A Systems Approach to Health Education
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The Institute of Medicine (IOM) recommends a systems approach as being the most effective way to promote health and prevent disease/injury prevention [6]. When planning Extension health education programs, it is useful to examine both the conceptual and scientific basis underlying the IOM recommendation. First, the definition of health is significant. The IOM report stated:

> *Health is a state of well-being and the capability to function in the face of changing circumstances. Health is, therefore, a positive concept emphasizing social and personal resources as well as physical capabilities* [6].

The IOM noted that viewing health as a biomedical constructs limits the ability of health educators and others to address the determinants of health (i.e., those processes that produce health and the underlying causes of disease).

Determinants of Health

Blum's "Force-Field and Well Being Paradigm of Health" (figure 1) has been used extensively by health planners and health educators to provide the rationale for a systems approach to health [3].

Figure 1. Blum's "Force-Field and Well Being Paradigm of Health"

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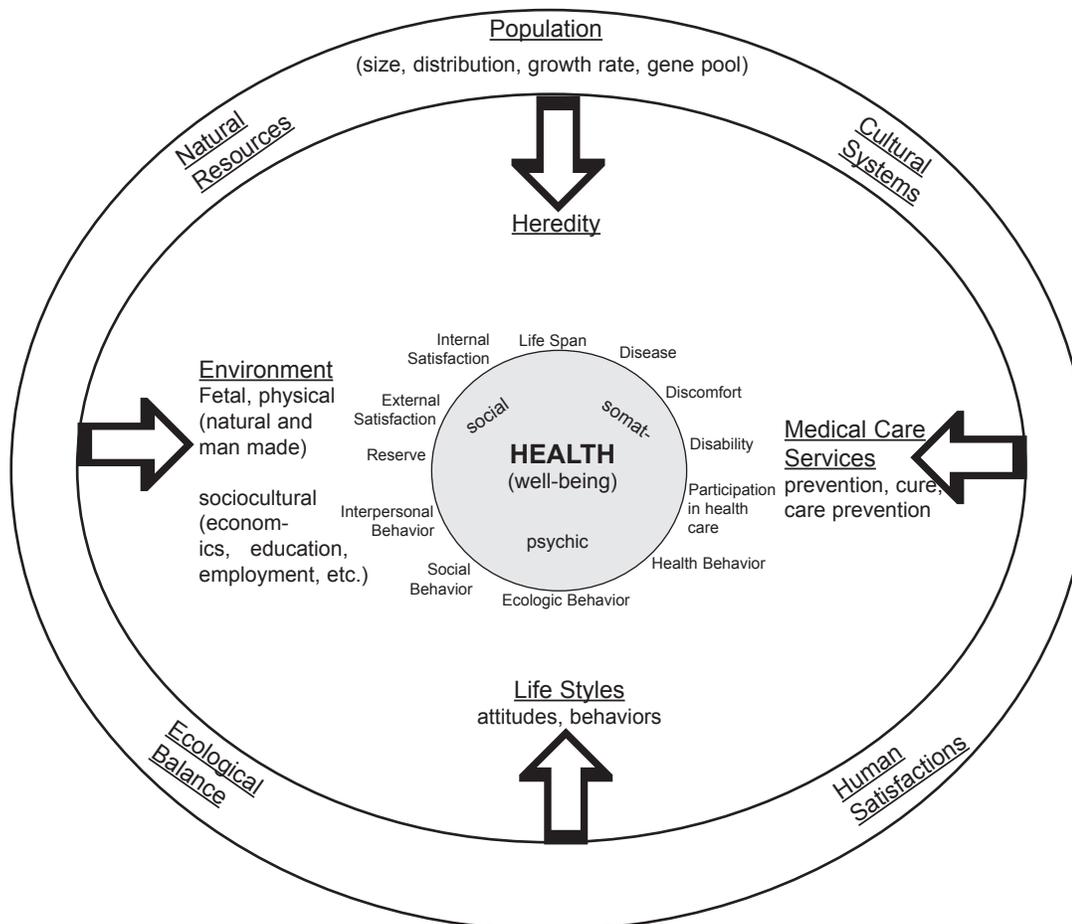
Blum defined health as an interlocking combination of physical, psychological and social well-being. The major determinants of health include health care, genetics, environment, and behavior and lifestyle (transparency master 1).

