



A Guide on Logic Model Development for CDC's Prevention Research Centers

Provided by

Prevention Research Centers Program Office
April 2003

Compiled by

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For more information

Please direct further questions to the Prevention Research Center Listserv
by sending an E-mail to:

PREV-CENTERS@listserv.cdc.gov

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Acknowledgments

The Prevention Research Center (PRC) program office extends its appreciation to the Centers for Disease Control and Prevention (CDC) Office on Smoking and Health, the Division of Physical Activity and Nutrition, and the Division of Oral Health for allowing their workbooks to be used as guides for the development of this logic model guide for the PRC program.

Disclaimers

These materials are provided only as a resource to the applicants for the Prevention Research Centers program. Applicants to the Program Announcement Number 04003 are not obligated to use this guide or the attached worksheets as part of the application process. The CDC is not responsible for an individual center's application content and quality, and the use of this resource by applicants will not have an influence on the application review process.

Links to non-Federal organizations found in this document are provided solely as a service to our users. These links do not constitute an endorsement of these organizations or their programs by CDC or the Federal Government, and none should be inferred. The CDC is not responsible for the content of individual organization Web pages found in these links.

Section 1: Overview

1.1 Goal of the Guide

To assist the applicants to the Prevention Research Center (PRC) program in acquiring knowledge and skills for developing logic models for their centers and for linking the center model to the PRC Program (national conceptual framework).

1.2 Objectives of the Guide

By reading this Guide, individuals will be able to:

1. Discuss what a logic model is and what the benefits are of using a logic model in program planning, implementation, evaluation, and communication (University of Wisconsin-Extension, 2002)
2. Summarize the work of Project DEFINE (Developing an Evaluation Framework: Insuring National Excellence) and how the national conceptual framework guided the development of the program announcement (Announcement Number 04003 in the Federal Register)
3. Recognize the importance of involving stakeholders in the development of logic models
4. Characterize the major components of a logic model
5. List examples of center logic model components
6. Identify common practices used in developing a logic model
7. Discuss how the center logic model relates to the national conceptual framework
8. Identify important concepts to be included in the center's logic model and accompanying narrative
9. Locate various resources (e.g., handbooks, published articles, and websites) on developing and using logic models

1.3 Introduction

The PRC program is in the National Center for Chronic Disease Prevention and Health Promotion at the Centers for Disease Control and Prevention (CDC). The PRC program is a national network of 28 academic centers (the Prevention Research Centers or PRCs) committed to prevention research and its dissemination. The PRCs work with members of their communities to develop and evaluate community-based interventions that promote health and prevent disease.

Over the past two years, a national PRC conceptual framework (Appendix A)¹ has been developed through a participatory evaluation project called Project DEFINE. CDC's *Framework for Program Evaluation in Public Health* (1999) served as the model for the project. A summary of Project DEFINE appears in the Background section of this document.

The *Framework for Program Evaluation in Public Health* lists six steps for program evaluation. The second step of this framework is to describe the program. Within this step, CDC recommends that the program develop a logic model. As is described in this Guide, a logic model can be a helpful tool for programs, and not just in evaluation.

The PRC program is entering a new five-year cooperative agreement cycle (Announcement Number 04003 in the Federal Register). Within the Request for Applications (RFA), all applicants are required to develop a center logic model, based on the national PRC program conceptual framework. The RFA provides the opportunity for each applicant to adapt the national conceptual framework to the proposed PRC. The center logic model can then be used by the center for future program planning, implementation, evaluation, and communication (University of Wisconsin-Extension, 2002).

This Guide has been developed as a resource to the PRC applicants as they create their own logic models.

The Program Announcement may be accessed at the Federal Register Website: http://www.access.gpo.gov/su_docs/aces/aces140.html, the CDC Website: www.cdc.gov (click on Funding Opportunities), or by clicking on the Prevention Research Center Home Page: <http://www.cdc.gov/prc>.

¹ For purposes of clarity, the national logic model is referred to as the “national conceptual framework.” The logic models that the applicants will develop for the RFA are referred to as “logic models.”

