Comprehensive Cancer Control Initiative of the Centers for Disease Control and Prevention: An Example of Participatory Innovation Diffusion

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Site-specific and risk factor-specific cancer programs can point to impressive accomplishments, but coordination among them often is lacking. The Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, is working with state health agency staff and other stakeholders to develop a comprehensive, integrated, nationwide approach to cancer control. The participatory innovation diffusion model may help this complex public health innovation be adopted. The participants in the process identified problematic aspects of the innovation and steps that the division can take to ameliorate these problems before the innovation is implemented.

Key words: *cancer prevention and control, innovation diffusion, health planning, health priorities, organizational decision making, program development, program planning, public health program, public/private partnerships, state health programs*

J Public Health Management Practice, 2000, 6(2), 79–92

THE MISSION of the Division of Cancer Prevention and Control (DCPC), National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention (CDC) is to serve as a catalyst for nationwide cancer prevention and control and as a partner with state health agencies and other key

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The Division of Cancer Prevention and Control (DCPC), Centers for Disease Control and Prevention, acknowledges the contributions of the many state health department staff and other stakeholders who, through their thoughtful participation, have enriched the activities of the DCPC comprehensive cancer control initiative. The DCPC also thanks Amy Harris, MPH, Mary Kaeser, MA, and Ann Larkin, MPH, for their work in moving the initiative forward.

groups.[1] The division focuses its cancer prevention and control resources in five priority programs: (1) the National Program for Cancer Registries, (2) the National Breast and Cervical Cancer Early Detection Program, (3) the National Skin Cancer Prevention Education Program, (4) the Colorectal Cancer Control Initiative, and (5) the Prostate Cancer Control Initiative. Reflecting the categorical nature of most of DCPC's legislative mandates, most of these programs are cancer site-specific or risk factor-specific. This structure of cancer prevention funding and programming predominates at state and local levels as well, where many DCPC initiatives are implemented.

In response to the rapid growth of cancer prevention and control programs at the national, state, and local levels, in 1994, DCPC began formally advocating a comprehensive approach that would coordinate and integrate cancer prevention and control programs across categorical boundaries. According to consensus opinion of DCPC management, as developed during strategic planning sessions, *comprehensive cancer control is an integrated and coordinated approach to reduce cancer incidence, morbidity, and mortality through prevention, early detection, treatment, rehabilitation, and palliation*. More specifically, the goal is to maximize categorical resources through improved coordination and integrated program planning.

DCPC's efforts to introduce such a comprehensive approach into a categorical funding environment is an example of *innovation diffusion*, which is defined by Rogers and Shoemaker as "the communication of an innovation through certain channels over time among the members of a social system."[2(p.18)] In this case, the *change agent* (the DCPC) works with *potential adopters* (state cancer control staff and other stakeholders) to diffuse the comprehensive approach at the state level.[3]

Rogers and Shoemaker propose that a mental exercise can be used as a low-risk substitute for an actual limited trial of an innovation.[2] Since 1994, the DCPC has engaged in a series of such mental exercises designed to address the concerns of stakeholders, whose acceptance of the comprehensive cancer control approach is necessary for its adoption nationwide. As a result of these exercises, representatives of state health departments, federal agencies and health organizations, professional associations, private voluntary organizations, consumer groups, and the private sector, have begun to accept the innovation. The exercises have also helped DCPC staff understand the complexities of innovation adoption in this case and the kinds of infrastructure support needed to implement on a wide scale a comprehensive approach to cancer prevention and control.

The Need for a Comprehensive Approach

Although the overall U.S. cancer incidence rate has decreased an average of 0.9 percent per year from 1990 to 1996,[4] cancer remains the second leading cause of death in the United States.[5] An estimated 1,221,800 Americans are expected to be newly diagnosed with the disease in 1999, and approximately 563,000 are expected to die from it in this year.[5]

The decreases in cancer incidence rate vary by cancer site, gender, race, and ethnicity. Minority populations, especially blacks, continue to suffer disproportionately from cancer mortality. Morbidity rates for some cancers and populations have been increasing, rather than decreasing. Although apparent successes are encouraging, recent trends in cancer incidence and mortality "signal the need to maximize cancer control efforts in the future so that even greater in-roads in reducing the cancer burden in the population are achieved."[4(p1,197)] A comprehensive approach coordinating the resources and talents of cancer control programs should help address this need.

