cross Classification of Function By Organ System
Frequency of Oncology Test Items in Year II
Academic Year 1977-78

Functional Classification	Organ Systems											N
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	0	1	0	0	0	0	0	0	0	0	0	1
2. Cell Cycles	0	0	0	0	0	0	0	0	0	0	0	0
3. Tumor Growth Characteristics	0	0	0	0	0	0	2	0	0	0	1	3
4. Cancer Spread	0	0	0	0	0	0	2	0	0	0	0	2
5. Chemical Carcinogenesis	0	5	1	0	0	0	0	4	0	0	0	10
6. Viral	0	0	0	0	0	0	0	0	0	0	0	0
7. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
8. Genetic	0	0	1	0	0	0	0	0	0	0	0	1
9. Paraneoplastic Syndromes	0	16	1	3	0	0	6	2	0	0	0	28
10. Diagnosis	0	16	9	2	0	35	4	2	0	0	1	69
11. Physical Findings	0	0	3	1	0	2	1	5	0	1	1	14
12. Symptoms	4	14	20	9	0	21	25	0	0	0	0	93
13. Lab Findings	0	0	1	0	0	1	6	0	0	0	0	8
14. Surgical Treatment	0	0	1	0	0	0	0	0	0	0	0	1
15. Chemotherapy	5	7	1	3	0	5	8	2	1	0	1	33
16. Radiation	0	0	0	0	0	0	0	0	0	0	0	0
17. Immunologic	0	1	0	1	0	13	0	0	0	0	1	16
18. Psychological	0	0	0	0	0	0	0	0	0	0	0	0
19. Psychosocial Characteristics	0	0	0	0	0	0	0	0	0	0	0	0
N of classified oncology items on total test	9	60	38	19	0	77	54	15	1	1	5	279

Organ System Key

1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Table 58

Cross Classification of Function By Organ System
Average (Mean) Performance of Students on Oncology Test Items for Year II
Academic Year 1977-78

Functional Classification	Organ Systems											Mean
	1	2	3	4	5	6	7	8	9	10	11	
1. Cell Metabolism	--	.98	--	--	--	--	--	--	--	--	--	.98
2. Cell Cycles	--	--	--	--	--	--	--	--	--	--	--	--
3. Tumor Growth Characteristics	--	--	--	--	--	--	.87	--	--	--	.59	.78
4. Cancer Spread	--	--	--	--	--	--	.74	--	--	--	--	.74
5. Chemical Carcinogenesis	--	.92	.94	--	--	--	--	.67	--	--	--	.86
6. Viral	--	--	--	--	--	--	--	--	--	--	--	--
7. Radiation	--	--	--	--	--	--	--	--	--	--	--	--
8. Genetic	--	--	.85	--	--	--	--	--	--	--	--	.85
9. Paraneoplastic Syndromes	--	.73	.26	.80	--	--	.91	.56	--	--	--	.75
10. Diagnosis	--	.74	.67	.93	--	.75	.70	.66	--	--	.74	.74
11. Physical Findings	--	--	.47	.94	--	.71	.63	.82	--	.48	.31	.66
12. Symptoms	.86	.61	.64	.86	--	.82	.83	--	--	--	--	.76
13. Lab Findings	--	--	.93	--	--	.83	.91	--	--	--	--	.90
14. Surgical Treatment	--	--	.74	--	--	--	--	--	--	--	--	.74
15. Chemotherapy	.78	.63	.83	.71	--	.80	.88	.59	.97	--	.93	.77
16. Radiation	--	--	--	--	--	--	--	--	--	--	--	--
17. Immunologic	--	.51	--	.92	--	.63	--	--	--	--	.45	.63
18. Psychological	--	--	--	--	--	--	--	--	--	--	--	--
19. Psychosocial Characteristics	--	--	--	--	--	--	--	--	--	--	--	--
Mean Performance Score	.81	.73	.65	.84	--	.75	.84	.70	.97	.48	.60	.75

Organ System Key
1=Cardiovascular
2=Endocrinology
3=Gastrointestinal
4=Genitourinary
5=Head & Neck
6=Hematology
7=Central Nervous System
8=Respiratory
9=Renal
10=Skeletal
11=Skin & Soft Tissue

Table 59

Frequency and Mean Performance of Oncology Test Items by Function
Years I and II
Academic Year 1977-78

Functional Classification	Year I		Year II	
	n of Items	Avg. Score	n of Items	Avg. Score
1. Cell Metabolism	9	.69	2	.92
2. Cell Cycles	0	--	0	--
3. Tumor Growth Characteristics	15	.76	3	.78
4. Cancer Spread	25	.74	2	.74
5. Chemical Carcinogenesis	6	.83	10	.86
6. Viral	0	--	1	.10
7. Radiation	1	.92	0	--
8. Genetic	2	.85	1	.85
9. Paraneoplastic Syndromes	16	.85	28	.75
10. Diagnosis	1	.06	70	.74
11. Physical Findings	16	.57	14	.66
12. Symptoms	64	.74	95	.78
13. Lab Findings	7	.77	8	.90
14. Surgical Treatment	13	.82	1	.74
15. Chemotherapy	44	.79	53	.74
16. Radiation	0	--	0	--
17. Immunologic	6	.77	17	.62
18. Psychological	4	.89	0	--
19. Psychosocial Characteristics	7	.73	1	.97
N of oncology items on total test	236	.74	306	.76

the amount of oncology-related material increases in each category, with the exception of the Respiratory System. The tables describing the contrastive patterns provided in the cumulative tallies for the Year I curriculum across the units of the Academic Years are presented in Tables 60, 63 and 67.

As indicated in Table 60, the categories experiencing the greatest proportion of change are those of (diagnostic) symptoms, cancer spread, paraneoplastic syndromes and chemotherapy. These changes, however, are changes "only" of magnitude; their increasing number does not change their ranking within the previously established (1974-75) curriculum base. The shape of the distribution over functional categories remains substantially the same; it is only the frequency of items which has increased. While a greater amount of time on cancer is evident in the curriculum presentation and its evaluation system, the profile (in terms of distribution among topics) *within* cancer topics has not changed.

In Tables 63 and 64, the changes by Discipline in Oncology-related exam items are again marked by substantial increases in the frequency of oncology topics. Unlike the stability within the Functional Category representation in different Academic Years, the Disciplines presenting the increased oncology material in later years has shifted. Family Medicine, with more overall time in the curriculum,

Table 60

Comparison of Frequency of Oncology Exam Items by Functional Classification over Academic Years
Years I and II

Functional Classification	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Cell Metabolism	2	9	0	2
2. Cell Cycles	2	0	0	0
3. Tumor Growth Characteristcs	5	15	10	3
4. Cancer Spread	5	25	3	2
5. Chemical Carcinogenesis	2	6	1	10
6. Viral	1	0	2	1
7. Radiation	0	1	0	0
8. Genetic	6	2	1	1
9. Paraneoplastic Syndromes	6	16	0	28
10. Diagnosis	15	1	33	70
11. Physical Findings	10	16	6	14
12. Symptoms	18	64	13	95
13. Lab Findings	5	7	11	8
14. Surgical Treatment	7	13	0	1
15. Chemotherapy	25	44	1	53
16. Radiation	5	0	0	0
17. Immunologic	7	6	0	17
18. Psychological	5	4	0	0
19. Psychosocial Characteristics	2	7	0	1
Total	128	236	81	306

Table 61

Average (Mean) Performance of Students
On Oncology Test Items by Function over Academic Years
Years I and II

Functional Classification	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Cell Metabolism	.93	.69	--	.92
2. Cell Cycles	.41	--	--	--
3. Tumor Growth Characteristics	.72	.76	.71	.78
4. Cancer Spread	.82	.74	.72	.74
5. Chemical Carcinogenesis	.62	.83	.47	.86
6. Viral	.62	--	.47	.10
7. Radiation	--	.92	--	--
8. Genetic	.69	.85	.74	.85
9. Paraneoplastic Syndromes	.74	.85	--	.75
10. Diagnosis	.70	.06	.81	.74
11. Physical Findings	.74	.57	.79	.66
12. Symptoms	.82	.74	.52	.78
13. Lab Findings	.61	.77	.68	.90
14. Surgical Treatment	.59	.82	--	.74
15. Chemotherapy	.76	.79	.85	.74
16. Radiation	.83	--	--	--
17. Immunologic	.75	.77	--	.62
18. Psychological	.67	.89	--	--
19. Psychosocial Characteristics	.33	.73	--	.97
Mean performance On Oncology Items	.73	.74	.72	.76

Table 62

Frequency and Mean Performance on Oncology Test Items by Discipline
Years I and II
Academic Year 1977-78

Academic Discipline	Year I		Year II	
	n of Items	Mean Score	n of Items	Mean Score
1. Anatomy	75	.77	0	--
2. Anesthesiology	0	--	0	--
3. Audiology	2	.76	0	--
4. Biochemistry	104	.78	5	.58
5. Cardiology	0	--	0	--
6. Community Medicine	3	.69	14	.62
7. Comparative Medicine	0	--	0	--
8. Dermatology & Syphilology	1	.98	1	.31
9. Endocrinology	0	--	0	--
10. Family Medicine	30	.66	0	--
11. Gastroenterology	0	--	0	--
12. General Surgery	0	--	17	.65
13. Gynecology	0	--	0	--
14. Hematology	0	--	0	--
15. Immunology & Microbiology	0	--	26	.66
16. Infectious Diseases	0	--	1	.77
17. Internal Medicine	0	--	78	.74
18. Nephrology	0	--	12	.82
19. Neurology	0	--	8	.87
20. Neurosurgery	0	--	9	.82
21. Obstetrics	0	--	0	--
22. Oncology	0	--	4	.73
23. Ophthalmology	0	--	4	.80
24. Orthopedic Surgery	0	--	0	--
25. Otolaryngology	0	--	0	--
26. Pathology	0	--	63	.76
27. Pediatrics	0	--	0	--
28. Pharmacology	0	--	41	.85
29. Physical Medicine & Rehabilitation	0	--	0	--
30. Physiology	20	.70	8	.85
31. Psychiatry	1	.99	7	.93
32. Radiology	0	--	4	.70
33. Rheumatology	0	--	0	--
34. Urology	0	--	4	.93
35. Other	0	--	0	--
N of oncology items on total test	236	.76	306	.76

Table 63

Comparison over Academic Years of Frequency of Oncology Exam Items by Discipline
Years I and II

Academic Discipline	Frequency of Oncology Items			
	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Anatomy	9	75	0	0
2. Anesthesiology	0	0	0	0
3. Audiology	0	2	0	0
4. Biochemistry	29	104	0	5
5. Cardiology	0	0	0	0
6. Community Medicine	4	3	0	14
7. Comparative Medicine	0	0	0	0
8. Dermatology & Syphilology	1	1	0	1
9. Endocrinology	32	0	0	0
10. Family Medicine	0	30	0	0
11. Gastroenterology	2	0	0	0
12. General Surgery	2	0	10	17
13. Gynecology	13	0	0	0
14. Hematology	9	0	22	0
15. Immunology & Microbiology	9	0	3	26
16. Infectious Diseases	0	0	0	1
17. Internal Medicine	1	0	3	78
18. Nephrology	0	0	0	12
19. Neurology	4	0	0	8
20. Neurosurgery	0	0	0	9
21. Obstetrics	0	0	0	0
22. Oncology	29	0	10	4
23. Ophthalmology	0	0	0	4
24. Orthopedic Surgery	0	0	0	0
25. Otolaryngology	1	0	1	0
26. Pathology	5	0	25	63
27. Pediatrics	5	0	0	0
28. Pharmacology	4	0	1	41
29. Physical Medicine & Rehabilitation	0	0	0	0
30. Physiology	0	20	0	8
31. Psychiatry	5	1	5	7
32. Radiology	4	0	2	4
33. Rheumatology	0	0	0	0
34. Urology	2	0	2	4
35. Other	0	0	0	0
N of oncology items on total test	169	236	84	306

Table 64

Comparison over Academic Years of Student Performance on Oncology Exam Items By Discipline
Years I and II

Academic Discipline	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Anatomy	.69	.77	--	--
2. Anesthesiology	--	--	--	--
3. Audiology	--	.76	--	--
4. Biochemistry	.70	.78	--	.58
5. Cardiology	--	--	--	--
6. Community Medicine	.48	.69	--	.62
7. Comparative Medicine	--	--	--	--
8. Dermatology & Syphilology	.90	.98	--	.31
9. Endocrinology	.80	--	--	--
10. Family Medicine	--	.66	--	--
11. Gastroenterology	.16	--	--	--
12. General Surgery	2	--	.71	.65
13. Gynecology	.81	--	--	--
14. Hematology	.79	--	.75	--
15. Immunology & Microbiology	.76	--	.58	.66
16. Infectious Diseases	--	--	--	.77
17. Internal Medicine	.84	--	.48	.74
18. Nephrology	--	--	--	.82
19. Neurology	.97	--	--	.87
20. Neurosurgery	--	--	--	.82
21. Obstetrics	--	--	--	--
22. Oncology	.78	--	.69	.73
23. Ophthalmology	--	--	--	.80
24. Orthopedic Surgery	--	--	--	--
25. Otolaryngology	--	--	.88	--
26. Pathology	.77	--	.72	.76
27. Pediatrics	.74	--	--	--
28. Pharmacology	.70	--	--	.85
29. Physical Medicine & Rehabilitation	--	--	--	--
30. Physiology	--	.70	--	.85
31. Psychiatry	.63	.99	--	.93
32. Radiology	.79	--	.75	.70
33. Rheumatology	--	--	--	--
34. Urology	.71	--	.75	.93
35. Other	--	--	--	--
Mean Performance on Oncology items	.75	.76	.73	.76

now offers new curriculum time to oncology topics. The department of Biochemistry, consistently predominant in the ranking of disciplines by their involvement in oncology education, is responsible for the overwhelming proportion of oncology material in the 1977-78 Year II curriculum. Following these changes through the Year II curriculum, the changes in the absolute number of oncology exam items from 1974-75 to 1977-78 represents a 364% increase. A greater number of Academic Disciplines are, in the 1976-77 Academic Year, contributing to the oncology representation in the examination system. The Organ System content of this evaluation attention, indicated in Tables 66 and 67, of Years I and II has at least some representation for each Organ System. A drastically diminished attention marks the Respiratory System for Years I and II in the Academic Years covered. With the exception of the Head and Neck System (a rare site of primary cancer), every other Organ System has increased substantially the number of examination items which test students' knowledge of its material.