Section 2: Background

2.1 Project DEFINE

The purpose of Project DEFINE is to develop a national evaluation strategy for the PRC program. CDC's *Framework for Program Evaluation in Public Health* (1999) served as the model for the planning process. CDC is working collaboratively with contractors and a diverse group of stakeholders – PRC faculty and staff, community partners (e.g., state and local health departments, school districts, neighborhood associations, and health care providers), professional associations, community members, and CDC staff – in a participatory process to develop the evaluation strategy.

Project DEFINE has resulted in three components of an evaluation strategy: 1) a conceptual framework (or logic model) for the national program (see Appendix A), 2) performance indicators for the national program (see Appendix B), and 3) other complementary evaluation questions and related strategies. Project DEFINE used a participatory process to create and refine all of the products.

The conceptual framework for the national PRC Program describes the activities of the program and the outcomes it expects to achieve. The national conceptual framework also identifies the inputs, activities, outputs, and outcomes common to all PRCs and shows the expected relationships among these components, including evaluation and contextual factors. Although the boxes of the framework are shown in a linear fashion, the relationships among them are expected to be complex, interactive, and recursive over time. The national conceptual framework does not imply that one size fits all. To reflect uniqueness, each center will develop its own logic model by tailoring the national conceptual framework to its specific activities and goals.

Project DEFINE resulted in the selection of 13 performance indicators for the PRC program. All centers will be required to report information for the performance indicators annually through the PRC Information System (PRC IS). The performance indicators will be pilot tested and refined prior to the start of the cooperative agreement cycle. The performance indicators will allow for tracking program performance and outcomes from year to year on a consistent basis, will enable CDC to report on program activities and accomplishments to external stakeholders, and will assist the PRCs and the PRC program office to enhance the performance of the PRC program over time.

Evaluation questions are being developed to guide the collection of data. Information collected will measure the quality of program implementation and help explain how and why specific outcomes were achieved. The implementation of the overall evaluation of the PRC program will take place during the next cooperative agreement cycle. The goals of the PRC evaluation are to:

- Describe how the PRC Program has been implemented within individual centers and, in particular, what activities the centers engage in.
- Describe how the PRC Program is contributing to changes in public health research, practice, and policy.
- Describe the types of partnerships the PRCs have established and what effect these partnering arrangements have had on the PRC Program goal of building community capacity for public health practice and prevention.

The evaluation reflects the major goals of the PRC program and addresses many of the issues raised in the Institute of Medicine report, *Linking Research and Public Health Practice* (1997), as well as the interests and concerns of stakeholders.

2.2 Development of the Request for Applications (RFA)

The conceptual framework and performance indicators guided the development of the RFA, which is evidenced in how the sections of the RFA relate to the components of the national conceptual framework. Therefore, the evaluation tools created through the participatory process of Project DEFINE were used in program planning at the national PRC program level.

The RFA gives the applicants the opportunity to adapt the national conceptual framework to the individual centers.

As a reference, the section of the RFA that asks for the development of a center logic model is below. The PRC RFA, Announcement Number 04003 on the Federal Register, may be accessed at the Federal Register Website:

http://www.access.gpo.gov/su_docs/aces/aces140.html, the CDC Website: www.cdc.gov (click on Funding Opportunities), or by clicking on the Prevention Research Center Home Page: <http://www.cdc.gov/prc>.

From Federal Register Announcement Number 04003, Content Section/Evaluation:

Create a center-level logic model specifying the center's health priorities and expected outcomes. Within the logic model, define the inputs, activities, outputs, outcomes, evaluation, and contextual conditions for the center. This logic model can be adapted from the national PRC Program conceptual framework to fit the specific components of the individual center. In addition to the logic model, a narrative description of each component must be included. Please include the center's mission within the narrative, and limit the mission statement to one to two sentences.

Further, within this narrative describe how each component of the center's model is related to the national PRC Program conceptual framework.

From *Federal Register Announcement Number 04003, Evaluation Criteria Section/Evaluation:*

- To what extent does the applicant appropriately construct a center-level logic model and provide a narrative description of components of the logic model?
- To what extent does the applicant sufficiently describe and justify how each component of the center's logic model relates to or differentiates from the national PRC Program conceptual framework?

The following sections of this document will provide guidance on describing and developing a center logic model.

Section 3: Logic Model Basics

3.1 What is a Logic Model?

The WK Kellogg Foundation (2001) describes logic models as:

“A systematic and visual way to present and share your understanding of the relationships among the resources you have to operate your program, the activities you plan to do, and the changes or results you hope to achieve. The most basic logic model is a picture of how you believe your program will work. It uses words and/or pictures to describe the sequence of activities thought to bring about change.”