Current Cancer Control Programming

In recent years, the federal government, state and local health departments, and other health organizations have significantly enhanced the number and quality of the cancer-related programs they conduct. The development and implementation of such programs have resulted in new organizational structures, increased professional and public health expertise, improved understanding of the challenges of delivering community-based cancer programs, and increased ability to show program accountability to the public and community leadership. Most of these programs are categorical, however. Although the categorical programs can point to impressive accomplishments in their own arenas, coordination among these programs and opportunities for collaborative

action are lacking. To address this lack, the DCPC initiated an ongoing, dynamic process of examining the concepts, issues, and acceptability of a comprehensive approach to cancer prevention and control programming; this approach has been advocated by other researchers in the cancer control field, both nationally[6,7] and internationally[8–11] as well.

DCPC's Comprehensive Cancer Control Initiative

During strategic planning sessions in 1994 and 1995, the DCPC recognized the need to coordinate and integrate cancer prevention and control programs across categorical boundaries. To this end, it set out to design a framework that could support state-level program development and resource planning by health departments and their partner organizations and agencies. The framework also might provide a focus for mobilization of resources at the national level through coordinating the efforts of those with an interest in cancer prevention and control, including the DCPC itself, other offices and divisions at CDC, other federal agencies, and national health and voluntary organizations. In laying the foundation for this work, the DCPC sponsored activities through which it could explore options for comprehensive cancer control with stakeholders (see Table 1).

Problematic Attributes of the Innovation

In their meta-analysis of hundreds of innovation diffusion studies conducted in a variety of settings, Rogers and Shoemaker identified five attributes of innovations that variously influence their rate of diffusion.[2(pp22,23)] Researchers characterize the DCPC initiative in terms of the following five attributes.

1. Relative advantage—The degree to which an innovation is perceived as being better than the idea it supersedes. A more comprehensive approach to cancer prevention and control appears to offer numerous advantages over the current categorical approach.
2. Compatibility—The degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs [of potential adopters]. A comprehensive approach to cancer control is not readily compatible with the categorical funding environment in which it must be implemented.
3. Complexity—The degree to which an innovation is perceived as difficult to understand and use. Comprehensive cancer control is not a simple, straightforward innovation that can be implemented one individual at a time; rather, it is a complex organizational change requiring collective adoption by a range of stakeholders.
4. Trialability—The degree to which an innovation may be experimented with on a limited basis. The comprehensiveness of this innovation reduces its trialability.
5. Observability—The degree to which the results of an innovation are visible to others. The observability of an abstract concept such as comprehensive cancer control will be minimal because concrete, material innovations tend to diffuse more readily than nonmaterial ideas.

As might have been predicted based on this characterization, early activities in the DCPC's initiative quickly established that "comprehensive cancer control" possesses several problematic attributes. Although participants were able to perceive advantages of the comprehensive approach over current practices, these same participants also stated that they found the concept itself difficult to grasp. They further stated that they were confused about who would use the approach and how it would be implemented as well as about what it would look like when implemented and what it would be expected to accomplish beyond what they were already doing in the area of cancer control. Many questioned whether such an approach even was feasible, with programmatic restrictions on categorical funding

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Table 1

Activities sponsored by the CDC Division of Cancer Prevention and Control in conjunction with its comprehensive cancer control initiative

