The Cancer Centers Branch of the National Cancer Institute

Policies and Guidelines Relating to the Cancer Center Support Grant

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Policies and Guidelines Relating to the Cancer-Center Support Grant (CCSG)

I Cancer Center Program: Philosophy & Policies

The NCI-designated Cancer Centers are the centerpiece of the nation's effort to reduce morbidity and mortality from cancer. They are a major source of discovery of the nature of cancer, and of development of more effective approaches to prevention, diagnosis, and therapy. Cancer centers also deliver medical advances to patients and their families, educate health-care professionals and the public, and reach out to under-served populations. An excellent cancer center is a local, regional, and national resource, directly serving its own community and, by the knowledge it creates, the world at large.

NCI's Cancer Centers facilitate interactions between laboratory, clinical, and population scientists. Comprehensive Cancer Centers serve as models of translational research by facilitating laboratory investigation of clinical observations and developing clinical and public health interventions from fundamental scientific discoveries. To decrease cancer incidence and mortality, Centers link prevention, early detection, treatment, palliation and support for survivors developed and delivered within the Center to health service delivery systems outside the Center via proactive dissemination programs, education of health-care professionals and the public, and service delivery partnerships for under-served populations. Comprehensive Cancer Centers are models of discovery, development, and delivery unparalleled by any other national effort in any disease area.

NCI's support to its cancer centers is intended to foster excellence in research across a broad spectrum of scientific and medical concerns relevant to cancer. To facilitate discovery and its translation into direct benefit to patients and the general public, the NCI awards CCSGs to institutions that have a critical mass of excellent cancer-relevant scientific research. The CCSG focus on research derives from NCI's conviction that a culture of discovery, scientific excellence, multidisciplinary and transdisciplinary research and collaboration generates a cascade of tangible benefits extending far beyond the generation of new knowledge.

An NCI center's research components supported by the CCSG comprise a core for a much larger assembly of cancer activities - clinical care, dissemination and education – extending the benefits of research directly to patients, their families, and the general public and the agencies that serve them. The flexibility inherent in these CCSG guidelines results in the funding of centers with a variety of scientific agendas. NCI expects that centers, particularly those with the comprehensive designation, will develop effective research dissemination strategies to eliminate the disproportionate burden of cancer in minority and other underserved populations.

Definitions

Multidisciplinary: coordination of research among different disciplines, e.g., a multi-disciplinary P01 may be a coordinated effort to study a particular cancer issue although individual projects may be discipline-specific. Different disciplines are represented within a research environment or team. Traditionally centers have been multidisciplinary including laboratory clinical and public health investigators), defined by the people rather than the science itself.

Interdisciplinary: cooperation of different disciplines on issues that fall between disciplines.

Transdisciplinary: collaborations in which exchanging information, altering discipline-specific approaches, sharing resources, and integrating different disciplines achieves a common scientific goal. Trans-disciplinary refers to integrated (not specific to a discipline) research methods, conceptual development, multiple levels of analysis and science that produces new models and understanding exceeding the sum of the parts.

Features of an NCI-designated Cancer Center

Cancer Center *versus* Cancer Research Center: Most of NCI's direct support to cancer centers supports research infrastructure; other activities critical to a center's service mission are supported by patient revenues, philanthropy, and state or local government. NCI considered using the term "cancer research center" but chose "cancer center" to emphasize the close association within NCI-funded institutions of research and clinical care, education, and dissemination. Indeed their intimate association distinguishes NCI designated Cancer Centers from other "cancer centers," which, whatever their credentials in delivery of medical care, generally lack a strong research base to drive development. Institutions lacking a research base follow by adopting advances de-

veloped elsewhere, but they cannot lead.

A Policy of Inclusion: The purpose of a cancer center is to exploit all of the institution's cancer research and research dissemination capabilities. An institution or consortium of institutions with meritorious programs in laboratory, clinical, and population research must integrate these into a single interdisciplinary and transdisciplinary Cancer Center research enterprise across departmental, school, and institutional boundaries (e.g., Schools of Medicine, Public Health, Nursing, Dentistry, Allied Health, Veterinary Medicine, and Pharmacy, Departments of Psychology, Psychiatry, etc.). An institution having both basic and clinical activities may not submit a CCSG application focusing on the basic or the clinical research area only. A major test of both institutional commitment and the quality of center leadership is to strengthen and integrate all major areas of research, education, and care.

Community Dissemination, Education and Information Activities: Cancer Centers not only generate new knowledge but also interact within their communities to assure that new knowledge benefits systems, providers and people. Centers are expected to be active participants in state and community comprehensive cancer control planning and implementation. Centers assure that medical advances developed within the center are made available to people outside the center as rapidly as possible via professional and public education as well as partnerships with public health or clinical service delivery systems. Centers support the translation of intervention programs into public health or clinical practice. The provision of cancer information within their communities; establishment of formal programs for teaching, screening, therapy, and/or preventive interventions; participation of center faculty in science programs for nearby school districts; and establishment of satellite clinics in underserved areas are a few of the ways that centers extend their reach to patients, populations, and professionals who might otherwise not realize the benefits of scientific and medical advances. The strong interactions of NCI's Cancer Centers with their communities provide the relationships and organizational infrastructure required for conducting research that improves dissemination, education and communication, and ultimately enhances the health of populations.

The Six Essential Characteristics of an NCI-designated Cancer Center: Despite great institutional variety, the one common denominator of all successful NCI cancer centers is excellence in research. Successful cancer centers have scientifically strong research bases, funded by grants from the NIH and other funding sources that use rigorous peer review, and organized into collaborative cancer focused programs. In addition to excellence in research, a successful center is organized and administered to maximize the potential of its research base so that the whole is much more than the sum of its parts.

The Six Essential Characteristics of an NCI-designated Cancer Center

Facilities dedicated to the conduct of cancer focused research, and to the center's shared resources, administration, and research dissemination should be appropriate and adequate to the task.

Organizational Capabilities for the conduct of research and the evaluation and planning of center activities should take maximum advantage of the parent institution's capabilities in cancer research.

Interdisciplinary and Transdisciplinary Collaboration and Coordination: Substantial coordination, interaction, and collaboration among center members from a variety of disciplines should enhance and add value to the productivity and quality of research in the center.

Cancer Focus: A defined scientific focus on cancer research should be clear from the center members' grants and contracts, and from the structure and objectives of its programs.

Institutional Commitment: The center should be recognized as a formal organizational component with sufficient space, positions and resources to insure organizational stability and fulfill the center's objectives.

Center Director: The director should be a highly qualified scientist and administrator with leadership experience and institutional authority appropriate to manage the center.

NCI Designations

Cancer Centers have developed in many different organizational settings, reflecting considerable diversity in the size and complexity of their research emphases. Whether organized as a freestanding center, a center matrixed within an academic institution, or a formal consortium under centralized leadership, all centers are judged by

the same scientific, organizational, and administrative criteria. NCI recognizes two general categories of centers:

- The unmodified term **cancer center** refers to a cancer center having a scientific agenda that is primarily focused on basic, population sciences, or clinical research, or any two of the three components. Such centers are encouraged to stimulate transdisciplinary research. All areas of research should be linked collaboratively. Cancer centers with clinical components are *expected* to conduct early phase, innovative clinical trials and to participate in the NCI cooperative groups.

- A **comprehensive cancer center** has reasonable depth and breadth of research activities in each of three major areas: laboratory, clinical, and population-based research, with substantial transdisciplinary research that bridges these scientific areas. A comprehensive cancer center is expected to initiate and conduct early phase, innovative clinical trials and to participate in the NCI's cooperative groups by providing leadership and accruing patients to trials. An NCI-designated Comprehensive Cancer Center must also demonstrate professional and public education and dissemination of clinical and public health advances into the community it serves.

Major Research Areas of a Center

Multidisciplinary and Transdisciplinary Interactions between Basic, Clinical and Prevention, Control, and Population Research: A cancer center should feature vigorous interactions across its research areas, and facilitate collaboration between laboratory, behavioral, epidemiologic, and clinical scientists, and between laboratory, clinical, and population science programs. These collaborations should facilitate rapid transfer of clinical observations to laboratory experiments, and promising discoveries in the laboratory to innovative behavioral and medical applications in prevention, detection, diagnosis, treatment, and survivorship. In geographic areas with multiple cancer centers, collaborations among centers may be appropriate. Centers having only laboratory research components are encouraged to seek collaborations with clinical units elsewhere, with industry, and with the NCI to facilitate the translation of fundamental discoveries into tangible patient benefit.

No particular organizational configuration is mandated by these guidelines. The organization should serve the science and be appropriate for the institution. The center should have reasonable breadth and depth of scientific faculty, as well as adequate and appropriate facilities dedicated to each of the center's research areas:

- **Laboratory Research:** Centers should use their base of support to promote multidisciplinary interactions between scientists engaged in basic cancer research and, where possible, to stimulate collaborations among investigators in basic and other areas.

- **Clinical Research:** A cancer center should be a major source of innovative clinical studies that can be exported, for example, to NCI's cooperative groups or directly into general medical practice. Clinical studies should involve relevant laboratory research whenever possible. In addition to fostering translation between laboratory and clinic and conducting early proof-of-principle clinical trials, cancer centers should participate in NCI's clinical cooperative group trials.

- **Prevention, Control, and Population Research**: Cancer control research is the conduct of basic and applied research in the behavioral, social, and population sciences that, either independently or in combination with biomedical approaches, reduces cancer risk, incidence, morbidity, and mortality. The scope of this research is extensive, including pre-intervention behavioral and bio-behavioral research, randomized clinical trials involving healthy populations or survivors, to research focusing on dissemination and diffusion of effective medical and behavioral therapies. Prevention research is directed at healthy populations, including those at high risk and/or those with detectable precancerous lesions, and cancer survivors. Not every cancer center will conduct research in all aspects of prevention, control, and population sciences. However, centers should demonstrate grant support not only in epidemiology, but also in several other areas of primary prevention, early detection, health services, dissemination, palliation and survivorship research.

Interactions with Industry: Cancer Centers may serve as important interdisciplinary research platforms for

evaluating the most promising industry products for early detection, prevention, diagnosis and treatment of cancer. Centers are therefore encouraged to engage in scientifically promising studies with industry of new diagnostic tests or equipment, therapeutic agents through clinical trials designed by center as well as field-testing new technologies important in the discovery process. Such studies can benefit from CCSG resources if the center plays a key role in both the intellectual and operational aspects of the study, findings are made available to the biomedical research community and the study is consistent with current federal regulations regarding use of grant funds involving industrial partners.

Relation of CCSG to the Cancer Center as a Whole: The many functions of a cancer center in the areas of research, patient care, education, dissemination and outreach rely on a diverse base of support including federal, state, and local government; private industry and foundations; third-party payers; and private philanthropy. Within this very broad range of activities, the CCSG has a comparatively narrow focus. The CCSG is intended to provide support for activities related to the peer-reviewed research base of the cancer center. Although the CCSG usually comprises a relatively small proportion of a center's operating budget, it supports an important part of the research infrastructure, stimulates innovation, and encourages interdisciplinary and collaborative research. An effective clinical or comprehensive cancer center fosters good patient care through the close association of care and research. The effective communication of research findings between basic, clinical, and population research venues distinguishes the research-oriented cancer center from organizations dedicated only to care and service. Research in cancer centers contributes directly to the continuous advancement of services provided by the center and its close regional affiliates and offers patients options for prevention, diagnosis and treatment that may not be available elsewhere.

The Relationship of Centers to Each Other and to the NCI: Cancer centers, crucial nodes in the NCI's multicenter trials programs in treatment and prevention, relate to each other in complex ways. Cooperation among centers is critical for the success of NCI initiatives. Centers collaborate with each other to realize common goals outside the sponsorship of NCI, as shown by the formation of voluntary consortia of centers and by joint participation in collaborative studies sponsored by private industry. Conversely, centers also sometimes find themselves in direct competition with each other, particularly when multiple centers are located in the same geographical area.

As a support mechanism for a center's research base, the CCSG is focused on the individual cancer center. The extent to which a center's investigators use CCSG resources to enhance collaborations with scientists in other institutions will vary with time and from center to center. The NCI will not require that CCSG resources be utilized to foster specific inter-institutional activities.

Cancer centers have a history of being partners with the NCI to expedite the exploration and implementation of high priority research opportunities. When NCI wishes to enable investigators to take advantage of emerging opportunities, has the need to stimulate an important initiative quickly, or believes that there would be benefit from consortia actions, it will make the necessary resources available separately. Such opportunities may be in the form of administrative or competitive supplements to the CCSG if they are time-limited and within the scope of the CCSG. This kind of partnership would not apply to activities requiring substantial sums or a long timeframe to accomplish. In these instances, independent funding vehicles would be required.

Budget and Funding Policies

Time Limitations: CCSG awards will generally be for periods of up to **5** years. Peer reviewers may recommend a 6th year of funding, if a center is of outstanding merit Actual award of a sixth year of funding is a joint decision contingent upon the center's wishes and the continued stability of center leadership and programmatic scope assessed by NCI program staff after the submission of the **year 3** non-competing renewal application.

Competing Continuation Applications (Type 2) - Size of Total Request: Applicants should contact the Cancer Centers Branch to determine the current status of any formal budget caps and their particular provisions. *In the absence of a formal budget cap, the following policy applies:*

Centers have the flexibility to develop budget requests in relation to the size of their cancer-relevant research

base. The CCSG is only one of many sources of funding available to centers for support of their research programs.

The NCI Cancer Centers budget is currently about **0.13** of all NCI funded grants to institutions with Cancer Centers. Therefore a ratio of **0.15** between the size of the CCSG award and the size of the NCI portion of a center's research base (calculated for the last completed fiscal year) serves as an easily verifiable benchmark of the size of a CCSG award. Using a ratio of the NCI CCSG budget divided by self reported cancer related NIH (including NCI) funding, of **0.05**, would also reflect a benchmark, but NIH funding is not easily verifiable and cannot be used. Centers with budget requests significantly exceeding a ratio of **0.15** should provide compelling data that the scientific excellence of center research programs and the close and sustained integration of investigators from affiliate institutions clearly justify a larger award. NCI's ability to pay awarded CCSGs at recommended levels varies from year to year with the size of the congressional appropriation.

