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DEFINITION OF TERMS AND CONCEPTS APPLICABLE TO CLINICAL PREVENTIVE MEDICINE

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ABSTRACT: This article defines the terms and concepts applied to the teaching of clinical preventive medicine by the Curriculum Development Project—a joint venture of the Center for Educational Development in Health (CEDH) at Boston University and the Association of Teachers of Preventive Medicine Foundation (ATPMF).

Disciplines such as public health and preventive medicine invent new words (e.g., epidemiology) and vest old ones (e.g., health) with new, and usually more precise, meanings. Most workers in each discipline find it useful to develop and maintain concensus regarding the definition of important terms and concepts of which *A Discursive Dictionary of Health Care* [1] and the current initiative by the International Epidemiologic Association to develop a *Dictionary of Terms*[2] represent two pertinent examples. Despite such efforts, definitions often differ substantially. For example, Friedman begins his *Primer of Epidemiology*[3] by stating that "Epidemiology is the study of disease occurrence in human populations." In contrast, Lilienfeld opens his *Foundations of Epidemiology*[4] with the statement that "Epidemiology may be defined as the study of the distribution of a disease or a physiological condition in human populations and of the factors that influence this distribution."

Such inconsistency in the terms used, and the conceptual rigor required by the Curriculum Development Project of the Center for Educational Development in Health (CEDH) at Boston University and the Association of Teachers in Preventive Medicine Foundation (ATPMF) encouraged its Steering Committee (Andrus P, Barker WH Jr, Cobb S, Jackson G, Noren J, Segall A, Shindell S, and Stokes J III) to sharpen the definition of those terms and concepts used by the Project as they apply to clinical preventive medicine practiced within the context of primary care. This article reports these defini-

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tions on behalf of the Committee. The goals and methods of the Project have been reported elsewhere.[5,6] The Project is unique in that its purpose is to develop competency-based curriculur modules.

DEFINITIONS

General Concepts

There have been many attempts to define health—that deceptive word which is used every day but which has eluded most attempts to translate it into an operational definition. The World Health Organization defined health as more than the mere absence of disease, but as a state of complete physical, mental, and social well-being.[7] Unfortunately, this definition does little more than to serve as a useful slogan for those who wish to emphasize health rather than disease. Wylie modified an earlier definition by Herbert Spencer which described health as "the perfect, continuing adjustment of an organism to its environment."[8] Talcott Parsons offered a seminal definition of health as "the ability to perform valued social roles" which not only emphasized functional ability, but also links the concept of health to personal beliefs and values.[9] For instance, the loss of a finger has much greater impact on the health of the pianist than it does on an individual less dependent on digital dexterity. Therefore, the Committee offers the following definition of *health*:

> A state characterized by anatomic integrity; ability to perform personally valued family, work, and community roles; ability to deal with physical, biological and social stress; a feeling of well-being; and freedom from the risk of disease and untimely death.

It also suggests that it is best measured by determining *health status* and *risk status*. As Parsons suggests,[8] the most important dimension of health is functional ability to perform those roles that the individual who is being evaluated considers to be important ranging from personal creativity to those activities considered to be of value by the community as a whole. Although anatomic integrity may be considered as a distinct dimension, its impact on health is generally proportional to the degree to which loss of structure diminishes function and the ability to cope with stress. Therefore, the loss of a leg is grieved at least as much because of loss of mobility as loss of self.

The ability to cope with stress generally measures reserve functional capacity over and above that required by the usual demands of daily living. This stress may be physical (e.g., heat), biological (e.g., Salmonella typhi), or social (e.g., the loss of a spouse). Although ability to deal with such stress is not easy to measure, it represents an important dimension, as Spencer's definition recognizes. In addition to these anatomic, functional, and adaptive dimensions, much of health is simply "feeling good," and this subjective dimension

may carry far greater weight for the patient than all three of the more objective components listed above. Since feeling good usually means feeling better than yesterday, recent experience is bound to outweigh recollection of the distant past.

Each of these dimensions (i.e., anatomic, functional, adaptive, and subjective) can either be scaled independently or incorporated into a single index, which, when adjusted for values, can then be used as a measure of *health status*.[10] It is for this reason that the Committee defines *health status* as

> an estimate of the state of an individual's health derived from one or more anatomic, functional, adaptive, and subjective indices.

However, such an index only defines the individual's current health status. Although one's health today usually predicts one's health status tomorrow, its predictive value progressively decreases with time and is much less able to predict health ten or twenty years hence. It is for this reason that the concept of *risk* is now generally recognized as essential to prevention and should, therefore, be added as an important time dimension. In essence, risk represents the transitional probabilities of moving from any given level of health status to all other levels over a defined period of time. The factors that determine these probabilities are most conveniently classified by using the McKeown model [11] as those which are genetic, environmental (including the physical, biological, and social environment), behavioral (including diet, exercise, cigarette smoking, use of alcohol and other mind-altering drugs, and motor vehicle driving and other kinds of accident-risk behavior), and the progression of unrecognized, asymptomatic disease that can be remedied if it can be identified by means of one or more screening tests. Therefore, *risk status* is determined through understanding those determinants and is defined as

> an estimate of the state of an individual's risk determined from data on genetic inheritance, environmental exposures, health habits, and by identifying asymptomatic conditions and diseases known to significantly increase the risk of illness and untimely death.