Activity	Date	Number and type of participants	Description
Conference calls	April–May 1995	190 state chronic disease directors and other staff involved in cancer control from 45 states and 2 territories	A CDC contractor, Strategic Health Concepts, Inc., conducted 30-minute conference calls with about four participants per call. Participants were asked to provide input on the components of a comprehensive cancer control program, benefits and liabilities of the approach, and barriers to implementing the approach.
Conference in Atlanta, Georgia, "Toward a Comprehensive Public Health Approach to Cancer Prevention and Control"	May 6–8, 1996	65 participants, including representatives from federal agencies and health organizations; voluntary, national, professional organizations; the private sector; and consumer groups	Three-day conference convened by DCPC to develop a vision and blueprint for a comprehensive, integrated public health approach to cancer prevention and control.
Review of state cancer control plans	September 1996	25 U.S. states and territories	Participants responded to a request for copies of their state cancer prevention and control plans. Strategic Health Concepts reviewed the information and documents submitted to determine the degree to which comprehensive planning and programming currently exists.
Workshop on comprehensive cancer control in Denver, Colorado	October 30, 1996	12 participants, including state health agency staff, representatives from the National Cancer Institute and the American Cancer Society, and CDC staff	Participants explored with DCPC staff public health models that could integrate cancer control functions.
Review of cancer control models and related documents	Summer 1997	Staff from CDC contractor Battelle Centers for Public Health Research and Evaluation	Battelle conducted a literature and model review in preparation for developing a logic model for comprehensive cancer control planning at the state level.
Conference in Atlanta, Georgia, "Integrating Public Health Programs for Cancer Control"	September 2–5, 1997	Approximately 900 participants	Conference was cosponsored by CDC, the National Cancer Institute, the American Cancer Society, the Association of State and Territorial Chronic Disease Program Directors, and the Association of State and Territorial Directors of Health Promotion and Public Health Education. Means to better integrate across categorical boundaries were explored by conference participants. Sessions were organized by overarching topics rather than by cancer site and risk factor.
Comprehensive cancer control case studies	1997 and 1998	Six states were chosen as case study sites; four of these are currently implementing a comprehensive cancer control planning process	The Battelle Centers for Public Health Research and Evaluation conducted a series of case studies of state-level cancer control programs. These case studies produced concrete examples of the comprehensive cancer control approach in action and helped DCPC staff understand the barriers and facilitators to such an approach.
Grants for the implementation of state cancer control plans	Beginning in 1999	Five states and one tribal organization with existing comprehensive cancer plans were awarded funds to facilitate implementation of those plans	DCPC issued a Request for Applications in Spring 1998 for grants to support states in implementing their existing plans.

streams rendering cross-category staffing and programming extremely difficult.

Despite the poor prognosis for the innovation's diffusion, the mental exercises engaged in by DCPC staff, state cancer control staff, and other stakeholders have allowed mutual concerns to be aired and methods for improving diffusion to be suggested and developed. Indeed, additional activities undertaken by DCPC and the suggestions by the exercise participants have helped address and ameliorate the problematic attributes of the innovation—its high complexity and low trialability, observability, and compatibility. Together, these activities represent a large-scale "psychological trial" that serves as a low-risk alternative to an actual limited trial of an innovation.[2(p155)]

Contributions of Stakeholders

Throughout DCPC's comprehensive cancer control initiative, stakeholders helped identify current knowledge gaps and next steps to take in the exploratory process. In fact, many of the participants' recommendations for further activities allowed DCPC to address the problematic attributes of the innovation (see Table 2).

- The suggestion that DCPC draft a clearer definition of the term "comprehensive cancer control," for example, aimed at reducing complexity.
- The suggestions that DCPC (1) develop a visual model of the comprehensive approach and (2) describe real-life examples of experiences with such an approach would increase observability.
- Review of published literature for existing cancer control models would establish the extent to which the approach was compatible with existing models.
- Development of implementation guidelines for a quality comprehensive program would facilitate initial trials of the approach.

Thus, although DCPC staff clearly have spearheaded the CDC's comprehensive cancer control initiative—bringing stakeholders together, facilitating their discussions, and maintaining momentum—the process also has been guided and enriched by stakeholders. The authors present some of the ways in which stakeholders in the DCPC initiative have contributed to an improved outcome of the innovation diffusion process.[12,13]

Operationalization of the Term

Although DCPC had its own definition of *comprehensive cancer control* in mind, it was an abstract definition that many participants initially had difficulty grasping. Confusion and hesitation were common during the early meetings; many participants were unclear on what they were being asked to support and were reluctant to commit themselves to the innovation. Yet, during the brainstorming sessions of the DCPC-sponsored activities, when asked to reflect on what a comprehensive approach might actually entail, stakeholder participants began describing an approach that most state agency staff, as well as their community partners, would agree is an unqualified improvement over the status quo. A clearer picture of what comprehensive planning and action would look like in the state-level cancer control environment began to emerge (see Table 3). Even so, confusion and hesitation recurred when participants who had not attended previous meetings were first introduced to the concept.