❖ **Health care** has the least effect on health. Although access to health care when we get sick is important, the parts of the health care system that make the biggest contribution to good health are the preventive services -- such as immunizations and prenatal care and the early diagnosis and treatment of illnesses or injuries to prevent death or disability.

❖ **Genetics** include the things passed from generation to generation -- things such as the color of our hair and eyes. A few health problems are also genetic. In many cases, a genetic health problem cannot be prevented, but disability or death can be prevented if the health problem is identified and treated early. However, advances in Human Genome mapping and genetic engineering may greatly expand the number of hereditary diseases that can be prevented.

❖ **Environment** includes those things around us, both before and after birth, that have a positive or negative affect on our health. Before we are born, the things our mothers ate or drank and the drugs or medicines they used affected our health. After birth, the quality (safeness) of our air, water, food and housing have a major effect on our physical health. Other things in our environment, such as too much stress or loud noise, may affect both our physical and mental health.

❖ **Behavior,** including our lifestyle choices, have a greater effect on our health than all other things combined. Our knowledge about how to promote health and prevent illnesses or injury, and our choices about putting this knowledge into practice at work, home and in our community are things that affect our community [4].

Canada has developed a national health promotion program that operationalizes Blum's framework at the philosophical, policy and programmatic levels. After reviewing subsequent research of successful health promotion efforts, including Canada's, the IOM has expanded Blum's framework into a systems model having nine inter-related determinants of health. The model proposes that health is caused by the mutual interaction among the social environment, physical environment, genetic environment, health care, disease, health and function, well-being, and individual response (behavior and biology).

Exercise 1	Identify the various Cooperative Extension programs and initiatives that address the determinants of health. (See Resources and Websites Handout)

Systems Frameworks

Anderson and Carter provide a useful framework for understanding social systems [2]. Within their framework, each social entity – whether individual, family, group, community or society – is a holon, meaning that it is simultaneously a part and a whole. The social entity (e.g., a human being) is a whole with identifiable boundaries. Furthermore, the holon has parts or subsystems (e.g., body organ systems) and at the same time is part of one or more larger whole units or suprasystems (e.g., community and society). All parts of a holon are inter-related, and changes in any part of the system, including the subsystem and suprasystem, will affect all other parts of the system. Furthermore, the holon is greater than the sum of all its parts. For example, each individual is a unique person rather than a summation of body organ systems influenced by the family and external social systems.

Exercise 2	In small groups, identify one state or national change in economic, educational, social or health policy. Discuss the impact of this change that you have observed on " (1) the health of individuals, (2) the status of families, (3) the well-being of major population groups in your community/county/state, and (4) Cooperative Extension policy, structure and programs.

The term focal system is used to designate the specific holon that is the focus of each program. The traditional focal systems for Extension health education have been individual, family, group or community/county. Although the ultimate goal of health education is to improve the health of individuals, the IOM recommends that the appropriate focal system for health education and other health promotion/disease prevention programs is the community or societal system. Let us examine three systems more closely – the individual/personal health system, the family health system, and the community health system.

Individual/Personal Focal System

Using Handout 1, fill in the subsystems and suprasystems for yourself as the focal system. On the back of the handout, identify other characteristics about yourself that are not segments of your subsystems or suprasystems. When you are done, your diagram may include some of the following:

❖ Subsystems: digestive system/gastro-intestinal, nervous system , endocrine system, genito-urinary system (venereal & renal systems),   circulatory system/cardio-vascular system, respiratory system, musculo-skeletal system, skin/connective tissue, etc.

❖ Suprasystems: family (immediate and extended), work, church, civic and community groups/organizations, health care system, school, Internet or other communication systems, legal system, welfare system, cultural/racial/ethnic group, etc.

- ❖ Focal system characteristics: personality, somatic health status, psycho-social health status, spiritual health status, stage of growth and development, level of literacy/educational status, knowledge and skills, beliefs and values, roles and activities, behaviors, etc.