Centers may not request support for

- ***services that an institution normally provides without charge to departments or other centers comparable to the cancer center or***
- ***costs of operating an institution or hospital or management of activities and functions that are reasonably regarded as institutional responsibilities.***

First-Time Applications (Type 1) Budget requests from a center with no current CCSG grant should not exceed $1,000,000 direct costs for year one (the budget in subsequent years will generally receive cost-of-living adjustments). The NCI will consider exceptions to the general limitation on budget requests for type 1 applications from centers with a recent prior CCSG award that has been phased out because of an unfundable priority score.

Budget requests exceeding the **0.15** ratio discussed above, will draw the close scrutiny of peer reviewers; furthermore an award also can be reduced administratively at NCI's discretion. The cap on the budget request for a first-time application is largely predicated on the limited organizational track record of a newly applying center.

Competitive Supplemental Applications are accepted by the NCI for peer review and funding consideration only under exceptional circumstances. Because supplemental applications are particularly difficult for peer reviewers to evaluate outside the context of the overall CCSG, they are accepted only when justification is clear and compelling. Examples might include a fundamental change in the Cancer Center's parent institution, such as a formal merger with another health care or research institution. The applicant must clearly establish that waiting for the next competitive renewal application cycle would have a long-term effect on the success and/or progress of the cancer center. Centers wishing to submit supplemental applications should make a written request to the Cancer Centers Branch Program Director explaining the exceptional circumstances. Written approval from the Program Director to submit the supplement is required and depends on the following: 1) the strength of the arguments presented in the request; 2) the ability of the NCI to provide peer review of the request in a timely manner; and 3) the anticipated availability of resources to pay the request should it receive a competitive score in peer review. Supplemental applications to correct deficiencies noted previously in peer review will not be accepted.

Administrative Supplements: Depending upon the availability of funds, the NCI will consider administrative supplements to CCSGs to pursue important, short-term scientific opportunities needing immediate attention that could not be initiated and sustained through the normal, competitive grant process (e.g., RO1s). Interested centers should contact the Program Director of their grant to inquire about availability of such funds.

Sources of Budget Flexibility in a CCSG: The CCSG assists institutions by providing support for research infrastructure, such as program leaders, center administration, shared resources and services, and developmental funds for new initiatives. Funds for these purposes stabilize the organization and functioning of a center, provide shared resources that are not attainable through other granting mechanisms, and provide flexibility that enable investigators in a cancer center to pursue new scientific opportunities as they arise.

CCSGs are administered under the provisions of Federal Expanded Authorities (http://odoerdb2.od.nih.gov/gmac/nihgps_2001/part_iia_5.htm#_Toc.504811854). With some limits, this gives cancer centers flexibility to carry over funds from one year to another within a project period without prior NCI prior approval. In accordance with the NIH Grants Policy Statement, unobligated funds of 25 per cent or less of the total amount awarded the current year award (excluding any funds restricted by the terms of the award) can be automatically carried over without prior NCI approval. Requests for carryover of unobligated funds in excess of this amount will be reviewed by NCI to ensure funds are necessary for completion of the project; additional information, including a revised budget, may be requested from the grantee as part of this review. If it is determined that some or all of the unobligated funds are not necessary to complete the project, the NCI may take one of several actions: 1) use the balance to reduce or offset NIH funding for a subsequent budget period, 2) restrict the grantee's authority to carry over future unobligated balances, or 3) a combination of items 1 and 2, above. **The Financial Status Report must specify the amount to be carried over. Any amount not specified for carryover may be used as an offset for a subsequent budget period.**

Center directors have considerable flexibility to move funds between budget areas in response to changing needs and opportunities. The center director may increase any budget category rated at least excellent by peer reviewers by up to 25 per cent over the level approved by peer review without prior NCI approval. Rebudgeting of funds into areas rated less than excellent by peer review requires prior NCI approval, which will normally be granted if a proposed investment would significantly improve the quality of an area important to the center. Competing continuation applications should therefore account for significant rebudgeting decisions with appropriate explanations and outcome information.

Funding Policies: Peer review of new and competing continuation applications over the course of a fiscal year results in a range of priority scores for approved applications. Each year, NCI establishes a funding policy for the centers program to separate applications deserving continued funding from those that do not. Applications with scores meriting funding are paid according to a sliding scale based on their priority scores. Applications judged not to merit funding will receive either no funding (new applications) or phase-out funding at negotiated levels (competing continuation applications). During the period of phase-out, the center should be able to revise and resubmit an amended application that addresses the concerns of peer review.

While no cap limits the size of competitive renewal increases in individual awards, the peer review process and the NCI fiscal year funding plan will determine the overall budget for the NCI Cancer Centers Program. Peer review plays a major role in judging the merit of budget requests. Clearly however, many factors affect funding levels for individual cancer centers, such as a budget cap, the overall availability of funds, and the need to assure entry of meritorious new centers into the program.

In years of significant budgetary constraint, **funding plans will spread the impact over the entire program (non-competing as well as competing grants) to reduce the adverse impact on those institutions that happen to compete during a difficult year.** If funds become available in future years, restorations may be considered.

While many institutions have had funded cancer centers for a long time, the program has a significant level of turnover. A center that has lost its CCSG may reapply and recompete successfully for CCSG funding once its deficiencies have been corrected.

II Submission of New & Competing Continuation Applications for a Cancer Center Support Grant

These guidelines outline the National Cancer Institute's procedures for submission, acceptance, and review of an application for a Cancer Center Support Grant (CCSG). CCSGs are provided through the P30 grant mechanism to qualified applicant institutions that wish to become NCI-designated Cancer Centers and have successfully met a series of competitive standards associated with scientific and organizational merit.

The essential purpose of a CCSG is to foster excellent science and productive interactions within institutions

that already have a substantial research base. The application for a CCSG and its review should focus on demonstrating convincingly the overall excellence of the research base, the extent of the value added to the cancer center by CCSG support, and the effectiveness of the leadership of the cancer center. Supporting materials should be presented in sufficient detail to convince peer review that all requests for resources are justified.

Before an application is submitted, staff members of the Cancer Centers Branch may assist applicants by providing advice on a range of matters relating to the cancer centers program as a whole, funding policies, and strategies for assembling a cogent and persuasive application. For more information, call or write to:

Chief, Cancer Centers Branch
Office of Centers, Training and Resources
National Cancer Institute
6116 Executive Boulevard, Suite 700, MSC 8345
Bethesda, Maryland 20892-8345 (for Express mail use Rockville, MD 20852)
Tel: 301/496-8531
Fax: 301/402-0181

Eligibility Requirements

Research Institution in the US

Only One CCSG per Institution: The CCSG aims to take maximum advantage of the spectrum of resources available within a cancer-research community. Because the major purpose of a cancer center is to catalyze interactions among research groups from diverse departments and disciplines, different components of an institution should not submit separate CCSG applications. Applications are accepted from closely collaborating institutions (e.g., formal consortium) that wish to form a center and are submitting a single application.

Funding Base: An applicant institution must have a base of at least $4,000,000 in annual direct costs of peer-reviewed, cancer-related funding. While most NCI cancer centers far exceed this minimum funding base, the NCI maintains this level to attract smaller institutions and increase the diversity of cancer centers. If the cancer center is formed as a consortium of institutions (i.e., if several different institutions are functioning as *full participants* in the center and not as affiliates), the funding base of the center will be the sum of the funding bases of the individual institutions making up the center. NCI staff will assist with any problems of interpretation.

Sources of Support That May Be Included for Determining Eligibility to Apply for a CCSG are:

- **NCI Support** including the following prefixes for peer-reviewed grants, cooperative agreements, and contracts: R01, R03, R18, R21, R24, R25E, R25T, R29, R33, R35, R37, R41, R42, R43, R44, R55, P01, P20, P30s other than the CCSG, P50, U01, U10, U19, U54, U56, T32, K and F series awards and some N01s.
- **Support by Other NIH Institutes and Funding Organizations**. Submit non-NCI support information to determine the eligibility of applicants for a CCSG *only* if the applicant's NCI support is below the minimum. Grants and research contracts from other NIH institutes, and grants from the National Science Foundation (NSF), the American Cancer Society (ACS), and a number of other funding organizations can be included in the minimum if they comply with the NCI Referral Guidelines; an updated list of approved organizations is available at http://cancercenters.cancer.gov/documents/fundorg.pdf. Awards from other funding organizations that utilize a peer review and funding system equivalent to that of the NIH may also apply toward the minimum; these funding sources must be approved by the NCI prior to application.

Sources of Support That May Not Be Included: R13 grants, awards from commercial organizations, and NCI or NIH contracts that fund primarily the production of materials and/or services in support of research (e.g., SEER and CIS Contracts, construction grants).

If the minimum funding base cannot be confirmed by a simple examination of the NCI's grants database, the applicant should provide the following additional information: (1) copies of existing documentation (e.g. award statements) of NCI-supported research projects relevant to eligibility showing the PI, grant or contract number, title, direct-cost funded level for current year and total award period; (2) copies of existing documentation of all

non-NCI-supported research projects to be used to reach the $4,000,000 minimum, showing PI, funding agency, identification number of funding agency, title, direct-cost funded level for current year, and total award period. Also, copies of existing descriptions of each non-NCI-supported research project should be provided.

Key Dates in the Grant Application, Review and Funding Process

Pre-application Consultation*	Sept-Nov	Jan-Mar	May-Jul
Application Receipt Date	Jan. 25	May 25	Sept. 25
Site Visit	May/Jun	Sept/Oct	Jan/Feb
Review Committee Meeting	Jul/Aug	Nov/Dec	Mar/Apr
NCAB Meeting	Sept/Oct	Jan/Feb	May/June
Earliest Start Date	Dec. 1	Apr. 1	July 1

Notify NCI staff in advance if meeting receipt dates becomes difficult. To plan for the review, the Scientific Review Administrator may request preliminary information several months prior to the actual application receipt date.

Pre-application Consultation (Highly Recommended)

A pre-application consultation, while not required, is highly recommended. Applicants who participate in the consultation generally present applications that fare better in the review process. The consultation, intended to help the applicant understand the CCSG guidelines, and discuss strategies for preparing a competitive application, should be scheduled well in advance of the due date for submission. NCI staff will clarify the intent of the guidelines, discuss funding trends, share generic information about reviews of CCSG applications from similar institutional settings, and describe the peer-review process. The applicant can define which issues would be most helpful to discuss and then work with NCI program staff to decide what information is most appropriate to provide. The following are examples of items that help NCI staff understand the plans of first-time applicants:

- background and responsibilities of the cancer center director and the key senior leaders of the center.
- diagram showing the reporting, programmatic and advisory structure of the center and how it relates to the organizational structure of the institution as a whole, and a list of external advisory board members.
- how the center expects to meet the six essential organizational and administrative characteristics of an NCI-supported cancer research center.
- major scientific Programs and the projected leadership, participants, and criteria for selecting Program members, if these are known.
- direct-cost budget estimates (in aggregate, not itemized) for the first year for each allowable budget category and individual shared resource.
- list of active peer-reviewed research grants, cooperative agreements and contracts, grouped by the program elements that will form the entire research base of the cancer center. Typically, this listing is longer than the research base used to meet eligibility requirements. For each project, list the principal investigator, project title, direct-cost dollars for the current year, and the total project period (e.g., 5/01/02 - 4/30/07).

Formatting Instructions for New and Competing Continuation CCSG Applications

These formatting instructions supplement those of the PHS Form 398 (rev.9/04). Applications fare best when the review of these complex grant applications is as trouble-free as possible. Adherence to these instructions will greatly assist peer reviewers in identifying sections of the application and in matching them with the corresponding review criteria listed below.

All pertinent information needed for evaluation should be included in the body of the application as concisely as possible. Inclusion of material not essential to making a center’s best case for funding dilutes the message and

distracts reviewers from the major points of the application.

Page Limitations apply only to the narrative parts of each section including descriptive abstracts, budget justifications, objectives, goals, rationale, accomplishments, tables, figures, charts, etc. They do not include budget pages, biographical sketches, publication lists or lists of grants. Page limits are maximal and are not meant to suggest the minimum or optimum length of sections.

Permission to Apply: *At least six weeks prior to the receipt date, contact NCI program staff to obtain prior agreement to accept the application for review. All new, competing continuation, and amended/revised applications involving budget requests of $500,000 or more in direct costs, must have written approval.*

The Cancer Centers Branch will notify the potential applicant in writing or by e-mail that the applicant is eligible to submit a CCSG application and that NCI is willing to accept it for review.

If, for any reason, the application is not submitted by the expected date, obtain a new permission letter for the new planned submission date.

Cover Letter: Include a copy of the letter from NCI staff agreeing to accept the application (as above).

1.0 Face Page: The "principal investigator" is the cancer center director or designee; the "applicant institution" is the fiscally responsible institution of which the cancer center is a part.

2.0 Description, Performance Sites, and Key Personnel: Provide a description, limited to the space provided on page 2 of the PHS Form 398 (rev.9/04), of the CCSG-related organization and research programs of the cancer center, and of the request for support through the CCSG. Provide a list of performance sites (including hospitals) and key personnel as per PHS Form 398 (rev. 9/04) instructions.

3.0 Include a **Table of Contents** for all major sections and subsections of the application.

4.0 Prepare a **Consolidated and Summary Budget Request** as instructed in PHS Form 398 (rev.9/04).

5.0 Standard Cancer Center Information

These Summaries (see Attachment for instructions and formats) itemize for easy reference the center's research programs, shared resources, base of funded research projects, patient information, clinical research protocols, and comparison budget.

Summary 1 describes the center leadership (e.g., Cancer Center Director, Deputy Director, Associate Directors, etc.), the proposed Programs and Cores and their leadership and cancer center membership.

Summary 2a lists all active cancer-relevant projects competitively funded of the date of preparation of the summary by sources external to the fiscally responsible institution of which the cancer center is a part. Grants are listed by Principal Investigator's in alphabetical order in two parts--active funded research projects and training and career development grants.

Summary 2b summarizes the funding by category. Together they describe the size and scope of the Center's funded research.

Summary 3 provides registry data regarding the numbers of patients treated at the cancer center and the number placed on therapeutic studies by cancer site. Broadly it summarizes the clinical trials of the cancer center. (Data in summary 3 and 4 correlate only approximately.)

Summary 4 lists research protocols open at the Center during a recent 12 month period, sorted by Program, Category of trial, sponsor and Principal Investigator,.