After participant-generated operational elements had been incorporated into the generic definition of "comprehensive cancer control" with which DCPC began, those being asked to adopt the innovation had a clearer picture not only of what they were being asked to support but also what it would look like if and when they managed to achieve it. In this way, the issues of complexity, relative advantage, and observability were addressed. Stakeholders also were able to recognize a high degree of compatibility between a comprehensive approach to cancer control and what they themselves would consider an "ideal" working environment—data-based planning, meaningful collaboration with a broad range of partners, a holistic view of constituents, a public health-oriented approach to service delivery, a streamlined bureaucracy, and a long-range perspective.

Having an operationalized definition of comprehensive cancer control that is readily understood and acceptable to most stakeholders should help ensure readier acceptance of the comprehensive approach when wide-scale implementation of the innovation is attempted.

Table 2

Participant recommendations regarding next steps

Recommendation	Reason	DCPC action taken	Result
Clearly define the term *comprehensive cancer control*.	Confusion over what the term means, who is expected to use the concept, and what it is expected to accomplish beyond what is already being done.	Denver workshop: DCPC staff presented a working definition of the term. Literature review: Review was conducted by a CDC contractor to gather additional related definitions. DCPC conferences and workshop: Input to operationalize the term was gathered from participants.	The initial working definition presented by DCPC was refined through a number of discussion sessions held at the conferences and the Denver workshop, where operationalizations of the term were elicited from participants. Relevant definitions from the literature also were reviewed to check for elements missing from the initial working definition.
Convene a smaller work group.	The small work group would be better able to refine ideas, formulate an operating definition of *comprehensive cancer control*, and determine essential components of a comprehensive cancer control model.	Denver workshop: Convened by DCPC with 12 participants Literature review: Review was conducted by a CDC contractor Case study project: Project included site visits by a CDC contractor to state cancer control programs and consultations with key stakeholders	The Denver workshop, although productive, revealed a persistent lack of consensus over what the innovation would look like, if and when implemented. The literature review and the case study project offered further opportunities for DCPC staff to deepen their understanding of the issues involved.
Develop a visual model built on experiences of state health department staff, previously developed models, and showing how the components fit together.	A graphic model would help stakeholders envision what comprehensive cancer control would look like in a state-level environment.	Literature Review: Review was conducted by a CDC contractor. Review of state cancer control plans: Review was conducted by a CDC contractor.	The CDC contractor reviewed relevant documents (including the minutes of the May 1996 conference and the Denver workshop) and harmonized cancer control models from the literature with (1) participant input from the conference and workshop and (2) actual experiences by state cancer control staff in comprehensive data-based planning (based on the literature and on a review of state cancer control plans).

continues

Table 2

Continued

Recommendation	Reason	DCPC action taken	Result
Provide opportunities for input by various cancer control stakeholders (e.g., CDC staff, state health department staff, community partners, and public health experts).	Participants have expressed interest in continuing to provide input and feedback on the model as it develops and in broadening the array of stakeholders from which that input is obtained.	Conferences and workshop: Convened by DCPC. Case study project: Conducted by a CDC contractor.	Participation by stakeholders in the DCPC comprehensive cancer control initiative has been maintained. The case study project will allow comparison of the theoretical model developed through the earlier activities and what actually is observed to be occurring in the states (from the perspectives of multiple types of stakeholders).
Develop examples of cancer and non-cancer experiences with integrative and comprehensive approaches.	State health staff expressed a desire for real-life models (in addition to a theoretical model) of what comprehensive cancer control is likely to look like when implemented in their respective environments.	September 1997 conference: Convened by DCPC. Case study project: Conducted by a CDC contractor.	Conference planners solicited a series of case studies as one type of conference presentation. The formal case study project will provide additional concrete examples of comprehensive cancer control in action as well as lessons learned.
Model comprehensive cancer control at the federal level through innovations in management, staffing, and program activities.	Categorical structures representing barriers to comprehensive thinking at the state level also exist on the federal level. Minimizing them at the federal level may minimize them at the state level as well.	September '97 conference: Convened by DCPC. Funding and technical assistance for comprehensive cancer control: Support from DCPC for state efforts to implement a comprehensive approach.	The conference topic was "Integrating Public Health Programs for Cancer Control." Rather than organizing sessions according to cancer site- and risk factor-specific themes, conference planners arranged sessions around cross-cutting themes. Two new DCPC program activities support a comprehensive state-level approach: six states are receiving technical assistance for their comprehensive planning and five additional states and one tribal organization will receive funding to implement comprehensive plans previously developed.
Provide guidelines for state staff and their community partners that outline a quality comprehensive cancer control program.	To help state staff visualize the comprehensive theory in practice, DCPC should include in its guidelines examples of exemplary program components to illustrate what is working well and cautionary examples of what happens without coordination and integration.	All DCPC comprehensive cancer control initiative activities to date.	DCPC's comprehensive cancer control initiative activities to date have been geared toward producing a comprehensive cancer control framework for use by state staff in their planning and programming. Input received from participants has helped focus framework developers on design and content issues as viewed from the perspective of future end-users.

