



January 2012

NCCCP Economic Evaluation: Final Report on the Pilot Program Costs and the Strategic Case for Participation

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Prepared for

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1. OVERVIEW OF THE REPORT AND PROGRAM BACKGROUND

This report presents findings from the economic evaluation of the National Cancer Institute's (NCI's) Community Cancer Centers Program (NCCCP) pilot. It follows two interim reports of preliminary findings from micro-cost data that were collected as part of a larger evaluation of the NCCCP pilot. The first part of this final report presents consolidated findings from the first three years of cost data collection. The cost analyses are followed by results from a survey of top management's perceptions of the business and strategic case for participation in federal programs such as the NCCCP. The survey data come from a series of semi-structured telephone interviews with the chief financial officers (CFOs) at the participating hospitals or health care systems, supplemented with data from previous on-site interviews with other senior executives. Throughout this report, "senior executives," "hospital executives," and "top management" are used interchangeably. The report closes with a discussion of what defines "successful" implementation of this program from top management's perspective, and indicators of potential for a sustainable program past the period of NCCCP funding.

The structure of this report is as follows:

- In Chapter 1, we provide a brief background of the NCCCP pilot and the role of RTI International (RTI) as evaluator.
- In Chapter 2, we review the methods and describe the technical approaches that RTI used for both the micro-cost study and the CFO interview study.
- In Chapter 3, we focus on how the federal dollars were spent. We analyze data on how NCCCP subcontract funds were used over the first 3 years of funding and review invoiced costs by site, by program component, and by specific activities within each program component.
- In Chapter 4, we focus on how federal dollars were leveraged to increase NCCCP-related activities in the pilot communities. We analyze data that document the investment of each institution in the form of matching costs, and each community in the form of donated time from non-employees, including local physicians, nurses, other health care workers and community volunteers.
- Chapter 5 presents findings from the interviews on the business and strategic case for NCCCP participation. In this analysis we focus on key themes from the initial set of interviews conducted during the summer of 2009 and a limited number of follow-up interviews conducted in the summer of 2011. We begin with a brief discussion of the motivation behind the CFO interview study and a review of the definitions of the notions of a business, strategic, economic, and social case for intervention.
- Chapter 6 provides a summary and attempts to integrate findings from the micro-cost and the strategic case studies. In this discussion we explore similarities and differences in perceptions of "program sustainability" and what constitutes "program

success", from the varying perspectives of top management, program management, funding agency and evaluation team.

1.1 Background: NCI's Community Cancer Centers Program

NCI began the NCCCP pilot to explore the best methods to enable the provision of state-of-the-art, multi-specialty care and early-phase clinical trials in community-based locations. In July 2007, the 3-year pilot program began by funding 8 community hospitals and 2 multi-hospital systems, each operating a cancer center and caring for at least 1,000 cancer patients annually. Funding for the first 3 years (June 2007 through June 2010) covered a total of 16 hospitals located in 14 states. The two system sites each selected a lead site to facilitate the implementation of the NCCCP within their system and developmental sites that could include hospitals that did not meet all of the selection criteria but that had the potential to do so by the end of the pilot.

The NCCCP has six key program components:

- reducing healthcare **disparities** across the cancer continuum;
- enhancing **clinical trials** research;
- increasing capacity to collect **biospecimens** per *NCI Best Practices*;
- improving the use of **information technology (IT)** and electronic health records to support improvements in research and care delivery;
- improving **quality of cancer care** and related areas, such as the development of integrated, multidisciplinary care (MDC) teams; and
- placing greater emphasis on **survivorship** and palliative care.

Activities in the disparities component included cancer screening for underserved populations, and sites were obligated to treat all cases identified through screening regardless of the patient's ability to pay.

Each organization was awarded approximately \$500,000 per year to cover costs to address subcontract deliverables related to the NCCCP award. The same amount of funding went to the two multi-hospital system sites, to be shared across their lead and developmental hospitals. Each organization was expected to contribute institutional dollars (i.e., supplemental funds) to cover NCCCP-related activities. The only restriction on how the subcontract awards could allocate their funds was that at least 40% had to go to activities related to reducing cancer healthcare disparities. Other than this restriction, sites were allowed to spend their award monies to cover their efforts to address all of the subcontract deliverables. The 10 awardees submitted invoices on a quarterly basis to the prime contractor SAIC-Frederick (SAIC-F). Invoices included distinct line items for the first four component areas (disparities, clinical trials, information technology and biospecimens) and

for additional program components and program expenses such as materials and travel, according to their approved budgets and project plans. In Years 2 and 3 of the pilot, some sites reallocated subcontract funds to specifically cover spending on the quality of care and survivorship areas, but most of the subcontract spending remained in the first four areas as originally budgeted.

NCI hired RTI as the independent evaluation contractor for this project. In this capacity, RTI's project analysts worked with NCI to develop and implement a comprehensive evaluation plan. The NCCCP evaluation was guided by three overarching questions of interest to NCI. These were (1) whether and how the NCCCP facilitated improvements in the facilities' cancer service line and in the specific program component, (2) what organizational requirements seem important to effectively manage/implement the NCCCP, and (3) what elements of NCCCP appear to be sustainable and potentially replicable.

The final evaluation design included a comparative case study, a patient survey, patient focus groups, an economic study, a comparative analysis of quality measures from the Rapid Quality Reporting System (RQRS), and an environmental analysis. The next section describes the development of the economic study.

1.2 Background: The Economic Evaluation

The NCCCP economic evaluation encompasses both a quantitative and a qualitative study. Its objectives were not only to assess how funding was used, but also to identify total institutional investment, physician community commitment, and the long-term sustainability of program activities. The quantitative study gathered micro-cost data to document how sites spent their NCCCP subcontract dollars, as well as their own funds, in implementing the NCCCP. The qualitative study is based on a set of coded interviews with financial executives at the pilot sites, which was undertaken to improve our understanding of why such community-based health service providers participate in programs like the NCCCP. The CFO interviews were added to the research plan at the end of the first year of the pilot.

The original evaluation plan for the NCCCP called for only micro-cost data collection to use in cost-effectiveness estimates as a cross-site evaluation tool. Early in the evaluation, it became evident that 3 years – the original funding period for the pilots – would not be a sufficiently long observation period to produce the type of outcome statistics that underlie cost-effectiveness analysis.

Although the plan for cost-effectiveness analysis dropped from the research plan, the micro-cost data collection effort was retained as a significant component of the economic evaluation. The micro-cost study was designed both to help the evaluation team track NCCCP-related spending and to provide NCI with evidence of institutional commitment and

program sustainability. Specific questions to be answered by the micro-cost data included the following:

- How were NCCCP subcontract funds allocated across key program components and activities within each component?
- How much additional external funding was obtained to cover NCCCP-related activities?
- How much time was donated for NCCCP-related activities by community clinicians and others, and for which types of NCCCP-related activities?
- How did patterns of total spending across program component areas vary across sites?
- How much did the sites contribute from their own operating funds for NCCCP-related activities?

At the same time, the evaluation team and the NCCCP Evaluation Oversight Committee (EOC) came to the conclusion that the economic evaluation could not provide a complete picture of the economics of hospital participation without also addressing how this pilot program fits into the short- and long-term financial strategies of the participating organizations. A second study involving interviews with hospital financial managers was therefore added to the economic evaluation.

Discussion protocols for the added qualitative study were designed to elicit information on

- the hospitals' overall finances in order to better understand the financial and competitive positions of the community institutions that were being asked to embrace clinical research,
- the position of cancer care in each hospital and its contributions to hospital margins,
- CFOs' expectations for direct or indirect financial returns on their investment,
- institutional fit between NCCCP goals (e.g., enhanced cancer research, increased outreach to underserved populations) with the participating organization's financial strategies, and
- top management's expectations for the long-run sustainability of key NCCCP programs in their organizations.

2. METHODS

In this chapter, we describe the technical approaches used by RTI for the micro-cost study and the strategic case study.

2.1 Cost Data Collection

2.1.1 *Types of Data Collected*

During the first subcontract year, the RTI team met several times by teleconference with the Project Officer and members of the NCCCP EOC to clarify the objectives of the micro-cost study and come to an agreement on the types of cost data that should be collected. Key decisions that needed to be made included whether to track average costs for NCCCP-type activities or just incremental costs associated with pilot participation; whether and how to include allocated fixed overhead costs, including time spent by the chief executive officer (CEO), CEO or other members of top management on planning or oversight; and how much focus to place on cost-effectiveness measures. Input on these issues was also sought from site PIs at the annual meeting in June 2008. From these meetings, we arrived at a consensus that the micro-cost study should focus on incremental rather than average costs. By incremental costs, we mean costs related to core component activities that would not have been incurred if the organization was not part of the NCCCP pilot project. We recognize that some of the participating organizations might already have had programs in place that carried out similar activities (e.g., community screenings, tumor boards, MDC committees). In these cases, it may be difficult for NCCCP staff to distinguish between newly incurred NCCCP costs and ongoing NCCCP-like operations. However, our primary goal in stressing incremental project-related costs is to avoid loading the study with the costs of cancer care and research programs that were already in place at the sponsoring hospitals before the NCCCP pilot.

By extension of this same argument, we decided not to document details for allocated fixed overhead.¹ However, expenditures for rent, facility maintenance, or equipment that are directly attributable to NCCCP participation could be identified as part of that site's matching costs.

RTI's study design originally included separate analyses of start-up costs and annual operating costs. Although this is a clear accounting distinction in theory, input from site staff at the annual meeting indicated that most sites already had aspects of each NCCCP program component in place prior to the NCCCP, and that most of the first year activities funded by

¹ Fixed overhead costs are generally allocated to patient care and research areas based on set formulas. This is typically done to assign costs for items such as building depreciation and administrative support services (e.g., payroll, personnel, legal, financial management, executive office).

the NCCCP subcontract were expected to be recurring costs throughout the pilot. Based on this input, RTI decided not to try to collect these costs separately.

2.1.2 Technical Approach

Micro-cost data were collected each year on an Excel-based input document called the Cost Assessment Tool (CAT). RTI staff originally developed and validated the CAT for use in earlier evaluations of cancer screening programs (Subramanian et al., 2009(a) and 2009(b); Tangka et al., 2008). The CAT was extensively adapted to accommodate the needs of the NCCCP evaluation and allow for self-report of how much each site spent to implement each of the key components of the NCCCP. The task leader for the economic evaluation has also used a similar approach as part of an evaluation of a mental health intervention (Dalton et al., 2003).

The CAT was sent out to each of the 10 participating organizations and completed each year by program coordinators and/or business office staff at the individual sites or at the corporate headquarters. We were restricted to collecting data at the organization level (rather than for the 16 individual sites) because the CAT was built to expand on the original invoiced costs for the NCCCP subcontract, and invoicing was done by organization. Unless specifically noted otherwise, throughout this document we use the terms “organization” and “site” interchangeably.

We customized the CAT to capture NCCCP expenditures across three cost domains: NCI-funded subcontract costs (the Invoiced Costs Worksheet), costs funded by the sponsoring organization (the Matching Costs Worksheet), and a valuation of donated time (the Donated Costs Worksheet). Each domain has its own worksheet within the Excel file, and each worksheet has six sections, one for each of the six key component areas.

The CAT was designed to capture the activity-based costs of the six program components of the NCCCP. However, it is important to understand that the awarded organizations were directed to invoice costs specifically across four of the six components (disparities, clinical trials, biospecimens, and information technology). The original subcontract awards did not have specific line items for expenditures identified as part of the quality of care and survivorship components. Some sites were able to reallocate their award budgets so that specific monies could be dedicated to these components, but for the most part each site was expected to contribute institutional dollars (i.e., matching or donated funds) to cover these program activities.

Within each component-specific section of the CAT, columns are identified that describe activities related to that component. For example, within the disparities section there are columns for screening clinics and for community outreach; within the clinical trials section there are columns for enrollment activities and for trial administration. Natural cost

classifications (e.g., salaries, supplies, space rental) are identified on designated rows within each workbook. For those organizations that included indirect costs in their NCCCP invoices, indirect costs have been assigned (or reassigned by formula) to designated rows, so that direct and indirect costs can be analyzed separately. A schematic of the tool is provided as Exhibit 2-1 and a full copy of the CAT is included as Appendix A-1.

Exhibit 2-1. Schematic of the Cost Assessment Tool

DONATED (site inputs the hours by component, then allocates across activities *)									
MATCHING (site inputs dollar amounts by component, then allocates across activities *)									
INVOICED (RTI loads from contract invoices by component; site then allocates across activities *)									
	\$	Adj'ts for Indirects	Clinical Trials	Disparities	IT	Bio-specimens	Quality of Care	Survivor-ship	Total 100%
Costs			* * * *	* * * *	* * * *	* * * *	* * * *	* * * *	
Salary and Benefits									
Contracted Services									
Total Salaries									
Supplies									
Equipment Purchase									
Space-related Costs									
Subtotal									
Adjustments for Benefits									
Adjustments for Both Indirects									
Other Allocated Overhead									
Total									
Less: External Funding									
NCCCP									
Other NCI									
Other Federal/State/Local									
Private or Foundations									
Total External Funding									
Net Unfunded Costs									

The Invoiced Costs Worksheet was preloaded with NCCCP costs that were invoiced to SAIC-F. Site administrators and business managers then allocated these invoiced costs across specific activities within each of the main program components. To populate the Matching Costs Worksheet, we asked sites to estimate total dollars for expenses underwritten by the organization or funded by other public or private agencies, for activities directly related to any of the six NCCCP core components. Administrators then allocated these matching costs across the same sets of sub-activities, within the core components, as the Invoiced Costs Worksheet. The Donated Costs Worksheet was used to estimate the value of NCCCP services provided by individuals not employed by (or under subcontract to) the funded organization. Sites were asked to track the number of hours spent by physicians and others who were spending time on NCCCP activities. RTI then converted these hours to dollars using standard national compensation data by type of training.

Relevant categories for sub-activities within each of the core components were developed in consultation with site leaders. RTI used the quarterly reports that participants submitted to SAIC-F to identify common sub-activities across sites. An ad hoc group of site administrators and program directors reviewed both the descriptions and the cost types over several iterations. The resulting draft was then reviewed by the NCI project officer, members of the NCCCP EOC, and members of the NCCCP Program Advisory Committee (NPAC). The CAT was also pilot-tested by administrative personnel at two sites to check for reasonableness and feasibility. Each column header and several of the cost rows were hyperlinked to Excel cells containing definitions and examples. Appendix A-2 summarizes the hyperlinked definitions for the columns that were provided to the sites. For ease of presentation, some of these activity categories have been combined when we report results. (Copies of each input worksheet are included as Appendix A-1.)

2.1.2.1 Defining “NCCCP-Related” Costs

The micro-cost study was intended to capture incremental program costs rather than aggregate costs. The difference can be described as follows: incremental costs should encompass costs related to core component activities that would not have been incurred if the organization were not part of this pilot, while aggregate costs will include both incremental costs and costs for these same types of NCCCP-related activities (e.g. outreach, screening, clinical trials, MDC committees) that were already occurring prior to the start of the program pilot.

Distinguishing between incremental and aggregate costs is not a trivial exercise. In sites where research programs were already in place, we recognize that the reported matching and donated costs might include both. The micro-cost study relies entirely on the judgment of the NCCCP site leaders to distinguish between the costs of ongoing research activities and the costs of new programs undertaken as part of their participation in the NCCCP pilot. Our primary goal in stressing incremental costs was to avoid loading down the study with the ongoing costs of cancer services.

Direct costs are more likely than indirect costs to be classified as incremental and attributable to the program. Because the subcontract allowed for institutional overhead to be included in the NCCCP awards through the use of “fully loaded” labor rates, the CAT was designed to allow sites also to report institutional overhead as part of their matching costs.² We chose to avoid requesting detailed documentation of any allocated fixed overhead costs on the grounds that these would not inform the key study questions related to sustainability

² “Fully loaded rates” are commonly used in contract research invoicing where individuals are invoiced by the hour of documented time spent rather than percent of effort. The phrase refers to hourly labor rates that have been adjusted to incorporate other costs associated with staff time. Someone with an actual base wage of \$25 per hour might have a fully loaded rate equal to $\$25 \times 1.30 = \32.50 (to include costs of benefits and paid time off), or possibly $\$25 \times 1.30 \times 1.50 = \48.75 (to include additional institutional overhead costs).

and replicability, but we also structured the CAT so that any indirect costs included on the Matching Costs Worksheet or on the Invoiced Cost Worksheet (through the loaded rates) could be identified. This was done so that the economic evaluation report could, to the best of our ability, analyze NCCCP-related direct costs separately from indirect costs in its cross-site comparisons.

2.1.2.2 Distinguishing Direct from Indirect Costs

The terms of the NCCCP subcontract allowed for fully loaded rates, but not all sites interpreted this in the same manner. Some sites used fully loaded rates that included a percentage add-on for benefits and an add-on for institutional overhead, while some sites included an add-on only for benefits; a few sites included only base salaries in the rate, treating benefits and institutional overhead as matching costs. The CAT was modified twice during the micro-cost study in order to improve the identification of indirect costs by separating benefits from other institutional indirect costs.

In Years 1 and 2 of data collection, institutional indirect costs included within any invoiced all-inclusive rates were included as a separate line on the Invoiced Costs Worksheet. In Year 3, institutional indirect costs were then broken apart to distinguish between payroll benefits and institutional overhead and also applied to the Matching Costs Worksheet. RTI also included two separate lines in the Matching Costs Worksheet where sites could document their payroll benefits and other institutional indirect costs associated with any invoiced costs that were not invoiced to SAIC-F, but were included as matching costs. Further detail on the modifications can be seen from the copy of the memo sent to sites for the third year data collection, included at the beginning of Appendix A-1. Appendix A-3 provides a sample calculation for the computations distinguishing between direct and indirect costs.

2.1.2.3 Valuation of Donated Hours

At the first NCCCP annual meeting (2008), representatives from the sites indicated interest in documenting the value of unpaid time donated to this program by community-based physicians and others. This led to the addition of the Donated Costs Worksheet, in which sites were asked to document hours spent by type of training and by core component and activity. At that time, we discussed whether to measure donated time by the opportunity cost (measured in lost patient fees) or by applying a standard hourly amount derived from national data. For reasons of simplicity and transparency, RTI decided to convert donated hours to dollars using specialty-specific median compensation published each year by the Medical Group Management Association (MGMA, 2006, 2009). For other occupations, we used national average hourly wages from the Bureau of Labor Statistics Occupation Employment Surveys, with an add-on adjustment for estimated benefits (BLS/OES, 2007-2009). Appendix D includes a table showing the rates used for each occupation and specialty for each of the 3 years.

2.1.3 Data Analysis

Completed CATs were reviewed each year for data consistency and were edited as needed after consultation with site representatives. Final files were loaded into a master Excel file for analysis and also into Stata statistical software for tables and graphics. Updates to the standard hourly rates that were used by RTI to assign dollar values to reported donated hours were incorporated each year into the analytic files as more up-to-date MGMA or BLS survey data became available.

Completed CAT data are available for all 3 years for all sites for all worksheets, with only one exception: during the first year of data collection, donated hours for one site could not be allocated by activity within program components. Some of the analyses presenting summary spending at the level of individual activities, therefore, are presented for only the second and third years.

Our general approach to the CAT data analyses has been to identify levels of spending for each cost domain for each year, by site, by program component areas, and by specific activities. We now have 3 years of data and differences in spending patterns from one year to the next that are potentially interesting to the evaluation. Presentation of the data over all of these dimensions is challenging. We have relied frequently on graphs where shading is used to identify levels of spending by year, or where colors identify different cost dimensions or other cost distinctions.

Recognizing that NCI is interested both in how their dollars were spent and in the extent to which these pilot sites were willing to co-invest, we have separated micro-cost data analysis into two chapters. Chapter 3 analyzes only data from the Invoiced Costs Worksheets to identify how NCCCP dollars were used each year. Chapter 4 then analyzes total spending in the context of how much each site was willing or able to invest in NCCCP activities over and above the funds received from NCI. We define this as “leveraging the federal dollar.” In Chapter 4 we also present further details from the Matching Costs Worksheet and the Donated Costs Worksheet.

2.2 The CFO Interview Study

2.2.1 Technical Approach

In the summer of 2009, RTI conducted initial telephone interviews with CFOs at each of the 10 funded organizations including the corporate officers at each of the 2 system sites. Two CFOs from individual sites within the two health systems participants were also interviewed, one separately and one as a second interviewee during the call with the corporate manager. Follow-up interviews were conducted at the end of the funding period with three of the four CFOs who were still in their positions in the summer of 2011.

As described in the following section, these interviews were semi-structured discussions making use of a standard protocol for the eight freestanding sites, with slight modifications for the two system sites. Calls were recorded, transcribed, loaded into text analytic software (NVivo 8), and coded to track research themes as identified by the RTI evaluation team. The RTI staff on this task included Kathleen Dalton (a health economist and former hospital CFO), Heather Kane (a medical sociologist and expert in qualitative research techniques), and Alton Wright (a public health analyst, who also managed the micro-cost data collection for Years 2 and 3). Kristen Reiter, an assistant professor of public health and economics at the University of North Carolina's School of Public Health, also participated in study design and conducted some of the interviews in 2009.

2.2.2 Interview Protocol Development and Procedures

A copy of the protocol, background material sent to the CFOs prior to the call, the coding guide, and a table of contents for the final coded material are included with this report in Appendix E.

The interview protocol was drafted by members of the RTI team in the spring of 2009 with the review and assistance of NCI staff and members of the NCCCP EOC. Once the instrument was finalized, the study was submitted to RTI's Institutional Review Board (IRB) and was granted exemption from human subjects review.

The final protocol was designed to be a 1-hour conversation and included 30 questions calling for a mixture of yes/no, numeric, and open-ended responses. The protocol was structured into 3 sections covering institutional mission (11 questions); NCCCP-specific program implementation (11 questions), and return on investment (8 questions).

Respondents were identified through an initial letter to the principal investigator of the NCCCP pilot at each site requesting contact information for the hospital or system CFO. This was followed by a letter to the CFO, which explained the purpose of the interviews and included some short supplementary material describing the notions of the business or strategic case.

The first telephone interview was considered to be an informal pilot test in the sense that the respondent from that site knew he was the first interview and agreed to help us work on the timing of questions and the length of the interview. Material from the first interview is used in the analysis. Background material was collected by RTI staff on each site prior to the interview, including information on the market (demographics, number and location of competitors) and hospital operations (margins, payer mix, scope of services). The material was collected into "community snapshots" for each site and used to tailor the protocol questions prior to each interview.

All of the 2009 interviews were conducted by either Dr. Dalton or Dr. Reiter, with Dr. Kane sitting in on the first few to monitor the flow of the responses and suggest refinements to the questions. Most of these interviews were carried out during the summer of 2009; some were delayed into the fall for sites where the CFO had only recently been hired and the sites requested that we delay for a few months so that they would have a better understanding of the program.