When planning health education programs for the individual focal system, it is important to tailor the program fit each individual participant. The suprasystem provides the context for learning about health behaviors and for achieving, maintaining, and/or restoring health, while the status of the subsystem provides indicators of the individual's genetic make-up and health promoting/disease preventing behaviors. The suprasystem may also provide access to the individual and provide the location and medium for the delivery of health education programs. The individual focal system characteristics define the type of health education being planned. For example, planning health education for individuals should be a joint venture in which both the individual and the health educator actively participate. However, the age (e.g., infant or very young child) or mental health status (e.g., confused) of the individual may necessitate solo planning by the health educator. Furthermore, the content of the program should fit with the individual's stage of growth and development, existing knowledge, prior experience, skills, and beliefs and values. Other characteristics, such as the individual's somatic health status and level of literacy, may affect the format of the programs. For example, health education materials for individuals who cannot read may be in pictorial or audio-visual format rather than text-based format. For both audio-visual and text-based format, the material should be in a language (word selection, as well as national language and/

How People Learn

Tests have shown that people remember:
- ❖ 20 percent of what they hear,
- ❖ 40 percent of what they hear and see,
- ❖ 80 percent of what they discover for themselves.

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or dialect) that the individual understands.

A health education framework that provides a framework for planning health education programs for individual focal systems is the Health Belief Model. The Health Belief Model, which will be discussed indepth later in this chapter, indicates that health behavior is influenced by individual perceptions about a given health problem (actual or potential), by internal and external modifying factors, and by the relative weight of perceived benefits and barriers.

Family Focal System

Using Handout 2, fill in the subsystems and suprasystems for your fam-

ily (either current or family of origin) as the focal system. On the back of the handout, identify other characteristics of yourself that are not segments of your subsystems or suprasystems. When you are done, your diagram may include some of the following:

❖ Subsystems: individual family members

❖ Suprasystems: health care system, community/societal system, church, civic and community groups/organizations, school, Internet or other communication systems, legal system, economic system, etc.

❖ Focal system characteristics: roles and relationships among family members, stage of family development, family beliefs and values, etc.

A tool sometimes used to help individuals and families understand the systems approach to health is the eco-map. An eco-map is a diagram of the external agencies, organizations and community structure to which the individual relates. The individual or family is represented by a circle in the center of the diagram. The center circle is surrounded by a larger ring of circles. Each circle contains the name of one of the agencies, organizations or community structures with which the individual or family is interacting. The direction (one way or mutual) of the interaction is shown by directional arrows linking the circles to the individual/family system. The frequency or strength of the association is represented by the number (ranging from one to three arrows) and direction of arrows linking each circle to the family unit.

Community/Societal System

Using Handout 3, fill in the subsystems and suprasystems for your community or county as the focal system. On the back of the handout, identify other characteristics of the community/county that are not segments of the subsystems or suprasystems. When you are done, your diagram may include some of the following:

❖ Subsystems: government, business and industry, communication, health, social services, transportation, safety, recreation, housing, sanitation, education, etc.

❖ Suprasystems: state/national health care system, state/national/global economic development, state/national policy and legislation

❖ Focal system characteristics: local history, community values, shared activities, etc.