Table 3

Operationalization of the term "comprehensive cancer control"

What comprehensive cancer control is	What comprehensive cancer control is not
Teamwork	Lack of teamwork
Common vision	Emphasis on differences and divisions
Broad public health outlook	Narrow categorical perspective
Streamlined bureaucracy	Bureaucratic roadblocks to collaborative action
Strong public health networks	Stakeholders working in isolation or at cross purposes
Meaningful collaboration	Nominal or no collaboration
Inclusiveness of community perspectives	Top-down program planning and development
Efficient use of resources	Duplication and redundancy
Effective fundraising and resource leveraging	Competition for limited funding and resources
Effective advocacy through multiple voices	Competition for public and legislative attention
Rational staffing patterns, where personnel who fulfill certain functional roles (e.g., evaluation) serve multiple programs, sharing knowledge and skills	Duplicative staffing patterns (e.g., every categorical program has its own evaluator on staff) and personnel who constantly "reinvent the wheel"
Programs and activities are coordinated and integrated and are guided by a grand design	Programs and activities are disjointed, insular, and guided by funding and legislative mandates alone
Systematic, data-based planning, ensuring appropriate programs are fielded when and where needed	Pressure to field programs quickly in response to external pressures; no time allowed for planning
Focus on infrastructure development to support delivery of services	Focus on service delivery at the expense of infrastructure development
Increased visibility and a unified public front	Confusing and splintered public image
Public health policy based on data, state-of-the-art science, and accurate assessment of needs and capacities to direct priorities	Public health policy based on social and political pressure; "disease of the month"
Public health staff who function proactively, feel in control of their programs, and facilitate the work of coalition members, coordinating it with their own	Public health staff who feel powerless, function reactively; are overworked and "trying to do it all"
Synergy	Insularity
Consistent cancer prevention and control messages	Conflicting cancer prevention and control messages
Few gaps in services; single-point access to cancer control care providers and interventions	Ad-hoc provision of services with many gaps; patients shunted from one provider to the next
Holistic perspective	Cancer sites and risk factors addressed individually
Long-term view of costs and benefits	Short-term view of costs and benefits

Factors that May Inhibit Adoption of the Innovation

Participants in the mental exercises listed factors that may inhibit adoption of comprehensive cancer control on the state level, regardless of how many stakeholders support a shift to a comprehensive approach. Six main barriers to comprehensive cancer control were identified.

1. **Organizational upheaval:** The communications and reporting channels needed to support comprehensive thinking and action could be disrupted by reorganization, even a minor one.
2. **Change in state government:** Changes occurring in state government (e.g., reduced government infrastructure, increased involvement by the legislature in programmatic decisions, and increasingly decentralized programming) affect both planning and implementation of cancer control programs.
3. **Varying levels of development and resources:** DCPC's comprehensive approach could require

standardization of cancer control program elements nationwide and might fail to take into account the tremendous variability among states in level of current program development and resource availability.

