Instructional Objectives for a Teaching Program in Cancer for Primary Care Physicians

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Precise instructional objectives are critical to the success of educational programs in medicine. Adequate attention to the development of instructional objectives prompts careful consideration of course methods, helps define means of evaluation, and results in realistic long-term goals. Current curricula often focus on the teaching of facts and the diagnosis and treatment of advanced and uncommon diseases; behavioral science skills are rarely taught and, in general, content is unrelated to the kinds of problems physicians see in practice. This paper presents instructional objectives in cancer which attempt to answer these criticisms. The objectives, covering cognitive, psychomotor, and affective domains, emphasize the areas of prevention and early diagnosis.

Medical education can be defined as purposeful activity to facilitate learning in medicine. The essential elements of any educational program are goals or aims, methods, and evaluation. The latter two elements are based on the statements of goals; the methods and the means of evaluation cannot be considered until a statement of aims has been written. Professional educators define aims as instructional, performance, learning, or behavioral objectives. In essence, these describe completely the expectations teachers have for performance, learning, and behavior for their students as a result of the educational program. Good instructional objectives are precisely phrased and allow exact measurement of student achievement. They describe the desired student, not instructor, behavior. Such instructional objectives are helpful to students in defining precisely what is to be learned and important to instructors in specifying what is to be taught. Medical curriculum development without carefully written objectives is often wasteful of the talents and time of students and instructors. As Tyler put it:

> By defining these desired educational results (educational objectives) as clearly as possible the curriculum-maker has the most useful set of criteria for selecting content, for suggesting learning activities, for deciding on the kind of teaching procedures to follow, in fact to carry on all the further steps in curriculum planning. We are devoting much time to the setting up and formulating of objectives because they are the most critical criteria for guiding all other activities of the curriculum-maker.[1]

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Many graduate, postgraduate, and continuing medical education programs fail to achieve optimal results because inadequate attention is paid to the development of appropriate learning objectives. Despite the transiency of medical knowledge, instructional programs emphasize the learning of facts. Rarely are the teaching of psychomotor skills[2] and the development of attitudes critical to rendering adequate health care the central objectives of educational endeavours. Medical teaching often focuses on the diagnosis and treatment of advanced and rare conditions and illnesses requiring hospitalization; common and ambulatory conditions are less frequently the topics of "teaching" rounds, "Grand Rounds," or continuing medical education courses. There is a poor relationship between what physicians face in practice and what they learn.[3]

The following are working objectives recently developed by the authors together with faculty in the Departments of Human Oncology and Family Medicine and Practice of the University of Wisconsin School of Medicine. These objectives were drafted after the authors' (1) detailed discussions with individual faculty members; (2) review of the medical literature in family medicine published over the last several years, particularly that literature concerned with the nature of this specialty and with the kinds of problems family physicians actually see in practice; and (3) observation and participation in the teaching activities of the Department of Family Medicine and Practice over several months. After their initial writing, these objectives were presented to all faculty members and resident physicians in-training in the Department of Family Medicine and Practice with whose assistance during an open meeting, they were modified to their current form.

Instructional Objectives

At the end of the educational program, in their practices during training, and after completion of their postgraduate training:

1.0 The participants will take active measures to prevent cancer in their patients.

1.1 Cognitive

a. Identify, quantify the significance of, and discuss the principle etiologic factors (host and environmental) of the following common cancers of American men (lung, prostate, colon, bladder, rectum, mouth, thyroid, and stomach), and women (breast, uterus, colon, lung, and ovary), for example, for cancers of the oral cavity: cigarette smoking, tobacco chewing, and alcohol abuse; for breast cancer: family history, mastopathy, and evidence of endocrine imbalance, with or without obesity.

b. Name resources from which they may ascertain whether host factors (congenital disease, genetic disease, familial susceptibility) or environmental factors (radiation, occupation, drug, diet, infections, social conditions) are risk factors for cancer; and conversely, name resources from which risk factors for particular cancers may be learned, for example, standard reference books on cancer, genetics, or occupational hazards; or consultants in medical genetics, occupational medicine, or pharmacology.

c. List the health hazards of excessive alcohol consumption, smoking, and exogenous estrogen consumption.

d. Identify principles of learning theory such as motivation, reinforcement, and transfer of learning, and name several educational methodologies and techniques pertinent to patient education.

e. Identify the essential steps in the successful prevention of cancer in an individual patient.