In the summer of 2011, follow-up interviews were conducted with three of the four interviewees who were still in management positions at each of their sites. Follow-up interviews were shorter than the original. These focused on their perceptions of program success and which activities, if any, would continue after the end of the subcontract period. Although we were disappointed with the low number of CFOs still in their respective positions after 2 years, we recognize that turnover is common among hospital executives and we recognize this as a limitation in using follow-up designs for this type of interview study.

All respondents gave us permission to record and transcribe the interviews for purposes of coding and analysis. One interview was not recorded due to equipment failure, but notes taken during the interview were used to code responses.

2.2.3 Coding and Analysis

Transcribed text was loaded in NVivo 8 for coding and analysis. Initial code themes were developed by the RTI team members, and then modified based on responses from the first few interviews. The final code guide (included as Appendix E-3) was organized around the following themes: organizational and environmental context; institutional strategies for cancer care; reasons for participation in the NCCCP or other clinical research; perceptions of the business and strategic case for participation; measuring success or failure of the program; and perceptions of the project's long-term value to the institution and to the community.

A total of 138 pages of interviews were transcribed for this project, yielding 207 pages of theme-coded material.

3. COST DATA FINDINGS (1): HOW WERE NCI DOLLARS SPENT?

This chapter contains summary tables and graphs to present information on how the NCCCP subcontract dollars were used. Detailed information identifying total documented spending by site, year, program component, and cost domain are included in Appendix B.

3.1 Total NCCCP Subcontract Spending

All initial NCCCP awards were for approximately \$500,000 per year for each of 10 funded organizations, totaling \$5 million for each of the first 3 years beginning July 1, 2007. System sites were awarded the same amounts as independent sites, and shared these funds across multiple sites; one system site has one “lead” and four additional “developmental” sites, while the other system site has one “lead” and two “developmental” sites. Thus the amount of NCI funds available for any one of the system sites is relatively small. Additional NCI funds were awarded in 2009 that allowed the pilot sites to carry over into a fourth year, but these funds are not included as part of the RTI cost study or overall evaluation.

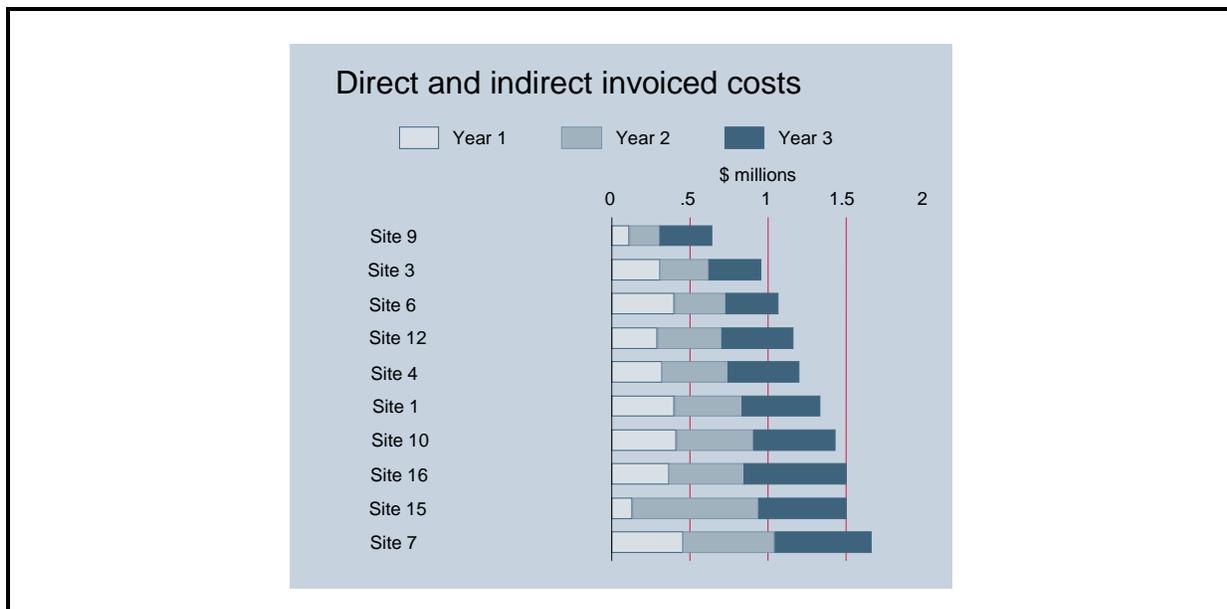
Although each award was for the same amount there is surprising variation in the extent to which participating organizations drew on these awards during the original 3-year funding period. Exhibit 3-1 is a stacked bar chart showing total amounts invoiced by the sites to SAIC-F, where the shading within the bars indicates how much was invoiced by year and the length of the bars therefore identifies the total over the 3-year evaluation period. Red vertical lines are placed at increments of \$500,000—in other words, where we would expect all sites to be at the end of each year. Two sites were delayed in start-up and did not begin to spend subcontract funds until late in Year 1, and invoice records from the implementation contractor showed that only 65% of the award total was actually spent in that year. Unspent amounts were allowed to be carried forward to subsequent funding periods (including the fourth year). At the end of Year 3, however, participants had billed for \$12.5 million, which was still only 83% of the initial \$15 million subcontracted amount. Two sites had spent less than two-thirds of their total award.

3.2 Invoiced NCCCP Costs by Expense Type

By far the largest portion of NCCCP subcontracted funds—89% overall—went for salaries and benefits. By program component, the proportion attributable to salaries ranged from 88% in disparities, information technology, and survivorship, to 97% in quality of care. Other direct costs accounted for only 3.8% of invoiced amounts, and, of these, about two-thirds are for supplies. Indirect costs accounted for 7% of total invoiced costs. Variation in the indirect cost percent by program component is actually a function of differences in how each site handled institutional overhead rather than the type of component spending. The variation across sites in the treatment of indirect costs, which is discussed in greater detail in Sections 3.3 and 4.2, posed several challenges to the micro-cost study. The indirect cost

percents shown in the third data column in Exhibit 3-2 show our best estimate of the share of invoiced costs that belongs to formula-driven fixed institutional overhead.

Exhibit 3-1. Invoiced NCCCP Costs by Year and Site



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

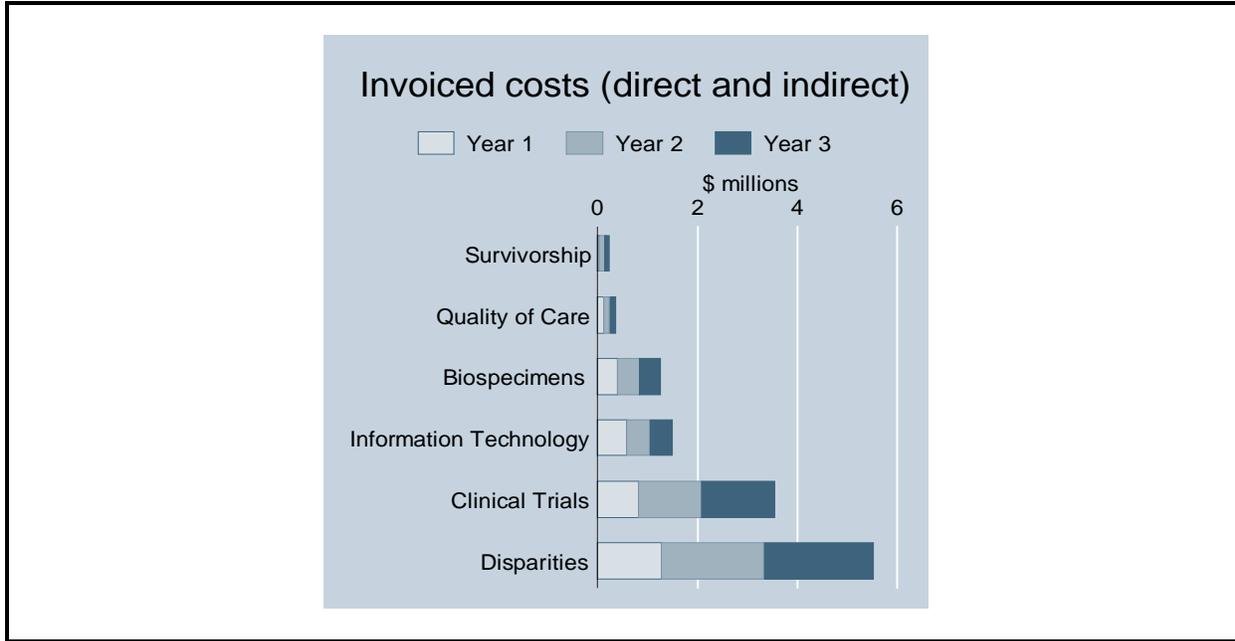
Exhibit 3-2. Invoiced NCCCP Costs, by Type of Expenditure and Program Component

	Salaries and Benefits	Other Direct Costs	Indirect Costs (from loaded rates)	Total
All Components	\$11,159,992	\$470,984	\$875,589	\$12,506,585
Percent	89.2%	3.8%	7.0%	100%
By Program Component				
Clinical Trials	91.5%	2.2%	6.3%	100%
Disparities	87.6%	4.6%	7.8%	100%
Information Technology	87.9%	6.1%	6.0%	100%
Biospecimens	89.4%	1.9%	8.7%	100%
Survivorship	88.1%	5.7%	6.1%	100%
Quality of Care	97.4%	1.6%	1.0%	100%

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Exhibits 3-3 and 3-4 present information on amounts invoiced to the NCCCP by program component. The disparities and clinical trials components clearly dominated the NCCCP-funded activities in each year. Over the 3-year period there was some shift in focus as the sites geared up their different program areas. The share going to clinical trials, for example, increased from 25.4% to 30.7%, while the share for disparities activities grew from 39.5% to 46.0%. Clinical trials also received the lion’s share of matching funds and donated time.

Exhibit 3-3. Invoiced NCCCP Costs by Year and Program Component



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

Exhibit 3-4. Invoiced NCCCP Costs, Percent Funding by Component

	Year 1	Year 2	Year 3	All Years	Amount (millions)
Biospecimens	12.4%	9.7%	8.8%	10.0%	\$1.3
Clinical Trials	25.4%	28.0%	30.7%	28.4%	\$3.5
Disparities	39.5%	46.3%	46.0%	44.4%	\$5.5
Information Technology	17.8%	10.8%	9.4%	12.1%	\$1.5
Quality of Care	3.8%	2.6%	2.9%	3.0%	\$0.4
Survivorship	1.0%	2.5%	2.3%	2.1%	\$0.3
Total	100.0%	100.0%	100.0%	100.0%	
Amount (millions)	\$ 3.2	\$ 4.4	\$ 4.8	\$12.5	\$12.5

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Very little of the NCCCP subcontract funds was used for activities in the quality of care and survivorship program components (\$0.7 million for the two combined out of a total of \$12.5 million). This is because both of these areas were initially identified as supplemental activities to be covered from matching funds, and even though the invoices show that some budget changes were made to move NCCCP subcontract funds over to these areas, most of the costs for these two components continued to be absorbed by the sites or (in the case of the MDC committees that were part of the quality of care component) by community physicians.

3.3 Site Reporting for Direct and Indirect Costs

The participating organizations varied a great deal in whether and how they handled indirect costs in the NCCCP subcontract, and also in how they reported indirect costs on the CAT. The terms of the subcontract allowed applicants to budget for personnel using fully loaded rates, which are usually interpreted as rates including hourly wages plus a percent add-on for benefits and another percent add-on for institutional overhead. Because the funded amount was fixed, several applicants chose to use either straight hourly pay or hourly compensation including benefits, rather than use the limited funding for overhead. Some of the sites that did *not* use fully loaded rates identified the unreimbursed benefits and/or other overhead on the Matching Costs Worksheet. Three sites used fully loaded hourly rates that include add-ons to hourly wages for both payroll benefits and institutional overhead. Three sites used partially loaded hourly rates that included only a percent add-on for payroll benefits. The remaining four sites included neither. Similar variation was found for reporting matching costs, except that at least one site that did not choose to use loaded rates for the NCCCP invoices added the benefits and other indirect costs that were associated with their invoiced costs to the Matching Costs Worksheet. Appendix C provides more information on indirect costs included on SAIC-F invoices, based on information given to RTI by site staff.

RTI modified the CAT twice to improve our understanding of the various approaches. Our main concern was to remove any formula-driven overhead amounts from the data to be able to arrive at comparisons of what we identified as direct costs including benefits, before aggregating the data for three cost domains and comparing spending across sites.

3.4 NCCCP Invoiced Costs by Activity

Each year when site staff received their copies of the CAT, the Invoiced Costs Worksheet was pre-populated with amounts that sites had invoiced to SAIC-F. The invoices identified the type of cost and the program component to which it was assigned. Staff were asked to allocate the labor and other costs *within* each of the components, using a list of common activities that had already been identified as important in each area (Please refer to Appendix A-2 for information on how the activities were identified and the types of guidance given to site staff for what to allocate to these categories). The information gained on specific activities is one of the more important contributions of the micro-cost data. It is

important to keep in mind, however, that allocations by activity are self-reported and represent the best judgment of NCCCP-funded staff themselves or their department managers.

Some of the individual activities appearing as columns on the CAT are common across all six components (e.g., program administration, cross-site communication, and time spent in seminars or conferences). Most of them are unique to the component (e.g., screening activities within disparities, trial administration and planning within clinical trials, MDC committees within quality of care). Amounts allocated to the common activities are expected to be a larger proportion of total spending than activities unique to a component.

Exhibit 3-5 presents total invoiced costs as allocated to specific activities. The shades within each bar identify amounts allocated by year, and the length of the bar therefore represents total allocation for that activity over the 3-year evaluation period. The bars are sorted in ascending order of total 3-year costs. More detailed information on invoiced costs by activity within each of the components can be found in the tables in Appendices B-3.1 and B-3.2 (dollars) as well as B-4.1 and B-4.2 (percents).

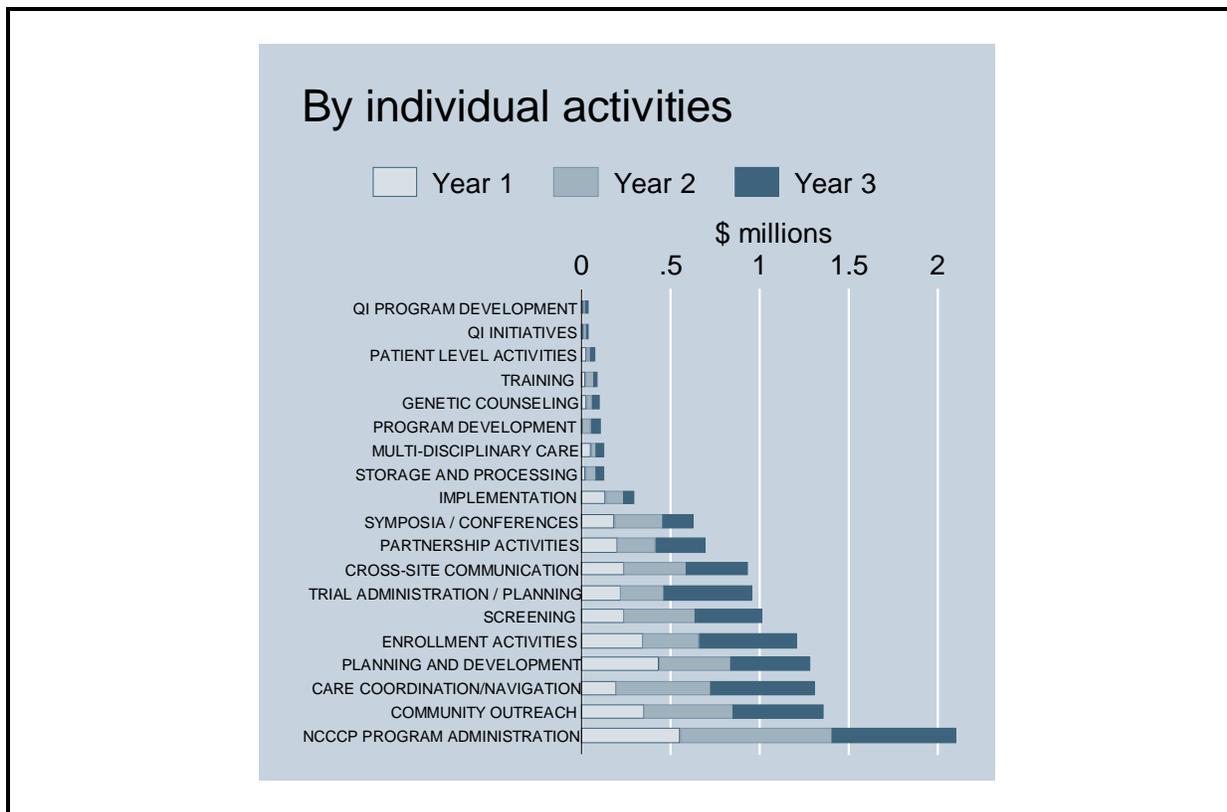
NCCCP program administration accounted for 17% of all invoiced costs in all years, while planning and program development activities across four of the six components accounted for 11%, and trial administration/planning accounted for another 8%. Spending on NCCCP program administration is high, but there were a large number of specific activities required of pilot participants (including not just regular NCCCP group calls and meetings but also completing interim and final assessment surveys, the CAT) that would not be part of any ongoing program costs after the close of the pilot.

By virtue of its requirement to make up at least 40% of NCCCP-funded activities, the disparities program component as a whole is always the largest part of invoiced costs; within this component, costs allocated to outreach activities, patient navigation, and screening reveal the most important individual implementation activities. Outreach accounted for 11% of total NCCCP invoicing in each of the 3 years. In contrast, patient navigation and screening each appear to have taken more time to get up and running: navigation accounted for 6% of NCCCP invoicing in Year 1 but 12% by Years 2 and 3, while screening activities accounted for 5% of NCCCP invoicing in Year 1 but 8% by Year 2 and 3.

To process trends in individual activity-level data, it is helpful to organize the activities by those related to administration, those related to planning and development, and those that represent patient-level implementation. We would expect to find heavier emphasis on planning and development activities in the first year, but more spending on patient-level

implementation by the third year. We grouped the individual activities this way³ and compared use of invoiced NCCCP funds over time (Exhibit 3-6).

Exhibit 3-5. Detail on NCCCP Invoiced Costs by Year and Activity



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Exhibit 3-6. Year-to-Year Changes in Focus for Invoiced Costs

Activity Group	Share of Invoiced Total Costs				Costs
	Year 1	Year 2	Year 3	All Years	
Planning & Development	38%	31%	33%	34%	\$4.3 m
Patient Level Implementation	38	42	45	42	\$5.2 m
Program Administration	24	27	22	24	\$3.0 m
Total	100%	100%	100%	100%	
Costs	\$3.3 m	\$4.4 m	\$4.8 m	\$12.5 m	\$12.5 m

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

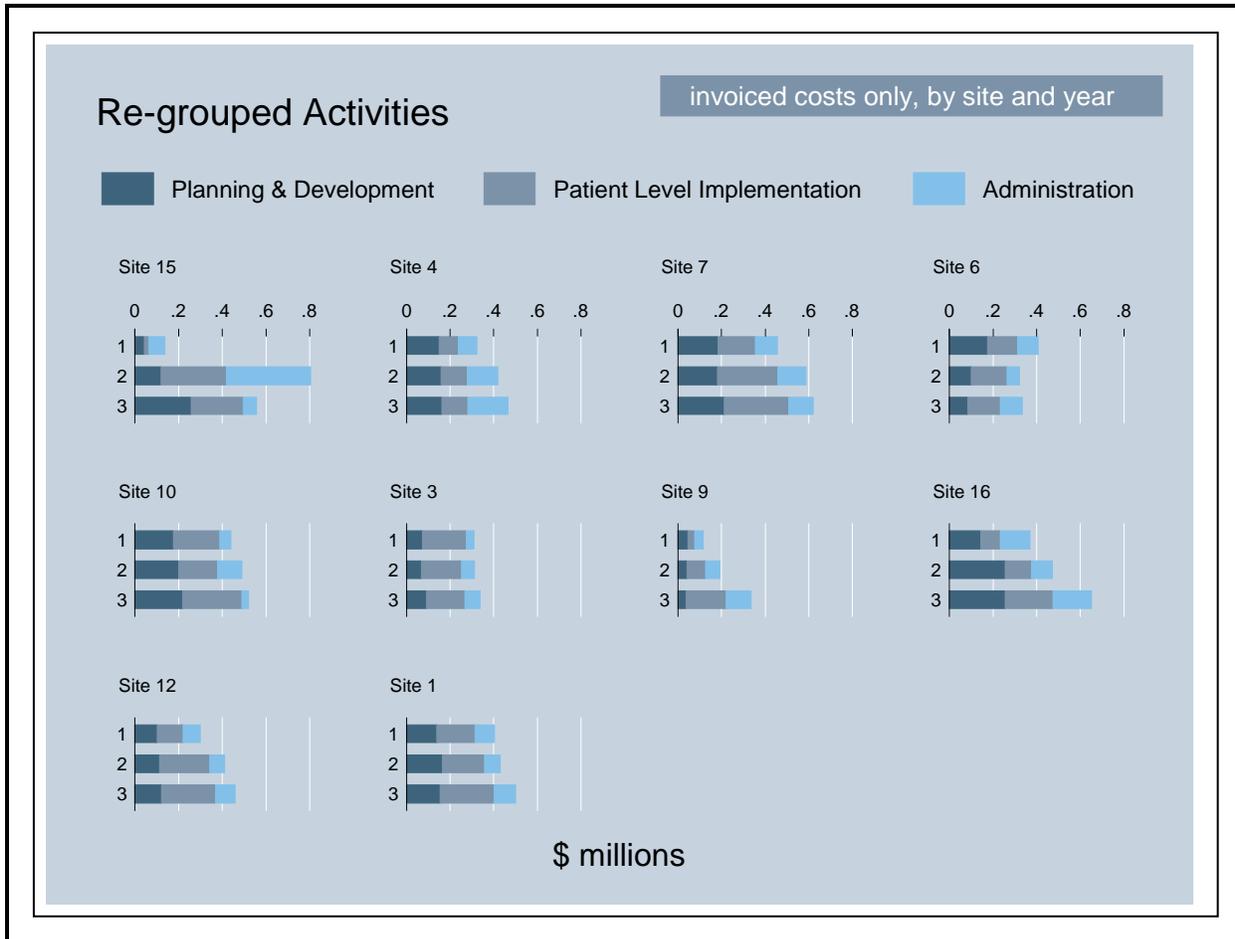
³ Grouping was as follows: administrative activities include NCCCP program administration and cross-site communication; program planning and development included the various planning and development categories assigned within different components plus training, IT implementation, partnership activities and symposia; patient-level implementation included screening, outreach, navigation, QI initiatives, genetic counseling and enrollment.