The Committee accepted the definition of *primary care* offered by Treat[12] which was based, in turn, upon that which was suggested by the Health Resources Administration of the Department of Health and Human Services. This definition states that

> Primary care is first contact care that provides the patient's entry point into the health care system. The primary care provider:
>
> a. evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and when indicated, refers the patient to appropriate sources of care while preserving the continuity of the care;

> b. assumes responsibility for the patient's comprehensive and continuous health care, and acts, where appropriate, as the leader or coordinator of a team of health care providers; and
> c. accepts responsibility for the patient's total health care (preventive, diagnostic, curative, and rehabilitative) within the context of his (or her) environment, including the community and the family or comparable social unit.

After accepting this definition, the Steering Committee went on to define *clinical preventive medicine* as

> those personal health services, provided within the context of clinical medicine, the purpose of which is to maintain health and reduce the risk of disease and untimely death.

The key qualifier in this definition is the term *clinical.* Historically, the most common and efficient means of preventing disease have been the control of environmental hazards. Responsibility for such control represents one of the essential functions of government and has traditionally been implemented either through formal public health environmental sanitation by local, state, and federal government, or by other agencies more broadly responsible for environmental protection, such as highway safety and building codes. Therefore, much of public health has little to do with the provision of personal health services. In contrast, clinical preventive medicine, as defined above, places the emphasis on such services.

The Committee suggests that *screening,* which it defines as

> the process of identifying individuals with one or more remediable asymptomatic disease or risk factor in a defined population group

is not an appropriate component of clinical preventive medicine since the focus is upon the group rather than upon the individual. However, it is an appropriate aspect of public health. It is suggested that activities focused on the individual patient that are similar to screening are more usefully subsumed under the concept of *Health and Risk Assessment* which is defined as

> the process of obtaining information needed to determine an individual's health and risk status. This data is obtained by means of self-administered questionnaires and interviews as well as from physical and laboratory examinations.

An excellent example of this "screening element" of health and risk assessment is found in the Kaiser Permanente group which has pioneered the use of what they have defined as *multiphasic screening.*

Another central concept defined by the Committee is *health maintenance,* which is defined as

> any pro-active intervention, the purpose of which is either to maintain or improve an individual's health as contrasted with the treatment of disease.

The Committee also accepted the traditional definition of *primary prevention* as

> any intervention, the purpose of which is to reduce the risk of occurrence of disease.

It also defines *secondary prevention* as

> any intervention, the purpose of which is either to (a) detect asymptomatic, remediable disease, or (b) reduce the risk of recurrence of disease,

with the understanding that these definitions apply equally well to public health as they do to clinical preventive medicine. However, the Committee does not believe that the term tertiary prevention is useful to clinical preventive medicine since it is too closely related to traditional diagnostic and therapeutic medicine. Nevertheless, it does recognize the importance of the preventive attitude and that the purpose of all clinical medicine should always be to prevent disability and to restore health wherever possible. As an alternative, the Committee offers the following definition of *prevention in clinical medicine.*

> Any intervention in the care of an individual with a recognized disease or limiting condition which has the purpose of:
>
> a. optimizing the health status of the individual in spite of the recognized disease or limiting condition;
> b. anticipating and avoiding (or minimizing the likelihood of) the occurrence of complications either of the disease or of the diagnostic or therapeutic measures contemplated; or
> c. reducing functional impairment which may accompany or results from a disease state or limiting condition.

Methodologic Concepts

The methods of clinical preventive medicine parallel those of diagnostic and therapeutic medicine. Information is obtained from the patient either by self-administered questionnaires or by means of the medical interview, and from the physical examination and laboratory tests. However, these data are not used to establish one or more diagnoses, as is usually the case in clinical medicine, but rather to determine health and risk status. This is the process of *health and risk assessment* as previously defined. The *health maintenance plan* is based upon this information and is also analagous to the diagnostic and therapeutic plan of clinical medicine. The plan is defined as

> an integrated set of recommendations defining what should be done in order either to maintain or improve an individual's health. The plan should be developed as a cooperative effort of the individual and those responsible for his or her health care. It should set specific objectives to be achieved after a specified period of time and should also include plans for periodic reassessment.

A *health maintenance agreement* is defined as

> an agreement executed by both the patient and one or more responsible health professionals, the purpose of which is both to clarify and help implement the health maintenance plan.

Interventions such as immunization and the provision of eyeglasses and hearing aids designed to improve current health status should be referred to as *health status modification.* However, the interventions aimed at reducing weight, lowering blood pressure, and otherwise modifying health behavior so as to reduce risk of future disease of untimely death are referred to as *risk status modification.* Its objective is to improve *future* health status in contrast to the *current* focus of *health status modification.*

The final conclusion reached by the Committee was that one of the essential requirements of effective clinical preventive medicine is a *practice plan for prevention.* This is defined as

> the plan which should be developed by the primary care practitioner to guide the implementation of clinical preventive medicine within his or her practice. The plan is developed from information related to the demographics of the panel of patients served and from an understanding of the current state of the art of clinical preventive medicine.