Simply put, a logic model visually links program inputs and activities to program outputs and outcomes, and shows the basis (logic) for these expectations. The logic model is an iterative tool, providing a framework for program planning, implementation, and evaluation.

3.2 What is the Purpose of a Logic Model?

The purpose of a logic model is to:

- Identify the short-term, intermediate, and long-term outcomes for the program
- Link outcomes to each other and to program activities and inputs using the identified logic, theory, or model for the program (e.g., illustrate hypothesized cause and effect)
- Depict what intermediate outputs and outcomes must occur before distal outcomes will be evident
- Make the implicit program theory explicit (Dwyer and Makin, 1997)

3.3 What are the Benefits of a Logic Model?

A logic model can be used for:

- Ensuring that all stakeholders understand the program’s purpose, the resources needed, the activities it will conduct, and its capacity to effect change
- Serving as a reference point for staff, stakeholders, constituents, and funding agencies
- Monitoring progress and making mid-course adjustments and improvements in the program, as needed

- Tracking what has and what has not worked well, so that success can be replicated and mistakes avoided
- Identifying and prioritizing questions to ask in an evaluation
- Identifying external factors that can facilitate or hinder a program
- Integrating program planning and evaluation

3.4 What are the Limitations to a Logic Model?²

There are some limitations of using a logic model:

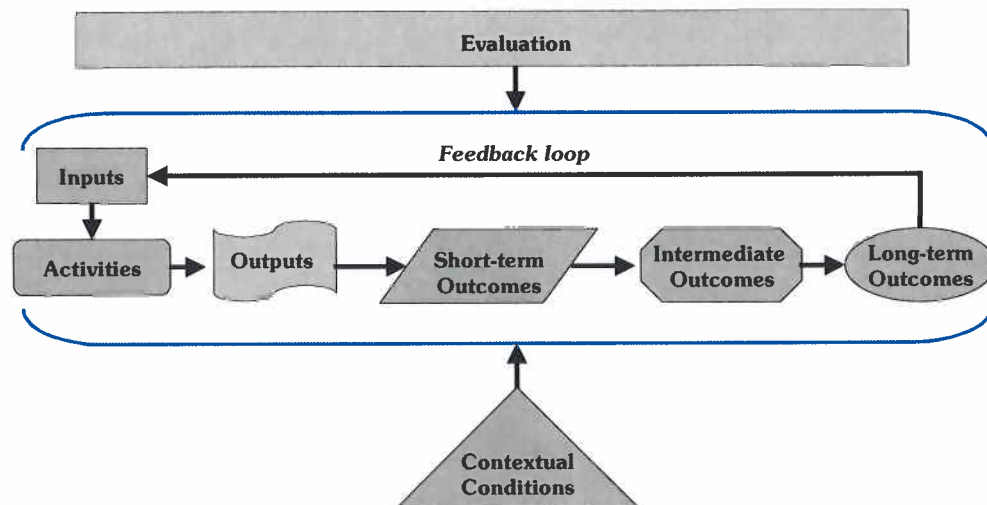
- The diagram of a logic model summarizes how the program is presumed to work. A logic model only represents reality; it is not reality. Although the boxes of a logic model are shown in a linear fashion, the relationships among them are expected to be complex, interactive, and recursive over time.
- A logic model only diagrams expected outcomes; however, unexpected outcomes may also occur in a program. It is important that program staff and program evaluators monitor and address unexpected outcomes as well.
- A logic model may be presented as a cause and effect model, when it was intended to be based on assumptions about a program and not to test cause and effect of program components. It is important to be clear on the intention and basis of the logic model when it is being developed and presented.

Remember!

Even though drafting logic models can be challenging, doing so can be a worthwhile process. The process of developing a logic model with partners and stakeholders can be as beneficial as the final product.

