A Strategy for Defining the Clinical Content of Family Medicine

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The clinical content of family medicine is yet to be defined and arranged into a structured system of knowledge. To provide this systematic approach, it is suggested that a set of problem "profiles" could be identified as basic to family medicine, and binary decision and problem-solving chains identified for each. In addition, each problem profile might be expected to provide a consistent "masquerading" format for specific unusual problems. Certain "red flags" would be expected to be relevant to specific uncommon problems of medicine. A method of identifying these "masquerades" and "red flags" is proposed.

In the seven years since the establishment of the American Board of Family Practice, much progress has been made in defining the discipline of family medicine. The definition of family practice recently published by the American Academy of Family Physicians[1] highlights the synthesizing role of the family physician, and describes the content of the discipline in terms of family dynamics, behavioral science, patient and practice management, comprehensive and continuing medical care, health care, full utilization of health resources, and preventive maintenance. Indeed, a significant body of knowledge is accumulating in precisely these areas.

Very little is being developed, however, in the clinical content of family medicine, the area that some call the general practice content of family practice. For example, of the 28 papers presented at the North American Primary Care Research Group meeting in San Francisco in April 1976, only five dealt with clinical content. Numerous studies have identified the problems dealt with by family physicians. The most recent and thorough has been the excellent Virginia Study by Marsland, Wood, and Mayo.[2,3] As yet unpublished additional data from this study is spawning a second generation of clinical studies of specific disease entities. John Fry[4] profiled several of the more common problems of family medicine. Keith Hodgkin[5] has published data on a larger variety of problems, and specifically aided the cause by focusing on clinical pointers and pitfalls of diagnostic importance to the family physician.

That the diagnostic and problem-solving strategy of the family physician differs from that of consulting physicians has been suggested by McWhinney[6] who notes that the academic content of primary care medicine arises from recordable sources:

1. *High volume practice requiring frequent decision-making and priority setting among patients with whom the physician has developed long-standing professional relationships.*

In high volume practice with patients of long standing, there is much prior knowledge. The general physician reads a broad range of literature and has no academic need to recall the source. In fact, it is impossible to hold a large volume of reading and continuing education pursuits at the conscious level. He thus has a high degree of intuition, sometimes called the "art of medicine." Intuition, however, is actually the utilization of past learning and past knowledge of the patient at the subconscious level of reasoning combined with current observations, past experience, and imagination. Prior knowledge of the patient is the keystone that opens the intuitive path of problem-solving.

The decision-making process of family practitioners is different from that facing other specialists, who must make final, conclusive diagnoses upon which to base management plans. The family physician may only need to make what McWhinney calls a binary decision, such as whether or not the patient needs an antibiotic. Before this, however, he must decide upon the nature of the binary decision. It may be followed by another, or a series of binary decisions, such as are utilized in computer logic. The entire chain may extend over a considerable period of time.

Shortcuts are legitimate diagnostic strategies which have been little studied, documented, or validated. They arise from intuition derived from the high volume aspect of family practice.

2. *The opportunity to see diseases in the earliest possible stage and over a long period of time.*[6]

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When the physician sees patients in the earliest stage of disease, he must make decisions based upon very little hard data. The various stages of disease have been described as follows: (a) the genetic stage, (b) the chemical stage, (c) the symptomatic stage (upon which medical education is traditionally based), and (d) the rehabilitative, or terminal stage.

It is the symptomatic or relatively full-blown disease stage on which most medical observations, literature, and textbooks are based. Prospective medicine is currently focusing on the genetic stage, and the Multiphasic Health Testing Programs are dealing with the chemical stage.

The Medical Masquerade in Early Disease

There is another stage, however, seen by the family physician, and not yet elucidated, when the patient presents with symptoms with no detectable clinical signs, or at least these signs are so subtle as to be questionable. It is not clear whether this stage belongs before or after the chemical stage. Regardless, the characteristic feature is that the symptoms are different from those seen in the full-blown disease state and, thus, are not well described in the literature.[6] This is *the medical masquerade* in which the disease may mimic a more common problem until it has further progressed. The thoughtful, retrospective family physician may look back over his case histories and identify *red flags* or cues that should alert him in the future to the possibility that an unusual problem is being seen, though the presentation is an ordinary one. Uncommon problems usually have their origins in common symptoms.