The potential impact of this dramatically increased curriculum time and evaluation base can be assessed in the evidence of students' aquisition of the more extensive cancer curriculum. The evidence of students' acquisition is contained in their performance scores on internal examinations and the National Board's Medical Examination (NBME).

Table 65

Frequency and Average (Mean) Performance on Oncology Exam Items
Years I and II
Academic Year 1977-78

Organ Systems	Year I		Year II	
	n of items	Average (Mean) Score	n of items	Average (Mean) Score
1. Cardiovascular	2	.74	9	.81
2. Endocrine	35	.79	60	.73
3. Gastrointestinal	24	.75	38	.65
4. Genitourinary	19	.70	19	.84
5. Head & Neck	3	.76	0	--
6. Hematologic	21	.77	77	.75
7. Nervous System	46	.73	.54	84
8. Renal	18	.64	15	.70
9. Respiratory	0	--	1	.97
10. Skeletal	7	.70	1	.48
11. Skin & Soft Tissue	7	.82	5	.60
Combined Organ System Tally	182	.82	279	.75

Table 66

Comparison over Academic Years of Frequency of Oncology Exam Items by Organ System
Years I and II

Organ Systems	Frequency of Oncology Items			
	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Cardiovascular	2	2	0	9
2. Endocrine	28	35	7	60
3. Gastrointestinal	10	24	13	38
4. Genitourinary	10	19	5	19
5. Head & Neck	1	3	1	0
6. Hematologic	10	21	25	77
7. Nervous System	6	46	13	54
8. Renal	0	18	7	15
9. Respiratory	5	0	13	1
10. Skeletal	1	7	0	1
11. Skin & Soft Tissue	0	7	0	5
N of Classified Oncology Items	76	182	84	279

Table 67

Comparison over Academic Years of Student Performance on Oncology Exam Items by Organ System
Years I and II

Organ Systems	Year I		Year II	
	Academic Year 1974-75	Academic Year 1977-78	Academic Year 1974-75	Academic Year 1977-78
1. Cardiovascular	.78	.74	--	.81
2. Endocrine	.81	.79	.68	.73
3. Gastrointestinal	.62	.75	.64	.65
4. Genitourinary	.75	.70	.77	.84
5. Head & Neck	.59	.76	.88	--
6. Hematologic	.68	.77	.96	.75
7. Nervous System	.85	.73	.78	.84
8. Renal	--	.64	.77	.70
9. Respiratory	.77	--	.54	.97
10. Skeletal	.94	.70	--	.48
11. Skin & Soft Tissue	--	.82	--	.60
Average (Mean) Performance	.76	.74	.70	.75

As the account confidently shared by John Hubbard, President Emeritus of the National Board of Medical Examiners (NBME) indicates, variation among content areas is expected to occur. Hubbard describes the process of formulating the NBME items as one in which the differences among medical sciences are expected to surface, given:

> the outline is drawn up in the way that the examiners agree is best suited to their particular subject. The National Board's test committee for physiology designed an outline which, as might be expected, reflects the physiologists' viewpoint related to body functions. The outline for pediatrics was, on the other hand, approached from a very different point of view...(Hubbard, 1978:20)

The occurrence of this variability is considered as an appropriate reflection of the variability in the perspectives of different specialties.

Table 45 presents the performance of Wayne State University Medical School students compared to all medical students on items representing fourteen medical specialties on the NBME. The number of items represented in each medical category is indicated, along with the mean performance scores of WSU students and all examinees.

Of the total 142 NBME specialty-classified items, 8.5% (twelve items) are accorded to oncology. Given that *t* ratio

for these means is statistically significant, in the support of WSU's higher performance level, (t=2.90 for non-independent means, with 13 degrees of freedom) at the 0.01 level, WSU's curriculum as a whole seems to well prepare students for the medical specialty evaluation represented in the NBME. As indicated in Table 42, the greatest magnitude of difference (D=9.41) occurs in the comparison of the WSU and national NBME means on the oncology specialty items. In comparison to other training sites, then, Wayne State's Medical School students seem to be acquiring a knowledge of cancer at a level which is decidedly competitive with that offered in other medical training institutions or programs.

Within Wayne State University, however, students' oncology performance does not exceed that of other medical topics. Beyond their performance on the individual oncology items contained within the multiple choice examinations, an additional performance measure - the Patient Management Problems - provides insight into the depth of understanding of medical knowledge of oncology. As previously indicated in the discussion of the Patient Management Problems, students performance levels on the PMPs remained stable over Academic Years. Their scores on oncology-related PMPs remained, at a statistically significant level, lower than their scores on the PMPs which were not related to cancer. In the multiple choice exam system, students' performance on

individual units within academic years has been noted; the comparison of the cumulative mean performance on oncology material on Years I and II for the 1974-75 and 1977-78 academic years is summarized on Tables 61, 64 and 67. As these tables indicate, the mean performance scores represent changes which are small and not unidirectional; for the areas in which comparisons of performance can be made, students seem to be performing at the same level at the baseline year as the students of the later (1976-77) curriculum which contains the additional cancer material.

Assessing the Meaning of Cancer Curriculum Change: Magnitude, Distribution and Impact of Curriculum Training

The appearance of a stable knowledge base attainment may mispresent, however, what the cancer curriculum changes have achieved. Change can be discerned in areas previously unrepresented in the evaluation system. For example, the renal system was not bringing evaluation attention to oncology material. By the later assessment period, its ranking, on the representation of oncology material, has shifted from last (10.5) in 1974-75 to sixth. Students are performing on the 18 oncology items it includes at 64%. The cardiovascular system exhibits a similar process. In the cardiovascular system's evaluation which previously omitted cancer, student performance on the nine oncology-related cardiovascular items in the 1976-77 Academic Year is within a standard deviation of the overall mean performance score.

Given that these additions to the cancer curriculum perfomance base are closely distributed within the existing mean oncology performance values, their inclusion does not affect the value of the mean performance score for oncology material.

As indicated in Table 67, the overall performance mean in Year I moves from 1974-75's 76% to 1976-77's 74%; Year II's mean performance scores shifts from 70% to 75%. The overall performance means in Organ System classification of oncology material decreases slightly in Year I's data and increases in Year II's. In the classification by Academic Discipline, the magnitude and direction of the mean performance score changes (from Year I's 75% in 1974-75 to 76% in 1976-77, and Year II's 73% to 76%) are not statistically significant.

What can be noted in this occurrence, however, is that the *magnitude* of oncology education material has been expanded. Despite, then, the statistically non-significant change in the mean performance scores between the Academic Years (1973-74 and 1976-77) for Years I and II, this performance attainment represents the acquisition of an expanded oncology base.

The magnitude of the changes in curriculum time and evaluation attention as a whole, or the relative proportion cancer education consumes within the overall curriculum, did

not, however, change the overall distribution, particularly among areas of the Functional Classification. Within the areas of relative omission within cancer education, one particular area seemed to remain underrespresented in both the curriculum presentation and the evaluation system. While other areas, initially described as infrequently appearing in the curriculum or evaluation, were promoted to greater prominence within the curriculum, the area of Psychosocial Aspects of Cancer continues to be minimally present (less than 1% of evaluation item representation) in the oncology curriculum's attention.

The area of Psychosocial Aspects of Cancer could, then, be noted as an area marked for "future study", a candidate for curriculum attention gain which should be amenable to the same mechanisms by which other areas (eg., radiation biology or renal cancer) have been brought to greater curriculum prominence. Given, however, that this evaluation research project occurs in the actual setting of interactive cancer education formation and conduct, the ethnoecological inquiry provides a perspective from which the "omission" of Psychosocial Aspects of Cancer can be seen as a corollary of an actively produced definition of cancer care education. Earlier in this thesis, the formation of a definition of cancer was seen as achieved through the interaction of members, in the context of mapping the patterns of attention initiated, sustained or extinguished within the medical

school. The markedly different status of Psychosocial Aspects of Cancer is not presented as an inevitable reflection of inherent properties of its content. Nor is there pre-determined consensus throughout the Medical Culture that Psychosocial Aspects of Cancer is an unattainable or inappropriate aspect of medical training. The concluding portion of this thesis traces the activities of members, acting on the environmental resources and constraints of the social context of training and practice, in actively achieving the problematic status of Psychosocial Aspects of Cancer.

CHAPTER 7

Premises of Interactive Cancer Care In Professional Oncology Education and Practice

The Omission of Psychosocial Aspects of Cancer: Who Says It's Missed?

The national Cancer Education Survey survey was conducted by Bakemeier and Deegan and the Cancer Education Committee for the American Association for Cancer Education; under a contract with the National Cancer Institute, to provide a comprehensive description of the institutional resources, medical curriculum characteristics, medical school faculty and student reports, and organizational characteristics comprising cancer education in the United States' Medical Schools during the period from 1976 through 1978 (1978, 1981). The information was obtained mainly through surveys; interviews and information obtained in site visits of (a stratified random sample) of selected medical school sites supplemented the survey data. The student responses reported here are part of the data obtained from 110 of the 114 United States Medical Schools.

While the Wayne State University Medical School oncology evaluation provided empirical measures of an oncology curriculum's explicit content, extent and impact, the degree to which the insights achived from the study of this particular cancer education site depends on the extent to which the cancer care training it enables represents

pervasive patterns of professional oncology care training in the American Medical culture. While the intensive examination of the particular (WSU Medical School) cancer training site enabled mapping the empirical distribution the oncology curriculum's extent and impact, the National Survey allows the meaning of that material to be considered from the perspective of students' perception of their oncology curriculum. The detailed account of the Wayne State University Medical School oncology curricululm helps to render more concrete the general picture obtained through the distance of the large-scale survey; the survey provides the extended dimensions against which the particular character of the WSU findings can be considered.

In determining the perceived adequacy of students' medical school training, the national survey posed two forms of a question. These questions appeared at the end of the survey's (second) section on medical students' retrospective report of their oncology curriculum experience.

The first question asked students to consider what distribution of oncology curriculum time, if the existing oncology time were not allowed to vary, would the student think should be allocated among a list of cancer-related topics provided. This structured query was posed to students in the following form:

> 16. Assuming that the current number of hours of cancer related instruction in your school must remain

fixed, we would like to know how you would reapportion the hours your school currently spends on cancer if you had your way. (PLEASE NOTE THAT IF YOU INDICATE THAT YOU FEEL YOUR INSTITUTION SHOULD SPEND MORE TIME IN AN AREA, YOU MUST INDICATE IN WHICH AREA(S) IT SHOULD SPEND LESS TIME).

	More Time	Same Time	Less Time
1. Cancer education in the basic science courses			
2. Pre-clinical electives on cancer topics			
3. Student laboratory research on cancer			
4. Students doing work-ups on cancer patients			
5. Clinical electives about cancer			
6. Teaching diagnostic procedures for cancer			
7. Teaching therapeutic techniques for cancer:			
a. Surgery			
b. Chemotherapy			
c. Radiation Therapy			
8. Teaching about multidisciplinary cancer patient management			
9. Teaching about the psychosocial aspects of cancer			

In the students' proposed oncology curriculum time reapportion responses, the two topics most frequently marked as deserving a greater portion of oncology time were "multidisciplinary treatment management" and "psychosocial aspects". Students from both pre-clinical (basic science) and clinical academic placement consistently expressed the preference for reapportion of curriculum time emphasizing interactive (with patients and affiliated medical staff) care experience.

In a subsequent open-ended question, students were asked to list oncology education areas which they would identify as needing improvement. This question appeared as:

18. Could you please tell us what you think are the three most important improvements that could be made in the undergraduate cancer education at your institution?
3.

In this open-ended elicitation of areas for which the student recommends curriculum improvement, students most frequently cited the area of Psychosocial Aspects (which the students describe as needing to include both the management of psychosocial problems and physician-patient communication).

The format of these questions and the scope of the survey *include* - but do not emphasize - psychosocial characteristics/interactive cancer care skill training. Students' consistent reporting of these areas as warranting, even in the confines of their time-constrained curricula, greater curriculum emphasis emerges as a convincing statement of student-perceived cancer care training need. Interestingly, despite their recognition that their current curriculum training does not sufficiently emphasize these areas, students do not indicate that they perceive interactive care training to be beyond the ken of the medical school.