Summary 5 compares the current and requested CCSG budgets in each CCSG budget category.

6.0 History and Description of the Cancer Center Specifically Describing the Six Essential Characteristics of the Cancer Center: Limit 40 pages

Provide reviewers with a brief history of the development of the cancer center and generally describe center activities, what the center is, what it does, what the center considers its most important recent discoveries, and what priorities the center has for future development.

Describe specifically the structure of the cancer center with respect to the Six Essential Organizational and Administrative Characteristics of Cancers Centers, which are:

Facilities dedicated to the conduct of research and research dissemination, to the center's shared resources, and to administrative activities should be appropriate and adequate to the task. All members of the cancer center need not be located physically in facilities controlled exclusively by the center. Location of members across Program areas (basic, clinical, cancer control) in close physical proximity enhances shared use of resources and facilitates scientific interaction. If proximity is impossible, access to center shared resources should be equalized. Centers are clearly more successful in establishing a distinct identity if they have an identifiable physical location. Adequate administrative oversight of facilities providing shared resources is essential.

Discuss the appropriateness and adequacy of the facilities in relation to center identity and functions. Provide a simple map that illustrates the geography of the center, the location of its major activities and the physical relationship of any affiliated institutions to the main campus.

Organizational Capabilities: The organization of the center for the conduct of research and the evaluation and planning of center activities should promote joint initiatives, collaborations and interactions within and among its programs. The organizational arrangements should take maximum advantage of the parent institution's capabilities in cancer research; this is a particular challenge in a large and diverse university or when multiple institutions are included. A center should have:

- an overall programmatic structure that effectively promotes scientific interactions and takes maximum advantage of the institution's cancer research capability (this is particularly important to explain when the center includes multiple participating institutions).
- an administrative organization with clear lines of authority which is managed efficiently and cost effectively.
- the use of a standing outside advisory body (appropriately balanced for laboratory, clinical, cancer control/population science, and administrative experts) that meets at least once yearly, which provides objective evaluation and advice in a report to the center director.
- internal advisory, decision-making, and priority setting processes for conduct of center activities.
- appropriate processes for determining and sustaining individual membership in the center based on productivity, research direction, and participation in cancer center activities.

Discuss the organizational structure of the Center and its organizational capabilities. Describe how the organizational arrangements take maximum advantage of the parent institution's capabilities in cancer research and promote joint initiatives and collaborations and interactions within and among its programmatic elements.

Describe the external advisory committees that provide independent input to the center director, as well as the internal governance processes for decision-making and priority-setting, and the criteria and processes for determining and sustaining the membership of individual investigators in the center.

List the non-aligned members in alphabetical order and include their departmental affiliations, areas of expertise and research interests, in a few sentences. If a significant proportion of the membership (i.e., greater than 10%) is not aligned with any of the Center's research Programs, describe the strategies used to take advantage of their scientific expertise in furthering the research objectives of the center.

Present the Center's planning and evaluation processes. *No formal written strategic plan is required.*

Interdisciplinary and Transdisciplinary Collaboration and Coordination: Research activity in a variety of disciplines and a high degree of coordination, interaction, and collaboration among cancer center members should enhance and add value to the productivity and quality of the research in the center, and maximize the potential of the institution, whether small or large, to conduct transdisciplinary and translational research. An actively functioning center promotes creative, innovative, high-quality, and interactive research opportunities through the formation of formal Scientific Research Programs, comprised of groups of investigators who share common scientific interests and goals and participate in competitively funded research and in publications. Both inter- and intra-programmatic collaboration is important.

Summarize the Center's major scientific strengths, its principal research opportunities and the interdisciplinary coordination and collaboration between cancer center members that enhance and add value to the productivity and quality of the research in the center, and maximizes the potential of the institution to conduct multidisciplinary and translational research. Describe ways in which the center promotes creative, innovative, high-quality, and interactive research opportunities.

Cancer Focus: A defined scientific focus on cancer research should be quite clear from the center members' grants and contracts, by the structure and objectives of its programs, and the collaborations between laboratory researchers and others who are more directly concerned with cancer applications. NCI recognizes that many aspects of laboratory, behavioral and epidemiological research are resistant to neat labels and that the cancer-relatedness of particular areas of research should be a matter of flexible interpretation. Nevertheless, the definition of cancer research is broad but not infinite.

Discuss how the Center's grants and contracts, its programmatic structure and objectives, and the collaborations between laboratory, clinical and public health scientists reflect a clearly defined scientific Cancer Focus. Describe the most important discoveries occurring in the center during the last period of support to help reviewers understand what the center's investigators consider their most important achievements.

Institutional Commitment: Cancer Center grants contribute considerably to an institutions research infrastructure. The NCI designation lends stature to an institution by attracting patients, industry research support, and philanthropy. The NCI substantially invests in cancer centers and expects similar commitment of the institution(s) to the center. Commitments of parent institutions to the cancer center frequently include the following:

- Recognition of the cancer center as a formal organizational component with sufficient space, positions and other resources to insure organizational stability and fulfillment of the cancer center's objectives.
- Provision of central discretionary funds (e.g., philanthropic funds, indirect cost return, clinical revenues) under the control of the director for the center.
- Formal codification in institutional policy of:
  - the organizational status of the cancer center and authority of the center director as comparable or superior to that of departments and department chairs.
  - reporting structures.
  - responsibility of other institutional leaders (deans, hospital presidents, and department chairs) to ensure cross departmental integration and long-term stability of the center, and to support cancer center objectives, including access to clinical inpatient and outpatient facilities, and joint oversight of faculty critical to linking oncology care and research.
  - a well-defined plan for a change in directorship and institutional commitment to continuing support of the cancer center.

Discuss the institutional commitment to the center, including its recognition and status as a formal organizational component, the provision of space, positions and discretionary resources, the authorities of the director; the status of the director in comparison to departmental chairs; reporting structures, and responsibilities of insti-

tutional leaders to ensure the long-term stability of the center; and plan for assuring continued commitment of the center in the event of a change in directorship.

Include a letter signed by the Dean and Hospital President or other appropriate institutional officials documenting specifics of institutional commitment both for the long term future of the center and for this award period.

Center Director: The director should be a highly qualified scientist and administrator with leadership experience and institutional authority appropriate to manage the center, whether it is a small institution or a highly complex consortium.

The director should serve the center on a full-time or a significant part-time basis, and should have the following authorities:

- A senior position (within a matrix center, at least equivalent to a Departmental chair), with appointments to decision making committees relevant to the cancer center and formally codified authorities.
- Control of faculty appointments to the cancer center, and of their periodic review for continued membership (i.e. ultimate authority for determining which individuals will be productive, contributing members of the cancer center).
- At a minimum, joint control (for example, with a department chairman) of recruitments of individuals who are to be members of the cancer center.
- Full or shared control of specific research and resource space and equipment dedicated to the cancer center; this control provides the independent flexibility to enhance and develop the research capability and resource needs of the center.
- If the center conducts clinical research, the center director or designee must have sufficient authority over both inpatient and outpatient facilities to achieve center clinical research objectives, and over the appointment and performance of individuals critical to linking oncology care to clinical research.
- Control of philanthropic funds donated to the cancer center.

Describe the qualifications of the Center Director in relation to scientific background and leadership experience and his/her time commitment to the center. Describe the status of the center director within the institution; any appointments to decision-making committees relevant to the cancer center; authorities in relation to integration of research across schools and departments, appointment and review of program members, recruitments and faculty positions, research and resource space and equipment dedicated to the center, revenue streams, and inpatient and outpatient facilities.

Special Considerations for Partnerships (Consortium Centers, Affiliations) and Collaborations: Cancer centers have become even more complex, as mergers and strategic alliances blur long-familiar institutional identities. NCI favors a “one cancer center per institution or per group of closely collaborating institutions” policy, and particularly encourages affiliations with institutions with special populations or located in geographic areas not currently served by an NCI-designated cancer center. All partnership applications must demonstrate integrated research (as evidenced by authorship of grants and publications), and mechanisms for including geographically dispersed members in programmatic activities and ensuring appropriate access to shared resources.

Common fundraising and a joint Internal Review Board for evaluation of all cancer research across the partner institutions are encouraged, but not required. Formal written agreements should be in place to insure:

- resolution of differences at the highest levels of institutional leadership.
- a single Protocol Review and Monitoring System and Data and Safety Monitoring Institutional Plan governing cancer clinical trial protocols across all partner institutions.
- an integrated recruitment process to meet the strategic goals of the center.

- benefits of clinical research are uniformly available across all partner institutions.
- full eligibility for leadership positions, participation in scientific programs, and access to shared resources for all members.
- authority of the center director

  - to integrate cancer relevant scientists into the center.

  - for all CCSG-supported shared resources, including those located in partner institutions.

A comprehensive designation may be based on research in the primary institution alone, or on supplemental strengths of the research in both primary and partner institutions. Grants of the partner institutions may be counted toward program eligibility and calculation of the CCSG/NCI funding ratio, pending a successful peer review.

In your application, clearly outline the objectives and benefits to be gained through the collaboration. Describe the formal written agreements in place to insure maximum integration and stability across all institutions involved in the partnership. Discuss progress in integrating research to date and facilitating access for members to programmatic meetings and retreats and to shared resources. Address the special considerations and guidelines discussed above in your narrative description.

Research Collaborations: Cancer Center members may develop long term research collaborations with investigators. Guidelines for cancer center membership for such collaborators include:

- Collaborators with demonstrable joint publications and grants *whose institutions do not have NCI designated cancer centers*, may become Center members based on rules established by the center.
- Collaborators who are members should have full access to center shared resources.
- Grants of collaborators do not count toward program eligibility or calculation of the NCI ratio.

Describe these collaborations in terms of research foci, longevity, and access to programmatic activities and shared resources.

7.0 Descriptions, Budgets, and Narrative Justifications for Individual CCSG Components:

Using the forms and instructions in the PHS Form 398 (rev.9/04), for <u>each</u> allowable budget category for which funds are requested, prepare a:

- Description (where appropriate).
- Budget for the *First 12 month Budget Period.*
- Summary budget for the *Entire Proposed Project Period.*

Do not provide narrative justifications for individual Program Leaders, since this information is already included in the *Research Programs* section of the application. Include a simple consolidated budget for Program Leaders.

The CCSG is intended to provide reasonable costs for a great variety of activities that are clearly related to the research needs of the cancer center. The narrative describing the role and function of requested personnel should clearly justify the stated percent effort, whether or not salary is requested. The major categories of allowable costs include the following:

7.1 Senior Leadership: No more than 1 page per senior leader. Prepare a description and a consolidated budget of percent efforts for all Senior Leaders and narrative justifications that carefully describe their roles. Each narrative should be followed by a biographical sketch (see PHS Form 398 rev. 9/04).

Individuals in pivotal leadership positions in the center are eligible for salary support for the time and effort they devote to its research activities. They should be in place and committed to a defined percent effort commensurate with duties and responsibilities. Applicants and reviewers should consider the breadth and complex-

ity of the role of each Senior or Program Leader and determine the appropriate level of effort needed to meet this responsibility. Requests should not be based on any perception that reviewers expect a standard level of effort for all Senior and Program Leaders.

7.2 Program Leaders of Research Programs: Budget pages only. Provide only a single consolidated budget that lists all Program Leaders in the center and their percent efforts. This is merely a consolidation of the separate budgets provided and justified in 7.0. DO NOT provide any narratives.

7.3 Staff Investigators: No more than 1 page per staff investigator. Prepare an overall description, and a consolidated budget. Provide a separate short narrative justification and a biographical sketch for each staff investigator. The narrative should specify the formal research program(s) of the Center in which the staff investigator participates.

Level of effort for Staff Investigators: Members of the center who are clearly important contributors to the programmatic or translational activities of the center may receive salary from the Staff Investigator budget for their specific roles in the center. To qualify an individual should play a definable and special role in helping the center achieve its objectives above and beyond their own research or ***must play an important role in the*** clinical translational research activities of the center. Staff Investigators must either be a PI or co-PI on at least one NCI approved peer-reviewed and funded research-project award, or be a clinical investigator actively engaged in translational research.

Peer review of the use of Staff Investigator candidates include consideration of:

- Funded researchers: Their research track record, their special importance to the center and whether their budget allocation is commensurate with their time and effort for activities not supported by other awards.

- Clinical translational researchers: Their contributions to development and implementation of the center's clinical and translational activity, including authorship of clinical trials, accrual of patients on interventional trials or leadership roles in cooperative group studies, and whether their budget allocation is commensurate with their time and effort devoted to these research activities.

7.4 Program Planning and Evaluation: No more than 5 pages. Provide an overall description, a consolidated budget, and a narrative justification for each planning and evaluation activity. The narrative should summarize how past CCSG funds were used, what was accomplished to improve and develop the cancer center, and how future needs will be met with the requested budget. While budgetary support for development of scientific Programs is not allowable in the CCSG, plans for developing such Programs may be included in this section. If the center employs an outside advisory group, include a consolidated list of these individuals with titles and institutional affiliations and attach their biographical sketches. Discuss recommendations made by the external advisory group, any actions taken in response to those recommendations, or reasons for not responding. Present the Center's planning and evaluation processes in this and other relevant sections of the application. No separate, formal, written strategic plan is required.

Costs of planning and evaluation might, for example, include support of a well-qualified external advisory committee; the use of ad hoc scientific and technical consultants when appropriate; a seminar series, when the speakers or invited participants clearly serve as consultants for the center's scientific or administrative activities, as documented by agendas and/or written evaluations; retreats designed to stimulate interdisciplinary research opportunities; and the conduct of regular assessments of research progress, interactions, membership participation, etc. by the senior leadership of the center. Use of Developmental Funds (see below) should be guided by the priorities and opportunities identified through the planning and evaluation activities of the center.

7.5 Developmental Funds: No more than 15 pages. Prepare an overall description and a composite budget that includes all developmental fund categories being requested and explain how they will be linked to the strategic and programmatic priorities and scientific opportunities of the center. Also provide individual budgets by category with separate narrative justifications. Narratives should summarize how past CCSG developmental

funds were used, what was accomplished with them and how the new request will be used to meet the centers strategic goals. If a pilot project program is proposed, describe how the projects are reviewed for scientific merit and selected for funding.