1.2 Psychomotor

a. Prepare comprehensive problem lists on all their patients which include, stated as such, risk factors for cancer.

b. Describe and demonstrate several approaches primary care physicians can use to:

b1. prevent patients from ever beginning to smoke and to help patients stop smoking (eg, biofeedback, behavior modification).

b2. prevent patients from ever beginning to abuse alcohol, and to help patients stop drinking alcohol to excess.

b3. correctly identify and take appropriate measures to minimize a patient's occupational exposure to a suspected carcinogen.

c. Describe and demonstrate the importance of and roles for paramedical personnel in the above programs (b1-b3).

d. Describe and demonstrate factors important to the achievement of the desired outcome of the above programs (b1-b3), for example, ability of physicians to relate to patients; consideration by patients and physicians of the ethics of various approaches; cultural norms of behavior; and beliefs about health and disease.

1.3 Attitudinal

a. Name the prevention of cancer as a primary goal of their practice.

b. Identify educating patients, the public, and health-care personnel about cancer prevention as one of their major functions (using education in the broadest sense including motivating the recipient to take action implied by information).

2.0 The participants will take active measures to ensure early diagnosis of cancer in their patients.

2.1 Cognitive

a. For the most common cancers occurring in American men and women, the participants will be able to identify screening procedures and discuss their practical usefulness, costs, and hazards.

b. Given a patient with one of the following problems, the participants will state the need for and be able to specify either the essentials of an evaluation (history, physical examination, laboratory studies) themselves, or a resource for learning about such an evaluation:

a history of radiation treatments to the head or neck regions
a breast mass
hoarseness
hematuria
an abnormal Pap smear
unexplained weight loss
a new, atypical, or apparently changing skin lesion
an enlarged liver
rectal bleeding
leukopenia
splenomegaly
lymphadenopathy
hemoptysis
abnormal vaginal or rectal bleeding
a change in bowel habits
a solitary pulmonary nodule.

c. The participants will be able to name and suggest ways of dealing with factors important in influencing habits of seeking medical care for example, fear of cancer, which prevents patients from seeking medical advice when a warning sign of cancer appears.

2.2 Psychomotor

The participants will be able to:

a. List indications, contraindications, and complications of, and skillfully perform:

examination of the mouth
examination of the breasts
examination of the liver size
examination of the prostate and rectum
pelvic examination, Pap smears (3-site), Schiller test, and biopsy of cervical and vaginal lesions
indirect laryngoscopy
proctosigmoidoscopy
skin biopsy
breast lesion aspiration
dilation and curettage (or equivalent procedure)
preparation and interpretation of peripheral blood smears
bone marrow aspiration.

b. Describe and demonstrate approaches family physicians can use to:

b1. Encourage full participation by patients in a comprehensive health maintenance program.*
b2. Inform patients about the treatability of cancer.
b3. Reassure patients that cancer treatment is to their advantage.
b4. Have paramedical personnel play active roles in comprehensive health maintenance programs for patients.
b5. Teach and ensure the practice of breast self-examination in all women patients.
b6. Discuss the diagnosis of cancer with his/her patients.

2.3 Attitudinal

a. The participants will describe early detection of cancer as one of the goals of their practice; and education of patients, the public, and health-care personnel about means and benefits of early diagnosis and treatment of cancer as one of their tasks.

b. The participants will become convinced that:

b1. many patients with cancer can obtain successful palliation and some can be cured.
b2. a comprehensive health maintenance approach offers the best chance for good outcomes for patients.