The student *experience* of insufficient curriculum preparation for the practice of psychosocial care of the cancer patient offers an experiential base for extrapolating from the findings of the Wayne State University Medical School curriculum study of an empirically documented, persistent lack of curriculum attention to psychosocial concerns. In turn, the individual Wayne State University Medical School curriculum study process, in establishing an

approach to mapping cancer education in the public examination of the tangible evidence of curriculum time and multiple choice exam items over academic years, provides a referrent from which to make sense of a troubling charge directed at the validity of the national survey.

The substance of the charge disclaims the validity of the response categories from which the survey designers attempted to describe the (organizational) characteristics of the sites of cancer care training. The preliminary results of the comprehensive national cancer survey were first presented at the 1978 annual meeting of the American Association of Cancer Education. The report took the perspective of attributing the formation of successful cancer education programs to particular organizational characteristics. The Chief of the Clinical Manpower Branch for the Division of Cancer Research resources and Centers of the National Cancer Institute, who had formulated the AACE survey contract responsible for the project's initiation, challenged the validity of the responses reported in the survey. The basis of the challenge was described as a "labelling phenomena" in which the queried activity did exist, but was not recognized as such by the respondent, and, then, not reflected in the survey report. Unless a group serving that function calls itself a Cancer Education Committee or a Pediatric Oncology unit, for example, the AACE survey would underestimate the frequency of these units

within the population of oncology training sites.

After attending this conference, a member of the Wayne State Cancer Education Committee suggested that this "labelling phenomena" might be responsible for the *appearance* of the underrepresentation of Psychosocial Aspects of Cancer. In the rush to "get the facts down", the scribe lecture note taker might miss the fleeting reference to psychosocial aspects contained in a lecture. Surely, the committee member proposed, the Psychosocial Aspects of cancer would be discussed by the surgeon describing the colostomy management plans to students. But, because the Psychosocial Aspects were not labelled as such, the student could easily fail to recall that such material had been a part of the presentation.

The premise in seeing the problem this way assumed that the issue of adequately detecting Psychosocial Characteristics of cancer had not already been faced, and further assumes that its detection is somehow more difficult or elusive than embedded biochemical oncology material or any of the other components of Oncology Education embedded in the WSU curriculum.

The source for determining whether or not the Psychosocial Characteristics of Cancer are, indeed, more difficult to locate, demonstrate or evaluate lies within the examination of available but critically unexamined teaching

and learning of Psychosocial Characteristic material. The sources examined for their demonstration of that material includes the explicit content of the categories of Psychosocial Characteristics formulated by the Interinstitutional Group. In contrast to this existing teaching base, the final data source considered here explores a potential site for the demonstration of embedded Psychosocial Characteristics of Cancer: the university affiliated outpatient clinic from which the oncology faculty practice interactive cancer care.

Evaluation of Explicit Professional Oncology Education's Treatment of Psychosocial Aspects of Cancer

As this thesis has indicated, the provision of an explicitly formulated sourcebook for the content design and evaluation of oncology education in the Medical School provided a powerful frame of reference from which to examine the content and distribution of oncology education.

The basis for its acceptance by the Wayne State University Cancer Education Committee followed its introduction which noted its intent (the provision of a complete set of cancer education information) and the credentials of its authors. As this thesis has noted, the incorporation of the Handbook of Interinstitutional Objectives within the evaluation research project did not reflect its acceptance as an ultimate standard against which the detection of curriculum differences would be noted as

curriculum deficiencies. Rather, the Handbook provides a referrent which is both external to the WSU Medical School, which, then, provides a comparative perspective for the analysis of WSU's oncology curriculum, and reactive to the perceived expectancies of those directing oncology education. The faculty members of the Wayne State University Cancer Education Committee share, with the authors of the Handbook of Interinstutional Objectives in Oncoloy, the roles of teachers, healers and researchers. As is true of the Handbook's authors, the WSU faculty have had ocasion to shape the formation of policy definition or funding criteria in which they participate.

The source of elaboration or additional inclusion is described as the audience of (fellow) medical educators. Concession to the well-documented transience of medical knowledge is conveyed only in the preface, to the extent that "feedback" from the medical educators using the book will be considered for potential revisions in the Handbook. The questions of relevancy or difficulty are acknowledged as potential concerns - for the "*individual* reader" or "a *specific* student".

The Handbook presents the information it recommends for inclusion in the medical school training for cancer care in the form of objectives. Within this evaluation research project, the Interinstitutional Objectives provide an explicit occasion from which to assess the ability of a

professionaly proffered standard to describe the material contained in an actual cancer curriculum. As indicated in the summary tables of Relative Attention in Sources of Curriculum Instruction and Evaluation by Functional Classification and by Organ System, Interinstitutional Objectives do indeed lend themselves to the comparative analysis of patterns of oncology instruction and evaluation attention. The patterns of attention within topics which the organization of the Interinstitutional Objectives exhibit considerable congruity with the attention patterns found in the Wayne State University oncology curriculum. This congruence extends to the topics and relative frequency of items defining the Psychosocial Characteristics of Cancer.

The sequence of the presentation of the sections - from underlying cell biology to carcinogenesis and pathology through screening and treatment protocols to considerations of specific organ sites of cancer - recapitulates the content and sequence of curriculum instruction within the medical school currriculum.

The sequence within a given section (eg., Cell Biology) is the presentation of the entire set of objectives, followed by the answers for that section. While the first twenty-two sections' answers are presented as "standard" answers, for which no particular author, reference, or possible constraints are cited, the presentation of the

answers corresponding to the "Psycho-Social Aspects of Cancer" section follow a different format.

Contrasting Content in the Interinstitutional Objectives: Psycho-Social as Anomaly

Excerpts from the "Cancer Cell Biology" and "Psycho-Social Aspects of Cancer" sections are included to enable the consideration of the pattern and implication of the differences between the "Psycho-Social Aspects" and the remaining oncology curriculum instruction and evaluation material:

I. Cancer Cell Biology

B. Cell Cycle in Normal and Cancer Cells

> The process of cell division for growth and repair is essential to life. The components and activities leading to replication within individual cells comprise the "cell cycle". Detailed knowledge of this cell cycle, with its variations in various normal and neoplastic tissues is essential to our understanding of cancer cell growth patterns. It is also core knowledge for choices and scheduling of various alternative treatment plans for the cancer patient. To have a working knowledge of cell cycle kinetics, the student/physician will be able to:
>
> 1. Draw and label a diagram of the normal cell cycle.
>
> 2. Name the principal cellular activity occurring during the "S" phase.
>
> 3. Identify two (2) macromolecules synthesized during both the G1 and G2 phases.
>
> 4. Name the major cellular activity during the D or M phase.
>
> 5. Discuss the importance of the length of the G1 phase of the cell cycle in cancer.

6. Describe the major differences between G1 and G0 phases of the cell cycle.

7. a) Describe "growth fraction" as used in cancer cell kinetics and b) describe the role of the growth fraction in predicting the effectiveness of cancer therapy.

ANSWERS
I. Cancer Cell Biology
B. Cell Cycle in Normal and Cancer Cells

1. The circular diagram should have the three intervals in relation to the synthesis of DNA and preparation for cell division. This includes G1 (post-miotic gap). This is the interval between mitosis and before the beginning of DNA synthesis. S is the period of DNA synthesis and G2 (pre-miotic gap) is the period between the end of DNA synthesis and the beginning of mitosis. D, or M, refers to the actual period of cell division after the activities just decribed for interphase.

2. DNA synthesis: During this period the DNA content of the nucleus is exactly doubled.

3. RNA and protein synthesis: occurs in both of the phases that come before and after the period of DNA synthesis (S phase).

4. Mitosis: This has classically been divided into four subphases called prophase, metaphase, anaphase, and telophase.

5. The G1 phase is quite variable within all populations of cells in contrast to the relatively small fluctuations occurring in the lengths of the other phases of the cell cycle. The G1 phase is also the natural arrest point for cell reproduction and is the point where growth control in normal tissue occurs. The loss of normal regulation in neoplasia is a function of the G1 phase of cell reproduction.

6. The G1 phase is the interval between mitosis and the beginning of DNA synthesis and is the period in which the cell prepares for the S phase by synthesizing enzymes needed to produce pools of precursors of DNA. We view the G1 phase as a period of active preparation for S phase, DNA synthesis. The concepts of G0 phase is that of a resting phase in which a cell may reside for an unlimited period and from which it may be recruited back into the active cell cycle phases at G1.

7. a. The "growth fraction" is the percent of cells in the entire tumor that are in the proliferating compartment as opposed to those cells that are not dividing (but capable of dividing), permanently non-dividing cells, and dead cells.

b. Since many treatments for cancer are effective during an active phase of the cell cycle, only those cells considered part of the "growth fraction" would be vulnerable to these specific treatments.

The questions and answers found in the cell biology are presented as straightforward; no hidden facets of the question return to haunt the examinee. A fairly extensive undergraduate background in the natural sciences is recommended and usually taken by medical school applicants. The level of difficulty presented in these questions would not be at all intimidating to the entering medical student. With the exception of the neoplasia information contained in question 5 and, possibly, the growth fraction definition in question 7, the information contained in this entire Cell Biology unit is well within the scope of the undergraduate (baccalureate) introductory biology class.

"Psycho-Social Aspects of Cancer" comprises the very last section of of the Handbook.

For only the "Psycho-Social Aspects" section, answers provided are described as "model answers", and a particular author is indicated. For the remaining (non psycho-social aspects) content, the knowledge of cancer, or how to present or evaluate that knowledge base, is presented without any hint of controversy, (i.e., the status of the knowledge is

considered as certain, although the implications of the subject for cancer's etiology or control may be noted as uncertain), or lack of consenus within the overall medical field or oncologic subspecialties. Further, the introduction to the categories not designated as "psycho-social aspects" emphasizes the relevance of the category of knowledge embodied in the given specialty to the scholarly understanding and scientific investigation of cancer phenomena.

Within the Psycho-Social Section of the Interinstitutional Oncology Objectives, the directions for students asks them to engage in behavior noticably different than that called for in producing proof of knowledge in other sections. It is only in the "Psycho-Social Aspects" section that students are asked to respond in an essay format. Further, the phenomena upon which they will be reporting calls attention to the student-practitioner's own feelings, beliefs and practices, in the context of implications for dealing with "problems" in "an empathetic and humanistic way".

The ten questions and answers which comprise this section include:

XXIII. Psycho-Social Aspects of Cancer

> Given a patient with cancer (or potential cancer), the student/physician should be able to accurately diagnose the patient's psychological problem(s) and then manage these problems in an empathetic, humanistic

way. To achieve this overall objective, the student/physician will be able to:

1. In a short paragraph, discuss the importance or advantages of telling most patients with cancer the truth.

2. Describe how to inform a cancer patient that he (she) has a distinct metastatic lesion.

3. List the sequential psychological stages of reaction by a cancer patient to learning that he (or she) has a serious cancer problem (may use five (5) stages of Kubler-Ross or a similar alternative).

4. List productive or useful actions by a physician, nurse, or other health professional which will help a cancer patient have "control" over, or satisfaction from, his (sic) remaining life.

5. Contrast the stereotyped "bedside manner" with one which allows patient self-disclosure.

6. Regarding the problem of patient isolation by the medical staff, list at least five things the physcian can do or pay attention to, to help prevent such isolation.

7. Describe how family members may react to grave cancer problems in their family and how health workers can help them cope with problems that occur.

8. Complete the following sentences, based on his or her own honest "gut" reaction:

a. My feeling about my own inevitable death is ...

b. If I ever had (or might have) a threat of having cancer, such as a lump appearing in my body, I felt (or might feel)...

c. When working with cancer patients, I am most afraid of...

d. When a cancer patient becomes pre-terminal, I usually...

e. If I had cancer, I would want my physician to .....
my nurses to ...

(Consider why you completed these sentences the way you did. One to three weeks later, or longer, complete these sentences again. Note any change that may have

occurred. Reflect on why you changed.)

9. Briefly discuss in which circumstances one would care for a patient dying at home and list the major practical considerations.

10. Discuss differences in managing psychological problems in pediatric cancer patients (as opposed to adults).

ANSWERS: PSYCHO-SOCIAL ASPECTS OF CANCER

1. It is the patient who has the cancer. Obviously you, the patient's family or anyone else do not have the patient's cancer. There are numerous decisions and plans which an individual has to consider, ponder, and finally formalize in some way if he (sic) has the risk of dying with cancer. These can only be made when they know he or she has histologically proven cancer.

When the patient knows the truth, this frees the staff and the physician from having to waste their energy in masking the truth or deceiving the patient. Thus, we can concentrate our energies on helping the patient and his or her problems. "The nice thing about always telling the truth is that you never have to remember what you said!"

Finally, knowing the truth allows the patient to work through the "grief process" of this greatest of all potential individual losses. In doing so he (sic) may thus have the potential for obtaining happiness in the remaining months or years of his (sic) life.

2. Inform the patient in a quiet room with privacy. Inform the patient in a slow clear manner and do this at a time when you are not rushed. Explain various treatment alternatives available according to the reality of the patient's condition and offer to answer any question.
Allow the patient to determine the flow of the talk. The patient may want to talk again and again about some of these questions, and so you should allow time for this on subsequent visits.