As expected, we found that patient-level implementation (including CT enrollment activities) grew from 38% of invoiced costs in Year 1 to 44% in Year 3. Planning and development and other infrastructure-building activities accounted for 37% of invoiced costs in Year 1, declined to 31% in Year 2, and then increased to 34% by Year 3. The site where this pattern was most pronounced was Site 9, where patient-level activities grew from 26% to 54% of invoiced costs while planning and development activities dropped from 39% to 11% of all invoiced costs. In the more established sites, relative spending by type of activity changed less but the pattern was still there.

General administrative activities costs accounted for roughly one quarter of all amounts invoiced to SAIC-F over the 3 years (slightly more in Year 2, less in Year 3). The site with the lowest proportion of invoiced costs allocated to NCCCP administration and/or cross-site communication (averaging 14% but only 7% by the last year) was Site 10, which was among the sites rated as having “high” baseline capacity for research (Holden et al., 2012). The site with the second lowest, however, was Site 3, which had much less prior research experience. NCCCP funds at this site were used immediately for outreach, screening and enrollment; administrative activities averaged 18% of invoiced costs but were only 11% in the first year. The site with the highest proportion of administrative activities funded by the NCCCP subcontract was Site 15 (35% over 3 years).

The graphs in Exhibit 3-7 present some of this same information, but identify actual invoiced amounts rather than proportions, and at the level of individual site as well as year. They are stacked bars by year within site, where the colors indicate dollar amounts for each of the three activity groups. This presentation approach is helpful for identifying the variation in the approaches that different sites took to implementation.

Exhibit 3-7. NCCCP Invoiced Costs by Type of Activity, by Year and Site



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

4. COST DATA FINDINGS (2): LEVERAGING THE FEDERAL INVESTMENT

In this chapter, we look at reported spending on all NCCCP-related activities across all three cost domains: invoiced, matching, and donated. For this evaluation the level of matched expenditures and the value of donated time expressed relative to NCCCP subcontract dollars are measures of how well the federal investment is being leveraged. We treat matching costs as indicative of the participating organizations' commitment to the program and willingness to invest, while donated hours are further evidence of support for the program on the part of the health care community.

In Section 4.1, we present cost data for each of the three cost domains to show leveraging by site level and by program component. In Section 4.2, we provide some additional detail on indirect costs as reported on the Matching Costs Worksheet. In Section 4.3, we report briefly on other external funding that sites received for activities included in the Matching Costs Worksheet. In Section 4.4 we report in more detail on the participating organizations' contribution to the NCCCP by analyzing matching direct and indirect costs as they were reported on the CAT. In Section 4.5, we report on the community contribution to the NCCCP by analyzing donated hours and the value of donated time. Section 4.6 pulls these items together to summarize the leveraging of federal dollars across sites and component areas.

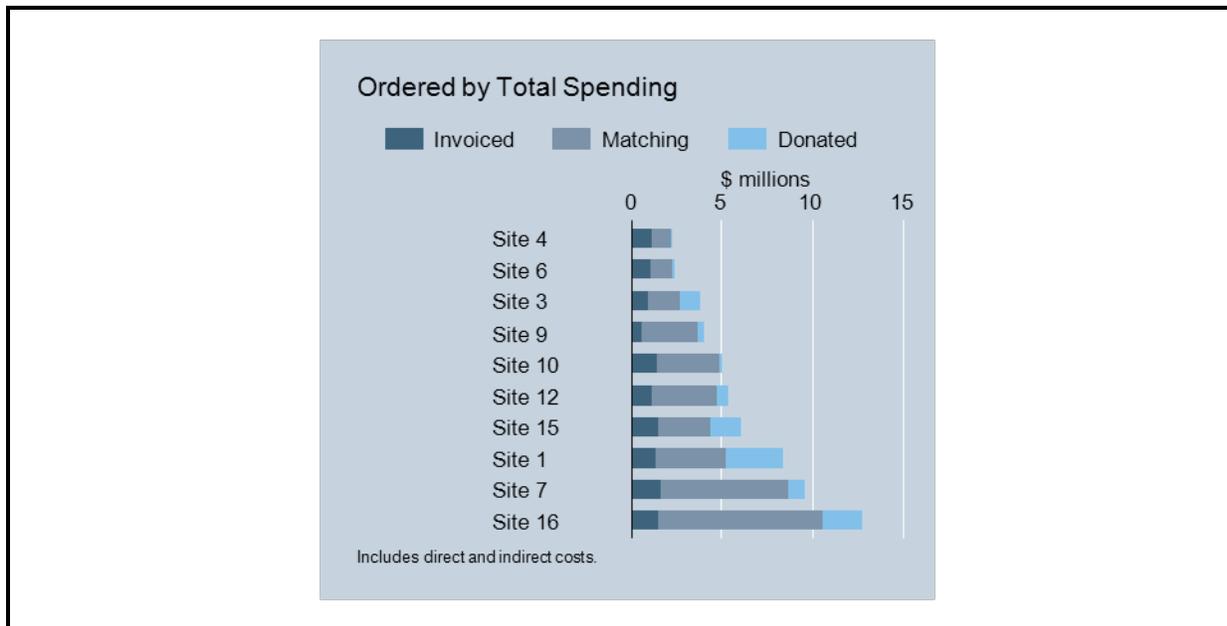
As in the previous chapter, we rely on summary tables and graphs to present information on how the NCCCP subcontract dollars were leveraged, while the detailed information on reported costs is included with the documentation in Appendix B (for matching costs and the value of donated time) and Appendix D (for donated hours).

4.1 Total NCCCP-Related Funding Over 3 Years

Exhibit 4-1 is a stacked bar chart showing total 3-year spending for each site, where the colors within the bars identify amounts for each of the three domains of invoiced, matching, and donated costs.

The first thing to note is that while the NCCCP invoiced amounts are relatively level across sites (and should have been exactly level, had all awarded funds been expended) there is enormous variation in total NCCCP-attributed spending. For the full 3 years, total documented costs including the value of donated time ranges from \$2.3 million at Site 4 to \$12.7 million at Site 16. This is nearly a six-fold difference. Looking only at invoiced and matched costs there is still a five-fold difference, ranging from just over \$2.2 million at the Site 4 to over \$10.5 million at Site 16.

Exhibit 4-1. Invoiced, Matching and Donated Costs by Site



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

The biggest component of both matching and donated costs is physician time, so sites with a large number of employed physicians might be expected to have higher matching costs if their employed physicians are the ones participating in the clinical trials and quality of care activities – with correspondingly lower donated costs from community physicians. Site 16 and Site 1, however, were relatively high in both cost domains.

We acknowledge that some of the variation in total documented costs is likely due to differences in reporting effort that would not reflect differences in actual effort. For example, Site 4 and Site 6 might simply have chosen not to document all of the costs of internally funded NCCCP-related activities, or Site 7 might have been particularly inclusive in defining indirect costs. The variation appears unrelated to site experience (Site 7 and Site 16 are both very high in total spending, whereas Site 6, an equally experienced research site, is low) or to being a system site versus an independent organization.

The frames in Exhibit 4-2 show this data summarized by year by site, to highlight changes in spending patterns over the course of the 3 years. While the share of total spending by cost domain varies across sites, some sites showed more consistent spending patterns over time than others. Donated costs at Site 3, for example, were present only in Year 1 (this is discussed further in the next section on donated hours). Site 10 increased its contribution to total NCCCP spending dramatically in Year 3, and the increases were seen across all six component areas. Site 6 and Site 4, by contrast, were consistent over all 3 years in reporting little to no donated costs and in investing roughly equal amounts of their own funds relative to NCCCP funds. At the other end of the spectrum, Site 16 and Site 7 were

consistently the highest spenders and they contributed each year through their own matching as well as by documenting substantial numbers of donated hours.

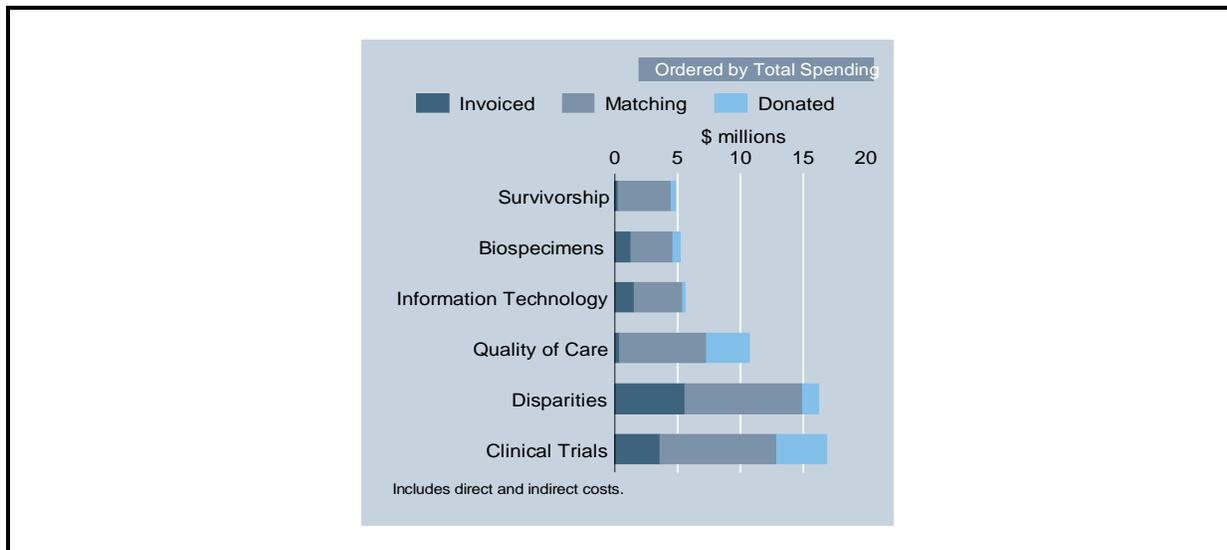
Exhibit 4-2. Changes in Matching and Donated Costs Relative to Invoiced Costs, by Site



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

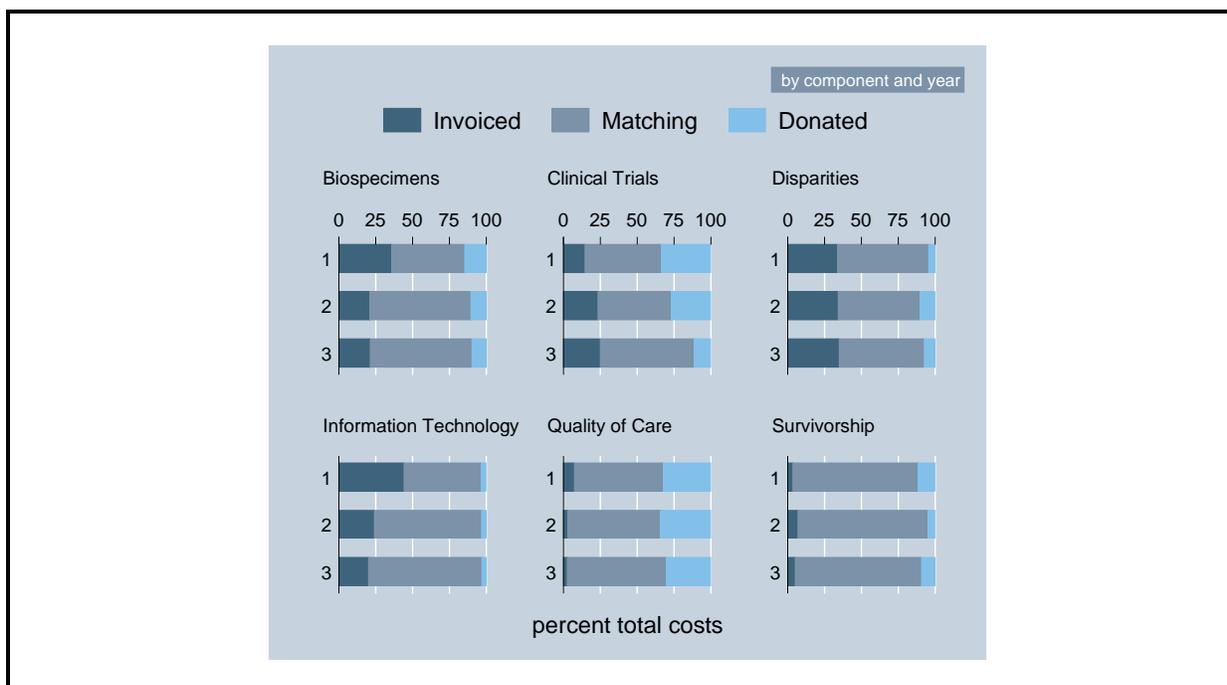
Exhibits 4-3 and 4-4 show the same data but graphed by program components rather than by site. There are also large differences across components in the proportions of costs by cost domain, but as mentioned earlier, this is largely a budgeting artifact due to the fact that line items for expenditures for quality of care and survivorship were not included in the initial approved subcontract budgets. Among the four original core components for the NCCCP, the biggest year-to-year increases in matching costs as a proportion of total spending were for biospecimens and information technology.

Exhibit 4-3. Invoiced, Matching and Donated by Program Component



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Exhibit 4-4. Changes in Matching and Donated Costs Relative to Invoiced Costs, by Program Component



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

4.2 Indirect Costs Included as Matching Costs

Because part of the variation in the dollar value of matching costs was expected to be due to reporting practices related to benefits and overhead, RTI worked with sites to improve the way that the CAT could identify different types of indirect costs. In six out of ten funded organizations, benefits were included as a percent add-on to salary in the loaded hourly rates allowed on the NCCCP subcontract invoice. Three of these six also included an add-on for some other indirect costs. RTI modified the CAT to separate these two types of indirect costs on the grounds that benefits are clearly variable costs associated with any incremental NCCCP-related salary, while the notion of incremental institutional indirect costs is debatable.

Sites were contacted during each data collection year to obtain information on whether and how benefits and institutional overhead were included on the CAT. (Please refer to Appendix Table C-3 for additional detail on these costs by site.) In Year 1, only four sites reported benefits and institutional overhead: Site 4, Site 6, and Site 10 included them in their invoiced costs, while Site 7 reported them as matching costs. The latter site confirmed that their Matching Costs Worksheets included amounts for indirect costs related to the invoiced direct costs as well as direct and indirect costs attributable to supplemental but unfunded NCCCP activities. In the second year of the study, four additional sites began reporting benefits and institutional overhead. Site 9, Site 16, and Site 12 reported their indirect costs solely as matching costs, while Site 1 reported indirect costs on both the Invoiced Costs and Matching Costs Worksheets.

In the third year of micro-cost data collection three sites (Site 6, Site 10, and Site 9) reported benefits and other institutional overhead on both the Invoiced and Matching Costs Worksheets. Another 3 sites (Site 4, Site 1, and Site 12) reported benefits on the Invoiced and Matching Costs Worksheets but did not report any other institutional overhead. Three sites (Site 15, Site 7, and Site 3) reported indirect costs only on the Matching Cost Worksheet.

The modifications to the CAT allowed us to identify another wrinkle in cross-site reporting: where benefits associated with base wages that had been invoiced to SAIC-F were reported on the CAT as matching costs, over and above any matching costs for supplemental activities. Four sites (Site 4, Site 7, Site 1, and Site 12) reported at least some amounts on the Matching Costs Worksheet that were actually benefits or formula-driven overhead, or both, that were applicable to direct costs included in the Invoiced Costs Worksheet.

Clearly the treatment of indirect costs is important in any cost finding. We took all of these findings into account and determined that the variation in treatment across sites and across years was sufficient to merit special adjustments to develop more consistent definitions. Before analyzing any cross-site differences in resource use, therefore, we re-estimated total

direct costs at each site to exclude any formula-driven allocations of institutional overhead (with the exception of formula-based benefits). Direct costs are used in all the analyses in Chapter 5.

4.3 Other External Funding

Matching costs in the context of this report are costs that are incurred by the sponsoring organization and are directly related to NCCCP activities but not covered by the NCCCP subcontract.

Because RTI was interested in documenting all spending for NCCCP-related activities, we explicitly asked sites to document all related costs as matching even if they received grants or contracts (including subcontracts) from other public or private entities to offset these. We included lines on the Matching Costs Worksheet of the CAT to capture information about any offsetting grant or subcontract money from public or private agencies.

No sites recorded offsetting external funds in Year 1, but three sites reported some offsetting funds in Year 2, and eight sites reported some in Year 3. Total amounts reported by site for the 3-year period as a whole are shown in Exhibit 4-5. Compared to other pilot sites, Site 4 reported relatively little in matching costs over all three years, but in the third year it also reported external funding nearly equal to its reported matching costs for that period.

Exhibit 4-5. Matching Costs with Other Offsetting Funds in Year 3

Site	Total Matching Costs	Offsetting Grants or Contracts
Site 15	\$2,920,164	\$20,000
Site 4	1,010,520	374,457
Site 7	7,066,426	71,092
Site 6	1,258,360	38,761
Site 10	3,415,729	304,291
Site 3	1,742,718	0
Site 9	3,028,897	52,370
Site 16	9,084,139	0
Site 1	3,887,256	532,441
Site 12	3,566,740	42,257
Total	\$36,980,949	\$1,435,669

Source: Completed Cost Assessment Tools, subcontract Years 1-3.

The CAT was not explicit in its instructions for how to classify other external funding other than to place it with the appropriate program component, nor did we provide guidance on how to handle differences in reporting periods the NCCCP period and any other subcontract or grant period. For this reason we do not try to “net” these funds against the total reported

matching costs for any of the data presented in this report. We do, however, consider added external funding as a positive indicator of sites' investment in time and energy to make the NCCCP more sustainable over time.

4.4 Sites' Co-Investment in the NCCCP: Matched Expenditures

Whether or not the organization has been able to obtain other sources of support for NCCCP-related activities, matching costs are evidence of sites' willingness to invest in the program. To gain insight into what aspects of the NCCCP are most valued, RTI was particularly interested in knowing not just how much was invested by sites, but which components and which activities had the most investment.

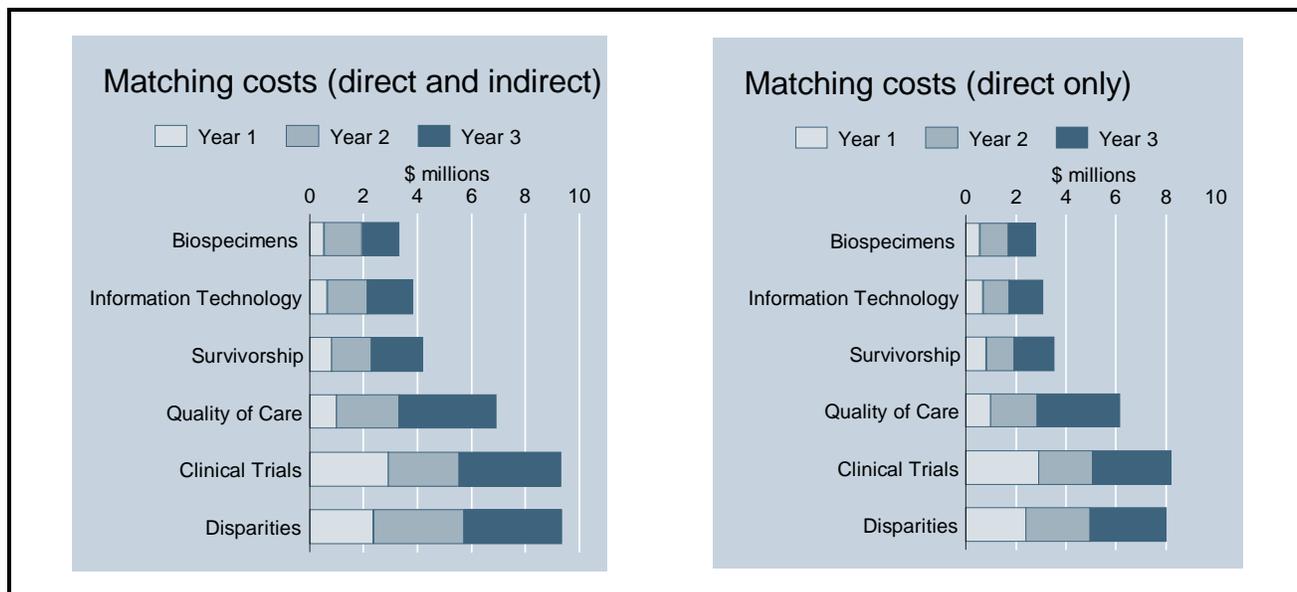
Total matched spending increased by 90% between Year 1 and Year 3, growing from \$8.4 million to \$16 million. Exhibit 4-6 and 4-7 show how this spending was divided, first by year and site and then by year and program component. The different shades of the stacked bars indicate the year in which the costs are reported, and the length of the bar therefore indicates total costs over the 3-year period.

Exhibit 4-6. Matching NCCCP Costs by Year and Site



Source: Completed Cost Assessment Tools, subcontract Years 1-3.

Exhibit 4-7. Matching NCCCP Costs by Year and Program Component



Source: Completed Cost Assessment Tools, subcontract Years 1-3.

In an effort to standardize for treatment of indirect costs, within each exhibit we present both of these graphs using costs as reported in total and again using costs after removing any institutional overhead. (Note that allocated benefits continue to be treated as direct costs, but other formula-driven indirect costs are excluded.) In both graphs, the bars are sorted in order of total matching costs (direct plus indirect).

Cross-site differences in total reported matched costs are very large, with or without the inclusion of institutional overhead. We were pleased to see, however, that the site rankings from lowest to highest would not have been substantively altered if we had excluded indirect costs from our cost study. This suggests that for future cost evaluation studies, it may not be necessary to devote so much attention to teasing out these reporting issues.

Looking at spending patterns by year, Site 15 and Site 10 both substantially increased their investment in the NCCCP: Site 15's investment rose to \$2.2 million in Year 3 after having dropped to only \$130,000 in Year 2, and Site 10's contribution grew from \$444,000 in Year 1 to \$603,000 and then to \$2.4 million by Year 3. Their spending was greatest for activities that were part of disparities and the clinical trials components, but they both invested substantial amounts in both areas. Matching costs from Site 16, which came to more than \$9 million, were higher than those from any other site.

Whether or not we include indirect costs, the bulk of matching costs, are in the clinical trials and disparities components. Quality of care was the third largest program area. As we saw in the graphs showing direct and indirect spending by site, the bars in these graphs for direct costs only (on the right) are shorter than those for total matched spending, but they

are still similar in size in relation to each other. The component area rankings would not be substantively altered if we had excluded indirect costs from the analyses.

