The National Cancer Program Plan

Frank J. Rauscher, Jr., Ph.D.

On December 23, 1971, the National Cancer Act was signed into law. Under its provisions, funds were authorized to launch an intensified attack on cancer. Toward this end, the National Cancer Institute called on a broad spectrum of the scientific community to identify major research thrusts and activities as a basis for formulating a National Cancer Program Plan.

In accomplishing this, 250 prominent scientists and physicians representing a wide range of biomedical and clinical disciplines met in a series of 41 planning sessions and two major review sessions between October 1971 and March 1972. In addition, discussions were held with the National Advisory Cancer Council and the American Association of Cancer Institutes. These activities were for the sole purpose of developing a scientific and operational foundation for a National Cancer Program.

The conquest of cancer has been rightly called a more difficult task than the first manned moon landing. The planning exercise brings to bear on the problem the experience and knowledge accumulated by countless investigators over many years.

Purpose and Scope

The National Cancer Program Plan will be an integrated, operational plan for conducting a systematic attack on the problems of cancer. The plan outlines scientific courses of action that can be implemented immediately or in the future; it assigns priorities and gauges probable impact of specific efforts; it encompasses, for the first time, the sweep of federal and private cancer research programs; and it includes multidisciplinary scientific programs directed toward all facets of the cancer problem—cause and prevention, detection and diagnosis, therapy and rehabilitation.

Maximum flexibility to identify and take full and immediate advantage of new opportunities as they arise is built into the NCPP by providing a "rolling plan" mechanism whereby the plan, which initially covers a five-year period, will be updated by the program director each year. Thus, the National Cancer Program Plan will be the vehicle for coordinating, monitoring and reporting progress of the total National Cancer Program and will be the cornerstone for the dialogue that will be maintained between the Institute and the scientific community, the President, Congress and the public.

Dr. Rauscher is the Director of the National Cancer Institute, Bethesda, Maryland.
Adapted from the paper, "Development of the National Cancer Program Plan," presented by Dr. Rauscher at the Seventh National Cancer Conference in Los Angeles, California, September 29, 1972.
Table 1. National Cancer Program Objectives

| Research Phase | Key Cancer Program Objectives |
|----------------|--------------------------------|
| **Prevention** | Reduce the effectiveness of external agents in increasing the probabilities of development of cancers in existing individuals or subsequent generations. Modify individuals (e.g., by vaccination) to decrease the likelihood of cancer development, both in the current generation and in subsequent offspring. Prevent conversions of cells to those capable of forming cancers (i.e., block or interfere with the proximate step, or steps, involved in conversion to cells capable of forming cancers). Prevent tumor establishment from cells already capable of forming cancers (e.g., transformed cells, cells constituting precancerous tissues, and cells from primary tumors that lodge elsewhere in the body in a metastatic state, either active or dormant). |
| **Detection**   | Achieve an accurate assessment of the presence, extent and probable course of cancer risks in population groups (including attention to precancerous lesions) and of cancers in individuals alone (diagnosis) and in groups (detection) as an aid to prevention, cure or prognosis. |
| **Diagnosis**   |                                 |
| **Prognosis**   |                                 |
| **Therapy**     | Cure as many patients as possible and maintain maximum control of the cancerous process in patients not cured. |
| **Rehabilitation** | Restore patients with residual defects as a consequence of their disease or treatment to as nearly a normal functioning state as possible. |

Goals and Objectives

The ultimate cancer research goal is the "development of means for the prevention of all cancers in man." This goal is, obviously, too general and long-term to provide a basis for formulating a specific research program and measuring its progress. Therefore, the goal of the National Cancer Program is defined as the "development of means for the significant reduction in the incidence, morbidity and mortality of cancer in man." In this way, achievement can be assessed in terms of improved percentages of successes for each stage of cancer, i.e., cause and prevention, detection and diagnosis, therapy and rehabilitation. The objectives therefore, include (Table 1):

- Preventing as many cancers as possible;
- Curing (through detection, diagnosis and treatment) as many patients with cancer as possible; effectively palliating the disease of patients who cannot be cured;
- Rehabilitating those patients who have defects resulting from disease or treatment.
Structure

The overall structure of the National Cancer Program Plan consists of: 1) a research strategy, which delineates the scientific courses of actions required to achieve the program’s goal and objectives; and 2) an operational strategy, which delineates the management courses of actions necessary to implement the research strategy. Although they are discussed separately, the continuous blending of the research and operational strategies into a functioning system contributes in a critical fashion to the success of the program by aiding decision-making at all levels; providing maximum visibility of program activities; permitting the rapid and efficient incorporation of new ideas in all levels of the program; and facilitating redirection when opportunities and unforeseen problems occur.