3. Kubler-Ross Stages
   First - Denial
   Second - Depression
   Third - Hostility or anger
   Fourth - Bargaining
   Fifth - Acceptance

4. Tell the truth
   Use precise simple words
   Let the patient self disclose
   Visit as often as other patients
   Project careful optimism

Regarding the use of precise, simple words: to help orient the patient to reality, it is wise to mention the word "cancer" at least once and frequently more than once in the initial one or two conversations after the diagnosis has been made. Try not to disguise the problem with words such as "it", "that", "malignancy", but don't overuse the word "cancer" either.

5. In trying to help patients, many of us develop a stereotyped behavior which either verbally but more often non-verbally tells the patient "don't be yourself". This action then prevents the patient from informing us the physician, or other helper of what his (sic) problems <u>really</u> <u>are</u>. This stereotyped behavior may be described in many ways: it is often contrived, tense, and even frantic.

"Character armor" is one means of coping that we use; we may crack jokes, look and act hurried, treat our patients like babies, etc. This reduces the probability that patients will behave in ways that are likely to threaten us. It denies the individuality of the patient.. But until we know our patient, we cannot truly help him (sic).

Such stereotyped behavior also fosters increasing <u>self-alienation</u> in the health worker, thus jeopardizing his own health and well being. If we deny our own feelings, we cannot be empathetic to sick people. Empathy is the ability to guess what a patient is experiencing, and is an out-growth of self-awareness.

A non-stereotyped, natural bedside manner would be one in which the health worker did not contrive any of the above mechanisms for coping with the anxieties of dealing with terminally ill patients. The health worker would then be free to listen to the patient. He would not make non-verbal gestures which cut the patient off, and he would encourage self-disclosure by the patient.

6. a. Visit as often as other patients.
   b. Maintain a high index of self-awareness so

that you recognize when you are avoiding visiting the patient.

c. Check the patient's vital signs and other important parameters at each of your daily rounds.

d. One can also begin to pay attention to problems such as the patient's bowel movements, pain and other areas of personal comfort.

e. Finally, one can frequently talk with the nurses and family about problems which may be missed. This tends to keep the physician in closer touch with the patient.

7. Family members may react in the same way that patients may react, that is with denial, depression, hostitlity or anger, bargaining, and acceptance. Family members often manifest their reactions more overtly than the patient. This may be associated with thoughts of guilt of various kinds.

Health workers can help families cope with problems that occur by:

a. Focusing on whose problem it is

b. Trying to put the patient's welfare first above others, and

c. Keeping the family informed of communication with the patient as you deem appropriate, including telling the truth, allowing self-disclosure of the family members, etc.

d. Having frequent talks with the family. One may need to <u>refer</u> the family member and/or patient to a counselor who has expertise in helping the terminally ill cope with their various problems.

8. Individual responses

9. Care for a patient dying at home when the patient (first priority) and the family (second priority) feel resonably comfortable with the idea of dying at home and the patient requests such. In one study about 20% of terminal patients preferred to die at home. Major practical considerations are:

1. pain control (without overtreatment)
2. nutrition
3. bowel function
4. visits from health care professionals
    a. house calls by physicians
    b. visiting nurse (or full time nursing assistance)

10. "How we manage the child's psychological problems depends on multiple factors. Number one, his (sic) age and how much he is able to understand about the

disease. In the event we do feel the child wants to know the facts of his disease we usually have to have parental consent before we can give this information, and I like to get an understanding with the parents as to not ony whether or not we will tell the child, but how much information we give him, depending on how far he pushes us.

We can also see difficulties with siblings in that as you know it is a normal reaction for every sibling at one time to wish the death of their sibling; then when the child does get a fatal disease, they often may have severe guilt feelings about their previous death wishes.

The greatest number of emotional difficulties that we see in managing pediatric cancer patients is with the parents rather than the patient. As you know, they often have guilt feelings, they may be looking forward to the child dying if he is having pain and has had a prolonged difficult course, they may have trouble facing the reality of the disease, etc.

My own personal philosophy to children is that I will tell them their diagnosis if they really want to know with the agreement of their parents and will answer their questions honestly but I give them a lot more hope than I perhaps would be giving to their parents in our frank discussions."

The format of the very first objective suggests an entrapment; the manner in which the question is asked sets up the rather sharp rejoinder of "Who *owns* the cancer?" The examination format assumes an adversarial relationship with the expected responses of the student. The adversarial premise initially established may constrain the openess to the latter requests (components *a* through *e* of Objective 8) for students to reveal their "gut reaction" to their personal feelings about their own mortality, vulnerability to cancer, and their emotional response and conduct elicited

in working with cancer patients.

The strangeness of this interjection (of *who has cancer*) can be seen in juxtaposing it against the queries-responses of other sections: who owns the cell? Who owns the underlying cell biology from which the diagnosis was formulated? The suggestion of ownership is raised first and only in the section which describes itself as dealing with the "patient's psychological problems".

Despite the "social" bracketting of the Psycho-Social territory, the treatment of cancer's location is precisely circumscribed: it is the patient who has cancer. The location of information - "the truth" - of cancer is also well defined in these objectives: it is the physician who has the truth. No references to clinical uncertainty in disease diagnosis, prognosis, treatment selection or therapeutic response qualify the quality of the medical truth of the patient's condition.

In the Interinstitutional Objectives, there is little equivocation about patients' right to receive the information about their condition from their doctor. The truth is something which the physician should transmit to "most patients". Unless the patient is a child, the patient need not have to "push hard" to receive the medical information which describes their condition. The basis for the obligation to transmit the truth to most patients, and,

perhaps, to patients' family members, is implicitly rather than explicitly presented.

While the presentation of revealing the diagnosis of cancer as a necessary consequence given that "it is the patient who has the cancer" implies ethical response, the discussions provided in this objective and those which follow suggest sensitivity to imputed legal ownership and administrative convenience. The potential of selective disclosure to patients' families additionally places the physician in the role of mediating the protection of the patients' knowledge about their condition.

The medical implications or legal sanctions promoting "full disclosure" in medical response, however, are not mentioned. The patient should "determine the flow of the talk". Within this context, the physician should "explain various treatment alternatives available according to the reality of the patient's condition and offer to answer any question."

In this scenario, the individual dynamics of the patient-physician exchanges will determine what is disclosed. The components of the physician's or patient's environment which may affect the embedded patient-physician dyad are only casually referenced: the physician will need to frame the disclosure when "not rushed"; there is a medical staff which, on the catalyst of the physician's

sensitive but direct confrontation of the problems to be faced, will direct their energy to the care of the patient's problems; and the patient may have family members who may attempt to elicit information or have their own care needs addressed.

The Interinstitutional Objectives' provisions for information disclosure direct the physician to present "the truth" using "precise simple words", while "project(ing) careful optimism", in "a quiet room with privacy", during "a time when you are not rushed", "allow(ing) the patient to determine the flow of talk", and "allow(ing) time on subsequent visits to "talk again and again about some of of these (previously raised by the patient) questions." These conditions describe an approach to caring for the cancer patient in keeping with the overall objective of the Psycho-Social Characteristics of Cancer of treating patients with cancer "in an empathetic, humanistic way." This presentation, however, provides no reference to the existence of the current social context of cancer care practice or of an overarching legal standard for measuring the physician's performance of the disclosure obligation.

The legal criteria for the communication which constitutes informed consent is not based on the largesse of the individual physician or the assertiveness of the individual patient. Failure to provide the patient with the information which would constitute the patient's informed

consent to medical action constitutes "negligent nondisclosure" (Natnson versus Kline, cited in Rosoff, 1979).

Prior to 1972, the criteria for informed consent was based on what an "average, reasonable practitioner" would normally disclose in a comparable circumstance. To prove that this condition had *not* been met required proof that the individual docotor-patient communication had not met the consensus established in the medical community's standard of medical disclosure. Given that medical disclosure in this system (as in the system described in the Interinstitutional Objectives) is subject to the variations and norms established in the *individual* doctor-patient dyad communication, a medical *community* standard for information disclosure was difficult to determine or challenge. In 1972, the *Canterbury versus Spence* case replaced the medical community standard for disclosure with a *patient-based* disclosure. The court's published opinion noted that the previous dependence on what the community's physicians would disclose had not elicited the disclosure of what a patient would need to know in entering into a medical regimen:

> The majority of courts dealing with the problem have made the duty depend upon whether it is the custom of physicians practicing in a community to make the particular disclosure to the patient. If so, the physician may be held liable for an unreasonable and injurious failure to divulge, but there can be no recovery unless the omission forsakes a practice prevalent in the profession. We agree that the physician's noncompliance with a professional custom to reveal, like any other departure from prevailing medical practice, may give rise to liability to the

> patient. We do not agree that the patient's course of action is dependent upon the existence and non-performance of a relevant professional tradition....We sense the danger that what is in fact no custom at all may be taken as an affirmative custom to maintain silence and that physician witnesses to the so-called custom may state merely their personal opinions as to what they or others would do under given circumstances....Nor can we ignore the fact that to bind the disclosure obligation to medical usage is to arrogate the decision on relevation to the physician alone. Respect for the patient's right of self-determination on particular therapy demands a standard set by law for physicians rather than the one which physicians may or may not impose upon themselves (U.S. Court of Appeals for the District of Columbia, 1972, cited in Rosoff, 1979).

The conditions for disclosure provided in the Interinstitutional Objectives are not incompatible with the legal directive to provide all the information (about the diagnosis, potential treatments' requirements, potential risks, probability of success, and prognosis without these treatments) which permit the "average, reasonable patient" to choose or reject available medical procedures. It is rather the case that the Objectives fail to prepare students for the social context of medical practice in which these directives have not been met.

In the introduction to the text of the Objectives, the authors note that the Objectives might not meet the particular needs of the *individual* student; the recognition of problems in the medical practice of cancer care within these Psycho-Social Aspects of Care similarly limits problem definition to that contained in the *individual* student-physician's attitudes or practice. The potential

tedium of the laboratory confinement in the generation of the knowledge represented in the Cell Biology section is not raised as an issue. When the difficulties in confronting the interactive practice implicit in these Psycho-Social Characteristics are raised, the scope of the questions assign responsibility for avoidance or achievement to the actions and attitudes of the individual physician.

The Interinstitutional Objectives fail to discuss the occurrence of a seeming paradox which, while not unique to the practice of medical cancer care, particularly pervades its practice. In the care of cancer patients, the lack of disclosure of material medical information is sanctioned by the claim of "therapeutic privilege". As indicated in the written opinion of the *Canterbury* case, information disclosure is part of medical practice; disclosure is expected to affect the choice and course of medical action. What happens when the information about the patient's medical condition, expected treatment efficacy and most probable prognosis are considered so dismal that their announcement alone is perceived to severely compromise the patient's ability to act upon the information in a manner which is in the patient's best interests? The reviews of physician behavior and attitudes who conclude that therapeutic impact of full disclosure mediates against full disclosure of medical information in the case of cancer include the work of Clark (1976), Fitts and Ravdin (1953),

Rennick (1960), Oken (1961), Krant (1976), Padilla (1972) and Konior and Levine (1975).

The Objectives do not deal with the social context of cancer care practice created *within* the profession of medicine exhibited, for example, in Oken's study of physician's compliance with disclosure in caring for their cancer patients:

> Ninety percent indicated a preference for not telling. Although clinical experience was cited by three-quarters as the major policy determinant, the data bear no relation to experience or age. Instead, inconsistencies, opinionatednes, and resistance to change and to research were found which indicated emotion-laden a priori personal judgments as the real determinants. Feared reactions to telling (eg., suicide) could rarely be substantiated. Equally undocumented assumptions were given as justifications for telling. Underlying were feelings of pessimism and futility about cancer. The strong feelings mobilized by our deep and serious concern for cancer patients, and our difficulties in helping them, stimulate denial mechanisms. These responses, unfortunately, operate as interferences to progress in cancer therapy (Oken, 1961:1128).

The omission of empirically derived description of the social context of cancer care practice does not allow the student to consider the issue of the therapeutic context of shared medical information prior to its encounter in the clinic setting.

Within the Psycho-Social Characteristics of the Interinstitutional Oncology Objectives, the directive to tell patients the truth of their condition stresses the consequences of sharing that information. An open awareness

context liberates the staff and the physician from the diversions which would compromise their ability to respond to the patient's needs. The patient has an inherent right to the information; the patient will need this information in the "decisions and plans" to consider "if he has the risk of dying with cancer." Within these objectives, the diagnosis of cancer is made equivalent to the prognosis of "dying with cancer". The time over which the physician will attend the cancer patient corresponds to the time accorded to the patient for obtaining happiness - "in the remaining months or years of his life".

The "*patient's* (presumed) psychological problems" are introduced in this context as the student-practitioners' management problems. The behavior to be managed is the student-practitioner's own behavior. Throughout the Psycho-Social section, the conduct of the student-physician entering this instructional material is suspect.

The references to the patient in this section are references to someone who is both fragile and a source of demands. The demand is for information, which can be presented with careful optimism. There is *a* truth to be told; although the patient may "want to talk again and again about some of these questions", the truth to be told does not change over time.

Telling the truth is urged as a way of avoiding the diversion of physician and staff energy. The involvement of the staff is never explicitly presented; their actions subsequent to the physician's disclosure to the patient are those which "concentrate ... energies on helping the patient and his or her problems."