Exhibit 4-8 provides summary statistics on the distribution of matched spending across the different components. Some change in the structure of sites' investment over the 3 years can be seen in these figures. The portion of total matched costs that were for clinical trials declined from 35.9% in Year 1 to 23.5% in Year 3. Site spending on quality of care grew from 11.9% to 22.7% of total matching costs in the same period, and this is consistent with other evaluation findings that the quality of care component (which was not part of the initial NCCCP funding) was slower in starting and determining priorities for the 3-year pilot. By the second year and through the third, however, NCI was actively working with the quality of care subcommittee with the sites to implement key quality of care efforts (e.g., MDC matrix, genetic counseling, increasing MDC conferences).

Exhibit 4-8. Matching NCCCP Costs, Percent Funding by Component

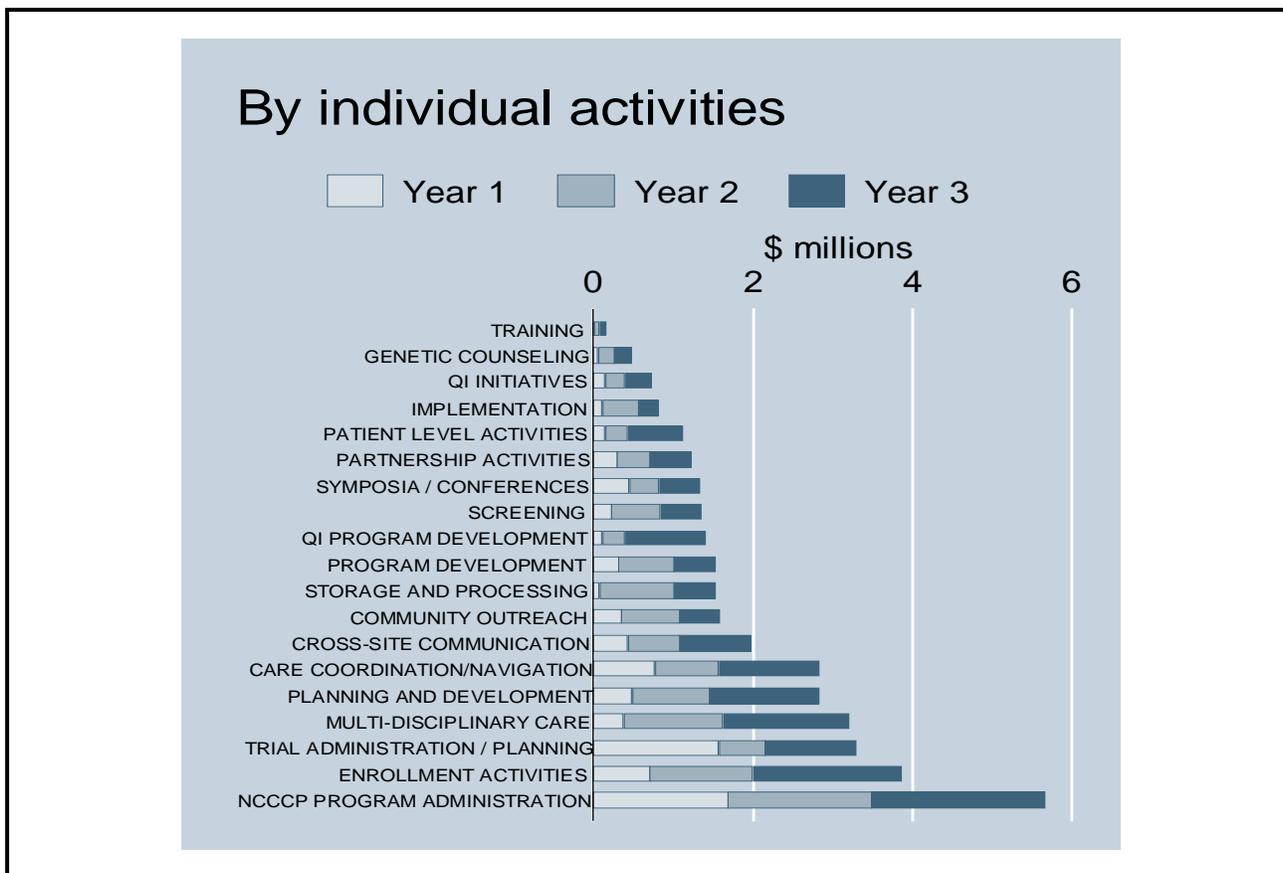
	Year 1	Year 2	Year 3	All Years	Amount (millions)
Biospecimens	6.7%	11.1%	8.5%	9.0%	\$3.3
Clinical Trials	34.9%	21.0%	23.5%	25.2%	\$9.3
Disparities	28.5%	26.5%	22.7%	25.3%	\$9.4
Information Technology	8.2%	11.5%	10.7%	10.4%	\$3.9
Quality of Care	11.9%	18.2%	22.7%	18.7%	\$6.9
Survivorship	9.8%	11.6%	11.9%	11.3%	\$4.2
Total	100.0%	100.0%	100.0%	100.0%	
Amount (millions)	\$8.4	\$12.6	\$16.0	\$37.0	\$37.0

Source: Completed Cost Assessment Tools, subcontract Years 1-3.

Matching expenditures nearly doubled between the first and third year of the program, but slightly less than one-third of the increase was for changes in how the different sites reported indirect costs. Adjusting for this, matching direct costs still increased by 62%.

Total matching costs as allocated to specific activities are presented in Exhibit 4-9. As with the similar graph for invoiced costs (Exhibit 3-5), the shades within each bar identify amounts allocated by year, and the length of the bar therefore represents total allocation for that activity over the 3-year evaluation period. The bars are sorted in order of total (3-year) spending. More detailed information on matching costs by activity within each of the program components can be found in the tables in Appendices B-3.1 (dollars) and B-3.2 (percents).

Exhibit 4-9. Detail on Matching Costs by Year and Activity



Source: Completed Cost Assessment Tools, subcontract Years 1-3. (Includes direct and indirect costs.)

NCCCP administration accounted for the largest share of matching costs in the first year (20%) while the total of planning and program development activities across four of the six components accounted for 11%. In the next two years, however, this was reversed, where the planning and program development pieces made up 19% of all matching costs and NCCCP administration dropped to 14%. Enrollment activities, trial administration, and MDCs were the next largest categories (in that order) and combined, these accounted for \$10.4 million, or about 28% of all reported matched spending. In Year 1 trial administration and planning by itself accounted for 19% of matched spending, but only 6% in the next two years as research programs moved from the planning to implementation phase. Matched spending for specimen storage and processing also increased substantially, from just over \$81,000 in Year 1 to \$1.5 million in Years 2 and 3, and accounted for more than half the matched spending in the Biospecimens component during those two years.

Despite the large proportion of NCCCP subcontract funds that was spent on the disparities program component, sites also added investment of their own. In Year 1, the disparities component accounted for 29% of reported matched spending, and in Years 2 and 3 it

accounted for 27% and 29% respectively. Navigation, outreach and screening, combined, accounted for \$5.7 million, or about 15% of total reported matching costs.

Exhibits 4-10 and 4-11 provide additional data on year-to-year changes in matching costs after grouping them to the same three categories that we used in Chapter 3 (see Footnote 2 for definitions, page 3-6).

Exhibit 4-10. Year-to-Year Changes in Focus for Matching Costs

Activity Group	Share of Total Reported Matching Costs				Costs
	Year 1	Year 2	Year 3	All Years	
Planning & Development	41%	38%	37%	38%	\$14.2 m
Patient Level Implementation	33	43	43	41	\$15.2 m
Program Administration	25	19	19	21	\$7.7 m
Total	100%	100%	100%	100%	
Costs	\$8.4 m	\$12.6 m	\$16.0 m	\$37.0 m	\$37.0 m

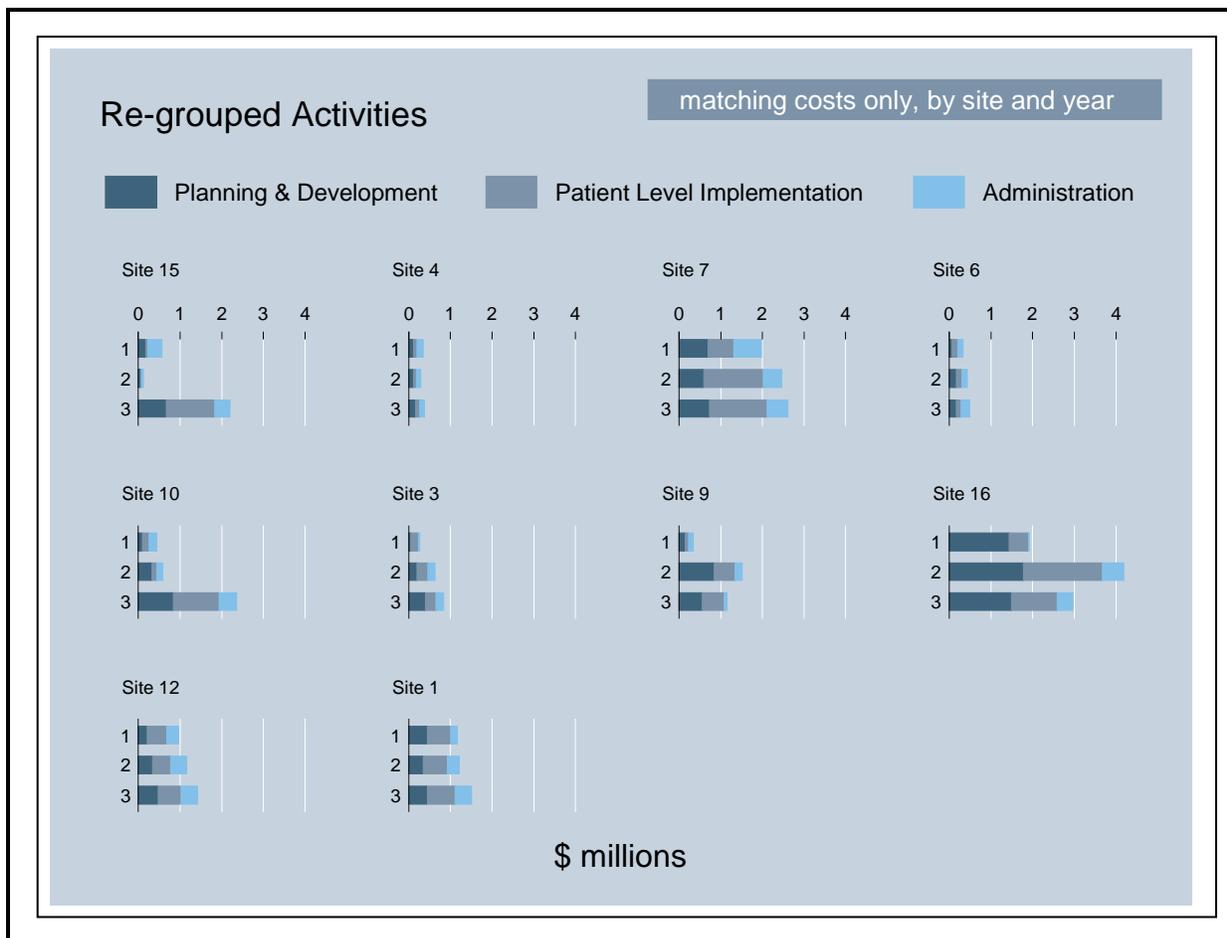
Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Overall patterns of spending in matched costs were very similar to those that we found for invoiced costs. Patient-level implementation (including CT enrollment activities) grew from 33% of matched costs in Year 1 to 43% in Year 3. Planning and development and other infrastructure-building activities accounted for 41% of invoiced costs in Year 1, but declined to 37% in Years 2 and 3. The share attributable to program administration (including cross-site communications) declined from 25% in Year 1 to 19% in Year 3.

By site, however, year-to-year spending patterns were hard to categorize. The graphs in Exhibit 4-11 present the same information on matched costs by the three activity groups, but they identify actual reported amounts rather than percents, and at the level of individual site as well as year. The colors within each stacked bar indicate matched dollar amounts for each of the three groups.

The scale for graphing the dollars is set the same across all sites, even though the spending levels are very different. This was done intentionally, to underscore variation in program emphasis each year as well as the enormous variation in site-level investment. Site 15, Site 10, Site 3, and Site 12, for example, all increased their investment in planning and development activities from year to year.

Exhibit 4-11. NCCCP Invoiced Costs by Type of Activity, by Year and Site



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

4.5 Community Investment in the NCCCP: The Value of Donated Time

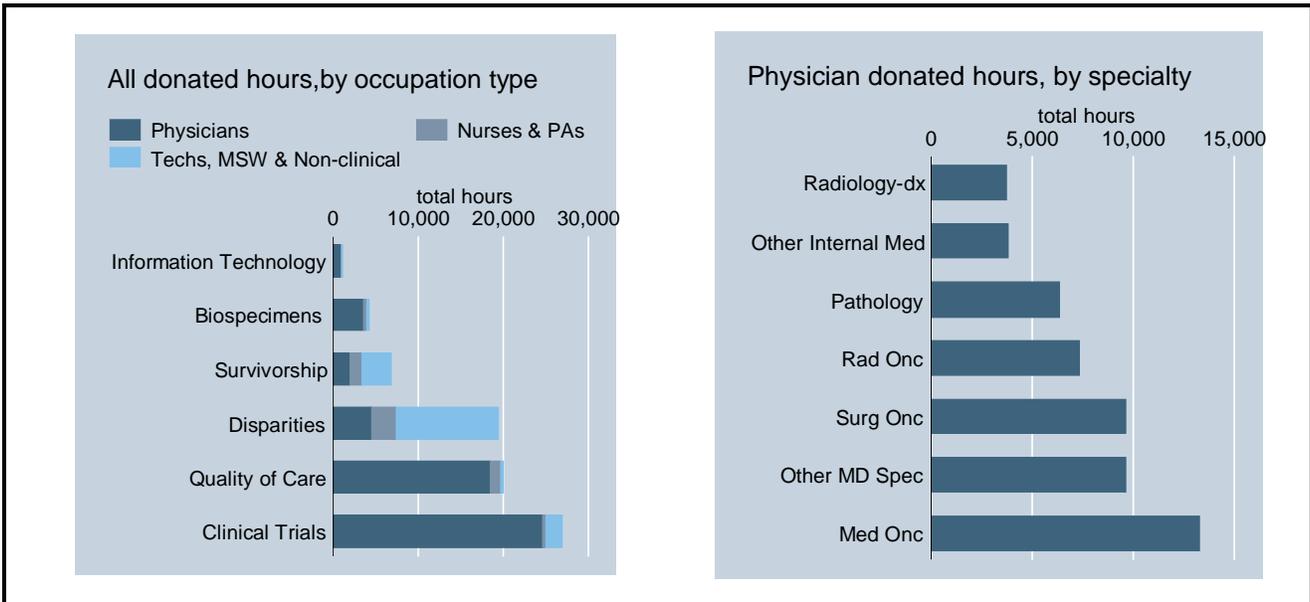
4.5.1 Donated Hours

Sites were not consistent in the extent to which they reported donated time, and as with the matching costs, this is likely to be a reflection of both actual differences in time spent and differences in reporting effort. Individual sites' spending patterns also varied from year to year; for example, a site that reported the second highest number of donated physician hours in the first year of data collection reported no hours in the second year and still a very low number in the third. This site did not have a physician director for the NCCCP in the first year and, by the second year, had hired someone in this role to serve as a full-time employed medical director of the cancer program. We know from our site visits that a large portion of the medical director's time in Years 2 and 3 were spent on NCCCP activities, potentially off-setting the time that had been donated by the private practice physicians in the first year. Nevertheless, NCCCP at this site is organized almost exclusively around

community physicians; it is likely that uncompensated physician time was spent on enrollment or MDC activities but that NCCCP staff may have been unable to obtain the documentation.

Most of the donated time for NCCCP was from physicians and nurses, but other occupations also contributed substantially to work in the disparities component (Exhibit 4-12). Overall, physicians accounted for 69% of donated hours, and of these, surgical oncologists accounted for 21%, more than any other specialty. Medical oncologists accounted for 13%, radiation oncologists for 13%, and pathologists for 10%. The Other MD group accounted for 12%, and the Other Non-MD group accounted for 16% of the total donated hours. The Other Non-MD group included technicians, social workers, RNs, outreach workers, and community volunteers. The site that accounted for 31% of all donated hours accounted for 47% of Other Non-MD time and 88% of Clinical Nurse/PA time.

Exhibit 4-12. Donated Hours by Occupation and Program Component



Source: Completed Cost Assessment Tools, subcontract Years 1-3.

Cross-tabulations of donated hours over the three subcontract years, by specialty and site or by specialty and program component, can be found in Appendices D-2 and D-3. A total 78,634 hours were donated, or roughly 37.8 FTEs. Reported donated time varied across sites from less than 400 hours (Site 6) to more than 24,000 hours (Site 16). While both of these sites rely primarily on private practice physicians, Site 6 provides stipends to physicians who serve in key roles (e.g., research director), while Site 16 only provides their medical director with a stipend. The differences in donated times at these two sites could be associated with this structure. Three of the 10 sites reported less than one FTE’s worth of donated time. As reported in the overall evaluation report, the sites varied a great deal in

the number of key cancer physicians they had access to, which is certainly associated with the reported donated time.

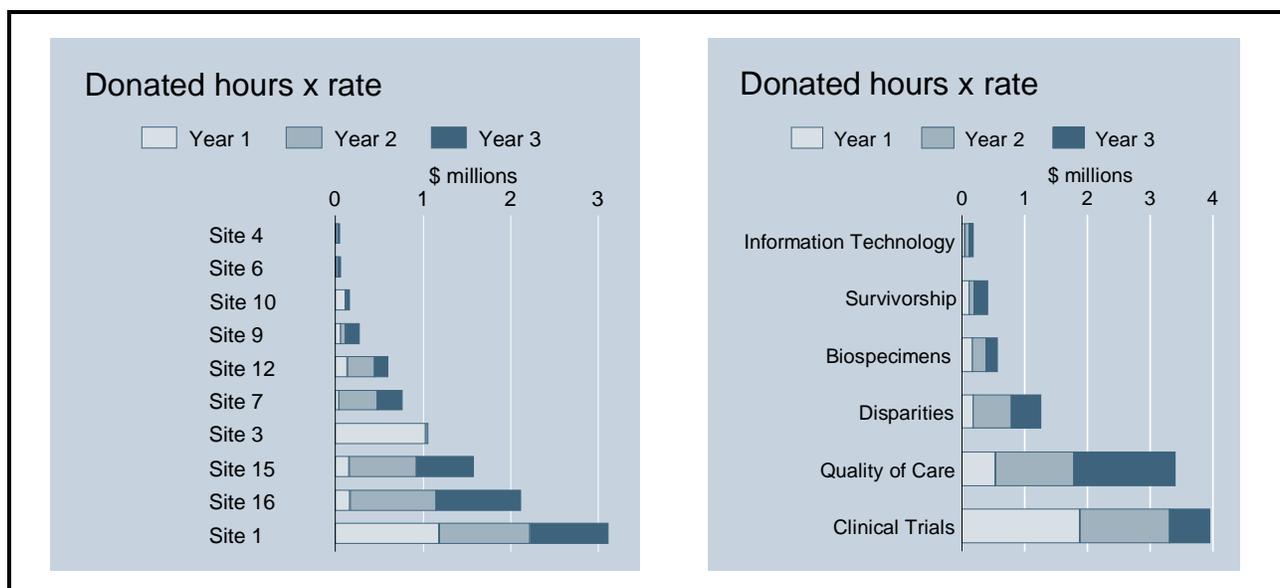
By program component, clinical trials, quality of care and disparities accounted for most of the donated time, just as they accounted for most of the matching costs. Two-thirds of the Other Non-MD hours were recorded for the disparities component.

4.5.2 The Value of Donated Time

The value of donated time was computed by multiplying the sites' reported hours by a standard national estimate for median compensation per hour, for the occupation or specialty the site listed. In Year 3 the standard compensation rates that we used ranged from an annual amount of \$52,725 (other non-clinicians) to \$544,705 (Radiologists). Appendix D-1 shows the rates and the survey sources used to establish standardized compensation for each of the 3 years.

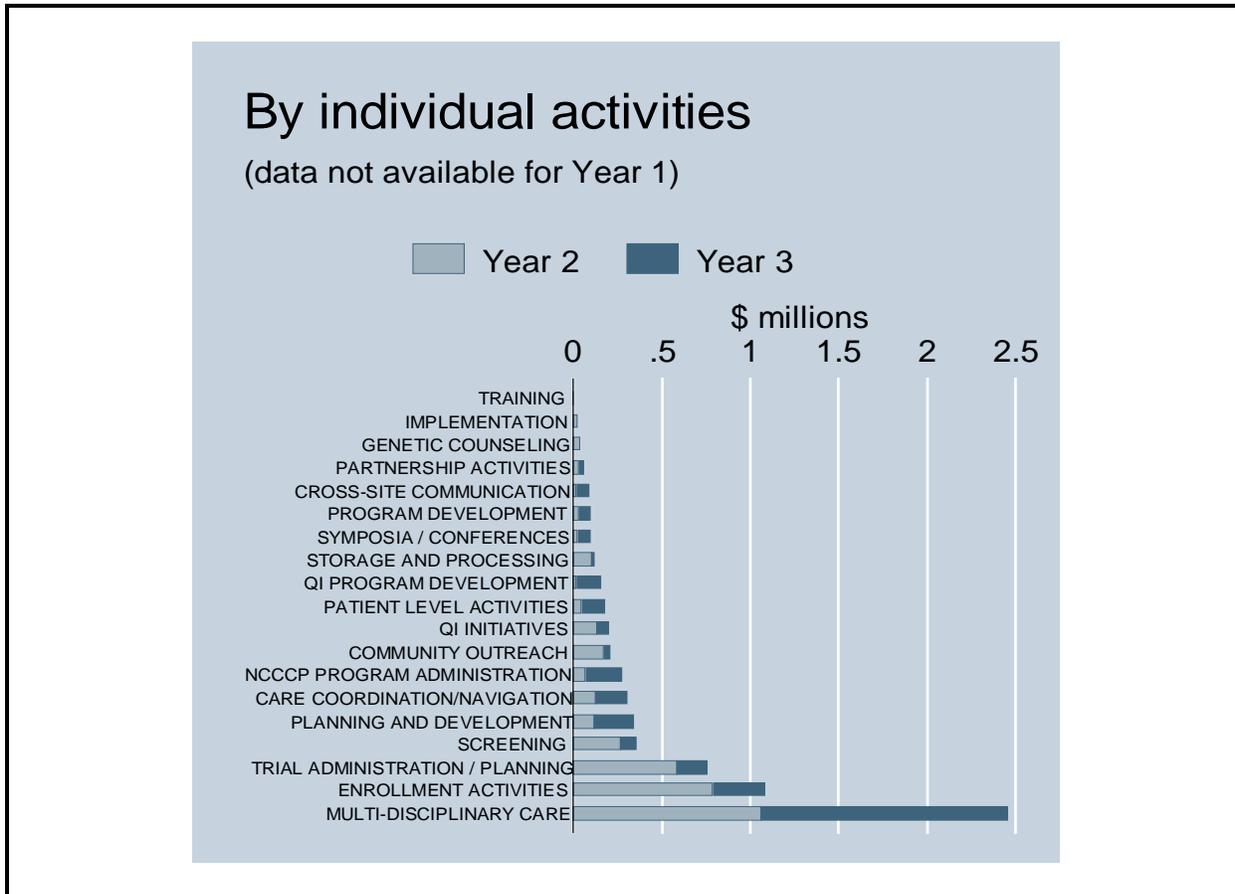
The bar graphs in Exhibits 4-13 and 4-14 present the value of donated time in the same formats as we used earlier for presenting invoiced and matching costs (note that activity-level information for Exhibit 4-14 is for Years 2 and 3 only). Non-physician hours were concentrated in the disparities program component, and because their hourly rates are so much lower than the rates for the physician occupations, the value of donated time is relatively low for disparities-related implementation activities. The disparities component accounts for 25% of all donated hours over the three years, but only 13% of the value of donated time.