4. **Brief funding cycles:** The comprehensive approach requires a long-term view of cancer control programming, whereas current funding cycles are year by year. It is difficult to plan comprehensively and for the long range when it is not known what resources a state will have for cancer control from one year to the next.
5. **Hierarchical organization:** Current organizational structures are not readily amenable to coordinated planning and programming among the many organizational units within state health agencies and the organizations and agencies external to them (e.g., surveillance and cancer registry units often are distinct from other cancer control programs).
6. **Categorical funding:** Categorical funding, as well as the categorical programming associated with it, was seen by participants as the single greatest impediment to comprehensive cancer prevention and control programming. Several related issues surfaced:

- **Restrictions on use of federal funding:** Greater flexibility is needed within federally funded programs if the states are to implement comprehensive cancer control programs optimally. Increased flexibility would allow state agency staff to work more effectively within their unique and evolving organizational environments.
- **Fear of losing categorical funding:** Comprehensive programming may be seen by some stakeholders as antithetical to categorical programming and akin to block granting (in this case, a block grant would be vulnerable to legislative budget cuts because no identifiable constituency could advocate against such cuts).
- **Resistance to change:** Categorical programs can point to many impressive accomplishments and there may be resistance at the state level to "fix" something not perceived to be broken.
- **Insularity:** Programs that receive large amounts of categorical funding (enough to render them self-sufficient) may not recognize the need for change.
- **Focus on service delivery:** State staff are charged explicitly to provide certain services (e.g., mammography and Pap screening) and are accountable to legislators and the public for delivery of those services. Current funding mechanisms allow for infrastructure development within categorical programs but not across cancers and cancer risks.

Selecting participants from a broad range of stakeholders to evaluate potential implementation barriers allowed DCPC to increase the scope and validity of the mental exercise and address, at relatively low risk, the trialability issue that is so problematic with a complex innovation. Knowing where implementation problems are likely to lie will allow both implementers and facilitators to preemptively address those problems during the initial planning stages.

Design and Content of a Comprehensive Cancer Control Framework

Because the first state-level "trials" (or demonstration projects) of the comprehensive cancer control approach will be complex undertakings, any advance preparation to support these trials will increase the likelihood of success. DCPC activity participants helped develop parameters for a set of guidelines for use by state cancer control staff and others in planning and implementing programs that use the comprehensive approach.

Framework parameters

Parameters of the comprehensive cancer control framework, as outlined by stakeholders, were initially broad and grew more specific as the DCPC's exploratory process progressed. About 65 participants at the May 1996 conference developed a broad vision for a comprehensive public health approach to cancer prevention and control; this vision was refined and augmented by 12 members of the subsequent Denver workshop.

As envisioned by the participants, a comprehensive cancer control framework is driven—at different stages of the planning process—by data, science, capacity, and outcomes. The comprehensive approach to cancer prevention and control should be:

- *data-based* through review of relevant state-level data sources and reliance upon sound planning and decision-making principles

- *science-based* through identification of inappropriate gaps between political mandates and health data and through arguing persuasively for adherence to scientific evidence
- *capacity-based* through setting realistic priorities and through coordinating and integrating available resources and existing infrastructure represented by the staff, expertise, facilities, programs, and activities of cancer control stakeholders within a state
- *outcome-based* through ongoing monitoring and self-correction and through evaluation of planning and implementation activities that incorporate process and outcome measures and assess indicators of quality, efficiency, and effectiveness

Additional ideal characteristics identified by the participants included:

- flexible to respond to the unique characteristics of health departments and their communities
- adaptable to best meet communities' evolving needs within available resources
- coordinated with clear role definitions as an important aspect of coalition building
- inclusive fostering and nurturing broad community ownership
- responsive with a focus on customers and accountability at the constituent and local levels
- visionary yet practical through incorporation of both strategic and tactical elements
- focused with disease reduction and health promotion as a desired goal and with healthier communities and individuals as an essential outcome of the approach
- well-situated within the "big picture" of public health

Framework components

Among the core components of a comprehensive cancer control program identified by DCPC activity participants were:

- strategies and mechanisms for developing and maintaining partnerships
- assessments and surveillance
- infrastructure development
- public education
- professional education
- policy and legislative activities
- evaluation and monitoring
- quality assurance
- personal health services
- a cancer control plan that incorporates all of the above in some manner, addressing both program directions and program operations

The cancer control plan was described by participants as a centerpiece of the comprehensive approach. This element should:

- reflect integration and a comprehensive management philosophy
- define functions and roles
- focus on health outcomes
- deal with cancer sites and risk factors as well as with prevention, early detection, treatment, and quality-of-life issues
- encourage coordination and integration across professional disciplines and the full range of services
- effectively use intermediaries and partners
- systematically and appropriately identify public health priority populations

Participants identified the components of a cancer control framework that would make sense to state public health agency staff; yet they realized that components alone will remain nonfunctional without some sort of "glue" to hold them together and facilitate their continued operation.