The blending of these two strategic components is not an easy task and can only be achieved through the effective interlinking of efforts by the President, the President’s Cancer Panel, the National Cancer Advisory Board, the National Cancer Institute Director and staff
and the working scientists who will constitute the operating core of the program.

Research Strategy

The sole purpose of the research strategy is to provide a logical organization of the scientific research and development required to accomplish the program's goal. The current state of scientific knowledge is obviously the only basis for the formulation of the research strategy but as the state of knowledge in various areas of research advances, the content and organization of the program's strategy will also change. However, it will remain independent from such considerations as resource constraints, mechanisms of support, review procedures, etc., which have no real impact on the scientific content of the research strategy. The scientific community will participate in the updating of the research strategy through planning sessions similar to those held for the initial formulation of the National Cancer Program Plan.

The National Cancer Program research strategy is the combination of selected laboratory, field and clinical research courses of action necessary to achieve the program's objectives and goal. To facilitate implementation of the research program, it has been organized in a hierarchical format (Table 2):

Approaches. An Approach is a broad plan of attack which singly or in combination with other related Approaches forms the basis for research programs to achieve a particular national program objective. An Approach is a major research thrust based on multidisciplinary research efforts and consists of Approach Elements, Project Areas and Projects.

Approach Elements. These are the major components of an Approach which in combination (or possibly singly) with related Approach Elements will contribute to the successful implementation of the Approach. Each Approach Element has its own objective which can be monitored and evaluated in terms of progress in achieving its objective.

Project Areas. Each Project Area is an aggregate of individual research projects which collectively and in combination with related Project Areas support the achievement of the Approach Element to which it belongs. Each Project Area has its own objective which can be monitored and evaluated.

Operational Strategy

The sole purpose of the operational strategy is to provide an optimal basis for effective, efficient and timely translation of the research strategy into those efforts which have a high probability of achieving the cancer objectives with the most productive use of resources. It represents managerial functions, planning, decision-making, administration, review and monitoring, coordination, communication and resources, development and allocation of the key programs. (Table 2.) It, too, must change as research requirements change and as more productive organizational and operational patterns are developed. However, it remains responsive to and supportive of the needs of the research strategy.

Planning Sessions

To develop the scientific and operational foundation for the National Cancer Program Plan, 250 scientists and physicians met in 41 Approaches and Project Area planning sessions.

The Approaches planning sessions developed broad plans of attack for achieving the seven key cancer objectives. (Table 1.) The participants recommended the minimum number of major research thrusts judged necessary for achieving the program's key objectives, in order to provide a logical, unstrained scientific framework for the overall strategic plan and general guid-
ance for managing the implementation of the plan.

The Project Area planning sessions developed more detailed descriptions of the research necessary to carry out the Approaches. The research recommendations, to provide a scientifically sound research base for the major research thrusts, described the minimum number of Project Areas necessary to implement the Approaches in terms of a set of laboratory, field and clinical research projects. The Project Areas recommended by the planning sessions defined the research objective, key research events, present status, timeframe, progress criteria, impact, probability of success and relative priority. Estimates were also made of the resources (money, manpower, facilities, etc.) needed to implement the recommended Project Areas.

Summary

The National Cancer Program Plan is basically a hierarchy composed of a strategic plan, operational plan and specific individual scientific program plans. The strategic plan presents the basic scientific framework and direction for the overall program: the major national objectives, major courses of actions and estimated resources necessary to achieve the objectives. The operational plan includes more detailed information concerning specific program milestones, scientific subobjectives and plans for implementation, thereby providing the detail necessary to monitor and control the National Program. The individual scientific program plans (e.g., Chemotherapy, Special Virus Cancer Program, Cancer Control Program and Organ Site Programs) will include the detail necessary for day-to-day program operations, monitoring and reporting.

Because of the importance of this plan, it is undergoing extensive, in-depth review by the National Academy of Sciences, Office of Science and Technology, Office of Management and Budget, Secretary DHEW, Director NIH, (including his staff and advisory committee), President’s Cancer Panel, National Cancer Advisory Board, Planning Session participants and the NCI senior staff.

The strategic and operational plans will in no way constrain the scientific investigations needed to achieve the program goal. Rather they are designed to provide a framework through which the knowledge, skills and resources of the nation can be most effectively mobilized to reach the objectives so earnestly sought by the American people. The plans will undergo constant revision to reflect the latest findings, leads and opportunities. As with the development of the initial plan, the scientific community will continue to be involved in subsequent stages of program planning. Only through the continued collective effort of all persons involved in cancer research and control will the conquest of cancer be achieved.