Developmental Funds are the major source of budgetary flexibility in the CCSG and should be linked substantially to the planning and evaluation activities of the center. These funds allow centers to take risks; strengthen weaker scientific areas; and provide scientists the opportunity to explore innovative ideas, new collaborations and new technologies. This request category has no dollar limit or limit on the percent of the total CCSG budget.

The cancer center must centrally monitor and evaluate the effectiveness of all developmental funds. These funds can be administered flexibly--dispensed centrally by the director and senior leaders to achieve broad strategic objectives or be delegated to individual Program leaders to target specific scientific objectives. The latter approach has proven to be very successful for many cancer centers.

Maintain careful records on allocation of developmental funds, the rationale for their use, and their effectiveness. Developmental funds may not pay for training or for equipment purchases or upgrades for established cores or for salary support for Program leaders.

Developmental funds may be used *only* for the following:

- **To recruit faculty level scientists in areas of strategic need:** Judicious recruitments strengthen weak areas of science and enhance the Center's overall research strength. Eligible investigators therefore are: (1) those newly recruited from outside the parent institution; developmental support usually begins at the time of, or very soon after, arrival at the grantee institution. (2) those inside the institution who, whether junior scientists or well established in other scientific areas, are entering the field of cancer research as independent investigators for the first time.

  Developmental funds may not be used to support training per se but may fund recruitment packages that include the staff needed (e.g., technicians, graduate students, postdoctoral fellows) to initiate the research program of a new investigator. The duration of support from these funds should not exceed 3 years. This category should provide temporary support permitting a new cancer investigator to establish his/her scientific activities at the new center and achieve independent funding. Developmental funds cannot support established cancer researchers already within the institution (e.g., principal investigators on NCI supported R01s or subproject leaders on P01 or P50 multicomponent grants).

  Explain how these developmental funds were used in the previous 3 to 5 year grant period, specifying which investigators and projects were supported, the rationale for recruiting these investigators relative to the needs of the center, and to what extent these investigators were subsequently productive as evidenced by research grants and publications.

  Identify the kinds of individuals the center plans to recruit as part of its future plans for developing the center. Identification of particular individuals or research plans is not necessary.

- **Interim salary and research support:** The center director may provide partial support for up to 18 months to an investigator who has a reasonable probability of regaining independent research support in the near future. Interim salary and support is independent of any salary funded by the CCSG in the Staff Investigator category. Individuals who are having chronic difficulty with peer-review grant support and for whom permanent institutional funds are not available are ineligible. Include a description of the process and the criteria used to select investigators for interim support. The use of interim salary and research support must be reported to NCI in each non-competing continuation application. Peer review at the next competitive evaluation will examine the uses of the interim support category and the success that individuals supported from this category have had in regaining peer-reviewed grant support.

- **To support pilot projects that allow center scientists to pursue new, innovative, high-risk ideas or**

stimulate high priority research areas (e.g., translational research): Centers are encouraged to make these funds accessible to all applicable areas of research, including laboratory, clinical, prevention, control, behavioral and population research for projects of relatively short duration (i.e., 1-2 years). Pilot projects may be awarded to either new or established investigators. Developmental funding may be used for pilot projects or feasibility studies preparatory to the development of an application for independent peer-reviewed support, or to take maximum advantage of a unique research opportunity or nurture an innovative idea. Funds may stimulate a high priority research area, explore a new direction for a Program, explore an unconventional hypothesis, or encourage cross-disciplinary translational research. Support of small, hypothesis-driven early clinical trials of an exploratory nature is particularly encouraged.

Describe the defined process to elicit high-quality proposals, and criteria for review for scientific merit, and awarding pilot projects to a designated investigator for an identified project and period. Describe the outcome of all projects supported by the CCSG through the pilot-project mechanism.

- **To support technology/methodology development projects:** NCI encourages the development of new technologies that will advance cancer research. In these Guidelines, technology refers broadly to methodologies (procedures, instrumentation, analytical tools or reagents) that address important problems in cancer research, including, but not limited to, areas such as the detection and analysis of molecular signatures of cancer in vitro or in vivo, biomedical imaging, model development, drug discovery, tumor targeting, drug delivery, survey development, and informatics.

  Funds for technology development projects can be awarded through an internal review process to resource leaders and individual cancer center scientists. Review criteria should emphasize scientific merit, innovation, and the likely impact of success on important areas of cancer research. If CCSG resources are used in partnership with industrial resources, the cancer center must assure that applicable federal law governs the public availability of any final products of the research.

- **Development of new shared resources and novel components in existing shared resources:** Describe the proposed use of funds to build new shared resources during the grant period. If the resources are sufficiently developed to be reviewed as established resources, describe them under the shared resources category.

7.6 Cancer Center Administration: No more than 10 pages. Provide a description, budget and narrative justification. Limit the administrative budget request and narrative justification to the specialized research needs of the Center. Include the costs necessary for central administration of resources and services required for center research activities, fiscal management of the center, and reporting activities. Because administrative structures differ from center to center, carefully explain and justify requested support.

The CCSG central administrative budget may support an appropriate percentage of the salary of the chief administrator, secretarial and other staff and travel needs of Senior Leaders and Program Leaders in the performance of their center-specific roles, and supplies for the administrative functions of the Center, as well as funding to support links with state health departments, other state agencies, or the Centers for Disease Control and Prevention (CDC).

Examples of non-allowable costs include non-research educational activities, public relations, fund-raising, and grant application preparation. University-based centers: Do not duplicate parent institution responsibilities i.e. services normally supported through indirect costs or functions and services the institution normally provides to other comparable research units of the institution (e.g., departments). Center directors should be prepared to explain to reviewers why ambiguous requests should not be the responsibility of the institution.

Describe the:

- Role of individual administrative staff and their specific responsibilities as well as staff and support for administrative office not requested in budget.

- Funds committed to the center by the institution, including amount, source (e.g., separate return of indirect costs, endowment income, clinical income, or other support), and use (including processes for determining how funds will be used).
- Role of the center within the institution, including relationships with the central grants office of institution (e.g., level of support and overlap of functions) and with clinical entities (e.g., in-patient, out-patient, and networks), and other pertinent interactions.
- Decision making processes at the center and the role of administration.
- Policies regarding

  -Use of Cancer Center space.

  - Grant submissions of center members through the Cancer Center and the effect on budgeting and indirect cost return.

  - Shared resources, including center oversight, prices, chargebacks, subsidies or differential charges, auditing, user satisfaction measures, and quality control.
- Administration's role in support of

  - Faculty recruitment processes, cooperation with departments for recruiting, coordination of salary payments, and tenure review.

  - Space management, including policies on assignment and retention.

  - Membership application process, including policies on appointment and removal.

  - Arranging and documenting meetings organized by the Center.

  - Management of philanthropic funds.
- Processes for solicitation, receipt, review, award, and monitoring of pilot projects and other grants.
- Budgeting processes and responsibilities for accounting and expenditure monitoring.
- Purchasing processes.

8.0 Research Programs

Goals: Cancer centers exist to foster cancer-focused research, in part through the creation of formal Programs. A Program comprises the activities of a group of investigators who share common scientific interests and goals and participate in competitively funded research. Programs should be highly interactive and lead to exchange of information, experimental techniques, and ideas that enhance the individual productivity of scientists and often result in collaborations and joint publications. Ultimately, the success of Programs is measured by the emergence of productive collaborations. How this is achieved will vary with the center and the needs of particular Programs. Formal or informal planning meetings, seminars and retreats, developmental funding of selected pilot projects, new shared resources or key recruitments may be effective ways of promoting increasing levels of interaction.

The **selection of members** of a center's Programs is one of the most critical decisions made by leadership. Functional and productive programs select individuals for their scientific excellence and, just as importantly, for their commitment to work together.

Program members may contribute in any of the four missions of the cancer center - research, education, dissemination, and care. Program members who are predominantly educators or clinical investigators will not necessarily hold peer-reviewed grants, but may contribute to the objectives of the center in other important ways and their contributions should be recognized. ***These clinical investigators may be eligible for CCSG funding as Staff Investigators.***

Many Programs in cancer centers involve sustained collaborations with scientists, who clearly strengthen and enhance value-added interactions and the scientific productivity of the research but who have no formal appointment within the institutions that comprise the cancer center. Collaborators *who are not from other NCI supported cancer center s* may become center and program members. While the funded research projects of these members cannot count toward the funding base of the research Program or Cancer Center, these members may have full access to the shared resources and developmental funds of the CCSG.

Characteristics of Programs: Programs should be of adequate size and scientific quality, should exhibit a high degree of interaction, and should be capably led. A Program must have at least 3 peer-reviewed and funded research projects (e.g., % $R01_1$ + % $R01_2$ + % $R01_3$ = 300%) from a minimum of 3 separate, independent principal investigators. Peer-reviewed, funded research sub-projects of larger program grants (e.g., P01s, P50s) may be counted as separate projects.

The interactive attributes of a Program are documented most convincingly by collaborative research projects and joint publications. Colloquia, joint seminar series, and other evidence of meaningful interchange also serve to cement interactions around related or common goals. In addition, effective leadership provides intellectual stimulation, cohesion, focus, and direction.

Definition of Peer-Reviewed, Funded Research Projects for Inclusion in Programs and for Designation of Users in Cores: Peer review as employed by the NIH is the acceptable standard for inclusion of a cancer-related research project within a formal Program. Peer-reviewed, funded projects include the following:

- Awarded individual research grants, cooperative agreements and research contracts from the NCI including all awards with the following prefixes: R01, R03, R18, R21, R24, R25E, R29, R33, R35, R37, R41, R42, R43, R44, R55, P01 sub-projects, P30s other than the CCSG, P50 sub-projects, U01, U54, U56, N01 *research* contracts and peer-reviewed, funded subcontracts of center members participating in collaborative research.
- Components of National Cooperative Groups (e.g., U10s, U19s) funded by the NCI (consult the Cancer Centers Branch staff to determine which components are equivalent to separate research projects).
- Individual research studies involving protocols approved by the NCI Cancer Therapy Evaluation Program (CTEP) and funded by NCI.
- Individual research studies involving prevention and control protocols approved by the NCI Cancer Control Protocol Review Committee and funded by NCI.
- Awarded research grants, cooperative agreements, and research contracts from other institutes of the NIH (same prefixes as above).

Awarded research grants from the following organizations meet the NIH standard for peer review:

Agency for Health Care Research and Quality (AHRQ)	American Foundation for AIDS Research (AFAR)
American Cancer Society (ACS): national office only	American Institute for Cancer Research (AICR)
Cancer Research Foundation of America	Center for Disease Control (CDC)
Central Office of the Veterans Administration (VA) - excluding local/regional awards and "block" grants	Environmental Protection Agency (EPA)
Food and Drug Administration (FDA)	Howard Hughes Foundation
Leukemia and Lymphoma Society	Multiple Myeloma Research Foundation
National Institute for Occupational Safety & Health	National Science Foundation (NSF)
Susan G. Komen Breast Cancer Foundation	U.S. Army (DOD) special research programs in ovarian, breast & prostate cancer
University of California-Wide Breast Cancer Research Programs	

Obtain instructions and application forms for requesting peer review consideration of selected individual cancer research grants from a source not listed above at

http://cancercenters.cancer.gov/documents/fundorg.pdf.

Submit 5 copies of the application to the address below *by the time of CCSG application*:

Referral Officer
National Cancer Institute
6116 Executive Boulevard, Room 8041, MSC 8329
Bethesda, Maryland 20892-8329 (for Express mail use Rockville, MD 20852)
Tel: 301/496-3428
Fax: 301/402-0275

For Each Program: Limit 25 pages per program on average; centers that include most or all clinical research in one Program may exceed the page limitation for this Program only.

- **Title page** of the Program with the name(s) of the Program Leader(s) and the Program Code (used in Summaries 1 and 2 of the Standard Cancer Center Information Summaries).
- A brief **description** of the Program using page 2 of the PHS Form 398 (rev. 9/04). Include in the abstract:

  - the central themes and scientific goals of the program.

  - the number of program members and the number of departments and schools represented.

  - the NCI and other peer reviewed support for the last budget year.

  - the total number of publications and the percentage of intra-programmatic and inter-programmatic publications in the last grant period.
- A **budget** for the percent effort of the first and future years for the Program Leader(s) using the standard budget pages provided in the PHS Form 398 (rev. 9/04). A level of effort must be included for each Program Leader whether or not salary is requested.
- A **budget narrative justification** based on the specific role of the Program Leader(s) in facilitating the discovery process and promoting interdisciplinary research important to cancer.
- **Biographical sketches** of Program Leader(s) Use the PHS Form 398 (rev. 9/04). Note that the form includes information on positions and honors, selected peer-reviewed publications, and research support. Information on other support beyond that required in the biosketch should NOT be submitted with the application.
- A list of the **externally funded research projects** of the Program separated into two categories: **"peer-reviewed"** and **"non peer reviewed"** by member, project and funding source. Program leaders should exclude grants focusing on other diseases (e.g., diabetes, cardiology, Alzheimer's disease) or address their cancer relevance in the programmatic description -- particularly for program members whose peer-reviewed funding includes **only** grants in other diseases.
- If applicable, a list of the **clinical research** of the Program, using the definitions and sort order specified in the instructions for Summary 4.
- The **members** of the Program in alphabetical order, with their departmental and institutional affiliation, their academic rank (or equivalent) and their role in the program (e.g. researcher, clinician placing patients on clinical trials, educator). Highlight any members of the program who are proposed as staff investigators by indicating for each person the percent effort for which CCSG salary support is being requested.
- The **scientific goals** of the Program and how the interests, expertise, and research approaches of the Program members facilitate their achievement.

- The most significant **scientific accomplishments** of the Program and the ways in which the cancer center facilitated or enabled these accomplishments.
- For Clinical and Translational programs, describe accrual of patients to all types of trials, in relation to the patient population, using the format described for the Clinical Protocol and Data Management Shared Resource (see page 26). A total of 10% accrual to therapeutic and prevention trials constitutes a general benchmark for a reasonable level of protocol accrual.
- Interactiveness of the program as documented by program agendas (minutes not required).
- The number of total publications of the Program and the percent inter and intra programmatic. Report this information in the Program description. Of total publications, 10% inter- and 10% intra-programmatic publications constitute general benchmarks for a reasonably interactive program. Publications should represent the broad diversity of Program members.
- A ***selected*** list of Program-related publications from the last project period. Indicate those that particularly illustrate the inter- and intra-programmatic collaborations.