In addition to the staff, there are other people who presumably constitute the hyphenated "social" appendage of the Psycho-Social Characteristics of Cancer. While the involvement of the (medical) staff can be taken for granted as the actions of helping the patients with their problems, the motivation and conduct of the patient's family is not straightforward. Patient's families are individuals who do not have cancer, but who may display to the physician the comparable corrolary stages of denial, depression, hostility or anger, bargaining and acceptance. Indeed, the patients' families are described as more likely than the patient to display these demands for information and care responses in dealing with their (the family's) individual psychological problems attendant to the patient's disease. The emotional display families exhibit is, apparently, not to be considered as anger or anitpathy with the medical treatment accorded the patient. Instead, the Objectives subscribe to a re-interpretation of possible emotional displays as the guilt feelings about their (the families') own ambiguous feelings in the prolonged illness of a family member.

Clinical interpretation, rather than reaction, is additionally the appropriate reading in response to patient's emotional behavior. Despite the (Interinstitutional Objectives') references to treatment insults in the occurrence of the patient's isolation by the staff or the demands of the emotionally distraught behavior of the patient's family, Interinstitutional Objectives direct clinical attention to patient's emotional behavior as the expression of disease-mediated stages (Kubler-Ross' stages of denial, depression, hostility or anger, bargaining and acceptance) are presented as a model). The implication of the patient's social environment, particularly that provided in the context of care, is unexamined.

Perhaps the responses in the pediatric cancer management section most poignantly demonstrate the dependence on the assumed efficacy of the idiosyncratic strategies adopted by the individual clinician. While the basis for the management recommendations allude to authors' clinical experience, the actual clinical appearance, distribution or results of the cases from which the recommendations were formed are not shared with the student-practitioner. How does a child with cancer "push us" for information? How do family members express their "emotional difficulties" in the management of their children as pediatric cancer patients? In the Cancer Cell Biology section, the (possibly non-artistic) medical student is

expected to draw a diagram of the normal cell cycle. What is the explicit expression of the Psycho-Social Aspects of Cancer which the student could be expected to picture?

The Interinstitutional Objectives warn that engaging in "distancing" behavior, which projects to the patient that the student-practitioner is unavailable or disinterested in determining what the patient's problems "really are", places the student-practitioner at risk for self-alienation. The Objectives themselves, however, omit or gloss over the characteristics of the social context of the professional cancer care relationship which have fostered the response of "character armor" on the part of the physician and anger and withdrawal on the part of the patient. Given that the literature is replete with accounts of the pervasity of the difficulties clinicians face in confronting these Psycho-Social Aspects of Cancer, the omission of explicit referrents to current clinical practice correlations of the care practices promoted in this section seems to indicate a distrust of the character or appearance of care those ocasions might contain. The strategy the Interinstitutional Objectives employ in changing student behavior, then, is not changing behavior students are currently in a position to practice, but in changing behavior patterns which currently characterize the sites in which oncology medicine is practiced.

Student Perception of the "Problem"

Of Psychosocial Cancer Care: Difficulty of Access

The assumption about students' attitudes toward oncology on which medical education about oncology has proceeded is based on the extensive series of investigations which have discerned students' negative attitudes toward cancer (Cooper, Bean, Alpert and Baum, 1980). These negative attitudes have, in subsequent study, been attributed to medical students' greater fear of death. Feifel, Hanson, Jones and Edwards (1967) and Feifel and Nagy (1981) report a trend in which fear of death among practicing physicians was greater than that of medical students, who, in turn, had a greater fear of death than non-medical controls; Feifel et. al. offer the speculation that the choice of medicine as a career may represent a choice to master this high level of fear. Howells and Field (1982) note that this determination could only be made in the comparison of medical and non-medical groups *before* training, as the training of medical students involves considerably greater experience with death and dying. Feiefel et al.'s study conclusion, then, confounds motivation to enter medicine with experience of death. Sundin, Gaines and Knapp (1979) provide insight into this problem with their comparative study of medical and dental students, which found that medical students had a lower fear of the death of others, a lower fear of their own death, but a higher fear of the process of dying than the comparison group. These differences were found, however, only in the

later years of the students' medical school career. The differences would seem, then, to reflect less the entering attitudes of medical students and more the effect of the training experiences. One may consider that these changes occur in the context of overall attitude change in the clinical years of medical training toward a more limited expectation of medical efficacy (Psathas, 1968; Fox, 1980; Eron, 1955) and personal effectiveness in medicine (Coombs, 1978).

How do students evaluate, in their own reports, what is or should be the presence of the medical education in confronting these problems? In the national Cancer Education Survey (1977, 1981), medical students reported that, in their formal oncology education, omission of Psychosocial Aspects of Cancer Care constituted a serious deficit. From his consideration of the implications of that survey, Dr. Harold Hailey offered a paper entitled "Psychosocial Cancer Teaching is Too Important to be Left Only to Psychiatrists". In his discussion, Hailey remarks that not only the (minimal) amount of teaching on oncology, but that the teaching which is offered occurs late in the student's academic career, is presented by faculty not perceived as part of the mainstream of the medical clinic, and uses as teaching subjects the hospitalized, dying patient, constitutes "negative teaching" of the Psychosocial Characteristics of Cancer.

The paradox for medical students is that, early in their academic careers, students fervently desire access to "clinical stuff"; at the time when they are deemed to have sufficient medical background to warrant unleashing them on patients, they are often overwhelmed by their exhausting clinical responsibilities.

The Naturalistic Observations Of the Interactive Cancer Care Exchanges In the University Affiliated Oncology Outpatient Clinic

The observations reported here were obtained in the process of conducting an exploratory study establishing the appropriateness of the assumption that interactive cancer care exchanges of the university affiliated Oncology Outpatient Department (OPD) would regularly demonstrate observable principles and issues of cancer caregiving. The account of these caregiving occurrences could then provide the basis for interactive clinical care correlations for students early in their academic career. On the assumption that these instructional experiences might take the form of small groups of student observers witnessing (time) samples of the outpatient clinic encounters provided in the university-affiliated oncologists' practice, the exploratory study also sought to discern the potential impact the presence of an observer might place on the process of care.

While previously noted in the Methodology Section, the researcher wishes to re-emphasize that the study conduct

sought to maintain the integrity of the cancer care process and participants. The researcher discussed with colleagues and the oncologists the active mechanisms which the study conduct would incorporate to safeguard study participants' rights, interests and sensitivities. The role of participant as observer prepared the clinic participants for the continuous presence of the observer accorded a status of provisional member.

The exploratory study of the Oncology Outpatient Department sought to determine the character of the observable interactive cancer care encounter; the pedagogical premise of the study's impetus brings attention to the form of the accounts' presentation.

In the Oncology Outpatient care study, the primary data recording method is field notes taken in the conduct of participant observation study of the clinic exchanges. The following excerpt from an field notes presents the occurrence of interactive cancer care observed in the Oncology Outpatient Clinic.

The Preparation of the Clinic Setting

The Oncology Outpatient Department clinic staff begin setting up the clinic before the oncologist arrives. Occassionally, (adult) persons may already be waiting in the outlying clinic "waiting" areas. During the week, the waiting area defined in the perimeter of the adjacent clinic

pod is busy with the patients and their families waiting to be called from blocked appointment times. During the weekends, the halls are deserted.

The staff enters the clinic rooms from doors on the perimeters of the lobby area. The location of these entrances and the undulating walls into which the individual clinic "pods" are set obscure (physical or visual) contact between staff and patients entering the clinic. The staff passes the enclosed room contained in the central stem which houses the medical records. A medical records abstractor has been the first person to arrive, taking advantage of the stillness of the clinic in the early morning to locate patient charts from which to record the incidence and characteristics of tumors from patient charts for entry in a centralized tumor registry data set (the "SEER" Surveillance Epidemiology and End Results Program). The staff put away coats and personal belongings in lockers secured with combination locks. They check the appointment schedule which has been previously prepared and posted to make sure the patients' charts are available. The schedule and any messages taken by the previous day's staff are posted on the "desk" (an extended counter, on which is placed a phone, charts and an occasional reference book) to which seats can be drawn. They check each of the two examining rooms flanking the oncologist's consulting room.

Usually there is time before the oncologist arrives for exchanging personal news or comments about the conduct of the days' clinic routines. When the clinician arrives at the Oncology Outpatient Clinic, s/he greets the nursing staff at the desk and enters the consultation room. Reaching the Oncology Outpatient Clinic clinic after an earlier stop at the hospital or university department offices which are physically connected to the Oncology Outpatient Clinic through a series of connecting elevators and corridors, the oncologist wears no coat. The clinician's street attire is covered with a white knee-length lab coat which bears an insignia of the clinic. The oncologist does not carry a black medical bag; instead, the oncologist arrives at the clinic carrying medical examining equipment (which always includes a stethoscope and may also include an opthalmoscope and a reflex hammer, although the latter instruments are available in the examination room), notes and writing instruments tucked in the pockets of the laboratory coat. After the oncologist has entered the consulting room, a staff nurse brings a copy of the patient schedule and the first patient's chart to the oncologist who is seated at the desk of the consulting room. The consulting rooms contain the clinician's desk and at least two other chairs. An encased florescent surface is mounted to the wall, against which x-ray images can be examined. The books contained on the shelves of each consulting room invariably include volumes of cancer

treatment protocols and the Physician's Desk Reference.

Unless the oncologist has a request or comment about the schedule to make to the nurse, the nurse leaves the oncologist's office to call in the first patient from the door connecting the clinic interior to the center of the patient lobby. The nurse takes the patient's weight and blood pressure from stationary instruments mounted to the wall behind the central desk. The nurse records this information and escorts the patient to the door of the oncologist's consulting room, where she announces the patient by name to the oncologist before leaving. The clinic does not "start" until the oncologist enters and the first patient is brought into the clinic interior.

The Flow of Socially Assembled Cancer Care Encounters In the Oncology Outpatient Department (OPD)

The conventions used in the observational record include references to persons by pseudonyms which reflect the way people addressed each other in the clinic (eg., title or first name). References to action are placed in single parentheses. "Observer Comments" are the participant observer's notes on the situation being observed which were entered into the field record as it was generated. Observer comments in the record are noted between double parentheses. The participant whose utterances or actions are being entered is marked with the use of a change in font. The references to participants from the following observational

record excerpt include *Sue*, an attending staff nurse, *Dr. A.*, an oncologist, *Mrs. J.*, the patient and *Mr. J.*, the patient's spouse.

Observational Record Report
Of An Interactive Cancer Care Encounter

Although the first patient is not scheduled until 10:00 a.m., at 8:35 a.m. the nurse (Sue), carrying a cup of coffee, escorts two persons to the door of the oncologist's office, just as the doctor is entering the clinic, approaching his office from the other hallway. The entrance the physician uses circumvents passage through the clinic's waiting room.
Dr: (to Sue and the couple who are waiting at his doorway) Well. Good morning.
Sue: Dr. A., these are the Jonquils who called and asked to see you this morning.
((*Observer Comment (O.C.)*: As indicated in the phone message attached to the clinic schedule, Dr. A. had already called the office late Friday afternoon (the preceeding day) to inform the staff that the Jonquils will be coming; it is not the case, as this conversation might seem to the Jonquils, that the physician was not expecting to see them this morning. Sue later confirms this when I talk to her Saturday afternoon.))
I'll leave your coffee on your desk. Your charts are already there.
Dr. A.:(Still standing in the doorway of his office as Sue goes into the office): Nice to meet you. Shall we go in (steps back from the doorway until Mr. Jonquil, Mrs. Jonquil and I enter. Mr. Jonquil sits 12:00, Mrs. J. 11:00, observer 8:00, and Dr. at 6:00.)
Dr:So (folding hands atop his desk) What are we here for today? (Smiles, leaning forward)
Mr. J. - Mrs. J.(both begin to speak)
Mrs. J.:I think m...;
Mr. J.: I.
Mr. J.:(continues alone. Mrs. J. removes her outer coat and sets her purse on the floor, remaining seated) We had talked to you on the phone last night about how worried we were since Janie got the news from her doctor. We're hoping you'll be able to tell us what seems to be the case and what we can expect. My friend, Dr. Michael Rose, spoke so highly of you. We really appreciate your seeing us.
Dr: Yah. (looking at Jane Jonquil. speaks slowly, deliberatlely.) I think rather than speculate about what we might be dealing with, what if we see what it is we are talking about. Let me see Mrs. Jonquil in the examining

room (rises from his desk).
Mrs. J.: Sure (rises, smiles, motions at the desk) before your coffee?
Dr: (Smiles, continues to walk toward Mrs. J.; Mrs. J. walks to doorway, stops) I'm afraid I waste coffee in mornings but it is good to warm with. (Pauses at Mr J's chair, faces hallway) Do my girls have a (examining) room for us?
(Sue, at her desk, puts down her crochet work and comes to room. Opens door to exam room 2, smiles at Mrs. J. as she opens the door and waits for her to enter. Closes door behind her as she enters)
Dr.: (Still standing just inside his office, turns to windows)
(The) winds are very brisk this morning when I got here. Is it a nice day now?
((O.C.: The doctor's stance between the chair and the door would make it awkward for Mr. J. to stand))
Mr. J.: Sunny, but still brisk. Brisk currents in the building from the movement of the pennants in the inner court. This is really quite a structure. (As he attempts to stand, kicks over his wife's purse. He sits back down, picks up the purse, puts it on his chair and stands again. Sue leaves the examining room, leaving the door slightly ajar.)
Dr.: Do you like this building?
Mr. J.: Oh sure. I use to be an architect. I like this building. I recognize Kessler's (work).
Dr.: Then perhaps you would (like?) to take the elevator to the very bottom floor, follow the corridor to the right, through the double doors to examine the tunnel we have. (This is) an example of handling space for someone who would be interested in architecture.
((O.C.: A number of persons have found navigating through these passages very difficult. In deliberately sending the patient's husband to the tunnel, it seems Dr. A. is trying to keep Mr. J. busy and out of the way while he has a chance to talk to the patient. Reminder: check to see who - the patient or her husband - placed the call to make this appointment.))
*Mr. J.*Well sure. (looks down at the purse on the chair, picks it up and places it on the chair Mrs. J. was using). Then I just come back here?
Dr.: (from hallway, hand on examining room door) I will see you then.
(Dr. enters exam room. Mrs. J. is sitting on table with clinic dressing gown. Her clothes are folded on a stool pushed against the wall. Her watch and shoes are on the window sill.)
Dr:Well, Mrs. Jonquil, if you don't mind, I am still an internist, so I will (want?) to start at the top and work to the bottom, even though we have talked about one place.
Dr.: (Dr. takes blood pressure reading. leaves cuff on patient's arm while he seems to check opthalmoscope, then