Exhibit 4-13 Value of Donated Time by Year and Site, Year and Component



Source: Completed Cost Assessment Tools, subcontract Years 1-3.

Exhibit 4-14. Detail on Value of Donated Time by Year and Activity



Source: Completed Cost Assessment Tools, subcontract Years 2 and 3.

By individual activity, MDC committee meetings accounted for by far the largest amount of donated costs, and more than twice as much as the next largest category for clinical trials enrollment. The combination of MDC committees, trial enrollment, and trial administration/planning accounted for \$6.3 million, or nearly two-thirds of the total \$9.8 million estimated as the value of donated time over Years 2 and 3. The value of donated time for the combined activities of care coordination/navigation, screening and outreach, however, come to only \$1 million or roughly 10% of the total value of donated services.

4.6 Leveraging

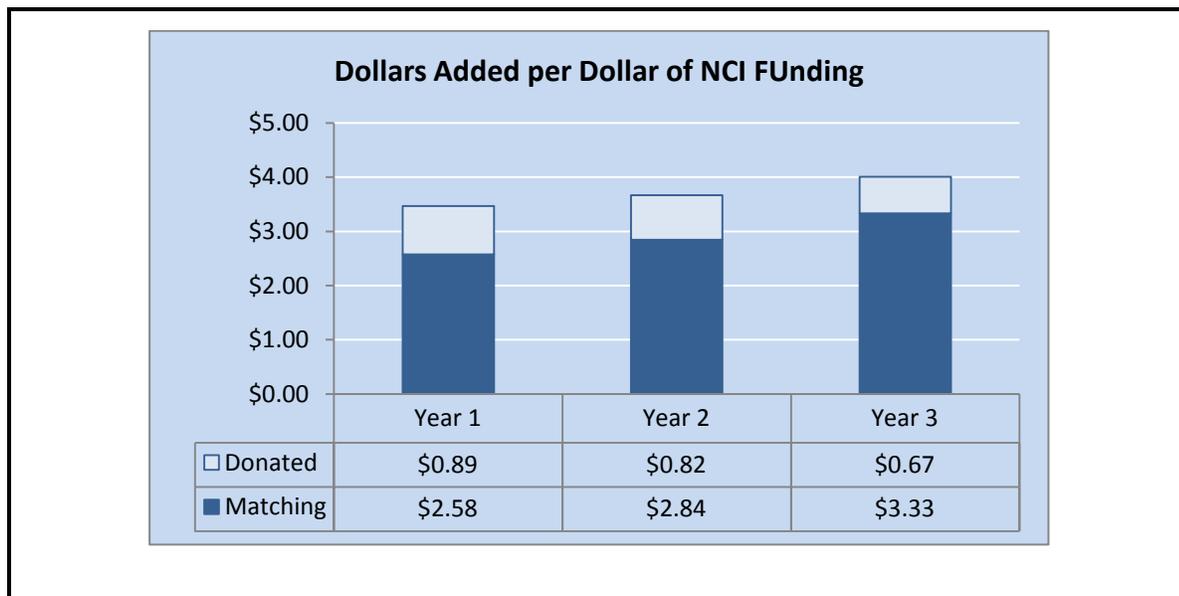
Co-investments, whether directly made by the participating organizations or indirectly offered as unpaid services from the community, are ways to leverage the federal dollar and expand the impact of the program. Matching costs can be evidence of the participating institutions' commitment to the program. Co-investment directed to infrastructure—including activities like program planning, training, and almost all spending related to IT and Biospecimens—could be strong indicators that sites intend to sustain these programs past the period of pilot funding. However, during site visit interviews, respondents often told us

that some of these areas of spending, particularly for biospecimens, were less likely to be continued by the hospital without an affiliation with NCI since there is less of a business case for that area of costs. Donated clinician physician hours can be seen as strong indicators of buy-in from the medical staff as well as added value in terms of services provided. Donated hours from other community health workers and from community organizers also represent local community buy-in as well as added services.

The remaining exhibits in this chapter expand on the material in the previous sections by restating the information to highlight the extent to which federal funding has been expanded. We define leverage as the value of these added services expressed relative to the value of NCCCP funding. The data that are presented are all ratios that have been expressed as additional dollars spent per dollar of federal investment.

NCCCP has been very successfully leveraged, both by direct site investment and by donated services. Per dollar of NCCCP funds distributed to sites, the overall leverage was \$3.47 in Year 1, \$3.66 in Year 2 and \$4.00 in Year 3, resulting in a project overall contribution of \$3.74. Exhibit 4-15 separately identifies these contributions by the amounts for matching and donated.

Exhibit 4-15. NCCCP Leveraging by Year and Cost Type



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Overall the ratio increased by \$0.53, or about 15% between Year 1 and 3, but the value of donated services relative to NCCCP funds dropped slightly at the same time. What is most impressive is that the matching ratio increased by \$0.75 between Years 1 and 3, or by 29%.

Exhibit 4-16 lists these ratios by site; the leverage ranking (with 1 being the highest) is shown in the right-most column. Patterns of matching by site are very consistent across each of the three years: Site 4 always has the least and Site 16 always has the highest.

Exhibit 4-16. Additional Spending per Dollar of Total NCCCP Funding, by Site

Site	Invoiced Dollar	Matching Dollar	Donated Time Dollar	Total Additional Investment	Ranking*
Site 15	\$1.00	\$1.95	\$1.05	3.00	6
Site 4	1.00	0.84	0.04	0.88	10
Site 7	1.00	4.25	0.46	4.72	4
Site 6	1.00	1.18	0.05	1.23	9
Site 10	1.00	2.35	0.12	2.46	8
Site 3	1.00	1.81	1.10	2.91	7
Site 9	1.00	4.67	0.42	5.09	3
Site 16	1.00	6.06	1.41	7.47	1
Site 1	1.00	2.91	2.33	5.24	2
Site 12	1.00	3.05	0.52	3.57	5
Average, All Sites	\$1.00	\$3.29	\$0.85	\$4.14	

* Ranking is across the sites, by total additional investments, from highest to lowest

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

The table in Exhibit 4-17 breaks the program components into the group from the four funded core areas and those from the other two core areas. While the matching and donated costs for Quality of Care and for Survivorship are an extremely important part of the NCCCP leveraging, the leveraging ratios for these specific components by themselves are not meaningful because they were initially intended to be fully funded through matched spending. Over the three-year funding period, leveraging for the original core components was \$2.18 in match spending for every invoiced dollar and \$0.50 of donated services for every invoiced dollar. The equivalent figures for the two added components are \$17.46 and \$5.98 respectively.

There were differences in leveraging between the first and later years, and these are illustrated in Exhibit 4-18. The bars in this graph show total leveraging (matching and donated combined) by year, within each of the four original components and for the NCCCP program as a whole including all six components. Institutional and community contributions in Year 1 were dominated by work in clinical trials (\$5.81 per dollar invoiced). In the next two years, however, the Biospecimens and IT components garnered more funds as amounts previously spent on trial administration and planning declined. By Year 3 local investment was more evenly distributed across the four original areas (over and above spending for the former supplemental areas).

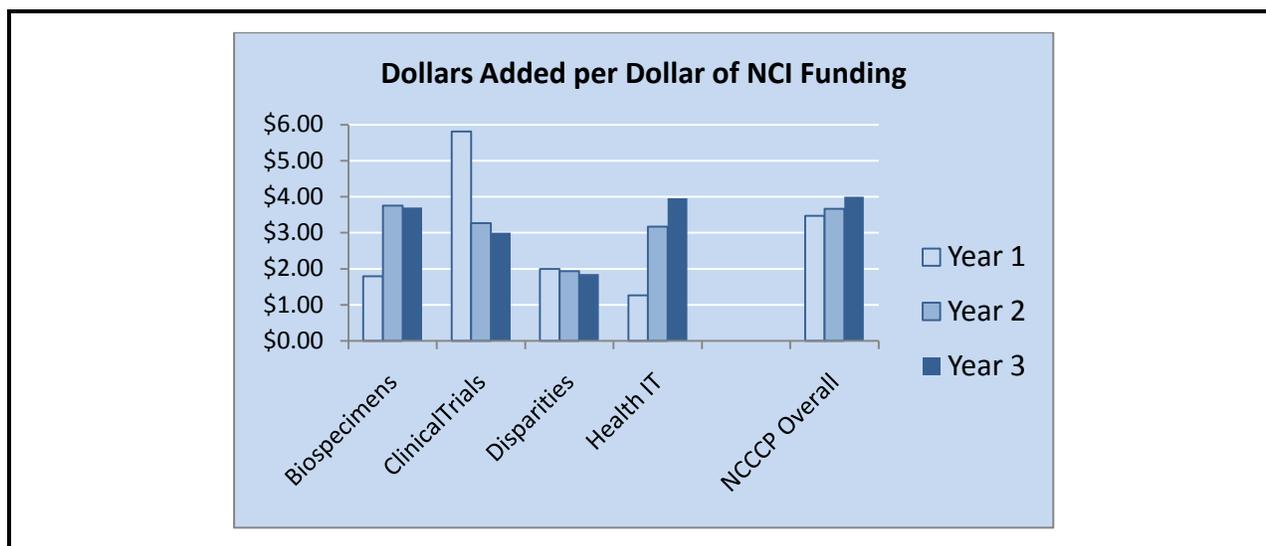
Exhibit 4-17. Additional Total Spending per Dollar of NCCCP Funding, by Program Component

Site	Invoiced Dollar	Matching Dollar	Donated Time Dollar	Total Additional Investment	Ranking*
Biospecimens	\$1.00	\$2.65	\$0.45	\$3.11	2
Clinical Trials	1.00	2.63	1.12	3.75	1
Disparities	1.00	1.68	0.23	1.91	4
Information Technology	1.00	2.55	0.12	2.67	3
Average, Initial Core Components	\$1.00	\$2.18	\$0.50	\$2.69	
Quality of Care	1.00	18.21	8.95	27.15	1
Survivorship	1.00	16.34	1.57	17.91	2
Average, Other Components	\$1.00	\$17.46	\$5.98	\$23.23	
Program Average	\$1.00	\$2.96	\$0.78	\$3.74	

*Ranking is across the sites, by total additional investments, from highest (1) to lowest (6)

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

Exhibit 4-18. NCCCP Leveraging by Year and Component



Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3

5. STRATEGIC CASE STUDY

In the third year of the 3-year pilot, the 10 awardees were investing \$16 million of their own funds on NCCCP activities over and above the \$5 million in annual awards. Sustainability of this level of commitment rests with the ability of NCCCP to convince top management at the sponsoring organizations that there is a business or a strategic case for participation in the pilot program's activities.

In this chapter, we present findings from interviews with CFOs that were designed to elicit their perceptions of the case for participation in the pilot and for continuation after federal funding stops. As described in Chapter 2, this component of the evaluation was conducted primarily in 2009, with a limited follow-up in 2011. In this chapter we begin by reviewing the concepts of the "business case" and the "strategic case" for participation. Sections 5.2 and 5.3 provide information on CFO data collection and also on integration with previous interview data from site visits during Years 1-3. Integrating both sources allows us to present views of both CEOs and CFOs from all sites. Section 5.4 summarizes their responses, in sections organized as follows:

- their motivations for participating as an NCI pilot site, including the extent to which they perceived there to be a business case for NCCCP participation,
- the perceived fit between the NCCCP and the strategic plan for their cancer program or service line,
- their expectations for financial or other returns on NCCCP investment, and
- the conditions under which they would commit to carrying on the activities in the future or planning for sustainability.

5.1 Defining the Business and Strategic Case

Generically speaking, the business case for any new project is probably indistinguishable from the traditional return-on-investment (ROI) computation taught in every business finance class, which compares the discounted value of future monetary returns to current start-up and ongoing operating costs. In the context of the predominantly not-for-profit world of hospitals, the term "business case" usually arises in the context of either a justification for (or later an evaluation of) quality improvement and community health initiatives. The reason for the special distinction (and terminology) is that in many health care interventions, the financial and social benefits from a these types of programs are not enjoyed by the same entity that funds them. This can generate questions about the feasibility and long-term sustainability of such programs.

In 2003, Leatherman and colleagues (2003) published a set of case studies and a seminal analysis of the business case for quality improvement in health care. Their purpose was to understand why organizations seem slow to adopt proven approaches to improve the safety

and efficacy of patient care. They began by defining the business case for health care interventions as a situation where “the entity that invests in the intervention realizes a financial return on its investment in a reasonable time frame, using a reasonable rate of discounting. This may be realized in ‘bankable dollars’ (profit), a reduction in losses for a given program or population, or avoided costs. In addition, a business case may exist if the investing entity believes that a positive indirect effect on organizational function and sustainability will accrue within a reasonable time frame” (Leatherman et al., 2003, p. 18).

Leatherman and colleagues make a distinction between the “business case,” the “economic case,” and the “social case” for quality initiatives. The social case can be made if the intervention can be shown to improve quality, health status, access to care, or some other socially desirable outcome whether or not the organization funding the intervention receives any short-term benefits. This might be the case made, for participating in biospecimen storage, for example, or for conducting cancer screenings in poor areas where the hospital is then obligated to follow up on and provide treatment for any positive findings. The economic case exists if discounted financial benefits of the intervention are greater than discounted costs, even if this occurs only over a long time horizon and the benefit is not accrued by the same organization that funds the intervention. Smoking cessation efforts are a typical example of an intervention with a positive economic as well as social case, but no business case.

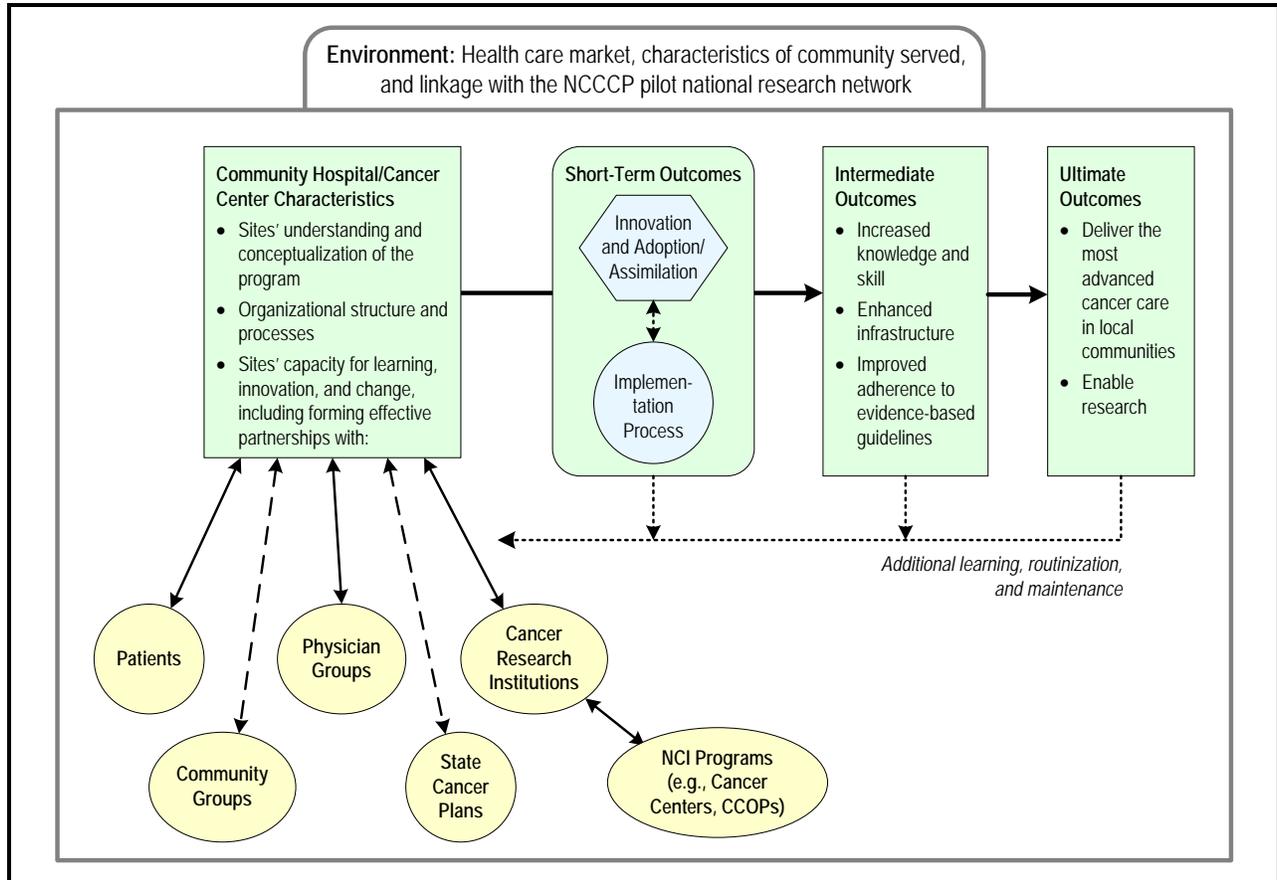
The business case requires not only a positive financial return on an activity, but also that the potential for benefits accrue to the same entity that makes the program investment, and that benefits occur within a timeframe that is short enough to be valued by that entity. The authors note that the economic and/or social cases for many quality improvement interventions are evident but the business cases are not. Too frequently, benefits from programs to improve care management, screening, or the promotion of healthier behavior will be felt by the patient, community, or third-party payer, but not by the organizations that fund the intervention. They conclude that “misalignment of financial incentives creates a formidable obstacle to the adoption of quality interventions.”

A large part of the overall strategic case for participation in a program like the NCCCP comes from the balance of financial and mission-driven goals. We determined that the best way to assess this balance and fit with an organization’s mission was to conduct interviews with the CFOs who are part of the hospital’s top management teams making decisions about how to allocate resources and spread funding across service lines. We looked for themes in the responses that could reveal how executives view the risk and reward trade-offs between the various program components, each of which has the potential to improve care yet may either return a profit, break even, or risk additional losses.

5.1.1 Strategic Case for the NCCCP

A key objective of the NCCCP was to bring state-of-the-art cancer care to patients in community hospitals by bringing research to these settings. As shown in the evaluation conceptual framework developed by RTI to guide the overall evaluation (Exhibit 5-1), the desired outcome from the NCCCP was to deliver the most advanced cancer care and enhance research capacity.

Exhibit 5-1. NCCCP Evaluation Conceptual Framework



To accomplish this, NCI established six program components for the sites to establish or enhance

- reducing **disparities** across the cancer continuum;
- enhancing **clinical trials** research;
- increasing capacity to collect **biospecimens** per *NCI's Best Practices*;

- improving the use of **information technology (IT)** and electronic health records (EHRs)⁴ to support improvements in cancer research and care delivery;
- improving **quality of cancer care** and related areas, such as the development of integrated, MDC teams; and
- placing **greater emphasis on survivorship** and palliative care.

Of these six program components, designing ways to share EHRs and increase biospecimens collection are activities that may be primarily grounded in mission-driven research goals. As such, top management's view of the value of these activities would be based on the social case for intervention. Expanded health IT can certainly improve quality of care, enhance a facility's reputation, and thereby improve its competitive position, but the IT activities funded at this stage of the NCCCP are primarily exploratory. In contrast, increased clinical trials enrollment and increased participation in outreach and screenings have potential to enhance a facility's reputation and expand service volumes. These are more likely candidates for a business or economic case. In some communities, these activities could have great potential for financial rewards (e.g., by attracting new patients or reducing the number of patients leaving the area for treatment). In other communities, these activities could pose financial risks (e.g., by adding to uncompensated care burdens). Leatherman et al.'s definition for a business case allowed for circumstances where the entity expects a "positive indirect effect on organizational function and sustainability" even in the absence of financial return. Therefore, it was useful to examine a "strategic case" for NCCCP implementation that encompasses the business, economic, and social cases that may motivate these organizations to choose to partner with NCI and carry on these activities.

RTI's task in the strategic case study was not to determine if there is a business case for any of these project activities, but to identify whether financial management perceives a business case for participation, and if so, based on what expectations and measures. Understanding how financial executives assess a business case, and what their acceptable time horizons are for recognizing financial returns, is critical to understanding whether this sort of initiative can be rolled out to other communities. A large part of the overall strategic case for participation will come from the balance of financial versus mission-driven goals; therefore, we also need to understand how executives view the risk and reward trade-offs between "program component" activities, each of which may have the potential to improve care yet may either return a profit, break even or risk additional losses.

⁴ Throughout this report, we refer to electronic health records (EHRs) rather than electronic medical records (EMRs) and have sometimes changed this acronym in quotes (from what the speaker used) to maintain consistency.

5.2 Methods

RTI proposed combining data from the overall evaluation data sources with findings from telephone interviews with the CFOs of each of the 10 lead hospitals. This section describes the data sources used and our methods for categorizing sites in order to best interpret findings specific to the strategic case for the NCCCP.

5.2.1 *Incorporation of Data from RTI's Overall NCCCP Evaluation*

As described in our Overall Evaluation Report, RTI conducted annual site visits to all of the 10 lead sites (8 individual sites and 2 system level sites) during Years 1, 2, and 3 of NCCCP implementation. During each site visit, we requested to meet with the CEO or COO of each hospital in order to ask questions about their reasons for participating in the NCCCP, the perceived fit between the NCCCP and their organization's strategic plans, and what they considered to be the benefits of participating. After each round of site visits, we prepared notes from the interviews for qualitative data analysis and used a state-of-the-art software analysis program to code interview data around these key themes (see Chapter 3 of the Overall Evaluation Report). We have incorporated input from these CEOs and COOs into the analysis for the strategic case study. In addition, for the overall evaluation, we collected key indicators specific to various aspects of program implementation, including information about their organizational structures and processes, as well as specific to outcomes for the program overall and for each of the six program components. We have also incorporated some of the data where applicable in order to elucidate findings from the interviews.