9.0 Shared Resources and Other Support Elements: No more than 15 pages for each shared resource.

The CCSG may pay for research costs associated with centralized shared resources and services. These costs are not directly identified with specific research grants. (Except for support of Protocol Specific Research and Developmental Funds for pilot projects, CCSG funds do not support project-specific research activities, which are paid for by research project grants.)

Centers may not request support for

- ***services that an institution normally provides without charge to departments or other centers comparable to the cancer center or***
- ***costs of operating an institution or hospital or management of activities and functions that are reasonably regarded as institutional responsibilities.***

These guidelines only apply to the proportion of a resource or service that is paid for by the CCSG; NCI recognizes that virtually all shared resources derive a portion of their operating costs from other sources.

9.1 Shared Resources provide access to technologies, services, and scientific consultation that enhance scientific interaction and productivity. The support of shared services for an entire center provides stability, reliability, cost-effectiveness, access to specialized technology and methodology, and quality control.

The primary users of shared resources and services are cancer center investigators with peer-reviewed, funded projects, a standard assuring CCSG funds support high-quality research. However, access by others at the discretion of the center director is justified by contributions to the overall cancer research objectives of the center.

Although demand and level of usage are important in evaluating requests for CCSG support of shared resources, certain technically sophisticated resources are critical to a center's research progress (e.g., x-ray crystallography, preparation of clinical grade gene therapy vectors, proteomics, family ascertainment, health communication, tracking, nutrition support) but are not adaptable to high-volume operation or will have a few very specialized users. Such resources are judged for scientific value, the needs of past and potential new users, accessibility to cancer center members, and the effectiveness and fairness of the process for setting scientific priorities for its use.

Support Cores: Some types of shared resources, such as biostatistics, informatics, and clinical protocol and data management, provide core services that are not supported by specific research grant mechanisms. Usage criteria by funded investigators are not applicable to these cores. Clinical trials cores certainly accept patient registrations onto clinical trials by non-funded cancer center members. Biostatistics reviews all clinical trials and collaborates in developing new grant applications by as yet unfunded investigators.

Possible Shared Resources: A center proposes those functions that it wishes to have funded as shared resources, but then must defend its choices and the associated budget request at peer review. A center is not limited to the list of examples of potential shared resources below supporting laboratory, clinical, and prevention/control/population sciences:

- centralized equipment; general and specialized animal colonies; specialized instrument shops; nucleic acid sequencing/synthesis labs; amino acid analysis HPLC facilities; cell sorting; chemical and drug synthesis labs; mass spectrometry labs; electron microscope facilities; media preparation; microarrays and proteomics facilities and services.
- histology and pathology services; tissue culture; tumor procurement service; immunology or immunoparameters testing facilities; radioisotope facilities; experimental radiation facilities and services; clinical data management and protocol tracking for clinical trials.
- biostatistics; imaging; clinical and population science economic analysis units; research-related informatics; other biospecimen (e.g., serum) procurement services; clinical and population science measurement units; survey research facilities; intervention, recruitment or dissemination cores; high-risk family registries.

Centers present resource requests in various ways. Some prefer to group several core components into a single categorical request (e.g., Immunology, Cell Biology).

Budgets: In general, the CCSG provides salary stability for the "fixed" costs associated with key personnel operating the resource and providing consultative services, as well as minimal supplies; "variable" costs are usually supported by user fees or by other sources. The ratio of the fixed-to-variable costs will depend upon the frequency of use of the resource, as some resources will be more self-sustaining than others and will cost the CCSG less, and also upon whether the service is a support function (e.g., glass washing, media preparation), or whether it provides access to expertise and technology (e.g., DNA sequencing, transgenic mice), or to collaboration (e.g., biostatistics).

Operational Costs to the CCSG: Because special considerations depend upon the characteristics of the institution (the technical or non-technical nature of the resource, and the proportion of the resource paid for by sources other than the CCSG), no standard approach applies to all shared resources and services. Since the primary costs of research are supported by the peer-reviewed, funded grants and research contracts of the center, consider the following elements in developing budgets for shared resources and services:

- the need for the resource relative to the current and future peer-reviewed research activities of the center.
- the current and projected use of the resource by multiple investigators.
- making the resource supported by the CCSG as cost-efficient as possible and ascertaining that the resource is still a cost-effective center expenditure in comparison to other options (e.g., purchase orders or contracts to an outside vendor).
- maintaining stability of the operation and quality of the service.
- assuring accessibility of the resource or service to qualified member-investigators, including the critical consultative role performed by experts who direct selected shared resources.
- the proportion of the total resource operation paid for by the CCSG relative to other sources.

National Institutes of Health (NIH) Policy Relative to Program Income: As with all other grants issued by the NIH, if income is realized from grant-supported activities (e.g., from CCSG supported shared resources), this income must be reported in the budget/financial statements accompanying annual progress reports and on the annual financial status report. In accordance with NIH Grants Policy, the "additive cost alternative" will apply to the first $25,000 of program income. Unless approved for use otherwise, program income in excess of $25,000 will be deducted from the next year's award.

Formatting: The 15-page limitation is intended to accommodate bundled requests of this kind. Requests for most individual core resources should require much less than the 15-page limit.

- Prepare appropriate description, budget information, data and narrative justifications for each resource.
- For institutionally managed (as opposed to cancer center managed) resources, describe the Center role in setting priorities, resource planning and oversight, as well as priority access established for Center members.
- Present all shared resources critical to the clinical research needs of the center (e.g., biostatistics, centralized protocol management office) last, so they can be reviewed in sequence with the next sections, "Protocol Review and Monitoring System" and "Protocol-specific Research Support."

In the narrative for each shared resource, describe the:

- services and technologies provided and their importance in relation to the scientific needs and objectives of the cancer center.
- qualifications of the resource director(s) and the competence of key technical staff; include a biosketch of the resource director(s) and manager(s).
- center's policies about operation and use of the shared resource, e.g., access, priorities, limitations and charge back systems.
- cost-effectiveness of the resource relative to other options for obtaining the service, such as outside vendors, when applicable, and the approach used to evaluate the current extent of use by peer-reviewed, funded center investigators, and projected increase in use, if applicable, based on the scientific needs of the center.

Record keeping: Maintain user logs for each shared resource and service and have them available at the site visit. Based on these logs, provide the following data in the application:

Shared Resource Data Format

Current grant year reporting period: Pick one

_____ January 1 to December 31: 200?
_____ July 1 to June 30: 200?-200?
_____ Grant year: provide inclusive dates

This shared resource is:

_____ cancer center-managed
_____ institutionally-managed
_____ Jointly managed
_____ Other (Explain)

Total Operating Budget: The requested budget should reflect realistic needs in terms of availability of support from other sources (e.g., institutional support or recovery from chargeback); recent past utilization by the scientists accessing the resource, anticipated future increases in usage, and any other specific additional requirements. Provide the following information for the most current grant year and for the proposed period of support.

Income Source	Current Support	Current Percent	Proposed Support (yr 1)	Proposed Percent (yr 1)
CCSG				
Charge backs				
Institutional support				
Other				
Total Operating Budget				

Capacity of Resource: List the major services provided by the core, indicating and defining an appropriate unit of measure (number of samples, hours of technical or professional times, etc.) for each major service provided (e.g., number of nucleotides sequenced, # of samples processed, etc.). For each service indicate the total capacity per year based on your current equipment and staff. Do **not** include this table for the Clinical Protocol and Data Management Shared Resource.

Name of Service	Unit of Measure	Definition of Unit of Measure	Total Capacity /reporting 12 month period
DNA sequencing	# of samples	Number of samples sequences	

Shared Resource Use

For each service listed in the table above, provide the total number of users in each category, the total units used for investigators in each category, and the percent of the total resource capacity that is used by each category of investigators. For the top 90% of units of use during the reporting period, list the individual user names and scientific program codes (from Summary 1 B), the units used by each investigator, and the percent of the total resource capacity this represents.

Category of Users	**Scientific Program Code(s)**	**# of users in this category**	**# Units used**	**% of Total Capacity or usage**
Center members with any active peer–reviewed research funding during the reporting period				
Member name				
Center members with no active peer-reviewed research funding during the reporting period				
Member name				
Non-center members				
Non- member name				
Last 10% of users				10%
Total				100%

Specific issues regarding certain shared resources:

Informatics: Scientific progress depends increasingly on the management, sharing, and analysis of data from diverse sources. In cancer centers, informatics expertise and resources are critical core functions. The CCSG may support applications of informatics directed toward cancer research (including the acquisition, maintenance, and integration of database systems for clinical trials or studies in populations; data extraction, storage, and analysis tools for genomics, proteomics, or molecular structure; a database annotating a research repository involving human specimens; and tools that enable sharing of data sets with collaborating investigators in related areas of research). Performance of specific research functions, such as data entry, for individual research projects or clinical trials is excluded.

As the interoperability of independently developed informatics systems is an important goal of the research community, informatics development efforts supported by CCSG funds must be in compliance with evolving standards articulated by the NCI, the scientific community, and standard-setting organizations in the medical and bioinformatics areas.

Dissemination Shared Resource: While all cancers centers are expected to share lessons learned from the Center's research with the wider scientific, public health and clinical practice communities and the public, some

centers may elect to support a core to support dissemination *research*. Describe the cores contributions to planning and evaluation of development-to-delivery activities of the cancer center. Describe the Core's market analytical, needs assessment, communication and other relevant dissemination analytical capabilities, the number of investigators and programs making use of the resource, the audiences to whom research findings are being diffused and disseminated and the expertise of the *research* personnel dedicated to this task. Describe your level of expertise in market research, audience analysis, communications science as well as resources to systematically assess target audiences preferences for cancer information, etc. More information about NCI's research diffusion and dissemination programs can be found at NCI's web site: http://cancercontrol.cancer.gov/d4d/**.**

Imaging Shared Resource: Imaging plays an increasingly important role in cancer clinical trials. New functional, molecular imaging methods require rigorous attention to standardization and quality assurance issues. Most imaging is now acquired in digital format, allowing the information to be archived and processed in a variety of ways (e.g., volumetric measurements and computer-aided algorithms for detection and analysis of lesions are possible). A shared resource for imaging could include dedicated equipment for imaging in clinical trials, imaging expertise for protocol development and quality control, computer hardware and software for the acquisition, analysis, integration and archiving of research image data, and personnel to support these functions. The budget might include partial salary support of a radiologist or other imaging expert for expert consultation in planning Cancer Center research projects or clinical protocols and analyses for publication or required software.

Describe the location of the facility relative to Center users, and availability of space at each location for experimental set-up. Provide specific examples how a shared service has facilitated the initiation of imaging projects for novice users. Provide current and anticipated cancer-related research use, relative to the total use of the facility, the recharge rates for animal and clinical scanners and recharge rates for funded projects without imaging budgets.

Biostatistics: Biostatistics is a shared resource central to the mission of most centers, particularly those that perform clinical or population research. Participation by statisticians in many collaborative activities of the cancer center is eligible for CCSG support. Salary support is allowable for participation in cancer-center pilot projects, assistance to center investigators in developing research projects, analyses for publication, and the development of methodology that is clearly and closely related to the support of specific projects within the cancer center. The CCSG is <u>not</u> intended to support independent, investigator-initiated research in statistical methodology, for which statisticians, like other scientists, should be supported by project-specific grants. Nor is it typically intended to support a significant collaborative role on a funded research project, since the statistician would normally be supported by an appropriate time-and-effort allocation as a collaborator on that grant. CCSG support may be particularly useful for unanticipated needs for statistical collaboration arising in the center.

Clinical Protocol and Data Management Shared Resource: This resource provides central management and oversight functions for coordinating, facilitating and reporting on the cancer clinical trials of the institution(s) that define the center, whatever the study origin (local, industrial, cooperative group, or other). As a tool for management of a center's clinical research program, this resource complements the Protocol Review and Monitoring System. This resource provides a central location for cancer protocols, a centralized database of protocol-specific data, an updated list of currently active protocols for use by center investigators, and status reports of protocols. Quality control functions might include centralized education and training services for data managers and nurses, data auditing, and oversight of data and safety monitoring to comply with federal requirements. Centers with a complex clinical trials program might choose to split these functions into separate resources.

The resource allows oversight and quality control for the Center's entire clinical trials effort but does not include tasks involved in the actual direct conduct of individual trials (such as data entry). Therefore, the CCSG request for this resource should not duplicate, replace, or make up for reductions in funding provided through the individual grants and contracts supporting the studies.

Peer evaluation of the request for CCSG support is based on the quality of the management and oversight func-

tions performed and the quality and diversity of the center's clinical trials effort.

Summary of clinical research accrual:

Grant funding year		**1**	**2**	**3**	**4**	**5**	
Calendar year		**200?**	**200?**	**200?**	**200?**	**200?**	**Total**
Patients accrued onto intervention clinical protocols by sponsor type (in yellow & bold below)							
National Group							
External Peer Review							
Institutional (investigator initiated)							
Industry							
Total intervention accrual							
% patients on institutional studies							
# Intervention (primary institution)							
# Intervention (Affiliates)							
Patients accrued onto non-intervention clinical studies by sponsor type							
National Group							
External Peer Review							
Institutional							
Industry							
Total non-intervention accrual							
Patients accrued onto clinical protocols by research program: Each study should be included only once Delete any unused categories.							
Research Program 1							
Screening, early detection/diagnostic							
prevention							
therapeutic							
supportive care							
epidemiologic/observations							
ancillary, companion, or correlative							
other							
Research Program 2 (add subsets)							
Accrual in diseases not in programs (add subsets)							
Total patients							

Intervention Studies:

Therapeutic intervention: Clinical trials with therapeutic intent using drugs, radiation, surgery, and/or biological agents. *Use only Therapeutic Intervention studies to determine accrual percentages of women and minorities.*

Prevention intervention: Clinical trials for the modulation of cancer risk and inhibition of cancer progression using nutrition, dietary or chemoprevention interventions.

Non-Intervention Studies: Ancillary, Companion, or Correlative studies must be linkable to other patient data.