The family physician must invert the knowledge that he obtains out of full-blown disease for utilization at the early stage of disease. For example, it is not the prevention of pneumonia in patients with leukemia that must concern him, but rather learning to discern which of the 1,000 to 2,000 patients with strep throat initially became ill because of as yet unidentified leukemia. He must keep his index of suspicion high *especially when the probabilities are very low.* Therefore, he must develop a diagnostic strategy and search technique which always gives consideration to the things that "cannot afford to be missed," and he must define cues that reduce gross probabilities. Put in another way, a zebra and a horse may look alike on a distant horizon. Characteristics must be identified that allow differentiation to be made before the stripes become evident. Such characteristics could define new and earlier nodal points in the progression of medical problems and thereby evolve new criteria to invoke preventive medicine, or to invoke a management scheme that would delay the day when crisis intervention would be necessary. Viewed in another fashion, the red flags, while not absolute indications, are cues that convert rare probabilities into probabilities that are realistic to include in the differential diagnosis.

An Illustrative Case

Illustrative of this concept is the case of a 72-year-old white woman who presented in 1958 with the chief complaint of headache and blood pressure of 220/130. Management with stable doses of chlorothiazide and mecamylamine hydrochloride stabilized the blood pressure consistently at 170 to 180/100 levels, considered in those days as adequate control for a patient of this age. In 1962, the patient developed petechiae of the left leg and was found to have subacute myeloid leukemia. In reviewing this chart, several interesting problems were noted to have occurred between 1958 and 1962. The following problem list is compiled with notations indicating the time interval between the problem and the diagnosis of leukemia:

1. *Two years, eight months:* Thrombophlebitis of the left popliteal vein with absence of history of trauma or predisposing factors except for the presence of varicose veins. There had been no previous episodes of thrombophlebitis.

2. *Two years, four months:* Culture confirmed streptococcal pharyngitis. Data accumulated over a three-year period in the author's practice indicates that any patient over age 70 with streptoccocal infection has a two-thirds probability of having an immunosuppressive problem. The converse, or one-third probability of having streptococcal disease without extenuating predisposition, is confirmed in the literature with the finding that 80 percent of the cases of streptococcal disease are confined to ten strains, and that the acquisition rate of strep is such that by age 70, a person has almost certainly previously acquired these ten strains, leaving a 20 percent probability of one of the other many strains. Lifetime strain-specific immunity occurs with strep infections.[7]

3. *Two years, two months:* The patient reported local bone tenderness over the pelvis, confirmed by physical examination, but not pursued.

4. *One year, two months:* Insect bites on the left foot. These bites were characterized by hemorrhagic reaction, slow healing, and the occurrence of secondary infection.

5. *Ten months:* Sudden occurrence of consistent blood pressure control at completely normal levels without any change in medication dosage. This status change, without obvious reason, needs explanation.

These five problems or observations might be viewed as red flags, one of which, in light of current knowledge, specifically points to leukemia or Hodgkin's disease over two years before the overt development of leukemia. The interesting thing about these observations is that they all represent common occurrences in family practice. The unique feature is that there are unusual circumstances connected with each of them. While certain red flags or cues may be unique findings related to specific masquerades, this case suggests the additional concept that red flags may be themselves common, but with a circumstantial background inconsistent with their own natural history. Thus, when looking for the needle in the haystack, it is the haystack that is important, rather than the needle.