repeats her blood pressure test.) Not so bad. (Dr. picks up opthalmoscope again and begins to look at Mrs. J's eyes, without the scope) Your blood pressure is first high but a minute later is lower. First office readings are often high. (Smiles, then begins to use scope).
Mrs. J.: There's one thing I forgot to tell you. I do get headaches. I've been told it might be high blood pressure.
Dr.: (stands still, nods.) It's a good thing to know. I see no evidence of (sustained?) damage in your eyes; let's repeat your blood pressure reading again before you leave the office.
(Dr. continues physical examination of neck and upper chest. Begins breast exam with right breast, left, and then re-examines particular section of the right breast.)
Mrs. J.: I've had those two lumps for twenty years.
Dr.: I have one just like it. As long as the size and shape are staying the same, (we/there?) nothing to worry about. (continues breast exam)
Can you see the mirror? (Mrs. J. turns to face the doctor; Dr. A. points to the mirror and points to (touches?) spot on right breast.) This is probably what your doctor meant.(Mrs. J. looks ar the doctor but does not speak.)
Dr. continues: Have you noticed it?
Mrs. J.: I went in to see him (her gynecologist) for my pap smear and he said he hadn't done a full exam for a long time. He usually doesn't. He was insistent, emphatic that it (pauses, points to the spot on her right breast) was important and made an appointment for me with another specialist. (pauses) I told him they'd been that way for a long time.
Dr.: So you have been examining your breasts yourself?
((*O.C.*: Physician still has not dis/confirmed area as a problem. Despite the suspense, Mrs. J. is speaking slowly and evenly.))
Mrs. J.:I try to do it every month.
Dr.:Could you show me now what you do when you examine yourself.
Mrs. J.: Well (tucks in gown. begins to examine her left breast. looks up at Dr. A. Begins to examine her right breast.) There are these small clusters of (pauses) cysts on this breast, but they've always been here and haven't changed. (resumes examination of her right breast as she talks) I usually do this standing up after a shower, a week or so after my period.
Dr.: (nods) This is very good. I would just change (adjusts her lateral movement to a small circling probe) like so in overlapping circles. The best tool a physician can have is an intelligent patient. A physician has hundreds of breasts to keep track of. You have just two. So what's important to remember is changes over time. It's not the job of the patient to dabble in what is the meaning of changes but to detect the changes. And (you?) can reassure your husband I see nothing alarming here. We have only a slightly prominent Spencer's tail.

Mrs. J.: I have noticed that (touches area. Dr. nods.) I had told the doctor that it was usually that way. I think it might even have been the first time he had examined them. (Completes pulling up her gown)

((*O.C.*: Although he had announced his intention to perform a complete "top to bottom" exam, the physician is standing away from the table, smiling and moving towards the door))

Dr.:(nodding) As your breasts continue to change over time, you may notice this area becoming more prominent, so it will be important to continue monitoring self examination.

Mrs. J.: (smiles)Then perhaps it wasn't a complete waste of time?

Dr.: (smiling) I think you have done very well. (Opens door) I'll let you get dressed and we can finish talking in my office.

(As observer closes exam door and steps into the hallway with Dr. A., can see Mr. J. in adjacent ofice, standing quickly from his chair and adjusting his tie. As the physician and observer enter the office, Mr. J. is standin in front of his chair, hands in his suit pocket. The purse which had been on the floor is on top of his winter coat, placed on the table across the room.

Dr. A. walks quickly to his desk and begins to speak immediately to Mr. J. in a slow, even tone.)

Dr.: Well, Mr. J., I find Mrs. Jonquil to be in good health. I see nothing alarming or disturbing in (with?) you wife. Her breasts are quite normal and she seems to be doing a good job of taking care of herself. I don't think there is anything wrong.

Mr. J. (looks at floor and then sits down in chair) Was there a cyst (as) the doctor said?

Dr.: No. (emphatic) Perhaps he did not take enough time explaining or showing what he meant. There is an area which is not hard to examine which (stops, opens chart) at her age (pauses)

Mr. J.: 41.

Dr.: It is conceivable that at some time, between now and (the) future, the area would become more prominent.

Mrs. J. (enters room, smiling at Mr. J., tucking in her blouse, and holding on to her watch.

Dr.: Please (gestures at chair; Mrs. J. sits, adjusting her watch band) I was just explaining to your husband that I find you from my perspective to be in good health. I would not recommend mammogram now or (pauses, reading from paper on his desk) biopsy. (Returns gaze to patient). You seem to me to have good understanding of your breasts and be able to continue to follow them.

Mr. J.: I heard you (turns to Mrs. J.) say you feel more confident.

((*O.C.*: Heard how? Through the walls? Check transcript to see if this was indeed said and if Mrs. J. did say it))

Mrs. J.: Well, I'm certainly going to rush right back to Dr. Day's (the referring physician) and thank him for all his help. (Rolls her eyes and shakes her head).

Dr.: Well don't insult him. I won't (laughs). You can tell him or I can write a letter that your family friend, Dr. Rose, suggested that you see me after his examination findings, and that, on examination, I find nothing to be alarmed at - only (open hand gesture, nodding towards Mrs. J.) a slightly prominent Spence's tail and that I have reassured Mrs. J. about her blood pressure.
Mr. J. turns his head and looks at Mrs. J., who is still looking at Dr. A.
((*O.C.*: there is no further clarification of Mrs. J.'s blood pressure reference))
Dr.: Well, unless you have some other questions for me (begins to rise from his desk)
Mrs. J.: (Stands, extends her hand to Dr. A. across the desk) Thank you so much, Dr. A. (Shakes hands with Dr. A. and observer. Points to the table holding the coat and purse and says to her husband) Are we ready to go back out?
Mr. J. walks to table, picks up coat and purse, hands the purse to his wife and walks toward the door. Dr. A. is standing at the doorway, hand extended.
Dr.: Nice to meet with you (Shakes Mr. J.'s hand.) Good luck now. (Turns to other examining room)
Mr. J.: Oh you were right. The tunnels are really interesting. This is quite a structure.
Dr.: So you like the new building?
Mr. J.: Oh yes.
Dr.: Well, I guess I'm still a little bit old fashioned. Orange not my favorite color.(laughs)
Mrs. J.: Goodbye.
Mr. J.: Goodbye. Thank you again.
Dr. A. (looking at the transparent file holder attached to examining door, in which the nurse places the charts of patients waiting to be examined) Who do we see now?
Observer: I don't think any patients are waiting just yet. Sue? Is anyone waiting to be seen?
Sue: (continues to crochet) Not yet.
Dr. A.: Well! This is suprising. (reenters his office) Shall we try some warm coffee? Usually (I) need the full hour for new patient.
((*O.C.*: doesn't remember/realize that he started early?))
(The physician and observer walk over to the supply room in which the coffee is kept.) Observer asks when the Jonquils had first requested an appointment.
Dr. A.: They had noticed the problem in November. The husband's previous wife had breast cancer and (he) is unusually apprehensive. I think Mrs. J. is fine and handling it well. (smiles) Intelligent woman.
(As observer follows physician back to the office, she leaves a cup of coffee at the nurse's desk.)
Sue: Thanks. You probably shouldn't put any sugar in mine - wait until you see the huge box of chocolates Mr. Skoal dropped off?
Observer:Just what we needed! Is Mr. Skoal seeing Dr. A. today? I don't remember his name on the schedule.

Sue: Not that is would have made a difference. No, he just dropped this off for the staff when you were in with the Jonquils. I wish I were out dropping off my Christmas packages.
(Phone rings) *Observer*: I'll let you get that. See you later.
(Observer re-enters physician's office as he is sorting through mail. His phone extension buzzes)
Dr. on telephone: Sure.(pauses) Good morning./ We can increase the medication for pain./ You are now taking?/ Yes, as needed./ No, no, perfectly fair to call now. Only problem with patient calls is when they don't call when they need to! (laughs) Goodbye.
(During this entire phone call, the doctor had been looking at and signing papers (correspondance and transcripts of dictated medical records) on his desk. Picks up conference notice and asks if observer will be attending.)
Observer: No, but I know a few people from Wayne are attending. Will you be going?
Dr.: No. (opening up a packet of thick documents) Arrgh! Will I have to read these?
Observer: I know the reviews (the packet appears to be a set of federal grant application responses (Requests for Proposals/RFPs) which the oncologist would have been invited to review) are time consuming, but do you find them useful for learning new findings or techniques?
Dr.:No. Only reading at your own pace, though it takes all your spare moments. Conferences, too, are a poor way to acquire new knowledge. Good way to find areas where you've slipped behind. But working with residents, patients, I find the problems (which are) insoluble by current methodology.
Sue: (at the door) Mrs. Rozak is here early for her appointment if you're ready.
Dr.: Good. (Turning to me) Mrs. Rozak is a charming lady who use to be a singer. And she does not like staying in the country for a long time.
She had most of her stomach removed from cancer. (Stands, going toward door)
She left Germany before the Nazis came. Let's see how she's doing today.
(Stands in hallway. Looks at Sue) Which room are we in?
Sue: Straight ahead.

The field note excerpt containing the interactive care encounter between the Jonquils and the oncologist contains elements found in the preliminary domain analysis of the early data-gathering phase. In the interactive care occasions presented in the exchanges between the Jonquils

and the oncologist, the psychosocial issues from the domain analysis of observations include gaining access to care attention and differential attention to somatic signs and symptoms.

The Distribution of Interactive Care Attention In the Oncology Outpatient Clinic Exchanges

The Jonquils achieve professional medical care attention through the action of intraprofessional disease definition and referral. Mrs. Jonquil's gynecologist detected the patient's somatic structual "abnormality" and defined it as a problem requiring medical management, to the extent that he took the initiative in scheduling an appointment for her with another medical specialist. The action of lay referral networks is evident here as well, in that the patient shared with her husband the news of the impending diagnosis of cancer from the "insistent" "emphatic" action of her gynecologist, whom she had sought in order to undergo screening for cervix cancer ("I went to see him for my (Papanicolaou) pap smear"); the patient's husband initiated contact with a friend who is a physician, and, then, achieved the appointment on an "emergency" basis in his telephone contact with the Oncology Department Outpatient clinic. Within the clinic encounter, Mr. Jonquil continued to attempt to "refer" (present for attention) their joint need for professional medical attention.

The evidence of differential attention to somatic structure and function in the clinic occurs as the physician's abrupt (in that the expected sequence of medical action with a new patient would be to first take an extensive medical history prior to conducting a physical examination) movement to the physical examination. The physician's "reassurance" to the Jonquils presents his evaluation of her overall state ("I find Mrs. J. to be in good health), the specific somatic site which initiated the Jonquil's consultation, and Mrs. Jonquil's blood pressure (of which headaches are presented as a sign).

Psychosocial Aspects of Cancer as Embedded Clinical Material

In terms of the psychsocial concerns which occasioned this study, students' attention could be drawn to Mr. Jonquil's participation in the medical consultation, the oncologist's elicitation of Mrs. Jonquil's breast examination behavior, and the context for future medical consultation which is being created within this consultation. Together, they provide (topical) markers for the movement to the oncologist, the expressed concern of this doctor-patient encounter, and the continuing relationship between the patient, her spouse and the continuing process of interactive medical attention and evaluation.

Within the exchanges observed in the initial consultation room meeting, Mr. Jonquil co-initiates, and then completes the response to the oncologist's opening "what are we here for today?" The referrents Mr. Jonquil uses are collective: "*we* talked to you on the phone last night about how worried *we* were since Janie got the news from her doctor. *We're* hoping you'll be able to tell us what seems to be the case.... *We* really appreciate your seeing *us*." In the referrents to seeking medical counsel, however, this utterance notes that seeing this particular oncologist depended on Mr. Jonquil's particular actions within his social network. Mechanic (1978) cautions that, in the proliferation of specialists whose practice progressively depends on patients referred from other physicians, the dynamics of the individual doctor-patient exchanges may deteriorate in the new social context of practice which renders the specialists' practice progressively less dependent on the satisfaction of the specialists' patient population and the subsequent patient referals initiated by these patients.