5.2.2 *Telephone Interviews with Chief Financial Officers*

Telephone interviews for the business (or strategic) case studies were conducted with the CFOs, with separate interview protocols for CFOs from independent hospitals and CFOs from system management. Because the site visits conducted each year had to focus on NCCCP implementation and how it was potentially associated with each hospital's cancer service line, time did not allow for face-to-face interviews with CFOs.

At some sites, the business case may have been explicitly formulated prior to application for NCCCP funds, while at other sites we needed to probe for insights into the strategic operating and financial goals that implicitly constitute a case for participation. At or near the close of the pilot project (in early 2011), repeat interviews were conducted with the same staff who were still CFOs at the site. The purpose of the repeat or follow-up interview was to gather data on whether the project lived up to the early assumptions contained within the business or strategic case.

In 2009, we interviewed 10 CFOs, one from each of the 8 individual sites and the 2 system-level sites. For the interviews conducted in 2011, we interviewed only those CFOs who were still in the same position within the hospital so that we could gain their long-term perspective on whether the NCCCP met their expectations. Unfortunately, hospitals tended

to experience a high level of turnover from 2009 to 2011 such that only four CFOs were still available for interviews. Of these, we were able to actually interview three CFOs (one could not commit to a time for an interview prior to August 2011, which was too late in the data collection process).

For each round of interviews, we obtained permission to record the conversations, transcribed the material, and then loaded these transcripts into a qualitative data analysis program (NVivo 8). With NVivo, interview data can be coded based on themes across the respondents so that conclusions can be drawn specific to patterns in their responses. This chapter presents findings from analysis of the CFO interviews at both time periods.

5.3 Site Grouping

In preparing the CFO responses for analysis, we took into consideration that two attributes likely to affect CFOs' expectations of the NCCCP are their perceived *competitive position* and their initial *research capacity*. We therefore started by categorizing the sites using these two indicators, prior to reviewing the coded text.

We intentionally used the CFOs' perceived competitive position with respect to cancer care rather than the measures of overall competitive position that are based on local health care supply and have been computed and used elsewhere in the RTI evaluation. All NCCCP sites are required to have an organizationally distinct cancer center and to have had at least 1,000 cancer patients in the year prior to the NCCCP pilot. Thus, each of the sites can be expected to qualify as a significant provider of cancer services within their community. Some respondents described their site as the dominant health care provider in their community for all services, and some said that they operate in competitive environments for general hospital services but consider themselves to be the dominant player in their market for cancer care. Others described their local market for cancer care as highly competitive, because of the presence of either other hospital providers or freestanding physician-run centers. We categorized a site as the dominant player in its cancer care market if the CFO described themselves that way.

To categorize sites by their initial research capacity we used a classification seen in Chapter 4 of the Overall Evaluation Report. The baseline capacity measure takes into account indicators for hospital size, total cancer patients during 2006 (the year before the launch of the NCCCP), patients accrued to clinical trials during 2006, and whether or not there was a full-time physician director of the cancer program or center at baseline. This measure was used to assess the extent to which sites were able to implement aspects of the NCCCP relative to where they began.

Several of the NCCCP sites were new to clinical research at the start of the program and had relatively little research infrastructure in place. The two system awardees intentionally

entered the program with a combination of relatively more experienced lead sites and less experienced developmental sites. A lead site had to have at least 25 patients accrued to clinical trials in 2006 in order to participate, but the developmental sites were still required to have at least some experience with clinical trials. Three of the eight freestanding hospital sites were categorized as “low baseline capacity” sites. We did not conduct interviews with each of the participating hospitals within the system sites, so we were not able to categorize system respondents cleanly along these same lines. Instead, we identified both system sites as “experienced” based on the lead site attributes. A grid to illustrate these groupings is provided as Exhibit 5-2.

Exhibit 5-2. Site Grouping for Text Analysis

Baseline Capacity	Dominant Cancer Provider	Competitive Environment	Total
Higher	4	3	(7)
Lower	2	1	(3)
Total	(6)	(4)	(10)

A total of seven sites (two system lead sites and five freestanding) were identified as having higher baseline capacity, and of these, four identified themselves as dominant providers, meaning that the CFOs perceived their hospitals to be the market leaders for cancer care in their community.

In the following section, we identify each quote by the position of the participating hospital or hospital system on this grid for the CFO interviews. Due to IRB constraints, we are unable to link the sites to the respondents. For the quotes collected through the case study of the overall evaluation, we present the quotes using the same qualifiers as in that study, such as “system/hospital senior executives” and the year the quote was provided. Where separate quotes are taken from different sections of the same interview, we indicate “interview continued” but identify the type of organization only after the last quote.

5.4 Interview Findings

The material in this section is organized around the previously identified issues of motivations for participation, strategic fit and sustainability. For context, however, we start with CFO responses to questions about the cancer service line in their organization – its profitability, their current and planned scope of services, their physician relations, and the impact of the economic recession.

Quotes from CFOs have been edited, as needed, to protect the identity of each hospital. Responses from the 2011 interviews are identified as “follow-up” at the end of each such

quote. These are integrated with other quotes; with only three hospitals represented in the 2011 follow-up interviews, we did not attempt a systematic analysis of changes in perceptions over time. Throughout this chapter, we have also included supporting quotes from other senior executives (i.e., CEOs or COOs) as collected through the case study for the overall evaluation.

5.4.1 Cancer Service Lines

5.4.1.1 Profitability

Most CFOs considered their cancer service line to be among the most important and most profitable service lines at the hospital. Nearly all sites mentioned ongoing investment in the form of expanded services, new equipment or new joint ventures with local oncology physicians. Typical responses to an inquiry about the profitability of cancer care overall were:

[The cancer product line] is very important to us and has a very significant contribution margin, and direct cost is very significant. We have just completed a \$45 million expansion of our cancer center, and it is up and running within the last month or so. One of the reasons we made that commitment is that it is profitable for us. (Dominant, Higher Capacity)

It is our most profitable service line in the hospital. It is primarily the surgical component of it that drives that profitability. It is commercially insured, primarily. (Dominant, Higher Capacity)

From my knowledge, it is our strongest product line and is one of the things we are most known for. To my knowledge, that has not changed in the past year. (Dominant, Higher Capacity)

5.4.1.2 Scope of Cancer Services

The basic services constituting a cancer product line were similar across sites: a mixture of inpatient medical and surgical, outpatient chemotherapy, and radiation oncology. However, the diversity among sites in terms of ancillary services was pronounced. Some hospitals had very sophisticated equipment that was expensive to purchase (e.g., CyberKnife), while others were in the process of upgrading to digital mammography technology (i.e., equipment that had been purchased by most hospitals in the 1990s). At least one respondent noted that prior to the program their site already provided the full array of patient care, outreach, support services, and research that the NCCCP is designed to encourage:

We have taken a pretty comprehensive, programmatic approach to the provision of all of our cancer services. So we are organized around seven or eight key site-specific cancer service programs as well as some non site-specific but important

services like cancer genetics.... Each sub-service line has a medical director and a patient care navigator assigned to it and an organized growth business plan. ... Those teams are responsible for the provision of all services and research that go on. We have research projects going on in all service lines. We have patient navigation as a key component. We have the latest in technologies ... We have support groups, social services: just a broad array of cancer services for all of our patients. (Dominant, Higher Capacity)

This site, however, was also willing to underwrite some of these activities from their own budgets. When asked about reimbursement for added services like patient navigation and outreach, the same CFO gave the following reply:

A lot of those [ancillary or support] services have no reimbursement that is associated with them, so we are self-funding our activities when it comes to support groups and our efforts in research. That being said, we are a faith-based facility, and it is part of our mission to serve our community, especially the underserved. ... We have several service lines that do a fair amount of business with the underserved population (Dominant, Higher Capacity)

Despite recent reductions in Medicare payments for outpatient chemotherapy, none of the respondents expressed concern about the overall profitability of cancer services, not even those who spoke of risks from investing in expensive technology. The costs of clinical research did not seem to detract from overall profitability; respondents from experienced research sites expressed the same satisfaction with financial returns on cancer care as did those whose sites were just developing research capacity, although those that were less experienced had yet to see the full benefits of their focus on cancer care:

It is a big piece of our success and our profitability, and radiation oncology is a strong service line. The gyn-oncology [service] looks like it has a pretty strong operational income. The CyberKnife looks like it is going to be the same. On the whole, it is a profitable piece in the hospital. (Competitive, Higher Capacity)

It is profitable as a net margin. It has a good contribution margin, and that is one reason why we want to continue to grow it. (Dominant, Lower Capacity)

It would fall third [in profitability]. ... Open heart surgery is our most profitable and then, depending on the implant, orthopedics, and then cancer care. Cancer care can be medical and surgical, and [the] surgical side is more profitable than the medical side of cancer care. (Competitive, Lower Capacity)

Two CFOs expressed some concern over reimbursement changes in radiation oncology that could alter this picture:

Being a community cancer center, we don't have the luxury of academic funding sources or endowments that the bigger centers have. We really have to be continuously mindful of the impact of the costs of our services. We're always trying to balance looking at new therapies and cutting-edge services with costs. The best example is probably the CyberKnife. If you were talking to me just with my CFO hat on, I'd be very skeptical about the ROI of the CyberKnife in this community, but it's something that we felt we needed to do. We felt we could afford to do it because it just brings a lot of prestige to the service line. ... Can we afford to do this? Is it the right thing to do? Is it going to provide something to this community to keep patients from having to go somewhere else? There is no doubt that the oncology service line is—if I had to list out three or four programs that are of ultimate importance to this health system—definitely one of the top three or four. (Competitive, Higher Capacity)

Both CFOs appeared to take reimbursement into account as they considered the future position of cancer care within their organizations and therefore also the strategic case for NCCCP participation. Yet neither indicated that their institutions were holding back from investment as a result.

In the 2011 follow-up interviews, we asked about continued profitability and whether the demand for both inpatient and outpatient services was holding up or continuing to support this level of investment. Despite continuing problems with the recession and unemployment, the answers were not that different from what we heard in 2009:

One of the things that's changed probably since we last talked [is] we purchased a radiation oncology practice, which we didn't have before. ... adding that piece of business to our service line has definitely improved the financial performance of the service line.... The outpatient piece has grown pretty significantly. The inpatient piece has not grown as rapidly as the outpatient side has, primarily because we added that radiation oncology piece. Just from a case standpoint, any kind of surgical cases are usually the most profitable. We've seen some growth there but not tremendous growth. (Competitive, Higher Capacity) (Follow-up interview)

We do see some decline in our thoracic surgery area, which we're trying to overcome, but it is pretty flat year after year. They're still an attractive, profitable area for us as an institution.... We do worry a little bit about radiation oncology and whether there will be reimbursement pressure there. [Radiation oncology is] a very profitable area for the institution. (Dominant, Higher Capacity) (Follow-up interview)

Although CFOs could not or did not elaborate on a business case for the NCCCP, profitability of the cancer product line still figured into the equation for assessing participation in the NCCCP. The NCCCP strengthened a product line with established profitability; moreover,

because cancer care is a profitable product line, it could afford to support services (e.g., patient navigators) and equipment expenses that may lack reimbursement or may prove costly.

5.4.1.3 Relationships with Key Cancer Physicians

In addition to the scope of services provided to patients and its potential association with the profitability of the cancer service, the type of relationship hospitals have with their key cancer physicians and how they are engaged in the cancer program could also be associated with profitability. For example, if most of the key cancer physicians are in private practice, have admitting privileges at two or more hospitals in the community, and do not have their offices collocated in the cancer center, they may feel fairly disconnected from the NCCCP site and be less inclined to become engaged in new activities such as MDC conferences. The more an NCCCP site is able to establish mechanisms for physicians to feel loyalty to their hospital, the greater the strategic case for program-related activities. In some cases, hospitals with MDC conferences that included key cancer and other physicians from the communities were benefiting from increased referrals from those physicians and greater collegiality among the physicians. There were variations in terms of the physician models for the hospitals, with all but two relying primarily on community practices. Relations with key cancer physicians were critical to the success of the NCCCP:

The risks that strike me are external and internal. External risks are that oncology is in a transition in the community setting because of reimbursement challenges that affect oncologists' ability to care for patients in a private practice model. In a private practice environment, as we come together around a continuum of care model that looks a lot like what you would expect to see in an academic model, the push and pull in the private practice model among the subspecialties, their interests are not as aligned as ours. What we have to figure out is a communication mechanism and a process that does not allow physician-level issues to change our resolve.

(System/hospital senior executives, Year 1)

CFOs in communities with a strong history of outpatient oncology dominated by private practice expressed a conviction that such services were gradually moving to the hospital environment and that top management was planning and investing accordingly. Dominant providers seemed resigned to accepting responsibility for outpatient oncology services as private oncologists found certain services less profitable:

Our oncologists are doing a lot of chemotherapy, but that environment is shifting as reimbursement for chemotherapy to the physicians in their own office changes. So as chemotherapy becomes less profitable or even costly for the physicians in their offices we are seeing a shifting of patient responsibility to the hospital for some of those patients.... It played into our planning for the new cancer center because we anticipated these changes 5 years ago. We knew that at some point the hospital may

likely become, by default almost, the care provider for chemotherapy for all of our cancer patients. In our new cancer center, we build a very large infusion center and that stands ready to serve patients and is connected to our physician's offices.

(Dominant, Higher Capacity)

There has been a definite shift to the hospital based vs. physician based. Primarily, I think it is because they don't get reimbursed for the drugs anymore. (Dominant, Lower Capacity)

Overall, CFOs and senior executives interviewed through site visits tended to agree that the NCCCP afforded them the opportunity to implement structural changes that would strengthen their relationships with key cancer physicians primarily in private practice (e.g., MDC conferences, staffing to support physicians for clinical research):

The direction I see us going is this MDC approach to overall cancer care and that has been the biggest advantage in terms of the relationship that the grant has enabled for [the hospital to have with its physicians] in terms of what we need to do to set up MDC for cancer care in the region. (System/hospital senior executives, Year 2)

I think some of the activity we've done, including the grant, like going to the tumor conferences and the MDC group that sits together and talks about the cases and [we] have both gone to those and they are fun to listen to because it's great collegial debate and it's a very healthy/positive thing, but I think that the grant and some things around that have helped be a catalyst for that, so I think the cancer program has taken a move forward because of that. (System/hospital senior executives, Year 2)

5.4.1.4 The Impact of the Recession

About 1 year into the NCCCP pilot (late 2008), the economy began to deteriorate rapidly, and it had not fully recovered by the end of the project in 2011. Because commitment to activities outside the core mission of an institution might be expected to change in the face of sudden financial stress, we asked each respondent about the effects of the recession on their communities and on their hospital operations. The NCCCP asked for considerable investment from participating organizations in the form of matching expenditures. Sites' willingness to continue with that investment in times of economic insecurity would be a strong indicator of the perceived long-term value of the project and therefore of its sustainability.

In 2009, in response to the question "Has your hospital been materially affected by last year's economic downfall?" we heard answers ranging from "somewhat" to "not at all." Based on site visit interviews, 2009 was likely too early for most hospitals to see major changes in their financial well-being; it was not until 2010 that any effects became more obvious:

Believe it or not, not really. [State name] itself, at least in the southern part, has not suffered like the rest of the country.... Probably if anything has hurt recently it is that some of the plants that were going to expand in the area aren't right now. (Dominant, Lower Capacity)

No, actually we have sailed right through the economic downturn. Bad debt is up slightly, but we haven't had the unemployment rate rise. (Competitive, Lower Capacity)

Among those who did acknowledge any effects of the recession as early as 2009, such effects were usually in the form either of investment losses that translated into reduced or delayed capital investment or of an increase in bad debt or charity. One site, however, noted that their hospital had even experienced growth during the economic downturn. Respondents did not speak of changes to cancer services and most did not speak of any substantive changes to operations:

I don't know that [the recession] has affected cancer care. We have continued our mission ... this particular facility and the system is very dedication to the mission and it is times like this that have caused the facility to rise up to the occasion. ... I don't think it has affected our service at all. (Competitive, Higher Capacity)

We have probably—between pensions, our endowments—lost a quarter of \$1 billion, so the market itself has had a significant impact. ... We have just begun to see the increase in charity care and self-pay. Other hospitals have been seeing it for months, but we have just started seeing it in the last month and a half. (Dominant, Higher Capacity)

I think we may have gotten a little bit stronger.... [We are in] a rapidly growing area, and I think that has changed our market position somewhat.... We have had growth and our admissions have gone up in the main facility as well as new additions we are getting in the hospital in October. (Dominant, Higher Capacity)

In the follow-up interviews in 2011, CFOs described the impact of the recession in slightly stronger terms, but they still did not mention any effect on cancer service delivery:

On the investment side yes, but on the operational side no. The value of our long-term investment portfolio has declined significantly. We have cut back on our capital expenditures and now went into cash preservation mode. (Competitive, Higher Capacity) (Follow-up interview)

In 2009, it was a particularly hard year ... we were actually in the red ink for 6 months of the year. We had to focus on costs, we actually had to suspend some employee benefits, and we actually squeaked out an operating margin at the end of the year. So 2009 was tough. 2010 was a little bit easier, [but] in 2011 I think that's

where we've really felt the softness in the market. We're just not seeing the same volume of patients, and it's the same in the state when I talk to my peers.

(Dominant, Lower Capacity) (Follow-up interview)

Several respondents did focus on the impact of the recession on their indigent care load. These responses suggest that the pilot sites have more generous indigent care policies than the average U.S. hospital, which could be an important factor when considering the replicability of the NCCCP:

Actually, we are beginning to see it in our charity care. We have had a rise in our charity care and it keeps growing exponentially every year. We are now starting to see a lot more self-pay that are coming in and used to have insurance and both translate into bad debt. Right now, we are at a 4.9% unemployment rate and not as high as other parts of the state, but we are beginning to feel it. So our bad debt/charity load is roughly 12%. (Dominant, Lower Capacity)

In the free clinic settings, the past year, those volumes have virtually doubled and that is part of our mission. That is part of the reason why we are here, and we deal with that in reductions in other areas where we have that kind of latitude. It has not been an issue, and we are probably unique in that regard. (Competitive, Higher Capacity)

From a charity care perspective we have one of the more generous policies for the uninsured within the state of [state name]. That is a comprehensive policy we have across our health system so from that perspective we more than take care of what is legally required in the state. We have had a double-digit increase in the last year due to the economy. (Dominant, Higher Capacity)

These generous charity care policies also suggest that hospitals willing to assume the costs associated with the NCCCP tend to value the social case more strongly. As discussed earlier in Chapter 3, 40% of the funding from the NCCCP subcontract was required to be devoted to the disparities component, within which screening was a major activity. NCCCP policy also required that all participants commit to providing treatment for any case identified through screening, which may have increased the likelihood that participating organizations had more generous indigent care policies than might be found in the general population of acute care hospitals.

5.4.2 Motivations for Participating

As part of the overall evaluation and the strategic case study, RTI asked senior executives, key cancer physicians, and cancer program staff and leadership, among others, about their motivations for participation in the NCCCP. We received different answers depending on who we asked. For the overall evaluation, in analysis of interview data across all respondents

(see Chapter 6 of the Overall Evaluation Report), there were several frequently cited reasons for participating in the NCCCP, including

- creation of a formal connection with NCI,
- the opportunity to develop and learn how to improve cancer research and care, and
- alignment of fit between the NCCCP and the site's strategic priorities.

However, the findings specific to the CFO interviews and for the strategic case for participation were slightly different. The direct question "To your knowledge, what was your organization's primary motivation for participating in the NCCCP?" drew responses that most commonly revealed expectations of indirect but short-term benefits. The responses focused as often on enhanced marketing and recruiting opportunities as on improved quality of care or congruence with their institution's mission. The overarching themes among CFO interviews in terms of motivations for NCCCP participation were

- becoming leaders in their local market for the cancer service line,
- enhancing their image in order to better recruit key cancer physicians, and
- increasing access to care for cancer patients within their community (i.e., to decrease outmigration of patients to larger cancer centers).

In this section, we explore in detail each motivation for NCCCP participation as described by CFOs. Within this set of questions, we also explored with the respondents the extent to which they saw a "business case" for NCCCP participation and the factors that influenced them to apply for funding.

5.4.2.1 Becoming Local Market Leaders for Cancer Care

NCCCP pilot sites do not operate in a vacuum; they are located in markets that may have varying degrees of hospital competition. Similarly, NCCCP pilot sites operate in markets that have varying levels of competition for cancer services. For the overall evaluation, we explored indicators for local market competition and found that, based on their Medicare market share and the number of Commission on Cancer (CoC) hospitals and cancer specialists located in their market (per 100,000 residents), nearly all of the hospitals operate within highly competitive markets. Although the perceptions among CFOs in terms of their dominance in the local market did not always match how we defined competitive markets, they all consistently viewed the NCCCP as providing them with a mechanism for becoming a market leader for cancer care:

I think [the motivation for participation] is the key component of being a regional cancer center. I think it positions the facility well and adds to [how] the general health of our community fits with our mission. (Dominant, Higher Capacity)

We also saw the NCI connection as a way to differentiate ourselves from other community hospitals out there who are competitors, and we would be different by offering something unique and potentially what we think is better. It benefits us by attracting market share, physicians, and other staff as well. (Dominant, Higher Capacity)

We want to become a leader in community-based cancer care. We thought that research and clinical trials are critical for us to distinguish ourselves. (System/hospital senior executives, Year 1)

In particular, CFOs from sites that were not local leaders in oncology services hoped that affiliation with NCI would help them to enhance their cancer service line and thereby their market share, and those from sites that were already leaders talked about expanding market share by reducing outmigration to regional cancer centers:

We are one of the leaders in the market from a cardiology standpoint, surgical standpoint, and orthopedic standpoint, but in oncology we are not. That is one of the reasons why we are interested in this particular program... (interview continued)

... We view these as important value-added activities and view the payoff [as] coming from the additional business that is provided ... and attracting the payer mix that will provide the funding to do these kinds of things. (Competitive, Higher Capacity)

One respondent acknowledged that competition from another cancer provider with a solid research base was part of their motivation to expand:

Our competitor is more heavily involved in research here locally ... It is a much different model than our model. They actually had their cancer line up and running and in a separate building prior to us focusing and getting ours up and running ... Before [our new focus] happened, we were seeing a loss of market share (Competitive, Higher Capacity)

The motivations for participation that we heard from CFOs focused less on mission and quality of care, and more on how hospitals could position themselves relative to competitors, expand payer mix and patient volume, and recruit physicians. From an economic perspective, these considerations are important but may have implications for sustainability. If, over time, investment in the NCCCP does not yield financial results, top management may reconsider the investment and direction of the hospital's cancer program. Becoming a market leader may not, in and of itself, be sufficient to maintain the NCCCP beyond the funding period, especially in the face of fiscal challenges. Thus, combining the economic case with social concerns may provide stronger support for the longer-term

viability of the hospitals' NCCCP efforts (see Section 3.4.1.4 for CFO perceptions of the business case).