- **Screening, Early Detection, or Diagnostic:** trials directly testing the efficacy of devices, techniques, procedures, or tests for earlier/more accurate detection or diagnosis of disease
- **Supportive Care:** studies in which an intervention is used to improve the comfort and quality of life for the patient
- **Epidemiologic/Observational:** studies among cancer patients and healthy populations that involve no intervention or alteration in the status of the participants, e.g., surveillance, risk assessment, environmental and behavioral studies, etc.
- **Ancillary or Companion:** auxiliary studies that are stimulated by, but not a required part of, a main clinical trial/study, and that utilize patient or other resources of the main trial to generate information relevant to it. Companion or ancillary studies included must be linked to an active trial, or epidemiologic or other observational study (screening, early detection, diagnostic; therapeutic; or prevention) and should include only patients accrued to that trial or study
- **Correlative:** laboratory based studies using specimens to assess cancer risk, clinical outcomes, response to therapies, etc.

9.2 Protocol Review & Monitoring System (PRMS): **Limited to 10 pages exclusive of protocol listing.**
A particularly important function for centers involved in clinical research is a mechanism for assuring adequate internal oversight of the scientific and research aspects of all the cancer clinical trials in the institution or institutions that formally comprise the center. This function is complementary to that of an Institutional Review Board (IRB), which focuses on the protection of human subjects. The PRMS is not intended to duplicate or overlap the responsibilities of the IRB nor is it intended to perform an auditing or data and safety monitoring function. Its focus is on *scientific merit, priorities and progress* of the clinical protocol research of the center. The PRMS should have the authority to open protocols that meet the scientific merit and scientific priorities of the center and to close protocols that do not demonstrate adequate scientific progress.

With regard to scientific merit evaluation, the PRMS is expected to evaluate all cancer center trials, whether derived and supported from institutional sources or from industry. However, the PRMS is not required to duplicate the results of traditional peer review, which includes protocols supported by the various NIH mechanisms (e.g., R0ls, U0ls, U10s, P0ls, and P50s), and clinical research protocols approved by the NCI's Cancer Therapy Evaluation Program or the Cancer Control Protocol Review Committee. The PRMS is *not* required to review protocols dealing with healthy human subjects and the population sciences, e.g. genetic epidemiology studies.

All trials reviewed by the PRMS for merit, or receiving traditional merit review as noted above, have access to CCSG-supported centralized resources, such as protocol and data management, informatics and biostatistics.

- **Description, Budget and Justification**. Include a description, a budget, and a narrative justification. The budget may include appropriate personnel, administrative support, equipment appropriate to the task, and supplies.
- Describe the **criteria for selection of the membership** of the committee. List the members of the committee and their expertise. The biographical sketches of these individuals should be included at the end of this section. Scientific expertise from basic, clinical, and population science/cancer control should be represented on the PRMS committee.
- Describe the **procedures for scientific review and scientific monitoring** of cancer clinical trial protocols. Describe the criteria and process for submission of institutional clinical trial protocols to the committee for review and approval; the process for review of all cancer clinical research protocols of the institution; the review criteria that are used to assess scientific rationale, study design, expected accrual rates, adequacy of

biostatistical input and feasibility for completion within a reasonable time period; and the criteria used for monitoring ongoing institutional protocol research to evaluate scientific progress, including reasonable accrual rates, to ensure that the scientific aims of the study can be completed. Describe the criteria for terminating a clinical protocol. Describe whether the committee has ever terminated any protocols, and for what reason.

- Describe the **process and criteria used for prioritizing** the activation of cancer clinical protocols at the institution with respect to scientific merit and patient availability. Describe the input, if any, of disease focused Programs, to the prioritization process.
- Describe PRMS **operations relative to the Institutional Review Board** (IRB) approval process with emphasis on the complementarity of the two entities and absence of overlap or duplication.

Provide a list of all i**nstitutional protocols** (i.e., studies that have not received external review) that have been reviewed by the PRMS for scientific merit in a recent 12-month period (Grant year, January to December or July through June. **NCI prefers calendar year**).

List those protocols that were approved and activated, approved but not yet activated, deferred for revision, and disapproved. For activated clinical trial protocols, provide target accruals and accruals to date using the format provided in Standard Cancer Center Information, Summary 4, Clinical Research Protocol Information on Clinical Research Studies.

Indicate for the same 12-month period how many protocols were monitored for progress and performance and list those that were closed, along with the reason for closure. NCI program staff will select a sample of the listed protocols for detailed review prior to the site visit. Do *not* include or append protocols to the CCSG application.

If the PRMS is disapproved, institutional protocols that have not been reviewed by outside mechanisms (such as the CTEP or the DCPC Protocol Review Committees) may not use CCSG-supported shared resources. In cases of conditional approval or disapproval, the peer review will articulate clearly in the Summary Statement what steps or changes are needed for full approval, along with any recommendation for options and timing of re-review by the NCIIRG.

Protocol Review and Monitoring System grant cycle 200X-200Y

Grant year	1	2	3	4	5	
Calendar year or	**200?**	**200?**	**200?**	**200?**	**200?**	**total**
Academic Year	**200?/200?**					
Number of New Protocols reviewed						
National Group						
SWOG						
CCG						
Other						
External Peer Review						
Industry						
Institutional						
# Approved and activated						
# Approved but not yet activated						
#Deferred for revision						
# Disapproved						
# monitored for progress & performance						

9.3 Protocol-Specific Research Support: No more than 4 pages.

Provide a description, a budget and a narrative justification for funds requested. Funds in this category are restricted to support of a core group of research nurses and data managers for conduct of high priority, innovative, feasibility and phase I *institutional* clinical research protocols. Base the budget request on the center's actual and projected clinical trials activity, as well as on complexity of these protocols. Center leadership must over

see these funds (i.e., no funds are allowed for a core director). The Center's PRMS must be approved or conditionally approved by peer review for funding of positions requested.

10 Inclusion of Minorities and Women in Clinical Trials (NIH Policy): **No more than 10 pages.**

Provide clear documentation about the accrual of women and minorities into clinical trials. If this section of the application is not approved, a grant award *cannot* be issued until a corrective plan and adequate response to the critique is submitted and approved by NCI. Under the NIH policy, clinical research is defined in Instructions for PHS Form 398 (rev. 9/04) Section IIIA. Use the definition of ethnic and racial/ethnic categories as stated in the NIH policy to provide data on inclusion of women and minorities in clinical studies.

Reviewers evaluating the section of the application on the inclusion of women and minorities in clinical research will consider separately whether the accrual of women and minorities to therapeutic and non-therapeutic trials is proportionate to the cancer patient population in the cancer center's primary catchment area. Thus separate data for therapeutic and nontherapeutic studies. When women or minorities are substantially underrepresented, the adequacy of the institution's policies, specific activities and a corrective plan become critical in convincing peer reviewers that the institution is serious about addressing the problem and is investing the appropriate effort to correct under-accrual. In addition, if the population of the catchment area of the cancer center has limited ethnic diversity, provide a discussion of the institution's efforts to broaden the ethnic diversity of its clinical trial accrual.

In addition, the revised PHS Form 398 instructions (rev. 9/04) require applicants to provide data on the composition of *proposed* study populations in terms of gender and racial/ethnic groups. For CCSG applications, this requirement is limited to projected accrual to phase III studies that utilize CCSG resources and are not funded by any other PHS grant mechanism. See the PHS Form 398 (rev. 9/04) for table formats for both targeted/planned enrollment and actual enrollment.

- **Demographics**. Provide summary information showing the demographics of the patient population by ethnic categories and subcategories and by gender in the primary catchment area of the center, as well as for the cancer patient population treated at the cancer center.

- **Accrual.** Complete Parts A and B of the "Inclusion Enrollment Report Table", found in the PHS Form (rev 9/04). Provide summary accrual information from the most recent 12-month period by ethnic categories and subcategories and by gender in the following two areas: (a) the therapeutic clinical trials conducted at the cancer center, and (b) the non-therapeutic trials conducted at the cancer center. Relate this information to the demographic information provided above.

- **Deficiencies and Corrective Actions**. If there are any proportional deficiencies in the accrual of women and minorities to therapeutic and non-therapeutic trials relative to the opportunities as defined by the demographics of the center's catchment area, note:

  - any general policies of the **institution** designed to help with this problem

  - unavoidable circumstances that impede accrual of women and minorities (e.g., a high proportion of non-eligible patients)

  - actions planned or being taken by the **center**, based on careful analyses of the population, which demonstrate a clear effort to correct deficiencies that are potentially avoidable

  Projected Accrual of Minorities. Using the "Targeted/Planned Enrollment Table" found in the PHS Form 398 (rev. 9/04), report proposed subpopulations for those **phase III studies** that utilize CCSG resources in any way and *are not funded by any other PHS grant mechanism.* Please indicate if you do have no phase III trials that meet this criterion.

  The table of composite data for all institutional phase III studies should be accompanied by:

  - A list of the individual study titles on which the projected data are based. Indicate which listed study is an-

ticipated to be the largest, the cancer site to be studied in that trial, and the number of subjects expected to be accrued to that study.

- A narrative discussing how the projected accruals relate to the demographics of the catchment areas and approximately how many trials of what size are aggregated.

11 Inclusion of Children in Clinical Trials: No more than 4 pages.

NIH policy requires that children (i.e., individuals under the age of 21) must be included in all human subjects research, conducted or supported by the NIH, unless scientific and/or ethical reasons exclude them. This policy applies to all competing applications.

"NIH Policy and Guidelines on the Inclusion of Children as Participants in Research Involving Human Subjects" is published in the NIH Guide for Grants and Contracts, March 6, 1998, and is available at: http://grants.nih.gov/grants/guide/notice-files/not98-024.html. As part of the scientific and technical merit evaluation of the research plan, reviewers will be instructed to address the adequacy of plans for including children as appropriate for the scientific goals of the research, or justification for exclusion.

12 Data and Safety Monitoring: **Limit of 5 pages if a budget is requested; otherwise limit of 1 page.**

NIH policy (http://grants.nih.gov/grants/guide/notice-files/not98-084.html), with additional description at http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-038.html, requires that grantees have procedures in place for data and safety monitoring (DSM) of clinical trials.

Provide a very brief summary of the DSM Plan. Do *not* include the entire DSM Plan within the text but provide a copy at the site visit.

DSM functions are distinct and should not be the direct responsibility of the Protocol Review and Monitoring System (PRMS), which oversees scientific aspects of cancer clinical trials. Do not merge these activities and committees.

By NIH review criteria, the peer reviewers will be responsible for determining the acceptability of the plan. Peers are expected to define the weaknesses of an unacceptable DSMP and to reflect any weaknesses in the priority score. The final approval of a DSMP in its original form or later modified form is the responsibility of the staff of the Cancer Centers Branch.

If funding is being requested for DSM activities, provide separate budget and justification pages including:

- A general description of DSM functions, including the workload related to evaluation, auditing, and monitoring of various types of institutional studies, and studies supported on competitive grants (e.g., R01s).
- A description of the committees involved in DSM processes and the biographical sketches of the members of these committees.

13 Other Federal Regulations (see PHS Form 398 instructions, rev. 9/04)

Data Sharing: No more than 5 pages. The Final NIH Statement on Sharing Research Data (http://grants2.nih.gov/grants/guide/notice-files/NOT-OD-03-032.html) requires that investigators submitting an NIH application seeking $500,000 or more in direct costs in any single year must include a plan for data sharing or state why data sharing is not possible. See http://grants2.nih.gov/grants/policy/data_sharing/ for additional information on data sharing.

CCSG awardees should adhere to the data-sharing policy, based on the source of funding for the research involved. You must submit a plan for data sharing if the CCSG provides direct support for the generation of research data (e.g., pilot projects supported through developmental funds, early phase clinical trials conducted with funds from Protocol Specific Research Support) or funds core resources that serve as the final repository of data (e.g., a high throughput DNA array analysis core).

If core resources are being used in support of NIH funded research grants (e.g., R01s) in excess of $500,000, the investigator of the NIH grant must provide a data sharing plan to the funding source and adhere to that plan; no additional action is required of the Cancer Center for these grants.

Program staff are responsible for assessing the appropriateness and adequacy of the proposed data sharing plan. Reviewers do not review the proposed data-sharing plan, thus it is not factored into the determination of scientific merit or priority score.

Provide a short description of the Center's institutional approach for adhering to the data-sharing policy, as well as specific data sharing plans for any research conducted directly with CCSG funds (i.e., pilot projects conducted with developmental funds, feasibility or early phase trials conducted with Protocol Specific Research Support) or core components serving as research resources (e.g., array analysis cores, family registries, etc.). If you are requesting a budget for data-sharing activities (e.g., data archiving), include the budget and justification with this section.

Health Insurance Portability and Accountability Act: The NIH released a notice in the NIH Guide on February 5, 2003 regarding the impact of the HIPAA Privacy Rule on the review, funding and progress monitoring of grants (http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-03-025.html). The Privacy Rule is administered and enforced by the Office for Civil Rights of the Department of Health and Human Services. NIH is not involved in the enforcing or monitoring compliance with this rule.

14 Appendices

After the application has been submitted, the applicant should contact the Scientific Review Administrator (SRA) to discuss the inclusion of any appendix materials that are important to peer review. Only materials approved by the SRA will be included in appendices for peer review.

15 Review Materials to be Available Before the Full or Limited Site Visit

Forward to the Scientific Review Administrator (SRA) for use during the pre-site visit meeting, with an additional set available at the site visit:

- Biographical sketches of all cancer center members. A complete set of biographical sketches facilitates the review particularly if it is available to the Scientific Review Administrator for use during the pre-site visit meeting of reviewers.
- An updated Summary 2, Existing Funded Projects from the Standard Cancer Center Information, and using the same format and, if desired, a *separate* list of grants and contracts *pending* peer review, approval and funding.
- An updated a list of the clinical research by scientific Program, using the definitions and sort order specified in the instructions for Summary 4.
- The complete institutional Data and Safety Monitoring Plan.
- Copies of the data to be presented in the posters. Do not send reduced size copies of the full poster as these are not usually easy to read.

Have available at the Site visit:

- Institutional protocols that have been reviewed by the center's Protocol Review and Monitoring Committee.
- Copies of the minutes or reports of external and internal advisory committees (e.g., the Center's Executive Committee), retreats, and other meetings relevant to the planning and evaluation process for the center.
- Log books or other records of use for all shared resources.

16 Application for Comprehensiveness

First Stage Review for Comprehensiveness

The determination of whether a cancer center will be designated as "comprehensive" by the NCI is a two-step process. In the first step peer review determines whether the center fulfills the broad scientific and interactive requirements for comprehensiveness as described elsewhere. Unless a center chooses not to be reviewed for comprehensiveness the Parent Committee automatically will evaluate the scientific and interactive aspects of comprehensiveness as an integral part of the overall review of the Cancer Center Support Grant application. If the NCI determines that the CCSG application will be funded, a second stage review is conducted by the parent committee at a subsequent meeting.