In the exchanges between Mrs. Jonquil and the oncologist in the physical examination room, the problems of providing interactive care and biomedical diagnsosis of a (previously diagnosed) medical condition are simultaneously confronted. This integration is achieved by using a physical examination resource - the patient. As the

observer comments in the record indicate, the physician does not perform the patient's physical examination and pronounce a diagnosis. Instead, the biomedical diagnosis of the problem is presented *after* establishing, in a room physically separate from the presence of the patient's spouse, the extent, reliability and validity of the patient's ability to monitor her medical condition. While the literature of patient's examination behavior describes this activity as *self-care*, the content and conduct of this interactional sequence indicate that patient and physician medical care are relatively distributed. The patient's ability to provide baseline data about her own psychophysiological condition is not taken to be evidence that her actions abdicate the potential for care relationships with the organized profession of medicine.

Psychosocial Characteristics: Implicit Criteria In the Division of Labor in Interative Cancer Care

The range of psychosocial issues discerned in domain analysis included the initial formatting of interactive cancer care concerns, establishing the extent and reliability of baseline measures of psychophysiological observations, the extent and character of involvement of patients within their medical and social networks, and participants' continuing actions in maintaining medical attention and support.

In the Oncology Outpatient Clinic observations, these staid descriptions of interactive clinic attention took the form of an oncologist, who had examined disease and treatment induced scars and mutilations with due clinical demeanor, dropping medical instruments as he jumped back from the patient sitting quietly on the examining table; the physician's routine thorough physical examination had located an insect, housed in the patient's ear, meeting the physician's scope enlightened gaze. Commenting that every variation of humanity except children could be found in the Oncology Outpatient Clinic waiting room, a patient with metastatic breast cancer conspiratorially confided to the participant observer that she had left her child in the care of a mother-in-law who would never know that the sparkling appearance of the child's nursery wall was occasioned in part by the application of her husband's tooth brush to remove her patently non-toilet trained child's fecal writing on the wall. In response to the oncologist's inquiry, as he placed his pen in his pocket and folded close the medical record, soliciting "any *new problems* I should know about?", the patient, lowered his head, leaned forward to place his weight on his walking stick as he raised himself from the office chair and, with a soft-shoe tap, danced a circle about his walking stick, tipped an imaginary hat, returned to his seat, and said: "Yes. I can't do that anymore."

In the process of analytic induction, the tentative hypothesis began with the initial premise that, while psychosocial material might be expected to occur and be discernible to the trained behavioral observer in the interactive clinic exchanges, only patients would express these issues; physicians, acting on the basis of their training and in a social context which emphasizes the clinical containment of biomedical expression of disease, would not enter exploration of psychosocial characteristics of cancer care. This assumption of polarized attention would be congruent with the literature which contrasts patients' subjective experience of sickness (defined as *illness*) against physicians' obsessive attention to biomedical detecting, measuring and altering deviations from normal body structures and functions (*disease*).

The analysis of the exchanges between oncologists and physicially present patients seemed to support the initial hypothesis of psychosocial issues constituting a concern expressed by patients but not their clinical oncologists. Patients responded to clinician's attempts to schedule imminent hospitalization with references to extensive social commitments of retirement parties for co-workers, long-planned vacation journeys, employers assumed to be reluctant to grant sudden and repeated absence from work, and scheduled testimony in judicial or legislative action. In response to direct patient inquiries about the

clinician's availability on alternative times, clinicians never characterized themselves to patients as "going on vacation" or "out to lunch"; instead, clinicians cited limits imposed by their unpredictable clinic and teaching responsibilities, or participation in professional conferences. Patients confided problems in dealing with the psychosocial aspects of their cancer and its care. These expressions included persistent references to children waiting for the return of their parent from long clinic contact days of extensive medical evaluation punctuating extended waiting periods, to the plea for physician-induced understanding from the spouse for whom the patient had provided, in the patient's account of her activities prior to her metastatic breast cancer and treatment induced exhaustion, domestic support and active campaign work in her husband's unexpectedly successful political career. Clinicians did not share with patients their problems in obtaining hospital beds or maintaining attending medical staff, recalling complicated treatment protocols or acquiring and conducting endless series of funded clinical research trials, or experiencing fatigue from the cumulative effect of long clinic days.

The conduct of inductive analysis requires testing hypotheses formulated from the analysis of initial cases in subsequently observed events. In the review of interactive exchanges in a consideration of an extended clinic

encounter, the adequacy of a patient-psychosocial physician-biomedical dichotimization of cancer care concerns began to be challenged. The extended clinic encounter boundaries included what had first seemed ancillary events surrounding the more intense exchanges of the patient-physician clinic encounter. These "ancillary" events included the clinician's routine preface to phases of clinic exchanges, behavior during transitions between components within a clinic encounter, and, most dramatically, in cancer care paticipant's synopsis of clinic events shared with the researcher.

Clinician's Use of Psychosocial Referrents

The investigations of the information exchanges during clinic encounters have indicated that the chasm between physician's understanding of the patients' disease state and that attainable by the patient is accomplished, in part, as the function of the technical medical jargon the physician exudes (Waitzkin, 1979; Barnlund, 1976; Waitzkin and Stoeckle, 1972; Korsch and Negrete, 1972). The physician's use of technical medical jargon is assumed to reflect Western medicine's model of mechanistic functioning, for which medical care attention is to be directed to the detection and alteration of specific disease etiology. The interactional consequence of this differential use and access to medical language is the alienation of patients from knowledge of their own bodies (Kelman, 1975) and

clinicians from knowledge of the patient's circumstances which constrain their participation or response to proposed medical treatment.

In the observed clinician behavior directed to the recognition of differential medical information, the oncologists used a routine approach (i.e., a given oncologist would continue to use the same method through their observed clinical practice) for evidencing concern that the patient's informational needs about their cancer or its care would be met. One clinician prefaced examination procedures or diagnosis or treatment descriptions with a credo of patient ability to "intelligently participate": "I believe that, if the physician takes enough/sufficient time, the patient can understand everything about his disease or treatment that the doctor can." The other oncologists responded to patients, who wondered aloud if they would be able to recall the information comparted in the clinical visit, suggesting that patients (tape) record sessions, or use other means for note-taking to preserve an account of the clinic visit. While these measures do not obviate the potential for differential information disclosure, they do indicate a willingness to sanction the use of patient's information recording tools to add to the accuracy of patient's recall subsequent to their clinic visit.

The appearance of "alienation" can be discerned, however, in the verbal exchanges in the mundane topics of

the weather or the time of day. The pattern (repeated throughout the clinic day) within these mundane issues, however, served to reference the difference in the way in which patients and clinicians lived their lives. While waiting for the nurse to prepare the examining room, the clinician would note the time on the hall clock, or part the window enclosures to peer outside, and then note the extent of the clinician's extended care day: "What is the weather like outside....It was so brisk when I came downtown at six" ""Is it really raining? It looked so clear before - but that was at dawn." Clinician's speech indicated a concern with sharing this surely non-medical mediated information from which the patient could judge the extent of the clinician's commitment to clinical responsibility.

The need to display evidence of commitment to clinical responsibility was something of a surprise, given the extent to which the literature on professional dominance indicates that, once a trade association has won such prominence, the members come to take that as their due. More substantial evidence of the recognition of empathetic or inferential analysis of patient or interactive cancer care need seemed an unlikely occurrence in the study of clinicians whose formal education and social context of practice provides minimal preparation. Using the interactive cancer care site as teaching site for demonstrating psychosocial characteristics of cancer and its care, the observations of

just the clinicial face-to-face encounters would have presented conduct in keeping with the earlier undergraduate curriculum study; i.e.; in the conduct of the face-to-face encounter, oncologists actively avoided, discharged or "smoothed over" the social implications of being ill imposed either by the disease or its treatment. Given that the conduct of this observational study entailed remaining with the oncologist throughout the entire clinic routine, the behavior of the oncologist before and after patient visits was observable. A curious occurrence in this consideration was that, prior to or immediately after the patient's visit, the oncologist would often render a very insightful and sensitive analysis of those very same social interactions. The discrepancy between what the clinicians could see and well articulate/fail to articulate in the presence of the patient presents, on the scale of the individual patient-physician encounter, an analogue to an implicit component within the general American medical culture. The implicit assumption is one of an appropriate and/or necessary division of labor; it was their job <u>not</u> to initiate or sustain reaction to these aspects of caregiving.

In the analysis of the oncology care events, the activity of clinicians within the encounter reflects their understanding that their time and knowledge represent a precious, scarce resource. Yet, clinicians expend extensive proportion of attention accorded to screening patients to

determine that patients require their (the clinician's) specific specialty of care and match the conditions for the clinic's experimental protocols. Clinician's reading of the patient's often extensive previous medical contacts seems to only assure the oncologist that they are pervasively in demand, and, then, will be acting most responsibly in taking it on themselves to bring attention to the encounter to establish that the patient's medical condition corresponds to their (the clinician's) credentials. Sadly, this assumption seems not to consider the extent to which reaching the university affiliated clinic means that the patient has undergone an extensive social selection process, as indicated in the studies of the natural history of care giving (White et al., 1962). The clinician's over-reading of requests for information about alternatives to or consequenes of proosed regimens as a portent of non-compliance; this early sign of non-compliance was taken as a cue for recalling the dire medical consequences of deviating from prescribed regimens.

Clinician probing of patients' compliance with medical regimens explored only *omission* of prescribed behavior. The investigations of folk and popular medical practice indicates that the majority of medical action is initiated outside the confines of the professional medical jurisdiction (Chrisman and Kleinman, 1983; Demers, 1980; Zola, 1972, 1973; and White et al., 1961). Despite this

distribution of medical action, the oncologists never directly asked if patients were initiating or supplementing the professional medical treatment they received. The information which emerged about these folk-initiated practices was volunteered by patients in the course of their description of their medical history. Two patients reported that they had ventured to Mexico to obtain laetrile (a drug extracted from apricot pits proported to be an anticancer vitamin).

The agenda of the clinic encounter, particularly in the university-affiliated specialty clinic, may well need to establish medical histories beyond those noted in clinic-produced medical charts. Neglecting to establish the cancer care regimens established by the cancer care "recipients" raises the spectre of confounded treatment response evaluation. Conversely, the ambiguity and careful referrences to medical uncertainty cloud the patient's ability to discern whether the protocols in which they are enrolled in the university-affiliated research-care practice consititute their individual medical care or their "double-blind" contribution to a body of medical knowledge. The "medical uncertainty" which must be confronted includes that threat posed to the possibility of informed medical participation in the practice of institutional medical research.

As the studies of White et al. (1962) have indicated, the university affiliated medical school clinic provides a site of active social selection. In the recent historical attempts to bring medical students in earlier contact with patients, experimental attempts to enhance attitudes toward comprehensive care were viewed by students as impeding their ability to acquire medical knowledge and skill. The evaluation team of Colorado's General Medical Clinic cited two reasons for this failure: the patient's problems did not interest the student-physicians, and the student experience found cultural differences in attempting to care for patients with different language, educational attainment, race and socioeconomic status enormously frustrating (Light, 1983). Within the university-affiliated medical school oncology clinic, patients present the "interesting pathologies" dear to the heart of clinical training. In addition, a varied range of patients experience cancer and appear for care attention at the university clinic. A group of considerable interest for the education of medical students are those cancer care patients who are also medical professionals. The frustration the General Medical Clinic students experienced in caring for patients they perceived to be very different from themselves need not be taken as irrefutable evidence of the simple lack of empathy or cultural understanding of medical student-practitioners.

In the observational study of the university affiliated oncology clinic patients who function with a comparable knowledge base about medicine could enable medical students and practitioners to examine their basic assumptions about the impact of medical knowledge on the impact of psychosocial characteristics of cancer. The cancer care exchanges of the university affiliated medical school provides the opportunity to define popular and professional assumptions and practices of cancer care within their interactive sites.

CHAPTER 8

Summary, Conclusions and Recommendations

The challenge of evaluation research includes providing insight into current practices and perceived problems within a particular field, without losing sight of the context in which the the phenomena occurs as an issue to be studied. Within this framework, "cancer education" provided a format for exploring the provision of training within a particular site, and consideration of more pervasive issues in evaluating programs of education for professional practice.

The study of the knowledge base constituting professional medical premises about cancer care analyzes cancer education's formation, conduct and implications within the cultural history and setting of its active formation. The consideration of the cultural context in which medical need, knowledge and care practices emerge represents an approach to evaluation congruent with the counsel of current investigations in the evaluation of human behavior.

The approach to the evaluation of the particular Wayne State University Medical School oncology curriculum sought to map the content, distribution of attention and impact of cancer education within the existing Medical School curriculum. The measures of curriculum attention reflect issues of concern within the school's potentially agonistic

structure. These measures include the time accorded to particular and overall oncology topics within scheduled curriculum time; the extent of examination items which alert students to the salience (for at least academic survival) of curriculum instruction areas; student performance on internal and external oncology education evaluation measures; and student participation and evaluation of continuing (elective) oncology training experiences.

The availability of explicit curriculum material brought to the conduct of continuing evaluation research, in subsequent interviews with curriculum instructors and unit leaders, a shared knowledge and explicit referrent from which to ground interactively achieved descriptions of the specific and cumulative oncology education occurrences. In addition, the participation of the interdisciplinary Cancer Education Committee faculty members in the work of actively producing and interactively corroborating the cancer education map provided an opportunity for discerning the implicit understanding held by Medical School faculty of what cancer education in the Medical School does and should constitute.

The interactively achieved definition of the scope and content of cancer education activities within the medical school continue to reflect and affect the activity of "external" professional medical organizations. These groups provide public council intended to serve as referrent for

delimiting the criteria for curricula or schools which are considered critical for the adequate provision of cancer care training - and having that training occur in funded contexts.