There are several community health frameworks that are used for health edu-

cation/health promotion. A framework used by many health professionals is Anderson and McFarlane's "Community As Partner" model [1]. The heart of the model is the community core (Figure 2) showing the community subsystems that have an impact on individual and population health.
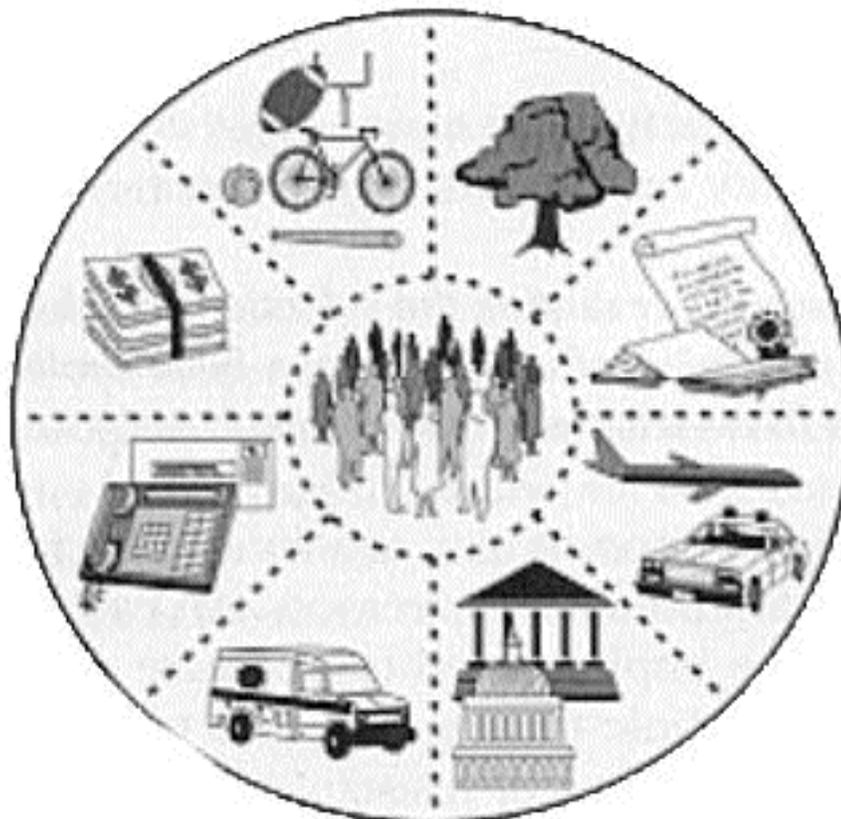

Figure 2. Community Health Core: Subsystems

Another useful framework is Connor's Social Compass [5]. The Social Compass (Figure 3) indicates elements that affect each of the community's subsystems and, therefore, the categories of information about the subsystem – or about the focal system as a whole – that should collected and used when planning community-level change.

Figure 3. Connor's Social Compass

A third framework, the PRECEDE-PROCEED framework, will be described in greater depth later in the chapter. PRECEDE-PROCEED is a comprehensive health planning model that links the type of health education program that is planned to observations about community indicators of social well-being, health status, environmental conditions, lifestyle and health behaviors, and factors contributing to the health behaviors. In addition to providing a template for a systems approach to health education, the PRECEDE-PROCEED framework shows the linkages and potential data sources connecting assessment, program design, and evaluation design [7].

A variety of additional frameworks for health promotion are used in the public health sector. The Assessment Protocol for Excellence in Public Health (APEXPH), a planning approach used extensively by health departments, combines an epidemiological approach to assessment with a community organization for program planning. The Planned Approach to Public Health (PATCH) is a community organization approach based on the PRECEDE-PROCEED framework. The Healthy Cities and the Healthy Communities frameworks are community development approaches to health promotion that target the determinants of health.

When stating its preference for addressing health promotion and protection by working with the community focal system, the IOM observed that improving health is a shared responsibility of health care providers, public health officials,

Exercise 2 Scenario	As part of your activities in Extension health education, you are involved in planning a community-wide health promotion campaign.
	1. Identify your potential partners in community-level health promotion at the county level, the state level, the national level, and the international level.
	2. Identify the various Cooperative Extension programs and initiatives that fit with a systems approach to health promotion and health education.

and a variety of other factors in the community (e.g., Cooperative Extension) who can contribute to the well-being of individuals and populations.

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References

[1] Anderson, E.T. and J.M. McFarlane. (2000). *Community as Partner*, Lippincott.

[2] Anderson, R.I. and I. Carter. *Human Behavior in a Social Environment*, Aldine Publishing Co., 199#.

[3] Blum, H.L. (1974). *Planning for Health*. Human Sciences Press.

[4] Blum, H.L. (1981). *Planning for Health*, 2nd Edition. Human Sciences Press.

[5] Connor, D. *Understanding Your Community*.

[6] Durch, S.J., L.A. Bailey, and M.A. Stoto. (1997). *Improving Health in the Community*. Institute of Medicine.

[7] Green, L.W. and M.W. Kreuter. (1999). *Health Promotion Planning: An Educational and Ecological Approach*. Mayfield Publishing Co.