Second-Stage Review for Comprehensiveness (No more than 20 pages)

If peer review approves the *scientific* requirements for comprehensiveness, and the CCSG application is funded at any level, NCI Program staff will ask the Center to provide a summary of the institution's programs in lay and professional outreach and education. The NCI IRG (Parent Committee) determines whether to recognize the center as comprehensive based on documentation of BOTH the Education/training and Community service/outreach components addressed in this document.

Many organizations that are dedicated exclusively to health care call themselves comprehensive cancer centers based on their self-assessment of their prevention, diagnostic, and treatment services. However, the term "comprehensive" as used by the NCI requires more than state-of-the-art care and services and includes a strong research base interactive with a wide spectrum of prevention, care, education, information and dissemination activities that broadly serve communities, regions of the country and often the Nation. These activities are supported by a broad array of Federal and non-Federal funding sources, such as research grants and contracts, prevention and control grants, training grants, education grants, state awards, and private donations.

- **Education and Training of Biomedical Researchers and Health Care Professionals:** The cancer center must sponsor or participate in education and training of biomedical researchers and health care professionals. Training of biomedical researchers includes appropriate programs for training MDs, and PhDs in laboratory, clinical and public health research (including cancer prevention and/or cancer control research). Describe programs that contribute to the award of degrees in nursing, the behavioral sciences, and medicine and that promote the specialized skills needed to practice in medical oncology, surgical oncology, radiation oncology, pediatric oncology, rehabilitation, pain management, and psychosocial services. Cancer centers also should sponsor continuing education programs for practicing health care professionals (e.g., technicians, nurses, physicians) in the community or region served by the cancer center in early detection, prevention, diagnosis, treatment, and rehabilitation, and quality of life. Programs might also encourage community health care professionals to participate in various cancer treatment and prevention and control trials.

- **Community Service and Outreach:** A comprehensive cancer center must define the community or region that it serves, and maintain productive outreach efforts to address issues of greatest concern to that community. When the service regions of comprehensive cancer centers overlap, centers must work with or complement each other. Programs or activities must address cancers of highest incidence, morbidity and mortality within the community and the region and the needs of populations with disproportionate cancer incidence and mortality rates (e.g., minorities, Native Americans, people over age 65). Through leadership, technical assistance, advice, and other services, comprehensive cancer centers must facilitate NCI funded outreach programs (e.g., CIS) the programs of other local organizations (e.g., State Health Departments, State Cancer Plans, American Cancer Society Divisions), in their service area, as well as sponsor and encourage other local efforts through community organizations (e.g., hospices, support groups), hospitals and businesses.

Instructions for Application for Second-Stage Review of Comprehensiveness

- Define the center's local or regional, national and/or international area of <u>primary</u> influence (e.g., catchment

area) as well as cancer issues and problems within this area; describe any special populations.

- Describe coordination with any other NCI-designated cancer centers with overlapping service areas.
- Describe how the center and its affiliates provide a wide range of state-of-the-art cancer prevention, diagnostic, and treatment services to its patient population.
- Describe the center's training programs and grants and its record of recruiting under representation minorities and special populations to these training programs.
- Describe the center's community services and outreach initiatives particularly of minorities and underserved populations.
- Verify that no other component of the institution uses the term "comprehensive cancer center" as part of its title.

One-time Opportunity to Reapply for Comprehensiveness: A funded grantee that fails to receive the comprehensive designation may reapply once during the grant project period. The re-application, which should address reviewer concerns, will be evaluated by the Parent Committee.

Retaining the Comprehensive Designation: If an NCI Comprehensive Cancer Center's competing renewal application meets the scientific standards for comprehensive recognition from the Parent Committee but is voted a priority score that does not merit funding, the center may retain the NCI comprehensive designation only for as long as the NCI maintains the "active" status of the CCSG through administrative actions.

Instructions for Submitting the CCSG Application

Where to Send the Application: Submit one original and **3 copies** of the CCSG application to the Center for Scientific Review (CSR), NIH, according to the instructions in the PHS Form-398 (rev. 9/04) kit. For a new or competing continuation application, enclose a cover letter naming the NCI staff person who agreed to accept the application for consideration.

At the same time the application is submitted to CSR, please send two complete copies to the NCI at the address below to facilitate scheduling reviews and determining whether additional information is needed for the review. The NCI address is:

Referral Officer
National Cancer Institute
6116 Executive Boulevard, Room 8041, MSC 8329
Bethesda, Maryland 20892-8329 (for Express mail use Rockville, MD 20852)
Tel: 301/496-3428
Fax: 301/402-0275

Acceptance of the Application: A scientific review administrator (SRA), located in NCI's Division of Extramural Activities oversees the peer-review process. Between submission and the completion of the peer review process direct all communication to the SRA responsible for the CCSG review. The SRA supervises the review process to ensure a technically competent and unbiased review. While the application is in review, the SRA may consult program staff on program policies and guidelines.

Upon receipt of an application, the SRA conducts a thorough review of the submitted materials with attention to the following elements:

- **Conformity with Guidelines:** Applications should exhibit the general organizational, administrative, and operational structure of cancer centers and request allowable and appropriate costs as per these guidelines.
- **Format:** Applications should be prepared in conformity with the PHS Form 398 (rev. 9/04) instructions to facilitate review of the submission. It is very much in the applicant's interest that review of these complex applications be as trouble-free as possible for peer reviewers.
- **Completeness of Required Information:** The applicant should ensure that all essential information is pre-

sented completely and unambiguously, to facilitate the quality and consistency of the review.

If an application is deficient in the elements above, depending upon the magnitude of the problem, the SRA may:

- request additional clarifying information or revised materials from the applicant.
- accept for review only those parts of the application that prepared in accordance with the CCSG guidelines.
- defer the application to a later review cycle.
- return the application to the applicant without review.

In addition, peer reviewers may reduce the merit or not recommending for further consideration any element in the application that they feel is inadequately documented to allow a full and fair judgment.

Modifications After Submission: Minor, unavoidable modifications of the application can be accepted up to 6 weeks prior to the site visit. Major modifications, however, may result in deferral by the SRA to the next round of receipt and review. Generally, new material should not represent major changes in the application as written and/or presented. Whether to accept modifications of the application or additional information or to defer the application rests entirely with the SRA.

Reviews will be based on the material submitted at least **6 weeks** prior to the site visit. Do not submit additional material after that time unless specifically requested.

Inquiries About the Application after Submission:

- **Before Completion of NCI IRG (Parent Committee) Review:** Direct inquiries to the SRA, who is responsible for all aspects of the peer review process. Program will alert Cancer Center directors as soon as possible after the site visit if disapprovals relevant to regulatory issues (minority representation, human subjects) would result in a hold on grant funding.
- **After the NCI IRG meeting,** address questions to the program director in the Cancer Centers Branch (CCB) responsible for programmatic oversight of the application or to the Chief of the CCB, or for fiscal questions, the Grants Management Specialist.
- ***Applicants may not contact any member of the site-visit or the parent review committees about the review.***

III Peer Review of the Application

Types of Review

All CCSG applications undergo peer review. Full initial site visit review is required for new applicants, for centers seeking an increase in funding of greater than 10% compared to the final year of their prior award or a change in designation, or for centers with a new director or other significant change. Full site visits may also be requested by any Center Director.

Limited site visits are only available to funded centers with the same director as at the prior review that are requesting a budget increase of less than 10% and have no other significant change, including a request for a change in designation. Center Directors should consult with program staff before requesting a limited site visit to ensure that they understand the implications of this decision. Program staff will indicate eligibility for a limited site visit in the Prior Approval of Acceptance letter to the applicant.

CCSG applications are reviewed under the authority and responsibility of the Scientific Review Administrator (SRA). Limited and full site visit committees gather information for final evaluation by the parent committee. The site visit may either be a limited site visit with a smaller committee for administrative and clinical oversight review or a larger full site visit committee.

The SRA contacts the Center Director well in advance of the site visit date to decide on the appropriate length of time for the site visit, discuss the proposed agenda, and coordinate other site visit logistics. To plan the review, the Scientific Review Administrator may request preliminary information, including a decision on the option of a limited site visit, several months prior to the actual application receipt date.

Proper review of a complex center, whether at site visits or at the deliberations of the parent committee, requires evaluation by peers: scientists with substantial experience, a broad perspective on cancer research, and scientific, organizational, and administrative sophistication. Peers may be drawn from cancer centers or institutions without centers. Those who have not served on at least one center site visit in the last 3 years will undergo an orientation.

- **Full site visit reviews**:
  - A full review team will visit the center for presentations and discussion. The separate administrative review during the site visit will be as short as possible, based on the completeness of the application, to permit center administration to attend the site visit presentations.
  - Full site visits usually extend a maximum of 8 hours at the center, depending on the size and complexity of the application and center. Centers are encouraged to present programs in groups rather than individually to allow more time for discussion, and should present shared resources in a poster session format, so that reviewers can focus more of their time on the Center's scientific programs.
  - A written report of the site visit is provided to the applicant for factual corrections prior to the application's final review by the parent committee.
- **Limited site visit reviews**:
  - Four to six weeks prior to the parent committee meeting (NCI IRG), NCI staff, an administrative reviewer and several investigators with clinical trials expertise will visit the center to evaluate the administration, regulatory and financial aspects of the application and center, including institutional commitment, administration and clinical trials oversight (clinical trials office, protocol review and monitoring, and data and safety monitoring).
  - Four weeks prior to the NCI IRG, regular and ad hoc parent committee members submit questions from review of the paper application for clarification to the SRA for forwarding to the applicant.
  - Two weeks prior to the NCI IRG, the Cancer Center provides written responses to the submitted questions.
  - At the Parent Committee Meeting:
    - The Center director and Administrator may each give no more than a 10-minute presentation, and leave after any questions.
    - Administrative reviewers present the results of their limited site visit.
    - The parent committee, supplemented by individuals with expertise appropriate to the scientific research described in the application, discusses and evaluates each element of the application.
  - Because of the limited reviewer-applicant interactions, the submitted application must be complete.

Parent Committee Review: The NCI Initial Review Group (IRG Subcommittee A) is a chartered review committee of the NIH. After considering the written report of the site visitors, the viewpoints of NCI IRG members who participated in the site visit, response of the applicant to the site visit report, and the deliberations of the full committee, the NCIIRG provides a final merit evaluation and a budget recommendation for the CCSG application in a Summary Statement, which is provided to the principal investigator as soon as available.

The NCI IRG also determines if the ***scientific*** criteria for comprehensiveness are met. If so the Center is invited to submit additional material addressing the ***education & outreach*** criteria for comprehensiveness. The NCI IRG determines comprehensiveness at a subsequent meeting after review of this additional material.

Ad hoc Review: Whenever conflicts of interest exists within the usual two-step peer review system of site visit and NCI IRG, (e.g., an applications submitted from institutions of a NCI IRG member), the SRA will conduct a single step ad hoc review in lieu of the usual two-step process.

National Cancer Advisory Board (NCAB): The NCAB is the final step in the peer-review process. The NCAB may concur with all peer-review recommendations, ask for re-review, or make some other recommendation. NCAB approval must precede funding.

Final funding decisions are made in accordance with the NCI's budgets for the Cancer Centers Branch during each fiscal year.

Criteria for Peer Review for Competing CCSG Applications

Overview: Cancer Centers have a number of appropriate missions—research, education, and care. Nevertheless the CCSG supports predominantly the research mission of the center. The role of peer review is to assess the extent to which the center has promoted or is likely to promote excellence in research that may lead to a reduction in the incidence, morbidity, and mortality attributable to cancer. Reviewers also evaluate how well the center's leadership, organization, and processes for development and evaluation facilitate scientific productivity, strengthen the institution's research capabilities, and enable its investigators to take advantage of scientific opportunities beyond what would have likely occurred at the institution without the CCSG.

Successful institutions:

- have a strong research base in cancer-related science.
- add tangible value to the research base already in place within the institution.
- meet all six essential elements of an NCI cancer center.

Reviewing Science in the CCSG: Science, not process, is the focus of the review. Even when process is to be specifically evaluated, such as planning and evaluation or the ways in which flexible funds are utilized, the criteria for success is the scientific judgment behind or consequences of particular actions or decisions. In a CCSG review, assessment of scientific quality differs importantly from the familiar peer review of individual grants. It is not the role of peer review to re-examine individual projects that have already received fundable priority scores. Rather scientific review of a CCSG should seek to address 6 major issues:

- What is the overall quality of the science going on in the center and its Programs?
- What impact has the center itself had (or is it likely to have) on the quality of the science, the productivity of the scientists, and the interdisciplinary activities of the institution relating to cancer?
- What has the center contributed to the development of more effective prevention, diagnosis and treatment for cancer?
- Does the cancer center *add value* over and above the separately funded research efforts themselves? Have thoughtful, coherent scientific Programs been assembled and program members selected to maximize the *cancer-related* interactive science in the parent institution as a whole?
- How do the different cancer-related scientific themes in the parent institution fit together in the center?
- Have the choices for center membership made by its leaders resulted in a group of excellent cancer -focused scientists who are also committed to productive interactions with one another.

Assessing Merit Despite Institutional Diversity: The peer-review process will evaluate scientific merit and the value-added by the center across a great variety of institutions. Small institutions compete directly with large ones; centers organized only recently compete against some of the most distinguished cancer-research or-

ganizations in the world which have existed for decades. NCI encourages peer review to recognize and reward scientific excellence, diversity and the variety of organizational forms.

The intentionally non-restrictive nature of CCSG requirements should allow constructing scientifically excellent centers around very diverse themes. Scientific excellence is not synonymous with large size. Smaller institutions may develop a limited number of scientific programs that capitalize on their specific scientific strengths or special populations. The primary consideration for reviewers is the merit of the programs presented, not their number or size.