5.4.2.2 Enhancing Physician Recruitment

As the hospitals grow in their local reputations for cancer care through NCCCP participation, the hope among CFOs was that this would also enhance their ability to recruit key cancer physicians. This enhanced recruitment would be done through their association with NCI and the obvious priority they were placing on their cancer service line, as well as through their added capacity to conduct cancer research, something that many noted was important to their physicians:

I think physician recruitment is going to be key ... we have been very successful in our head and neck tumor physicians ... and that has helped, I think, shift market share for those people even leaving the market. (Competitive, Lower Capacity)

Just association and the grant is important to adding staff and resources that we need to do some of these things that we'd all love to do. (System/hospital senior executives, Year 1)

[The CEO] felt it was important ... to attract additional physician talent for us to be able to say we are involved in this program. It will also be important for our community, and all of those items came into play. There was not really a substantial financial analysis done although there were some estimates put together. That was not the biggest driver. (Dominant, Higher Capacity)

Although all sites had been conducting cancer research through clinical trials to some extent at baseline (sites were required to have accrued at least 25 patients to clinical trials in 2006 to be selected as an NCCCP lead site), the capacity to build additional infrastructure was quite varied across sites. Areas of interest among CFOs in terms of the research on which to focus included both clinical trials and biospecimens research, with several noting that expanding both types of research would increase their ability to recruit physicians as well as basic science researchers:

I think it is a matter of size... we have been doing some tissue banking, and now we are jumpstarting... our research across a variety of different areas. We have attracted more researchers now that the tissue banking is becoming a larger part of what they are talking about. (Competitive, Experienced)

I don't think it would happen [without external support] and you wouldn't have a tissue bank. As I learn more about your caBIG and caTissue [banking] I think that seems to be the wave of the future... I think having the infrastructure from the IT perspective, and these national databases, I think without [these] I can't see a 200-bed facility jumping too far into tissue banking... (interview continued)

As we go through this process and get involved in some of the clinical trials, research and biospecimens and genetics work ... we believe [that this] will enhance our stature on a relatively short-term basis and [enhance] the ability to go out and recruit physicians to boost our capability. (Competitive, Higher Capacity)

As mentioned in Section 3.4.1.1, becoming a market leader involved enhanced recruitment. However, enhanced recruitment builds on the aforementioned theme. For hospitals that historically had less access to research, enhanced recruitment enabled them to engage in research that was previously centered in academic medical centers. The ability to gain access to clinical trials and biospecimens work depends on having clinical staff to sustain such efforts. Moreover, building and maintaining research capacity through NCCCP participation and staff recruitment were consistent with many hospitals' missions (see Section 3.4.1.3). In this way, a mission-driven, social case can bolster a more business-focused rationale for participating in the NCCCP (i.e., becoming a market leader).

5.4.2.3 Increasing Access to Care for Cancer Patients

Consistent with respondents in the larger case study for the overall evaluation, CFOs also discussed the opportunity to improve cancer research and/or care as a main reason for participating in the NCCCP. Hospital and system senior executives who were interviewed in either study consistently reported that the NCCCP had the potential to increase their internal capacity to provide greater access to care via enhancements in clinical trials and research infrastructure, thereby reducing disparities (something many recognized as a key component of their hospital's mission). Many respondents noted how they hoped their involvement in the NCCCP would help them to fill gaps in the care local residents were able to access for their cancer care:

The real benefits are that ... people want to go to their local communities. The problem with going in through the major institutions is that you get the sickest of the sick that are only going there because they can't get treatment at a local hospital. You may not get a representative population for some of the trials depending on what you are trying for, too. The advantage to the trial is that they get a more representative population. The advantages to the community hospital might be a better recruiting tool for them if they are doing clinical trials. (Dominant, Higher Capacity)

I think it would be the long-term benefit related to how many patients ... were we able to treat here and give them access to the care and clinical trials that they, in some instances, would not have been able to obtain had they had to go to another institution. It is an overall benefit to the community. (Dominant, Lower Capacity)

We wanted to provide better access of care that was state of the art. We saw clinical trials, and accessing more of the patient population would help us do that. It fit what

we were doing already and gave us a way to get to a large patient population. It would [also] help us increase our market share. (Dominant, Lower Capacity)

CFOs were generally unaware of the financing for clinical trials, perhaps not understanding how greater clinical trials capacity could result in expenses to the hospital. Most were unable to answer questions about differences in payment between federal and privately funded trials, and only one knew whether insurance carriers in their state were required to cover the costs of care for clinical trials. We know from data we collected for the overall evaluation (see Chapter 16 of the Overall Evaluation Report) that only two of the states within which NCCCP hospitals are located do not mandate insurance coverage of clinical trials for cancer patients (Montana, where Billings Clinic is located, and South Dakota, where Sanford Clinic is located). However, most CFOs did understand the costs associated with setting up and maintaining the infrastructure needed to remain active in research. The following is a typical response from a respondent at a site already experienced in this area:

We are trying to balance [the costs], and we are actually putting some internal resources behind developing a research strategy for institutions. We conduct research in a lot of different areas outside of oncology and, to date, we pretty much accept a request by a physician who wants to be involved in research. We do it because we think it is good for the physician and the hospital and for the community. On a standalone basis research projects don't lose a lot of money individually. Collectively, it is a loss leader for us. (Dominant, Higher Capacity)

This respondent highlights the social case for participation in clinical trials (“it is good for the physician and the hospital and for the community”) and suggests that in spite of financial losses, the organization will bear the costs because of social benefits.

Another respondent spoke specifically of the hit-or-miss nature of clinical trials conducted only from the initiatives of local physicians and thought that the NCCCP would provide them with a mechanism to make this aspect of cancer care more efficient both for the hospital and for their patients. His perception was that hospitals need to become involved in order to make access to trials more consistent:

Prior to [the] NCCCP we had very spotty involvement in clinical trial enrollment. Nothing official on the hospital side, and as I described earlier, it was a phenomenon that happened in the medical oncologist office but only when it was profitable. There was a certain subset of patients that when they reached a point in their disease progression and we didn't have access to certain new research treatments, those patients would seek their care elsewhere. They would go somewhere else to a designated center...We are taking that element out of the picture with our role in research and we are not seeing near as much of that departure as we did before. (Dominant, Higher Capacity)

In addition to improving access for patients and efficiency for the hospital, having a more coordinated approach to clinical trials and cancer care also enabled this hospital to maintain that subset of patients who might have typically gone elsewhere. This implicitly supports the strategic—and potentially the business—case for participation and investment in the NCCCP, because a hospital, even if self-identified as dominant in its market, would lose fewer patients to academic medical centers.

5.4.2.4 A Strategic but not a Business Case for NCCCP Participation

A key focus of the first round of interviews (in 2009) was to explore the extent to which CFOs expected there to be a business case for participating in the NCCCP. We found very little expectation of a positive business case for the NCCCP when it was defined narrowly as an expected positive financial return in the short term (1–3 years). Sites in competitive areas were all very clear that the expected benefits of NCCCP participation and for participation in clinical research in general, were either “indirect returns” or were financial returns expected only over a longer timeframe. Most respondents expressed similar expectations of enhanced reputation leading to better physician recruitment and increased market share. However, surprisingly few respondents expressed the opinion that participation *should* be based on a positive business case:

I don't think it has a positive business case nor is that the way I would measure it. I don't have a shareholder that I am beholden to, to achieve some sort of bottom line. ... I would not see the success purely on financial terms. (Competitive, Higher Capacity)

Financially, if you are doing pure dollars, it isn't favorable. If I am a for-profit entity and the net income is the key, then it is not favorable. (Competitive, Higher Capacity)

Well, we haven't expected [a positive short-term return] and I am not sure that there could be. ... Again, that doesn't deter us because we view there being additional benefits besides the short-term ones. We view the opportunity or benefit for the longer-term strategic positioning of [hospital name] to be more valuable to us than anything demonstrated in the short-term business case. (Competitive, Higher Capacity)

In the short term, I don't think the return is going to be there. I think maybe at 5 years there is probably going to start being positive ROI. ... I think success is going to be if we can ... treat patients locally here and provide them the same quality or better quality care that they can get going to regional referral centers. ... The second way we are going to look at it is if we can capture market share and [and if we] keep that here, financially it will be a win for the institution as well. ... I think the longer-term benefits are going to be more important to us than anything short term. We are

probably spending \$2 for every \$1 we get from the grant ... but that is not counting the ancillary benefits that we discussed, which is how we are going to evaluate the ROI on this program at the end of the day. That is really a longer-term effect.

(Competitive, Higher Capacity)

I can't describe a positive business case for these activities, but I could describe a positive strategic case. ... The business case is the shakiest of these to me in the context of what is being asked here. (Dominant, Experienced)

Only one respondent described the NCCCP as having a positive business case, on the basis of having improved contribution margins for cancer care at their site. This was a site that was just beginning to conduct research, however, and it was unclear if the statement was based on measured performance of the program or performance from a larger initiative:

I believe [the NCCCP] is a success and it would be very easy [to conclude this] when you look at it from an ROI perspective, when you look at ... the year-to-year volume growth and the year-to-year contribution margin increase. It would be a very easy case to say that it is not one item but a part of a lot bigger strategic initiative. The NCCCP is a catalyst for us to move in the direction that we have planned for the short and long term. (Competitive, Lower Capacity)

Participation, in spite of the lack of expected short-term financial benefits, speaks to the centrality of the strategic case not only for involvement in NCCCP activities during the pilot period, but also for the longer-term maintenance of such efforts. In many cases, the nonfinancial returns outweighed the costs because the NCCCP aligned with mission-driven goals and a longer-term vision of expanding and improving cancer care.

5.4.3 Fit between the Site's Strategic Priorities and the NCCCP

According to research (presented in Chapter 2 of the Overall Evaluation Report), fit between a program like the NCCCP and the strategic priorities of each site is an integral factor in their capacity for innovation and change (Exhibit 3-1). CFOs were asked to describe their overall strategies with regard to their cancer service line, as were those interviewed through the site visits of the overall evaluation. CFOs from all sites identified cancer care as an important service line at their institution, and all respondents spoke of the good strategic fit between the goals of the NCCCP and the goals of their own organization with respect to expansions in service delivery, quality, and/or market share. When asked about the role of cancer services in their strategic plans, the only substantive differences in responses were between those describing their cancer product line as already among the most important in the institution and those saying that they were working toward making that the case:

[It is] extremely important, because it was extremely important to the [state name] prior to a very significant push by our organization to upgrade in cancer. [State

name] had one of the top 10 mortality rates and incidence rates in the country and that was in the early 2000s. Today we are climbing out of the top 10 and we would like to think we have something to do with that just by providing facilities, physicians and attention... (Dominant, Higher Capacity)

[The cancer product line] is one of our five pillars from the standpoint of our strategic plan... our competitor across town is in the process of building a \$90 million cancer center ... cancer services [are] kind of front and center in regards to our 5-year strategic planning and how we will compete and continue to grow ... here in our market. (Competitive, Lower Capacity)

I know in our market and at [local university name] and their medical center they have a strong program and have committed a lot of capital over the years. Unfortunately we have not, so that is an area [where] we are behind and the last few years we have slipped further behind. It is an area that we are focusing on in the future and have identified several significant capital expenditures and several initiatives strategically with physician partners and others, to develop a program as opposed to an array of services. (Competitive, Higher Capacity)

Respondents during the site visits for the overall evaluation cited three specific ways in which the NCCCP aligned with their hospital's or cancer center's strategic vision: the first was by identifying oncology services as a priority among the hospital's clinical service lines, the second was creation of synergies across program components, and the third was acceleration of change (see Chapter 6 of the Overall Evaluation Report). As revealed in the sections below, the CFOs also perceived a strong fit between NCCCP objectives and their existing strategic plans for cancer care, and indicated that NCCCP participation was helping their organizations to implement change more quickly and effectively. The CFOs added a third way in which their hospital's strategic plans aligned with NCCCP in their design to enhance clinical trials research.

5.4.3.1 Alignment of Hospital's Mission with the NCCCP

CFOs tended to support the notion that their hospital had strategic plans already in place that NCCCP fit right into their existing activities or corresponded to their planned efforts. Fit between the NCCCP and the site's mission was, therefore, one of the most frequently discussed reasons for participation among CFOs.

We saw it as very complementary to the efforts that we had already set out for ourselves and our growth initiatives. It seemed like a perfect marriage for us. (Dominant, Higher Capacity)

We had completed our internal cancer business plan and we became aware of this program, and the thought process with our CEO was, "If we're going to do this, we

want to be one of the premiere cancer centers in the nation.” (System/hospital senior executives, Year 1)

Moreover, system/hospital senior executives interviewed through the case study for the overall evaluation, who are integrally involved in setting strategic priorities for the sites, cited alignment of fit between NCCCP and their hospital’s mission more frequently than any other type of respondent during the Year 1 interviews.

Almost all respondents spoke at some point about the social case for improved cancer care, but two CFOs identified their reasons for participation as primarily mission driven:

The first thing I would say ... is that our patients are able to get [the] service. ... If we didn't have [clinical trials] they would not be able to access [them] here within their community. I would say our [reasons for participation] are more from the patient aspect than [the] financial aspect because that is [hospital name's] mission. (Dominant, Lower Capacity)

The benefits of improved cancer care, access to research, longevity, decreases in mortality, finding cancers at earlier stages, diagnostics, prevention measures: all those things are the benefits long term.... Long term, though, it's access to care, it's outcomes, it is access to clinical treatment trials and the latest in terms of research both in diagnostics and therapeutics in a community setting, that is really what benefits society. I think those benefits will prove out over time. (Dominant, Higher Capacity)

System/hospital senior executives echoed the CFOs’ emphasis on mission. These system/hospital senior executives framed participation in NCCCP as part of a broader effort to improve access to cancer care and to challenge health disparities:

I think one of the things that attracted us to [the NCCCP] was that the grant wanted to access the disparities piece. We have competence and a track record with that: reaching out to them.... Part of the grand call to bring in the populations, to screen them more, to bring them into [clinical trials]. (System/hospital senior executives, Year 1)

One reason is we thought we had a health disparities issue. Native Americans have huge issues of access [as do] the underserved in the rural areas. Those aspects of the program were really consistent with our environment. (System/hospital senior executives, Year 1)

It is the intentional effort to bring cancer care in an interdisciplinary way to those that are underserved, underrepresented, disparity groups in a preventive way in the communities we serve. That's the primary reasons why we saw such a good strategic

fit for us—because of our commitment to the poor and vulnerable in communities.
(Cancer center/program staff, Year 1)

Understanding NCCCP as having organizational fit bolsters the strategic case. In the context of a poor—or nonexistent (as seen above, Section 3.4.1.4)—business case, senior executives, especially CFOs responsible for financial viability, must have a rationale and justify the co-investment required from participants. When framed as part of the strategic plan or vision of the hospital, the sort of indirect benefits identified by CFOs (reputation, recruitment, competitive edge) are all benefits that can't be identified on the balance sheet, yet are presumed to lead to financial gains over a longer time period.

5.4.3.2 Acceleration of Change

One of the more frequently cited reasons for participation in the NCCCP among system/hospital executives was the ability of NCCCP to accelerate change and improvement in their cancer services. The majority of respondents indicated that their sites were already engaged in activities central to the NCCCP, such as clinical trials research, outreach, and survivorship. However, respondents reported that the NCCCP was capable of accelerating change in their organization:

I think that [the NCCCP] is just a continuation of a path we are already on and integrating it [into our existing structures]. This just represents another path of it. We have two IRBs already and are looking for a third. We have an active peer review.... I don't see this as being a piece. It comes as a natural addition. This is what we are about. (System/hospital senior executives, Year 1)

It helped us to escalate quicker than we would have been able to do. We were already on this journey. This helped us get more focused and structured in a quicker timeframe than had we not had this opportunity. (System/hospital senior executives, Year 1)

Respondents from several sites indicated that the NCCCP corresponded well with efforts to collaborate across hospital departments and program components, augmenting existing efforts to increase internal integration and improve coordination so that change would happen more quickly:

I think the effectiveness of our own internal leadership, paired with the infrastructure of grant reporting and subcommittees, has given us opportunities to effectively engage lab, IT, quality, outreach, etc., that the cancer team would have naturally done, but this has provided a focus. The timing of this with our own facilities and programs was serendipitous. (System/hospital senior executives, Year 1)

Acceleration of change, further, adds to the strategic case for participation in NCCCP. Hospitals, implementing cancer care programs, might reasonably expect to lose money

during the implementation phase. Although not framed explicitly in these terms, shortening the implementation phase by focusing efforts might reduce the period of greatest financial losses. Indeed, as seen in the above quotes, NCCCP “structured” activities “in a quicker timeframe,” “provided a focus” and offered the staff “opportunities to effectively engage” other departments. These quotes suggest that NCCCP not only accelerated change, but also facilitated implementation.

5.4.3.3 Increased Clinical Trials Research

All CFOs expressed a belief that clinical research capacity was a key component of providing comprehensive cancer care. Some respondents shared that they felt NCCCP provided them with ways to improve the quality of cancer care provided to their patients by increasing internal capacity (e.g., increasing hiring of staff with expertise, recruiting cancer specialists) and interaction among core cancer center members (e.g., MDC conferences). In particular, care would be improved by creating MDC teams and/or better coordination among private practice physician specialties, a form of integration that will have a meaningful impact on patient care:

We’re attempting to do what university or academic-level hospitals do, in a community hospital environment: raising the bar of what we can do for our cancer patients. (System/hospital senior executives, Year 1)

[The NCCCP] has been a catalyst for us to raise the bar. It drives growth. We want to have more patients go through our program to show those outcomes, because greater numbers prove a lot more. We already had a lot of strengths in the program before the grant came along—this takes us to the next level. (System/hospital senior executives, Year 1)

Several noted that an aspect of the improved care was to create opportunities to build their cancer service line across the care continuum, including becoming more active facilitators of clinical trials research.

It is part of our operating philosophy that we are involved in research. We think that is a vital element, specifically cancer. We believe that to be a vital component of the cancer care continuum. We are actively involved in Phase 3 trial enrollment participation and sometimes Phase 2 in a very organized fashion. It is a service provided by our cancer service providers to our local physicians to help with that process because enrolling is so costly and cumbersome to the private, independent practitioner... (Dominant, Higher Capacity)

As part of our strategic plan for 2010, we wanted to advance our major centers of excellence: cancers, orthopedics, and heart disease. We want to become a leader in community-based cancer care. We thought that research and clinical trials are critical for us to distinguish ourselves. (System/hospital senior executives, Year 1)

5.4.4 Conditions Supporting Sustainability

We asked CFOs how they would measure success or failure for the NCCCP that would convince them to continue program-related activities. After consideration, most respondents described success using metrics that were very similar to what they used to identify a strategic case for participation, including enhanced reputation (including whether they have increased their market share and cancer patient volume), additional physicians recruited, and improved quality of care.

5.4.4.1 Enhanced Reputation and Market Share for the Hospital

Several respondents cited enhanced reputation as a measure for determining whether they should continue NCCCP implementation even if NCI funding were to end. Respondents who noted this as a measure for success explained that increases in patient volume and market share would be ways of determining whether they had achieved this outcome:

I think reputation and market share: Those are measures that show we are doing something right in the community and they identify that we are doing something right. (Competitive, Higher Capacity)

It was clear from the last site visits (during summer 2010) that many hospitals already knew their reputation had been enhanced over the course of the pilot, thereby increasing their overall market share for cancer patients in their communities:

We're attracting patients beyond the traditional service area. We've pulled patients from the competitors, gained market share. With the market share ... the inpatient market share is shared by community hospitals; there is no central repository for outpatient cases, but we do have a tumor registry ... 3 to 4 years ago, the market share was at 40%. 18 months ago, 48% to 49%. Now, 60-plus%. (System/hospital senior executives, Year 3)

Our market share has increased by 4% to 5% per year. There has been a significant increase in our market share. The market share in cancer is greater than all other specialties. Physicians will draw patients, so I am not sure that the designation is due entirely to [the] NCCCP, but this is a distinction and you know there is something significant or special about our cancer center. (System/hospital senior executives, Year 3)

In the last 3 years, it has stayed profitable and the profitability keeps on growing. In this institution, the cancer service line is the most profitable service line we have. It's ahead of cardio. Our volumes in the past 5 years have close to doubled. (System/hospital senior executives, Year 3)

We've had a great year. In fact, the fiscal year just finished, and that's when we reported our metrics. The number of new cancer cases has gone up 13% to 14%.

It's been a very good increase in new cancer cases: close to 1,700 in the last year, so that's a big deal. (System/hospital senior executives, Year 3)

Respondents from market-dominant sites and competitive sites alike appeared equally ready to identify expanded market share as a measure of success. In general, responses from participants who considered themselves to be in a competitive environment were not different from responses from those who described themselves as the dominant provider:

We will typically look at population or market shifts, and if it is a service we can shift market share through providing this kind of service, even if it is a loss, if it is something that will enable us to capture additional market that we would not otherwise.... That service is not expected to provide a profit but it does provide other benefits in terms of contracting with third party payers and additional physician recruiting opportunities. (Competitive, Lower Capacity)

One [measure] would be market share–related. Another would be us looking to see what part of the increase in community outreach [is] related to screening and those kinds of things. It potentially could be looking at the product line as a whole, if we saw an increase the market share. From an economic standpoint, looking at what kind of return did we have 3 years ago [compared] to now, on cancer specific items or product lines. (Dominant, Lower Capacity)

I think success is going to be if we can treat patients locally ... and provide them the same quality or better quality care that they can get going to regional referral centers. ... The second way we are going to look at it is if we can capture market share. (Competitive, Higher Capacity)

Although enhanced reputation is difficult to assess, the overall evaluation did capture the extent to which hospitals changed in cancer patient volume. Based on data reported by sites on their Baseline Assessment Survey (BAS) and Final Assessment Survey (FAS), the unduplicated cancer patient volume more than doubled from Year 1 to Year 3 across all 16 NCCCP sites (23,220 and 51,015, respectively). Only one hospital slightly decreased their cancer patient volume during the course of the pilot, and it is located in a highly competitive market for cancer care.