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Forces operating within the framework

The following program characteristics were identified by participants as cohesive forces (the "glue") necessary within a comprehensive framework to promote the coordination and integration of cancer control programming at the state level.

- proactive leadership that believes in and visibly supports a comprehensive approach and adopts an expanded view of project management that can see beyond categorical program barriers
- organizational leadership occurring at multiple levels (ranging from senior management to field staff) and fostered through careful and well-tar-

geted hiring, ongoing mentoring, and support provided for personal and professional development
- cross-program and cross-agency sharing of staff skills and expertise, both categorical (site-specific or risk factor-specific) and cross-cutting (e.g., health promotion, evaluation, and clinical skills)
- effective use of outside experts at various phases of planning and programming
- emphasis on commonalities across categorical programs (e.g., ownership of the plan, core principles and values, program outcomes, and individual and group goals) rather than on divisions and differences
- integration of efforts in resource development, resource sharing, and development of allocation criteria and plans through collective decision-making across programs and agencies
- a reward system that encourages, acknowledges, and rewards integrative thinking and action
- openness to new ideas and technology; encouragement of "out-of-the-box" thinking and risk taking
- coordinated responses to external pressures in categorical program areas that can be harnessed to move the entire cancer prevention and control program forward (e.g., time-limited external pressures might be exploited to advantage by state-level cancer control planners)
- a well-developed accountability system through which to document progress and identify where further work is needed.

Not less important than the framework components themselves, these cohesive forces represent the dynamic aspect of a comprehensive cancer control model—initiating effective action, soliciting information and ideas, stimulating collaborative thinking, mobilizing staff and community partners, and maintaining the momentum of the system.

The image of relatively autonomous program units moving in coordinated and well-synchronized harmony was expressed aptly by one participant who used a "caterpillar" metaphor: The caterpillar's multiple discrete segments each moves within its own sphere while also moving forward as part of a larger whole. This metaphor works on several levels:

- Categorical funding and programming will not vanish in a more comprehensively oriented environment; instead, categorical programs will be better integrated and coordinated with other categorical programs.
- The key elements of a national cancer control program—such as basic and applied research, personal health services (prevention, screening, treatment, rehabilitation, palliation), outreach and public education, surveillance and monitoring, evaluation and quality assurance, legislation and advocacy, management and administration—will remain distinct program components, yet will function optimally and in concert with one another.
- The various stakeholders in a comprehensive cancer control effort will not merge or lose their unique perspectives and identities; rather, they will collaborate more meaningfully and effectively.
- Cancer control will remain a focal point for planning and programming activities but staff will be aware of the broader public health context within which they and their programs will operate.

Recommendations for developing a guidance document for state staff and others

DCPC activity participants were asked to visualize what they would like the "product" of the comprehensive cancer control initiative to look like. Most envisioned a document or documents as the principal outcome of their own deliberations and the additional data-gathering activities they had recommended that DCPC undertake. Participants described what a comprehensive cancer control guideline document for state staff might entail, for example:

> The final product might be in two parts. The first part could be a visionary document that is strategic in nature and deals with the concepts of comprehensiveness and integration on a national level.…The second part could be more tactical in nature and provide direction and guidance to state health agencies, illustrating various ways in which they can become more comprehensive and integrated in their cancer prevention and control activities.…The use of examples and story telling might make the document more alive and meaningful for state health agencies.[14(p9)]

In this mental exercise, participants described the kind of framework and materials needed to support

them as they move to actual trials. They helped develop a logical framework for a comprehensive model, building on their past experiences as well as their vision of a better way to plan and program cancer control activities. Through their specification of framework components and their identification of forces operating within the framework, the stakeholders began adding informative substance to the skeletal framework, a process that has continued in a DCPC-sponsored case study of state-level efforts to implement comprehensive cancer control planning and programming. Finally, as the intended end-users of a set of comprehensive cancer control guidance documents, these stakeholders' recommendations will help ensure that the guidelines are practical and user-friendly.