Some Restrictions on Allowable Budgets: Requested and/or awarded funds may not duplicate or replace costs normally included in the institution's indirect cost base or various services and benefits normally provided by the institution (e.g., purchasing services, personnel services, and other ancillary services) in support of other research organizations (other centers, departments, institutes, etc.). In general, CCSG funds should not be used to compensate for NIH/NCI administrative reductions of active research grants, cooperative agreements, and contracts. CCSG funds may not be used to pay for shortfalls in funded research projects due to over-expenditures on the funded project or NIH reductions in awards. The CCSG funds are not intended to supplement or offset any patient costs, even those directly related to clinical research protocols, including costs for parking, taxi fares, meals, or hotel rooms. The cost of clinical trials should be supported by their respective research projects. The CCSG, however, may support research pilot studies as allowed by the developmental funds and protocol specific research function, for institutional early phase I, PRMS approved protocols. Signatures by the principal investigator and the business official on the face page of the CCSG application officially attest that all of the requested costs comply with these conditions.

To assure stringent and fair review across the diverse range of institutions applying for CCSG support, consider the following specific review criteria in evaluating the merit of the CCSG application and its key sections:

Essential Characteristics of the Center (merit descriptor for each)

Facilities

- adequacy and suitability of the center's space & facilities in relation to its activities and objectives (While there should be a clearly identifiable physical location for the center, not all members need to be located in facilities controlled by the center.)

Organizational Capability

- effectiveness of the center's organization in taking full advantage of institutional capabilities in cancer research and in fostering scientific interactions
- adequacy and appropriateness of membership criteria; documented processes for evaluation of members, including non-aligned members, on a periodic basis, and compliance with these policies and procedures
- effectiveness of the center in use of external and internal cancer center advisory bodies (e.g., executive committee)

Interdisciplinary and Transdisciplinary Collaboration

- extent to which activities between and among Programs have added value to cancer related scientific activities
- level of effective transdisciplinary and translational collaborations among laboratory, clinical and population cancer center members

Cancer Focus

- breadth and depth of the cancer research focus, as judged by the structure and objectives of the Programs, research support and publications of center members
- appropriateness of center members (Have program leaders clearly justified the cancer related contributions of center members with grants focusing on other diseases [e.g., diabetes, cardiology, Alzheimer's disease]? Are there Cancer Center members whose peer-reviewed funding includes only grants in other diseases?)

Institutional Commitment

- extent to which the institution, has met prior commitments and provided (or plans to provide) resources to insure that the center reaches its full potential
- for matrix centers, evidence that Cancer Center status is at least equivalent to that of an academic department (yes, no)
- adequacy of:
    - space, positions and discretionary funds controlled by the center director
    - Cancer Center access to clinical inpatient and outpatient facilities for the conduct of clinical trials
    - oversight of faculty & staff critical to clinical research
    - the institution's plan to deal with a change in the directorship of the center

Center Director

- appropriateness of the scientific and administrative qualifications and experience of the director in relation to the center's research activities and objectives
- appropriateness of the director's position within the institution (at least that of a department chair) and his/her representation on decision making committees relevant to center objectives
- appropriateness of the director's time commitment to the center's research activities
- adequacy of the director's formally codified authority over (and effectiveness in management of) the center's space and research resources, including:
    - appointment of new members and discontinuation of existing members
    - new appointments to the faculty to enhance the research objectives of the center
    - inpatient and outpatient facilities to achieve the center's clinical research objectives (in centers with clinical research activities)
    - philanthropy, clinical revenues, or other funding streams

Senior Leadership (merit descriptor)

- appropriateness of the qualifications and effectiveness of each senior leader in relation to his/her role in the research activities of the center
- appropriateness of the time commitment of each leader in relation to needs and objectives and to the difficulty and complexity of his/her responsibilities

Planning and Evaluation (merit descriptor)

- effectiveness of external and internal advisory and evaluation activities on the development of the center's scientific activities

- appropriateness of the External Advisory Committee relative to the Center's needs
- effectiveness in using the External Advisory Committee as a group, based on:
    - annual meetings of the committee as a whole
    - production of a committee report with recommendations to the center director
    - response to committee recommendations by center and institutional leadership
    - note that no formal strategic planning is required

Developmental Funds (merit descriptor)

- effectiveness in (or potential for) strengthening the centers identified strategic scientific needs
- effectiveness in (or potential for) taking advantage of scientific opportunities identified by individual scientists and Programs in the center based on scientific merit
- effectiveness of the center in use of internal and external advisory bodies to assist in identifying scientific opportunities and needs appropriate for the investment of developmental funds (development of new cores and areas of recruitment)

Staff Investigators (for each individual requested: approval as requested, or at a lower percent effort, or disapproval)

For peer-review funded investigators:

- importance to the center and special contribution to achieving center objectives beyond own research support
- extent to which the investigator's record of scientific productivity and contributions to the center justify the request for support
- proven record of accomplishment

For clinical & translational investigators:

- importance to the center and special contribution to achieving center's clinical translational objectives beyond own research
- extent of participation in the development and implementation of clinical research studies
- extent to which the investigator's contribution to clinical research activity, including accrual of patients to interventional clinical trials or their leadership role on cooperative group studies, promotes the center's clinical translational goals and therefore justifies the request for support

Scientific Quality of Each Program (merit descriptor for each Program)

- overall scientific quality of the Program
- extent of cancer focus
- extent to which the relevant scientific disciplines that maximize productivity are represented
- extent of value added by the Program to the research efforts of its members in promoting transdisciplinary and translational research
- judicious and justifiable selection of members of the Program, based upon evidence of participation in the

Program

- effectiveness of Program Leaders
- appropriateness of the percent effort requested for the Program leader in relation to the difficulty and complexities of his/her responsibilities
- extent of value added by the program to the Center
- interactiveness of the program as documented by agendas of program meetings (minutes not required) and inter- and intra-programmatic publications (Of total publications, 10% inter- and 10% intra-programmatic publications constitute general benchmarks for a reasonably interactive program. Publications should represent the broad diversity of Program members.)

  for Clinical and Translational programs, effectiveness in accrual of patients to all types of trials, in relation to the patient population (A total of 10% accrual to therapeutic and prevention trials constitutes a general benchmark for a reasonable level of protocol accrual.)

Center Administration (merit descriptor)

- appropriateness of qualifications of administrative staff
- appropriateness of policies regarding use of Cancer Center space
- effectiveness of administration:
  - in providing centralized administrative services important to the research activities of the center in center decision-making processes
  - in oversight of shared resources
  - budget, purchasing and accounting processes
  - in support of faculty recruitment, payment and review; membership application policies and process; arranging and documenting meetings organized by the Center; and management of pilot projects review and awards.
  - in representing the Center within the institution, including relationships with the central grants office (e.g. level of support, assignment of applications and grants for Center members, and overlap of functions), with clinical entities (e.g., in-patient, out-patient, and networks), and other pertinent interactions

Shared Resources and Services (merit descriptor for each resource)

- extent to which resource provides services to multiple investigators in the center.
- extent to which the resource is strategically important to the science of the center
- quality of the science the resource supports
- quality of the product and cost-efficiency of the service (e.g., whether quality and costs compare favorably with equivalent services provided by an outside source)
- appropriateness of the budget request in relation to the amount and quality of the service provided
- for high throughput cores, breadth of use by, and benefit to, center members; for low throughput or specialized cores, benefit to members and accessibility based on a fair and equitable prioritization system
  - where relevant, extent of compliance with national or international standards

- if an institutional core
- adequacy of CCSG member access to the facility's services
- benefits center members receive as a result of CCSG support
- participation of the center in facility planning and oversight

Protocol Review and Monitoring System (PRMS) (approve, conditionally approve or disapprove)

The purpose of the PRMS is to review the scientific merit, priorities, and progress of all clinical protocols involving cancer patients in the facilities of the institution(s) that define the cancer center's NCI funding base. The PRMS is *not* required to review protocols dealing with healthy human subjects and the population sciences, e.g., genetic epidemiology studies. Review staff will request a representative sample of the listed protocols in advance of the site visit for detailed review.

The PRMS is responsible for periodic review of scientific progress, i.e., the goals of the study and adequate accruals, but *not* auditing or data and safety monitoring, which are the responsibility of the Clinical Protocol and Data Management Shared Resource or the Data and Safety Monitoring Committee.

Because of the importance of maintaining a stable, effective scientific evaluation and monitoring function for clinical protocols, the budget request to support the PRMS may include appropriate personnel, administrative support, equipment appropriate to the task, and supplies.

If the PRMS is disapproved, institutional protocols that have not been reviewed by outside mechanisms (such as the CTEP or the DCPC Protocol Review Committees) may not use CCSG-supported shared resources. In cases of conditional approval or disapproval, the peer review will articulate clearly in the Summary Statement what steps or changes are needed for full approval, along with any recommendation for options and timing of re-review by the NCIIRG.

The PRMS should have the following elements:

- a qualified review and monitoring committee with sufficient size and breadth of expertise to conduct a critical, fair scientific review of all clinical research protocols involving cancer patients in the institution or institutions comprising the center
- clear criteria for scientific review which take into account the specific rationale, study design, duplication of studies already in progress elsewhere, adequacy of biostatistical input, and feasibility for completion within a reasonable time frame
- clear criteria for determining whether ongoing research is making sufficient scientific progress, including adequate patient accrual rates
- a mechanism for overseeing the prioritization of competing protocols from all sources (including cooperative group trials and industry trials) and thus, for insuring optimal use of a center's clinical resources for scientific purposes
- authority and process for initiating, monitoring and terminating all cancer clinical research protocols in the institution or institutions comprising the center

The CCSG application should specify the following:

- membership of the internal review committee
- internal guidelines for reviewing and monitoring research protocols
- a listing of all active protocols (with accruals to date) and new protocols in the center requesting access to

CCSG shared resources

Criteria for evaluation:

- appropriateness of the composition of the review committee relative to its responsibilities and scientific expertise
- appropriateness of the criteria for scientific review and decision-making
- effectiveness of the committee in monitoring the conduct of ***clinical*** protocols for scientific progress, e.g., the goals of the study and adequate accruals, overseeing the prioritization of competing protocols, and closing those that are not performing adequately.

Protocol Specific Research (merit descriptor)

The Protocol Specific Research category may fund only a core group of *research nurses and data managers* for the conduct of high priority, innovative, feasibility or proof-of-principle medical clinical trials originating from the center's Programs. The request should be based on the center's actual and projected clinical trials activity of early-phase testing of a candidate agent or device for the diagnosis, prevention, detection, or treatment of cancer.

Center leadership must oversee these funds (i.e., no funds are allowed for a core director). The center's PRMS must be approved or conditionally approved by peer review for funding of these positions.

- appropriateness of the number and percent efforts of research nurses and data managers to conduct feasibility or phase I studies
- scientific quality and innovation of proposed studies
- adequacy of the process for setting priorities in the assignment of these research nurses and/or data managers and for overseeing the progress of the research

Data and Safety Monitoring Plan (approval, disapproval)

- adequacy of the Plan (not its implementation) in defining the general structure of the monitoring entity and mechanisms for reporting adverse events

Minority and Gender Representation (approval, disapproval of each)

- appropriateness of the accrual of women and minorities to therapeutic and non-therapeutic clinical trials in proportion to the center's catchment area
- when accrual is inadequate, adequacy of the center's plan to improve performance

Inclusion of Children in Clinical Trials (acceptable or unacceptable)

- appropriateness of the plan for including children in clinical trials or acceptability of the justification for exclusion of children in clinical trials

Overall Merit Rating of the Cancer Center (merit descriptor)

- overall quality of the cancer-relevant science
- overall strength of the other components of the application
- extent of value added by the CCSG to the Center

Scientific Criteria for Comprehensiveness (approval/disapproval)

- adequacy of the depth and breadth of laboratory, clinical, and prevention, control and population sciences
- evidence of strong interactive collaborations bridging these sciences

Overall Budget Recommendation:

If after evaluating all individual budget requests, the total budget seems excessive relative to the overall quality of the cancer focused science in the center, or in relationship to their NCI funding base, reviewers may recommend a single cut in the overall budget without identifying specific areas for reduction.

Additional Review Criteria for Partnerships (Consortia, Affiliations)

Comprehensiveness may be based on research in the primary institution alone or on supplemental strengths in both the primary and collaborating institutions.

Adequacy of mechanisms in place to ensure that:

- all members have appropriate access to shared resources, participate in scientific programs, and may assume leadership positions in the center, even if partner institutions are geographically dispersed
- differences can be resolved among partner institutions
- a single Protocol Review and Monitoring System governs cancer clinical trial protocols across all the partner institutions
- a single Data and Safety Monitoring plan governs all clinical trial protocols across partner institutions
- an integrated recruitment process ensures that strategic goals of the center are being met
- benefits of clinical research are uniformly available across all partner institutions
- research is integrated across partner institutions as evidenced by programmatic structure and objectives, joint publications and grants, and other transdisciplinary, cross-institutional activities
- the partnership is stable, as evidenced by a history of research collaboration, joint publications and grants, and the provisions of formalized legal agreements
- the center director has authority
    - over all shared resources in collaborating institutions
    - to integrate scientists from all partner institutions into scientific programs of the center
- for collaborators**,** access to all cancer-relevant science within their institutions

Criteria for the Second Stage of Review for Comprehensiveness

Education and Training of Biomedical Researchers and Health Care Professionals:

Adequacy of programs to:

- train basic, clinical, and prevention and control cancer research as evidenced by competitive training grants.
- recruit under representation minorities and special populations to training programs.
- train and educate health care professionals in medical, surgical, radiation, and pediatric oncology, as well as rehabilitation, pain management, and psychosocial services.
- educate practicing health care professionals, particularly in prevention.
- transfer new technologies and implement state-of-the-art cancer care and services (e.g., early detection, pre-

vention, diagnosis, treatment, rehabilitation, quality of life considerations).

- encourage practicing health care professionals to participate in cancer treatment, prevention and control trials.

Community Service, Outreach and Dissemination:

Adequacy of the center's:

- awareness of the cancer problem in the community it serves, including cancer incidence and mortality rates associated with both majority and special populations (e.g., minorities, people over age 65).
- collaborations with other centers, when their service regions are overlapping, in developing complementary outreach efforts to maximally benefit the community.
- outreach activities, including plans for those that address the special problems of the community
- collaborations with not for profit or for profit outreach programs:
- priority setting and use of available expertise and resources to serve the community in ways that will reduce cancer incidence and mortality.
- efforts to evaluate the impact of development to delivery activities on clinical and public health systems within the center's catchment area.

This document can be viewed online or downloaded at http://cancercenters.cancer.gov/downloads.html