Patients choosing to come here—because we offer complete and state-of-the-art cancer care services—is critical.... We benefit financially from that because it is one of our more profitable service lines. (Dominant, Higher Capacity)

As we spoke earlier, the goal is to capture what's been outmigration in the past. So, us looking at the number of new cancer cases that we accrue [for care] each year is probably the top measure for us in terms of how we look at the success of our program. (Competitive, Higher Capacity) (Follow-up interview)

5.4.4.2 Increased Physician Recruitment and Physician Participation

Although we do not know how many cancer physicians were recruited by each hospital, we do know that the level of participation among physicians increased over the course of the pilot. Approximately 67 more physicians were accruing patients to clinical trials across all 16 NCCCP sites at the end of the pilot compared to at baseline. In addition, all but 1 of the 16 NCCCP sites had increased the number of MDC conferences, thereby increasing overall physician engagement in the cancer program:

The ability to recruit specialists is really important to us, and we haven't really tried to quantify that but that is important. ... That is pretty valuable and I don't know how to quantify that, and we don't try to. (Dominant, Higher Capacity)

Volume growth, contribution margin increase, and recruitment of physicians and retention are things that we are tracking for our strategic program and for an entire service line. ... This has been part of a larger initiative, and we have built this large research center, and it would be hard to pull the effects of this one program out from the rest of our changes. (Competitive, Lower Capacity)

Because the CFOs highly valued physician recruitment and retention, maintaining programs like the NCCCP that draw and retain clinical staff justifies some of the costs (and perhaps reduces costs associated with turnover). The NCCCP supports top management's desire and commitment to bring in cancer physicians and, in doing so, offers a key reason for sustaining the program beyond the funding period.

5.4.4.3 Improved Quality of Care

Several respondents expressed their conviction that guideline use and MDC committees, both of which are key activities for the NCCCP, could lead to increased efficiency and higher quality of care. None were able to identify measures at their facilities that might track or document this, but the extent to which CFOs accepted the premise that it is possible to invest in quality and simultaneously reduce costs was striking.⁵ In experienced sites, the following were typical responses to the question "Would you expect increased use of guidelines and/or MDC committees to have an impact on the cost of cancer care at your facility?":

Absolutely, and we have had MDCs even before the NCI grant. I have had the opportunity to meet with some of the physicians that participate and they all absolutely love it. I think it avoids some of the duplication that may have been happening before when patients got bounced around the system.... I don't know that we are [tracking guideline use] specifically because I don't think we had a good database or anything to compare it to. I think everybody knows if we can reduce the

⁵ Recall that this is the original, albeit elusive, premise of the "business case for quality."

variation and reduce the duplication it is ultimately going to be better quality and quality and financial results go hand in hand. (Competitive, Higher Capacity)

I would, and I am a proponent of standardization. ... I would suggest to the extent that we standardize our approach and processes, that tends to improve quality and reduce costs. (Competitive, Higher Capacity)

I'd say yes. I look at that and say if you follow evidence-based medicine and clinical guidelines and there is good adherence... you reduce that variability [and] you have more predictable results.... Reducing that variability absolutely helps you be more cost effective. (Dominant, Higher Capacity)

I would hope so.... I would hope standardization of care and best practices would actually lead to efficiency and actually better quality care. (Dominant, Higher Capacity)

The strategic case is supported by the use of MDC conferences and guideline care and the CFOs' beliefs that these could increase efficiency. Non-financially, as the CFOs argued, MDC conferences and guideline care enhance quality; financially, they enable the hospital to reduce costs and be more cost-effective. In this case, some of NCCCP's key activities present a win-win situation for the organization.

5.4.5 Specific Plans for Sustainability

The long-term value of NCCCP activities to an institution can be expected to be revealed in the extent to which top management is willing to continue funding when NCI funding ends. We heard three types of responses to the question, "In the absence of funding from NCI, would you expect your facility to continue participating in NCCCP-like activities?" Continued participation could be governed by their perception of the value of the program to their organization's short and long-term strategies, or it could be limited simply by resource constraints – in other words, a response of "we would like to continue but we simply cannot afford it".

We did not hear responses of the second type among the ten organizations, which is consistent with their responses that the cancer product lines were profitable and the recession had not hurt their overall finances significantly. All sites responded in the affirmative to our question. Experienced sites that had already been doing many of these things, where NCCCP participation may have been more valued as a way to focus attention and attach higher status to these activities and provided a slight boost, but not change, the course of spending, we heard:

Without the NCI grant that we received there are a lot of things we might have gone forward with anyway but not to the degree that we've been able to do it with that additional funding. Probably at the top of the list is clinical trials, but [also] other

things like the outreach we've been able to do and looking at ... the disparities of cancer care among the different populations we serve. We've been able to enhance our information technology, biospecimens and tissue collections, survivorship programs, palliative care programs, there are a lot of things we've done. Like I said, we probably would have done some of those anyway but having the NCI grant money has definitely boosted those efforts on our behalf. (Competitive, Higher Capacity) (Follow-up interview)

We would be carrying [these activities] on even without funding. We have got a committed internal fund for some of these types of things as well... I can see people in the [corporate office] saying this is really important and we really want you to participate in this. (Competitive, Higher Capacity)

I think we would view these activities... of outreach and for instance some of the screening and some of the work with tissue banking and continuum of care development... as providing a significant quality patient care improvement. We would continue doing that with the expectation of the additional downstream revenue. (Competitive, Higher Capacity)

We hope that we can continue to do all of it. It may be a bit more difficult, as you mentioned, in this day and age when reimbursement isn't getting any better, particularly from the government. We need to continue to focus on our costs. There may be some things we won't be able to do as extensively as we have in the past... We may be able to streamline some of the things we've done just because we've been doing them for a while now. (Competitive, Higher Capacity) (Follow-up interview)

We're bringing in other people to bolster the grant application process and the follow up that must be conducted once research is in place... We are putting more and more resources into research. We're very pleased with the research activity in our oncology area. (Dominant Experienced) (Follow-up interview)

In contrast, less experienced sites were more specific and more cautious with predicting which aspects of the program would continue without the benefit of NCI funds:

Clinical trials: yes. Tissue processing and banking: I would say no. Focus on minority enrollment: yes. MDC committees: yes. (Dominant, Lower Capacity)

Yes with clinical trials. Tissue banking I think so—there is clear benefit from that. Reducing disparities is yes. Multidisciplinary care committees yes and cancer IT, yes unless we scrap the whole thing. It would just be a continuation....any new programs or expansion would be difficult if there wasn't some level of funding from NCI or elsewhere. (Dominant, Lower Capacity)

That's hard to answer at this point just from the aspect that a lot of it will depend on how hard we get hit...with healthcare reform. I think when we're looking at our decreased reimbursement; we're trying to do everything we can to decrease our costs in order not to lose any of the services we currently provide. (Dominant, Lower Capacity) (Follow-up interview)

The third type of response we heard was in the context of whether unfunded NCCCP-like activities would continue to be associated with NCI, or, put another way, whether the sites would continue to be identified as part of an elite NCI-recognized network of community-based research hospitals.

Throughout the interviews, we heard repeatedly that the status of an NCI "affiliation" was one of the most important advantages to the program. In the interview protocol, we referenced this issue only through a probe that was intended to follow up on any negative response to the questions of whether NCCCP activities would continue in the absence of NCI funds ("Would your answer to the last question be different if your facility could retain the formal NCI affiliation without funding?"). We found, however, that the NCI affiliation surfaced in so many responses to related questions that we ended up discussing a variation on this that is illustrated by a scenario offered in one of our interviews: "If you had been offered the *imprimatur* of the NCI such that you could become an NCI community cancer center but there was no additional funding involved, do you think that would have, by itself, been sufficient motivation to participate in something like the NCCCP?"

This type of question drew slightly mixed responses when considered in the context of the administrative effort and large expected investment in matching costs that sites associated with being an NCCCP pilot site, but it always drew reiterations of the importance of the formal NCI association:

I think by having the NCI and NCCCP backing, that kind of raised it up [for] our senior leadership to go down this particular course of action, and kind of gave it the framework. (Dominant, Lower Capacity)

Being associated with the National Cancer Institute is a big draw. Doing this sort of research and being involved I think it does make us more favorable to payers to the community. (Competitive, Higher Capacity)

We ... saw the NCI connection as a way to differentiate ourselves from other community hospitals out there who are competitors and we would be different by offering something unique and potentially what we think is better. (Dominant, Higher Capacity)

5.5 Discussion

The motivation behind our study of the business and strategic case for the NCCCP was to identify the extent to which all or parts of the program seem to be sustainable and replicable. We addressed sustainability in the Overall Evaluation Report (see Chapter 17) by examining the level of matching costs (minus indirect costs) that each site had allocated to NCCCP program components. Sustainability tells us that the federal funds were successful as seed money to start or expand activities that will thrive in the post-external funding world. Replicability, however, is a different concept. It relates more to the generalizability of the participating organizations, or more precisely, to the generalizability of the particular institutional or environmental characteristics that predict a post-funding sustainable program.

By virtue of the fact that each participating organization made the decision to apply for this program, the NCCCP pilot sites are a highly self-selected group of motivated oncology clinicians and researchers located within hospitals or hospital systems that, although diverse, are all governed by institutional missions that support at least some subset of NCCCP activities. The organizations are all not-for-profit (the majority are also church affiliated) and top management at these hospitals appears distinctly mission-driven in the sense that they repeatedly emphasize service to the community. Many of the sites conducted at least some of the NCCCP activities before starting the NCCCP, confirming that the strategic fit between the NCCCP and the hospitals or systems is extremely close for key components like clinical trials and reducing disparities. Based on the CFO's descriptions, none of these sites was experiencing financial difficulties over all. When asked about the profitability of cancer services in particular, nearly all described it as profitable; only few described it as a "break-even" service that was receiving extra management focus in order to turn it around to a profitable one.

As a result, the likelihood that some NCCCP-like activities will continue at each of these sites after the close of the project is quite high. Factors in support of an expectation of sustained activities in the areas of clinical trials, navigation and MDC conferences, include a strong sense of mission that encompasses community health, ongoing commitments to at least some level of indigent care, prior experience with clinical research in at least seven of the ten participating entities, and willingness to invest institutional funds in the program despite severe uncertainty in the economic environment during the years when the NCCCP was funded.

In addition to these factors, and possibly more important than all of them, is the evidence from a recurring theme throughout every interview regarding the competitive advantage that every site associates with the NCI association. All of these organizations are operating in competitive environments at one level or another, and expansion or at least retention of their patient base was clearly expressed as a key objective for their cancer service lines. Of

the 10 participating organizations, 4 reported local competition and expressed the need for research and multidisciplinary quality improvement programs to differentiate themselves in the market. Six of the 10 organizations already considered themselves to be the “dominant cancer provider” in their markets, yet described equally strong competition from regional academic or specialty medical centers that take their more complex patients out of area. The status attached to being a research site, and the particular status attached to having an NCI affiliation, is a strong link between the goals of the NCCCP and goals of the particular sponsoring organization. It is possible that their willingness to invest in some or all of the NCCCP-specific activities may be linked as much to the NCI *imprimatur* as to the specific funds. Unfortunately, that may mean that the future of their NCCCP efforts are at risk once the affiliation is removed. As described elsewhere in the evaluation, nearly all of the sites had advertisements in their cancer centers proudly displaying their being selected as an NCI cancer center during site visits conducted by RTI. Without that affiliation, many NCCCP efforts could be reduced or could cease at several sites.

Competition for market share is broadly felt across the hospital industry, and a desire for market differentiators is probably universal across health care managers. What may be harder to find is the confluence of an institution with a mission heavily invested in community benefits, with interest and leadership within private practice medical staff (still the dominant mode in community hospitals), and with sufficient margin to be able to underwrite these investments in quality and research activities. Much of what we heard from the CFOs suggests that all of these factors are important for the seed money to do its job – that is, fund expansions of service that later become integrated into normal operations. Because the pilot sites were selected to have many of these characteristics, the NCCCP approach may be generalizable to specific institutional environments. Over and above the requirement for a willing and active medical staff to lead these activities, replicability of the program may be most realistic in well-established health care systems or individual hospitals that not only (a) appreciate a potential competitive advantage and are willing to invest to gain it, but also (b) have an established role in the community as an institution with a strong social mission have a healthy and stable financial position, and (c) have a healthy and stable financial position that can afford to underwrite outreach activities for underserved (and likely under-reimbursed) populations.

6. SUMMARY AND DISCUSSION

The final goals of the NCCCP economic evaluation were to identify how much it cost organizations to implement the NCCCP and to assess the long-term sustainability of NCCCP activities after the end of NCI funding. To identify the total costs we collected information on expenditures from a tracking tool that was designed to allow us to identify not just how the NCI funding was used, but also how much matching investment was made and how those matched funds were used. The data collection tool was also specially modified to obtain information on a less commonly measured but equally important part of the costs of starting a new program: the value of effort donated to key program areas by community physicians, nurses and other health workers. Although employed and/or contracted physicians are increasingly common in the US health care system, at this time private practice remains the dominant physician practice model outside of academic settings and a limited number of publicly owned urban systems. For a program like the NCCCP that is designed expressly for community hospital settings, community-based attending physicians must be considered key figures in the implementation, and the value of their time should not be overlooked.

While the RTI evaluation team was collecting the micro-cost data to tell us how resources were being spent, we were also conducting a qualitative study to help us understand why they were being spent – that is, why the funded organizations were willing to embark on a program that required such a significant amount of time and matched spending from the awardees. The qualitative study was based on interviews with financial executives at each of the pilot sites. Its two most important objectives were (1) to understand why community-based hospitals felt it was beneficial to participate in clinical research and to participate in federal programs like the NCCCP and (2) to assess whether the funded organizations were likely to continue to invest in NCCCP activities even without continued pilot funding.

6.1 Summary of Cost Findings

Over the first 3 years of the program, pilot sites spent \$12.5 million in NCI funds and documented \$59.2 million in either matching funds or the value of donated time (Exhibit 6-1). Of the six program component areas, clinical trials and disparities accounted for the largest shares of total spending, followed by quality of care. The value of donated hours from physicians working with trial enrollment and developing or attending MDC committees accounted for a substantial portion of the non-NCI funded costs for clinical trials and quality of care, respectively. In aggregate, sites invested \$36.9 million as matching costs for this program (amounting to \$2.96 for each dollar of NCCCP funding) and the matching costs were distributed across the six components in very similar proportions as the total costs (Exhibit 6-2). Clinical trials and disparities accounted, again, for the two largest shares.

Exhibit 6-1. Program Distribution of Total Spending

	Share of Reported Costs	
	Invoiced Only	All Cost Domains
Biospecimens	10.0%	8.7%
Clinical Trials	28.4%	28.4%
Disparities	44.4%	27.3%
Health IT	12.1%	9.3%
Quality of Care	3.0%	18.1%
Survivorship	2.1%	8.2%
	100.0%	100.0%
Total Amount	\$12.5 m	\$59.2 m

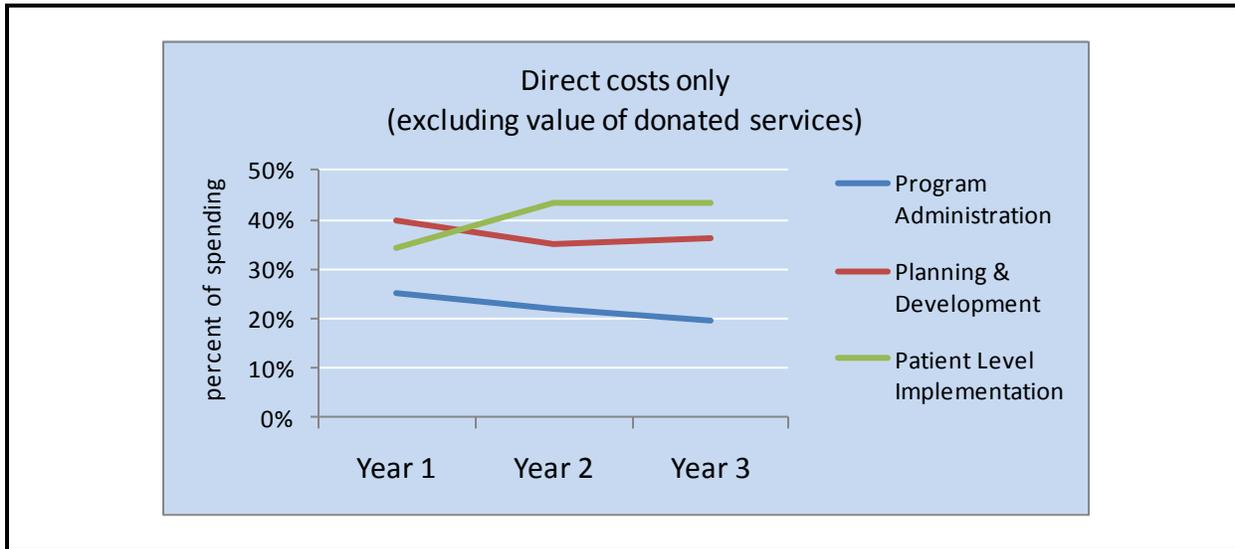
Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

Exhibit 6-2. Program Distribution of Organization’s Co-investment

	Co-investment	
	Matching Amount (millions)	Share
Biospecimens	\$3.3	9%
Clinical Trials	\$9.3	25%
Disparities	\$9.4	25%
Health IT	\$3.8	10%
Quality of Care	\$6.9	19%
Survivorship	\$4.2	11%
Total	\$36.9	100%

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

The CAT is organized by component and then asks for costs to be allocated across different activities within each component. RTI also re-grouped the activities to identify year-to-year changes in spending structure across components, for activities relating to (1) patient level services (including enrollment, navigation and screening, among others), (2) planning and development across all components, and (3) program administration (see footnote 3 for a list of how activities were mapped to these three categories). As sites became organized we expected them to concentrate more of their funding on implementation and less on planning and administration. The graph in Exhibit 6-3 is based on direct costs only (after removing any reported costs for fixed overhead), and highlights these spending trends. The share of spending for patient-level implementation activities did increase over time, and the share going toward administration decreased. Possibly because we included clinical trials planning and administration as part of the planning and development group, these activities increased as a share of total spending between Year 2 and Year 3.

Exhibit 6-3. Total Spending Trends For Implementation, Program Investment and Administrative Activities

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

6.2 Limitations of the Data and Variations in Documented Spending

The use of self-reported costs introduces many limitations to the study. As discussed earlier, we suspect that some sites were more aggressive than others about documenting matched and donated costs for purposes of our evaluation. As shown in Chapter 4 there is enormous variation across the sites in the levels of co-investment as captured by the CAT. For the full 3 years of the program the average reported matching cost amount was \$3.7 million per awardee, but Site 4 documented a little more than a quarter of the average, and Site 16 documented an amount that was two and a half times the average (Exhibit 6-4). That yields a 9-fold difference between the lowest and highest matching spenders. Given the limitations of self-reported data, however, it is not possible for us to say definitively how much of this represents actual spending differences. There is a possibility that the organizations reporting significantly higher matched costs may be reporting something closer to aggregate rather than incremental NCCCP costs (as discussed in Section 2.1.2). Interpreting the cost data for cross site comparisons may be problematic if what has been reported is a mixture of incremental costs attributable to NCCCP and ongoing costs for similar activities that were in place prior to the start of the NCCCP.

Exhibit 6-4. Relative Spending by Site

Average Amount (millions)	Matching Costs	Value of Donated Time
	\$3.7/ site	\$1.0/ site
	<u>Ratio of each site's spending to average</u>	
Site 15	0.79	1.61
Site 4	0.27	0.05
Site 7	1.91	0.79
Site 6	0.34	0.05
Site 10	0.92	0.17
Site 3	0.47	1.07
Site 9	0.82	0.28
Site 16	2.46	2.17
Site 1	1.05	3.19
Site 12	0.97	0.61

Source: RTI Analysis of Completed Cost Assessment Tools, Years 1–3.

Retrospective allocation of program effort to individual activities within each of the six components also raises the possibility of measurement misclassification. The pilot sites were not asked to account for their subcontract costs by activity and were not asked to use any specific cost accounting procedures for NCCCP. Using self-allocated resources by activity represents the best alternative when activity-level costs are not captured in the accounting systems and/or staffs are not asked to keep daily activity diaries. It is an accepted approach for cost evaluation research under such circumstances (Subramanian et al, 2009(a) and 2009(b); Tangka et al, 2008; Dalton et al, 2003), but the more finely defined the requested activity allocations are, the greater the potential for classification error.

6.3 Perspectives of Top Management versus Perspectives of the Funder

6.3.1 Program “Sustainability” and Program “Success”

Interviews with CFOs provided overwhelming evidence that goals of the NCCCP were congruent with strategic goals of the sites at the time and that they considered it worth the investment to participate. Even at the site with the lowest level of co-investment—and even attributing the relatively low level as evidence of actual lower spending rather than to conservative definitions of incremental costs—the contribution of matching funds for NCCCP activities was over \$1 million, and therefore substantive in absolute terms. In the interviews, financial managers consistently described the NCCCP as a “success” and when queried, most defined success using outcomes like enhanced reputation, enhanced ability to recruit physicians and a competitive edge that would lead to expanded market share. A

strong strategic case for participation is defined as the expectation of indirect or non-monetary benefits to the organization, which are not measured in short-term returns on investment yet clearly have potential to improve the financial position of the organization at some point in the future. CFO responses provided solid evidence of the perception of a strong strategic case for NCCCP participation. At the same time, they were all clear about the importance of the formal association with NCI, regardless of other program components, in creating the competitive advantage that is such a key component to the strategic case.

We were interested to note that none of the CFOs on the interviews had specific measures in mind against which to gage program success. Even when pressed, only one or two mentioned metrics that are associated with having met NCI's goals for the NCCCP (such as increased number of trials, increased screenings, increased trial enrollment among minorities, or increased participation of medical staff in MDC committees and in trial enrollment). In the vision of the CFOs, success had more to do with improved positioning of the organization that came from participation in a high-status program to begin with, and less to do with the actual output of the program. The participation and affiliations, in and of themselves, appeared to have sufficient value for them to believe that the programs should be sustained into the foreseeable future. Thus it is possible that within a 3-year pilot period, the NCCCP could be viewed as a success in the sense that it is shown to be sustainable (within the original pilot sites), whether or not the three years is sufficient time to show improvement in the specific evaluation metrics identified for the program by NCI and program evaluators.

6.3.2 The Strategic Case for Participation versus the Social Case for Expanded Research Base

Financial managers appeared to be able to make the strategic case for participation in clinical trials based on reasons that are independent of the social case for expanding the cancer research base. While some CFOs did talk about the social good associated with expanded clinical research, they did not tend to describe their motivation for participation in NCCCP in terms of their organization's desire, or appropriate role, to support this social good. Their responses did, however, clearly identify that they understood the overlap between their own organization's interests and the interests of the NCI, in bringing clinical research to the community settings.

When we pressed interviewees to identify which components of the program would be most likely to be absorbed into normal operations and which, if any, might be dropped, several CFOs mentioned that the biospecimens part of the program might not continue without external funding. Only one commented that his organization might need to curtail screening and outreach, but this was in the context of a discussion of the impact of the recession on hospital finances. By themselves, outside of the context of program required activities, these components had less value to financial management. As we mentioned earlier, these

are two activities for which it might be possible only to make the social case for participation; that is, they can lead to improvements in community health, but the benefits of the investment will likely not be felt by the entity making the investment. Of all the activities included in the scope of the NCCCP, tissue banking/specimen storage may be the one most in need of continued funding.

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