This state of the art is, in turn, based upon a thorough understanding of the determinants of health and disease and how the individual can either avoid or be protected from health hazards in the environment.

DISCUSSION

The purpose of this report is to encourage concensus regarding the terms used by the CEDH/ATPMF Curriculum Development Project. Such concensus will contribute to the teaching and practice of clinical preventive medicine as an effective, efficient, and credible endeavor. Emphasis has been placed on sharpening existing definitions rather than upon either developing new terms or changing old ones. The Steering Committee will be responsive to suggestions that might improve the usefulness of these terms since their value depends primarily upon whether or not they are accepted by those who teach and practice clinical preventive medicine.

Glossary of Terms and Concepts Related to Clinical Preventive Medicine

General Concepts

Health. A state characterized by anatomic integrity; ability to perform personally valued family, work, and community roles; ability to deal with physical, biological, and social stress; a feeling of well-being; freedom from the risk of disease and untimely death. It is best measured by determining health status and risk status.

Determinants of health. Those factors that have a significant effect on health. Such factors are most conveniently classified as those which are genetic, environmental (including the physical, biological and social environment), behavioral (including diet, exercise, sleep, cigarette smoking, use of alcohol and other mind-altering drugs, motor vehicle driving and other accident-risk behavior), and access to preventive, diagnostic, therapeutic, and rehabilitative health services.

Health behavior. Any behavior that has a significant impact on health.

Health hazard. Any environmental factor known to represent a significant risk to health.

Health maintenance. Any proactive intervention, the purpose of which is either to maintain or improve an individual's health as contrasted with the treatment of disease.

Primary care. Primary care is first contact care that provides the patient's entry into the health care system. The primary care provider 1) evaluates the patient's total health needs, provides personal medical care within one or more fields of medicine, and when indicated, refers the patient to appropriate sources of care while preserving the continuity of the care; 2) assumes responsibility for the patient's comprehensive and continuous health care, and acts, where appropriate, as the leader or coordinator of a team of health care providers; and 3) accepts responsibility for the patient's total health care (preventive, diagnostic, curative, and rehabilitative) within the context of his (or her) environment, including the community and the family or comparable social unit.

Screening. The process of identifying individuals with one or more remediable, asymptomatic disease or risk factor in a defined population group.

Risk factor. Any factor associated with the occurrence of disease and which is suspected of being causally related.

Levels of Prevention

Primary prevention. Any intervention, the purpose of which is to reduce the risk of occurrence of disease.

Secondary prevention. Any intervention, the purpose of which is either to 1) detect asymptomatic, remediable disease; or 2) reduce the risk of recurrence of disease.

Prevention in clinical medicine. Any intervention in the care of an individual with a recognized disease or limiting condition which has the purpose of 1) optimizing the health status of the individual in spite of recognized disease or limiting condition; 2) anticipating and avoiding (or minimizing the likelihood of) the occurrence of complications either of the disease or of the diagnostic or therapeutic measures contemplated; or 3) reducing functional impairment which may accompany or result from a disease state or limiting condition.

Clinical Prevention

Clinical preventive medicine. Those personal health services, provided within the context of clinical medicine, the purpose of which is to maintain health and reduce the risk of disease and untimely death.

Health status. An estimate of the state of an individual's health derived from one or more anatomic, functional, adaptive, and subjective indices.

Risk status. An estimate of the state of an individual's risk determined from data on genetic inheritance, environmental exposures, health habits, and by identifying unrecognized, asymptomatic conditions and diseases known to increase the risk of illness and untimely death.

Health and risk assessment. The process of obtaining the information needed to determine an individual's health and risk status. This data is obtained by means of self-administered questionnaires and interviews as well as from physical and laboratory examinations.

Health maintenance plan. An integrated set of recommendations defining what should be done in order either to maintain or improve an individual's health. The plan should be developed as a cooperative effort of the individual and those responsible for his or her primary health care. It should set specific objectives to be achieved after a specified period of time and should also include plans for periodic reassessment.

Health maintenance agreement. An agreement negotiated with the patient by one or more responsible health professional, the purpose of which is both to clarify and implement the *Health Maintenance Plan.*

Health status modification. Those interventions such as immunizations and the provision of eyeglasses and hearing aids performed by health professionals, the purpose of which is to either maintain or improve current health status.

Risk status modification. Those interventions, the purpose of which is to reduce the risk of future disease and untimely death and to improve future health status.

Health and risk reassessment. The process of obtaining the information from an individual needed to determine whether or not the objectives of the Health Maintenance Plan have been achieved and to modify the Plan because of changes in that individual's health and risk status.

Practice plan for prevention. The plan which should be developed by the primary care practitioner to guide the implementation of clinical preventive medicine within his or her practice. The plan is developed from information related to the demographics of the panel of patients served and from an understanding of the current state of the art of clinical preventive medicine.

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