Bolinger and Ahlers[8] have suggested that logic cannot be applied to

the problem-solving process, until enough clinical information has been derived from direct personal contact with the patient (in contrast to computer gathering of data) to define a disease pattern or *portrait.* The larger the *gallery of portraits* compiled by the physician, the more skillful he becomes. It is logical to suggest that the gallery of portraits will be relevant to the common problems dealt with by the physician on a day-to-day basis. Each specialty, including family practice, might be identified by a basic set of portraits common to the specialty. Given the assumption that uncommon problems initially present with common symptoms, they thus present as common portraits. The skillful family physician must first be exceptionally knowledgeable about the natural history of the problems common to his practice. The more thorough this knowledge, the better the ability to detect minor variations in the pattern that might suggest a masquerade.

A Strategy for Further Research

A systematic method of application of these factors – common portraits, red flags, and masquerades – to decision-making and problem-solving in family medicine, would constitute the essence of the clinical content of the discipline of family medicine. It is suggested that family practice research designed to further define these factors constitutes a strategy for defining the clinical content of the discipline of family medicine.

First, the basic list of common problems has been defined by the Virginia Study. The natural history of each, especially in its earliest stages, must be more completely defined. Risk factors must be identified so that preventive practice can be applied. Monitoring criteria for potential complications must be defined so that complications may be prevented or treated at an earlier stage to prevent or limit disability in the case of long-term problems such as hypertension.

Second, the masquerades must be defined for each of the common problems and the red flags that should suggest specific masquerades must be identified and put into the probability consideration of problem-solving. This can be done from the morbidity index, by recording the new diagnostic code number behind the name of each patient who is ultimately shown to have had a masquerade of a problem. These, of course, are our early mistaken diagnoses. If we were scrupulously honest at first recording, most of these notations might appear on the symptom pages of the morbidity index.

After accumulating a sufficient number of such instances, the indicated charts can be reviewed retrospectively for red flags. These, in turn, can then be tested prospectively for level of validity.

An example of such a finding might be the portrait of bronchitis. Harsh episodes of coughing, with associated headache at the onset, might be a red flag to suspect mycoplasmal pneumonia. If the headache is especially severe, and fever higher and more prolonged than one would expect in either bronchitis or mycoplasmal pneumonia, it would be considered a red flag to the masquerader histoplasmosis. Most red flags will be identified from the history or physical examination. With such red flags, capable of changing probabilities of the unusual to more realistic suspicion, our confirming laboratory studies will become more specific.

Third, it is likely that each rare or less common problem may masquerade in several ways, but that there are tendencies to masquerade more often as certain portraits. When a disease does otherwise, there are probably reasons to be found in the red flags that should give a logical explanation. It will take much time, or large collaborative studies like the Virginia Study, to gather sufficient cases of the unusual problems for the retrospective studies to derive this information. Family practice residency programs and departments in medical schools must borrow the clinical material of our subspecialty colleagues who have adequate numbers of such patients. These cases must be studied retrospectively to determine the portrait they mimicked at presentation to the first physician consulted. Again, possible red flags should be sought, and the information obtained from the "pilot study" should be exposed to prospective studies for validation.

The issue at hand is, therefore, to define new clinical information that changes the unlikely probability of an uncommon problem to a probability level that justifies realistic inclusion in the differential diagnosis list. The strategy is to identify the most common portraits in family practice and the most mimicked, and then to define the red flags that specifically suggest the masquerade system most likely for each. In the other direction, the most common masquerading portraits with their associated red flags must be identified for the important uncommon problems.

Collaborative studies between family practice programs will hasten our acquisition of a clinical body of knowledge for family medicine. Cooperative projects between departments of family medicine and other departments of our medical schools will be necessary. It is my belief that a bonus result will be the finding that there is clinical content unique to family medicine and derived from the early stages of the natural history of disease, and that this content is continuous with, rather than overlapping, the content of the other specialties – at least as currently taught in our medical schools.

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Drug Treatment of the Hyperactive Syndrome in Children

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Hyperactive Child Syndrome

This article will review general principles of drug treatment of the hyperactive child syndrome and what is known about the safety and efficacy of specific drugs used to treat hyperactive children.