Description of a Supportive Role for CDC Staff

A final major contribution by participants in the DCPC comprehensive cancer control initiative has been the development of a detailed description of concrete actions state agency staff and their community partners would like to see CDC perform in facilitating the innovation's acceptance (see Table 4). Some of the activities lie outside CDC's purview or ability to implement; some will become more relevant when widescale implementation is attempted; some can be undertaken by CDC immediately; and a few already have been taken up. For example, development of guidelines is well underway, with a model framework completed and a guidance document being drafted based on information gathered during the comprehensive cancer control case studies.

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The participatory group process initiated by the DCPC to foster widespread adoption of a comprehensive approach to cancer prevention and control represents a systematic effort by the division and the participants to address problematic attributes of an innovation that potentially could impede widespread diffusion of the concept. Early DCPC-sponsored meetings exhibited little consensus on what was meant by the term "comprehensive cancer control" and the stakeholders' inability to grasp the exact nature of the innovation being proposed led many of them to worry that a new burden was being added to their already excessive workload, a risk with which they were uncomfortable. Even when stakeholders began to realize that comprehensive planning and programming was in fact a direction they wanted to go, numerous barriers to a comprehensive approach were identified, many of which related to missing or obstructive infrastructural features of the public health system.

The participatory method of innovation diffusion is one means of minimizing the kinds of implementation difficulties that can arise easily when a complex innovation is promoted on a wide scale. Because the change agent (in this case, the DCPC) from the outset included in its deliberations the potential adopters (the cancer control stakeholders asked to help promote adoption of the innovation), problematic attributes of the innovation that might have impeded its implementation were anticipated and addressed during a low-risk, mental trial preceding even the implementation of demonstration projects. Perhaps most important, a productive dialogue has been initiated and potential opinion leaders to champion the innovation have been identified.

The DCPC's original comprehensive cancer control model accrued additional detail with each phase of the participatory group process but it did not alter in essence, despite the varying sizes and compositions of the stakeholder groups contributing to it. A literature and model review recommended by participants and undertaken by DCPC as part of the exploratory process revealed that the model developed by participants resembles other cancer control models and descriptions of actual state-level experiences with comprehensive, data-based cancer control planning. These findings indicate that the innovation's foundation is sound.

A comprehensive and integrated public health approach to cancer control is essential to reducing cancer-related illness and death in the United States, and the DCPC is collaborating with state-level cancer control staff and the broader public health community to lay the groundwork for cancer control programs nationally. Although the process of innovation diffusion has taken longer than originally envisioned, the end result will be greatly enriched by the active and ongoing participation of the stakeholders.

Table 4

Participant recommendations regarding CDC's facilitative role in comprehensive cancer prevention and control

Topic	Recommendations
Management and administration	• Lengthen program cycles to allow states to develop longer-term objectives and activities. • Offer guidelines on how categorical dollars could be pooled for comprehensively designed and implemented programs. • Model a comprehensive and integrated approach at the federal level through CDC's internal management, staffing, and program activities as well as through improved coordination and integration with other federal agencies. For example: —Obtain buy-in to a comprehensive approach at the federal level by the various divisions and agencies involved in cancer prevention and control —Fund state health agency demonstration projects on comprehensive cancer control planning and programming —Arrange for conference presentations on the topic of comprehensive cancer control.
Communications and networking	• Obtain buy-in to and participation in a comprehensive approach to cancer control from key external agencies and individuals (e.g., the National Cancer Institute, the American Cancer Society, and the Association of State and Territorial Health Officials). • Develop avenues for ongoing information and technology exchange. • Facilitate the development of regional thinking and service delivery (especially for geographic groups of small or sparsely populated states).
Training and technical assistance	• Provide training and technical assistance in such areas as matrix operations and resource planning, particularly if this aid could be provided on-site through technical assistance teams. • Develop a training module on comprehensive cancer control planning and programming to be conducted through the National Training Center for the Prevention and Early Detection of Cancer. • Provide guidelines outlining a quality comprehensive cancer control program, including examples of exemplary program components from specific states to illustrate what is working well, and containing cautionary examples of what happens when cancer issues are not addressed comprehensively.
Legislation and policy	• Provide policy support to states working with Medicare and Medicaid to make cancer prevention and control a priority, identify policy options in advance of reports sent to the public, and educate public officials about cancer so they can be informed about advances in science.

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