3.0 The participants will be effective in rendering continuing and rehabilitative care to patients with cancer and their families.

3.1 Cognitive

The participants will be able to:

a. describe and outline the natural histories of common cancers and discuss the relevance of these to evaluation of symptoms and planning of therapy.

b. discuss the basic principles, and name the hazards and frequent sequelae of common surgical, chemotherapeutic, and radiotherapeutic approaches to the treatment of cancer.

c. discuss the contribution of multidisciplinary cooperation in combined therapy approaches to improved outcomes for patients with cancer.*

d. identify several sources for consultation and education regarding management of a patient with newly diagnosed cancer.

e. identify a broad approach to diagnosis and management of pain in a patient with advanced cancer.

f. list the goals of Comprehensive Cancer Centers and discuss participant roles in the achievement of those goals.

g. discuss the evaluation and management of problems which commonly arise in providing continuing care and rehabilitation for patients with cancer and their families, for example, problems with nutrition, infection, and gastrointestinal, neurologic, or hematologic systems; and problems of a psychosocial, emotional, economic, or ethical nature.

3.2 Psychomotor

The participants will be able to:

a. demonstrate (in selected cases) the importance of accurate staging and precise histopathological diagnosis (type and grade) in the management of patients with cancer.

b. describe the importance of [illegible]alth-care teams in the management of patients [illegible]th cancer, and

*A comprehensive health maintenance program: among many requisites, the following are essential—the program must be directed towards those conditions which occur frequently in the population served, towards preventable conditions (primary, secondary, tertiary, and quadrenary), and must be individualized for patients, considering their age and sex. Hankey TL, Renner JH: The Comprehensive Health Maintenance Approach for the Primary Physician. Department of Family Medicine and Practice, School of Medicine, University of Wisconsin, Madison, 1974, unpublished.

*Multidisciplinary, in the context of the patient with cancer, usually includes medical or pediatric oncology, radiation oncology, a surgical subspecialty or surgical oncology, primary care or family practice, and occasionally a medical subspecialty; in some cases psychiatry, nursing, and social work may play major roles.

demonstrate the ability to coordinate and integrate the activities of multiple health-care workers for the benefit of patients with cancer.

c. demonstrate tact and empathy in their interactions with patients with cancer and their families.

3.3 Attitudinal

Participants will become convinced that:

a. the first decisions made in the management of a patient with newly diagnosed cancer often determine whether the long-term outcome will be successful.

b. a multidisciplinary approach will usually give the patient the best outcome.

c. the family physician, who is the primary patient advocate, should guide, together with the patient, the approach to management. He/she should decide when attempts at "curing" are not to the patient's benefit and he can keep the focus of activities on "caring" for the patient.

d. any patient with cancer needs continued close follow-up for his/her entire life.

Discussion

Instructional objectives have been written for medical student training in internal medicine,* postgraduate residency training in internal medicine,[4] postgraduate residency training in family medicine,[5] and postgraduate training in hypertension.[6] While these statements can be criticized for their extreme length and foci on disease entities, they represent constructive attempts to write explicit objectives for learning.

The present objectives are for but one subspecialty area of many of which primary care physicians should develop competence. Some objectives will be the same as those which might be written for other areas. In putting these objectives into effect then, they should be integrated with other objectives developed for primary care residents in a particular program.

Such learning objectives should be given to and discussed with residents in primary care when they start their training. In teaching, these objectives provide a solid frame of reference for the selection of program content. They carefully define how limited oncology teaching opportunities shall be used. They stimulate consideration of methods of instruction other than lecture, and they suggest means of evaluation other than tests of factual knowledge.

The authors' limited experience using these objectives demonstrates that the residents are pleased that *their* goals for learning in cancer are written down and agreed upon, almost as a contract with their instructors. As instructors, we find ourselves repeatedly challenged to meet and keep within the objectives, and we feel particularly satisfied as we do so.

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