The term *hyperactive child syndrome* describes a heterogeneous group of children with different etiologies for their condition. In some cases the disorder may be due to a structural abnormality of the brain (Werry 1972). In others physiologic arousal of the nervous system may be abnormal (Satterfield et al 1974). In others there may be a genetic basis for this disorder (Cantwell 1975a), while in others there may still be undiscovered important etiologic factors.

Minimal brain damage and *minimal brain dysfunction* are terms often used synonymously with *hyperactive child syndrome.* This has had a number of unfortunate consequences since the above designations have been used in widely divergent ways by different investigators. The same children have been described by different terms and different children by the same terms. Thus research findings cannot be readily compared.

Moreover, these designations imply that brain damage or dysfunction is present, and is presumably etiologic in the hyperactive child syndrome. However, if brain damage is used in its literal sense to mean structural abnormality of the brain, then brain damage syndrome is an inaccurate and misleading term. While some hyperactive children may suffer from frank damage, it is clear that the majority do not (Werry 1972). Likewise most brain-damaged children do not present with the hyperactive child syndrome (Rutter et al 1970a).

Brain dysfunction may be a more accurate term than brain damage to describe children who present with less well-defined disorders manifested by more subtle neurologic signs. These more subtle defects in coordination, perception, or language may only occasionally be associated with actual damage to the brain. However, many hyperactive children do not demonstrate even these subtle neurologic signs. Thus brain dysfunction syndrome is inappropriate in describing the large percentage of hyperactive children who present primarily with behavior abnormalities.

Finally, techniques for the reliable and accurate quantification of brain dysfunction in children are not available. Yet prefixing the word minimal to brain dysfunction implies just such a quantification. It is the author's opinion that the term hyperactive child syndrome should be used to denote a behavioral syndrome only with no implications as to etiology.

Epidemiologic studies indicate that the syndrome may occur in as many as five to ten percent of prepubertal children, with the boy to girl ratio ranging from four to one to nine to one (Cantwell 1975b).

The cardinal symptoms are hyperactivity, distractibility, impulsivity, and excitability, with the attentional deficit probably being the "core" problem. Associated symptoms that are often, but not necessarily, present include: antisocial behavior, learning disabilities, depression, and low self-esteem.

Follow-up studies of hyperactive children indicate they are prone to develop significant psychiatric and social problems in adolescence and later life. Antisocial behavior, serious academic retardation, poor self-image, and depression seem to be the most common outcomes in adolescence. Alcoholism, sociopathy, hysteria, and possible psychosis seem to be likely psychiatric outcomes in adulthood (Cantwell 1975c).

In beginning a discussion of treatment of the hyperactive child it is well to emphasize for management purposes, the hyperactive child is best considered a multihandicapped child, requiring a multiple modality treatment approach (Feighner and Feighner 1973). Treatment must be individualized and based on a comprehensive assessment of each child and his family. While evidence for the efficacy of individual psychotherapy with hyperactive children is lacking from studies comparing children receiving psychotherapy with those receiving drug treatment (Eisenberg et al 1965), psychotherapy is indicated for the secondary emotional symptoms of depression, low self-esteem, and peer relationships. Psychotherapy with these children often requires innovative techniques, such as those described by Gardner (1973). Too often drug treatment is viewed as an "either/or proposition"; that is, either drugs are used or some other modality. Drugs should be used in combination with other modalities needed, based on individual assessment of the child (Satterfield et al 1974).

General Principles of Drug Treatment

1. No medication should be instituted without a comprehensive diagnostic evaluation of the child, including a detailed interview with parents, psychiatric evaluation of the child, information from the school, physical and neurologic examination, and appropriate laboratory studies (Cantwell 1975d).

2. An old and tried drug should be used in place of a new one, unless there is a great deal of experimental evidence showing the superiority of the newer medication (Eisenberg 1968).

3. Baseline assessments of the child's behavior that are expected to be affected by the medication must be obtained systematically. The same instruments should be used to record the same behaviors at regular intervals during the course of treatment. Response to treatment is probably best singly evaluated by the physician from reports of behavior at school. However

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