The location and extent of time in competitive curriculum allocations is a critical measure of the school's commitment to providing students with the opportunity to extensively assimilate a given medical area. Students' performance on examination items provides an index of the extent to which the oncology material presented within the curriculum is actually acquired. The average performance scores on oncology material over academic time provide, additionally, an index of the oncology material's complexity to students.

The intensive review of the Wayne State University Medical School's oncology curriculum indicated that the (functional) area of Psychosocial Characteristics consistently received little of the attention given to oncology (Tables 60 and 61). Students' average performance score on these items ranged from 33% to 97%; the number of items represented in these scores, however, is so small that the estimation of reliability is precluded.

The minimal extent of representation, however, cannot automatically be considered to indicate that Psychosocial Characteristics - or any other of the Functional Category

elements - are insufficiently represented in the curriculum. The map of curriculum attention describes areas of relative attention in the curriculum; there is no assumption that curriculum attention should be equally represented among the categories.

The data suggesting that the dearth of Psychosocial Characteristics in Cancer education may not constitute a problem includes Wayne State University students' performance on the National Board's Medical Examination. Despite the (skewed) oncology education Wayne State University Medical School students receive, the WSU Medical students were able to perform (statistically) significantly better than the national average on the National Board's oncology evaluation component (Table 45).

A further empirical index of oncology education's distribution beyond its appearance in the Wayne State University Medical School curriculum is provided in the Objectives formulated by the Interinstitutional Group for Oncology Education (1976). This set of over 300 objectives was designed by the Interinstitutional Oncology Group to represent the content of a comprehensive undergraduate medical school curriculum. The Interinstitutional Objectives' "complete curriculum" accords less than 1% of its attention to *Psychosocial Characteristics of Cancer* (Table 36).

While the inclusion of a Psychosocial Category within the Interinstitutional Objectives indicates that this area is at least recognized to be part of the bounds of the cancer education expected within the Medical School, a limited scope and agonistic relationship is posited between the physician and the patient's social environment. The physician's social environment - the staff with whom the patient and physician interact, the medical profession with which the physician will contribute knowledge gleaned from the care of the patient, or the bureaucratic structures which house and frame the care setting are not considered. Minimal attention is accorded to Carcinogenesis or Psychosocial Aspects of illness, in an account which reduces experience of cancer or care giving to static display of stage-mediated emotional expression, and isolates patient and physician from their interaction, disease or care practices. The emphasis on the student-physician's introspective impression of the student-practitioner's own death poses the projective inference as the depth of empathetic resource a student-physician can bring to the care of others.

The minimal reflection of Psychosocial Characteristics of Cancer within Wayne State University's Medical School's oncology curriculum is mirrored in the distribution of oncology education attention distributed in the set of Interinstitutional Objectives. Do these parallel images

corroborate these distributions as representing, at least from the perspective of medical professionals, appropriate attention patterns?

Challenging the complacency of that interpretation are the results of the national survey of second and fourth-year medical students about their training for oncology care provided within medical school curricula. In response to both structured and open-ended questions about areas which students, retrospectively, consider that their medical school curricula needs to more extensively address, students consistently indentified *Psychosocial Characteristics of Cancer Care*. The format of the particular questions which occasioned these student responses merely included, rather than stressed, interactive cancer care skills. The thrust of the overall survey concentrated on the institutional resources providing the structure of students' oncology education within the American Medical School system. The National Cancer Education Survey's unexpected finding of students' strong statements of perceived interest in and need for formal, explicit preparation for interactive care provides a hermeneutic corollary of evaluation to the "mere" empirical finding of relative inattention to interactive care concerns in formal oncology education indicted in the empirical evaluation afforded in the study of the particular Wayne State University Medical School oncology curriculum.

Within the (national) Cancer Education Survey, students do not simply fail to recall significant curriculum emphasis, or piously posit future study to an area of deficit. Rather, students explicitly cite their medical school curricula's need to reapportion curriculum time to the explication of interactive cancer care. In seeking out students' own evaluation of medical school curriculum, students are considered as more than the exhausted passive recipients of curriculum data. Approaches to re/forming medical school curriculum have considered attributes of the curriculum's medical material or (assumed) attributes of the medical students' individual psychology. Given that the national Cancer Education Survey found that students evaluate their oncology training provided in the curriculum, in its minimal representation of interactive cancer care problems and skills, as a source constraining their participation in cancer care practice, the "aversion" to cancer patients may be seen to less uniquely mark medical students from their fellow cultural members.

The lack of curriculum time accorded for the theoretical and empirical study of interactive medical care behavior, as it was documented in the evaluation of the Wayne State University Medical School oncology curriculum, creates a social context of medical training and a model of medical practice which does not promote the salience or explicate the skills required for medical practice.

As Hailey (1978) suggests, the social organization of the medical school's oncology education may indeed substantially contribute to the alienation of the medical student from interactive oncology care. Students' participation in these education and evaluation exercises in medical management of psychsocial characteristics of cancer call for noticeably different behavior and referrent sources than does their participation in other basic science and clinical practice formats; in contrast to the standard answer format measuring knowledge of, presumably, more objective medical education information, the content of the material presented as knowledge of psychosocial examines the students' introspective behavior; the evaluation formats take the form of open-ended responses demanding different perfomance skills than those occasioned in the examination of other areas of medical content; and the models of interactive cancer care are less public than those of basic science research, less frequently encountered in sites where the efficacy of medical treatment is displayed.

In the explicitly formulated activity of the Oncology profession, the status of the category termed "Psycho-Social Characteristics of Cancer" provides the (emic) profession's account of an area of pervasive concern in the general American medical culture. The universe of events from which the proferred educational objectives for professional oncology education draws its training recommendations is

bounded by what the profession of oncology describes as the Psycho-Social Aspects of Cancer as a disease. These "disease" characteristics are posed as sources of potential problems the medical practitioner may encounter in managing the individual cancer patient. The implication of the psychosocial characteristics of cancer care, in the behavior of the individual practitioner or the field of oncology medicine as a whole, are not bounded as a part of the definition of the psychosocial aspects of cancer as an embodied experience.

While the model oncology curriculum guide provided in the Interinstitutional Oncology Objectives warns students that their disattention to patient's psychosocial needs in cancer care render the student-practitioner at risk for self-alienation, that alientation is described as self-generated. The converse, in the description of the clinic's apparently inevitable willingness to support and extend the model provided in the individual physician's initiation of patient-sensitive behavior, is presented. No constraints, no degrees of freedom within the clinical environment are acknowledged in Objectives which direct student-practitioners to provide repeated response to patient's psychosocial problems in clinic time "when you are not too rushed" and clinic space "with appropriate privacy". The social context of the clinical practice of cancer care presented in the Interinstitutional Objectives note as

potential problems to humanistic care delivery only the avoidance behavior of the *individual* physician and the intrusive distraction of patient's families.

The study of the social context of oncology care practice, occasioned in the observations of the interactive oncology outpatient clinic exchanges, finds the distance of the physician from the expression of psychosocial characteristics of cancer to be actively maintained.

In the historical analysis of American medicine's professional formation, physician's sustained presence and involvement in the process of caring for the dying patient in the absence or presence of efficacious treatment indicates that the "avoidance" is not a fixed repertory of response to dying or uncertainty in medical practice.

As a medical practice field and Medical School department, oncology emerged as yet another specialty in the progressive segmentation in the burgeoning body of medical knowledge represented in the medical school. Oncology further represents a medical research and practice area for which there is apparently great medical need (given the prevalence and incidence of cancer), and for which extensive funding support (for clinical research and training) has been available. The practice base of oncology, however, conveys the stigma of the dreaded disease for which heroic measures of uncertain therapeutic effectiveness can be

offered. The practitioners in this site participate in the potentially conflicting roles of maintaining and enhancing an academic base for their profession, generating through active research the body of knowledge oncology can represent, and providing care with experimental or established treatment modalities with uncertain therapeutic effectiveness.

The activities influencing the support or expansion of the Cancer Education program included the (external) funding patterns of research, and, within the medical school, the organizational influence of the academic-based basic and clinical science departments. The limits on participation within the school's oncology education programs reflected the concerns discerned at a cultural level about the difficulty of the tasks confronting oncologists and the limited efficacy their specialty could bring to the provision of cure. In addition, the scope and content of the Cancer curriculum reflects the activity of (medical) professional disease-specific associations. The American Cancer Society helped to form the current social context of medical involvement in cancer investigation by promoting the federal perception of a popular mandate for cancer control research, the public's sensitivity to "early warning signs" for which they should seek medical council, and the medical establishment's perception of a sustained and extensive support base for expanded cancer research and control

activities. The corresponding expectations produced in the working environment of the university affiliated Medical School served to emphasize the production and participation in fundable clinical trials for which cancer patients happen to be the embodied objects of study.

A pressing need in medical education evaluation research is the formulation of evaluation strategies and mechanisms which examine the patterns of interactive dynamics occurring in the different contexts providing current or potential sites of medical education. If the discrete bits of information contained in the organizing context provided in such curriculum structures as Body Organ Systems approach facilitate student ability to retain and work with this medical information, strategies which consider the current organization of patients' embodied medical histories - which include but are not bounded by the sum of professional medical contacts recorded on professional medical charts - may enhance patient and physician insight into the continuing medical history they create.

The existing medical school curriculum and professional oncology education guidelines (Interinstitutional Group for Oncology Education, 1976) attempt to prepare student-practitioners for coping with interactive care demands in descriptions which emphasize abstract descriptions of disease-mediated psychological stages.

Within the observed outpatient oncology care exchanges, patients sought the aid of the clinician in confronting and eliciting cooperation from patients' pharmacists in setting up security precautions during pickups of the patient's extensive narcotic prescriptions, alterations in medical regimen schedules to accomodate family's social gatherings, admonishing patients or their families to ease the demands of the work load occasioned by the sick member or their family, and addressing the sexual abstinence of a spouse since the patient's surgery. Curriculum instruction in interactive care topics or participation of medical students or oncology practitioners in the elicitation of the psychosocial aspects of cancer care does not guarantee that the quality of care generated will be improved; without the provision of critical reflection, interactive care decisions in cancer care will reflect the exigencies of a particular clinic moment.

The conduct of interactive care which leaves unexamined the actions of embedded ethnomedical concerns or larger social context confounds their impact in the treatment of the individual patient and fails to add to the theoretical explication of the processes of interactive care. Within the university affiliated medical school and clinic is occasioned a site of active social selection which brings participants engaged in the process of interactive oncology care. In these sites of observable explicit professional

curriculum attention and research and care practices, the study of the implications of the assumptions and material practices embodied in cancer care can begin to be studied. In terms of the implications for designing curriculum experiences for preparing students to better provide that care, there is seen to be less a need for "consciousness raising" about the psychosocial issues, and more a need for exploring alternatives to the view of "psychosocial aspects" as an appendage to the heart of the clinical care event, to let the clinical events themselves speak to how they are inextricably embedded in the clinical exchange.

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ABSTRACT

AN ETHNOECOLOGICAL INQUIRY OF CANCER CARE EDUCATION AND PRACTICE IN THE AMERICAN MEDICAL CULTURE

by
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Major: Evaluation and Research
Degree: Doctor of Philosophy

The ethnoecology of cancer care training analyzes the formation, content and context of cancer care education in relation to the overall American medical culture. The cultural context in which the perception of medical need, knowledge and care practices emerged is explored in a comparative historical analysis of the medical school curriculum's formation. The content and conduct of current cancer education in response to these historical influences is determined from the distribution of attention among cancer topics, relative to the overall medical school curriculum structure, in a particular medical school (Wayne State University Medical School) curriculum. The cooperation of an interdisciplinary Cancer Education Committee enabled review of extensive instruction and evaluation material, and the Committee's actions on those materials. Material identified as oncology-related was classified according to a Function, Academic Discipline and Body Organ Classification schema. Students' acquisition of oncology education is examined from performance scores on

internal multiple choice examinations, Patient Management Problems, and NBME items.

A pervasive pattern of minimal attention to psychosocial concerns in cancer care, documented in the WSU curriculum analysis, was corroborated from responses to a national survey of medical students. The analysis of a nationally formulated model for comprehensive cancer education found the material presented as interactive cancer care knowledge posed a constricted range of concerns and an agonistic model among persons participating in the care of cancer. An observational study of the WSU oncology outpatient clinic was undertaken to explore the range and patterns of psychosocial concerns evident in interactive cancer care. The observed exchanges included an extensive range of psychosocial concerns. The lack of explicit expression of these issues, however, obscures from the participants the referential adequacy and implications of the implicit judgments made about their abililty and commitment to participate in the regimens of cancer care and research. The implications of the findings from the historical and current conduct of cancer education are considered.

Autobiographical Statement

My formal academic training in medical behavioral ecology has occurred in the program of Medical Education and Evaluation Research. This program has combined interdisciplinary study with responsibility for independent and collaborative analysis of medical behavior. Dr. Martin J. Hogan, my major adviser, directed and encouraged my participation in evaluation of medical school programs, and longitudinal research in the patient-physician communication process. My continuing research activities have focused on the measurement of human behavior in interactive settings, the cultural ecology of chronic illness, and the social context of medical training and practice. In the conduct of these evaluation and research activities, I have enjoyed the opportunity for collaborative work with other clinical and behavioral science faculty, practitioners and students.

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