² (Adapted from the University of Wisconsin-Extension, 2001)

3.5 What does a Basic Program Logic Model Look Like?



3.6 What are the Basic Components of a Logic Model?

Inputs are the various resources that go into a program. Inputs for a PRC could include:

- PRC Community Committee
- University facilities
- Local health priorities or disparities, such as diabetes in the African American community or blue-collar worker health within the workplace

Activities are the actual events that take place as part of the program. PRC activities could be:

- Testing a school-based intervention for physical activity
- Holding meetings with the community to maintain relationships with partners
- Assessing the needs and assets of community health topics
- Evaluating the core research project outcomes
- Training public health practitioners within the local health department

Outputs are the direct products of program activities. Examples of PRC outputs are:

- A curriculum for nursing home facilities on healthy aging
- A tobacco prevention intervention for adolescents
- A technical assistance program for the county health department on cancer screenings
- A walking path built in the community park

Outcomes are the intended effects of the program. Different levels of outcomes are often used in logic models depending on the program. Below, outcomes are described as short-term, intermediate, and long-term. Applicants may consider including all levels of outcomes in their center logic models, if desired.

Short-term outcomes are the immediate effects of a program and often focus on the knowledge, attitudes, and skills gained by a target audience. Examples from a PRC could be:

- Increased public exposure to information about the dangers of dry-sanding of lead-based paint
- Increased awareness of facilities for health promotion in a rural community
- Increased skills in grant writing after a training for public health practitioners

Intermediate outcomes include behavior change, normative change, and changes in policies. The following are some examples:

- Uptake of a school-based physical activity intervention throughout the state
- A policy implemented to ban dry-sanding of paint
- A community implementing a tobacco prevention program for the community's youth
- Increased, consistent use of a community walking trail that was built to promote physical activity

Long-term outcomes may take several years or longer to achieve. The following are some examples:

- Decreases in the prevalence of tobacco use
- Decreases in injuries in the older adult population
- Decreases in cancer incidence in the Appalachian community

Evaluation. Program evaluation is “the systematic collection of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness, and/or inform decisions about future program development” (Patton, 1997). Evaluation of long-term outcomes may not be feasible because many factors can contribute to long-term outcomes, and empirical data to demonstrate a causal link between the center’s proposed activities and long-term outcomes may be lacking. Therefore, applicants should consider the level of outcome that is feasible to evaluate for their proposed center. Examples of possible PRC center-level evaluation questions are:

- What training activities has the PRC engaged in?
- How has the PRC community committee been engaged in the research activities over time?
- How has PRC research findings been used by the public health practice community?

Contextual conditions or influential factors are factors external to the program that may not be within the control of the program, but may influence implementation of program activities and achievement of outcomes. Examples of contextual conditions are:

- A lack of medical specialists in a rural community
- Socio-economic conditions, such as poverty, in a community
- Budget constraints at the state health department
- A large number of fast-food restaurants in a community

Arrows depict the logical links between inputs, activities, outputs, and outcomes. Think of each arrow as a bridge between two boxes. To construct your bridges, use theories, research, previous evaluation results, evidence-based interventions, model programs, or proposed linkages.

Feedback loops show the dynamic nature of a program and show how what is learned through evaluation of achievement of outcomes influences other program components.

Remember!

The layout of the boxes and arrows represent how the program is assumed to function, but does not necessarily represent evidence-based action. The evidence base behind the model can develop over the life of the program. A logic model is an iterative tool, so it can change over time as the program develops and a more thorough understanding of the program is gained.

Section 3: Developing A Logic Model

3.1 Involving Stakeholders

The first step in developing a logic model is to engage the center's stakeholders. This is also the first step in CDC's *Framework for Program Evaluation in Public Health* (1999). Consider the range of stakeholders that affect the program, and include stakeholders who will be participating in, or influenced by the program (the target group). Engage partners who both support and inhibit the progress of the center's goals. Having complementary and competing points of view at the table ensures that a variety of perspectives are represented.

It is hoped that all parties can reach an understanding and achieve consensus about program outcomes and limitations, as well as activities to achieve those outcomes and future directions. The development of a logic model should guide program development and evaluation planning simultaneously.

Benefits of involving stakeholders in the development of a logic model are that this participatory process:

- Provides a forum for stakeholder perspectives and views (whether similar or opposing) to be identified and considered
- Promotes ownership, commitment, and support to the program from all stakeholder groups
- Encourages "buy-in" from stakeholders on the program
- Gives access to a broad range of knowledge, perspectives, and resources from the stakeholders that bring their own expertise to the table
- Encourages action on the project results and recommendations

An applicant may find it helpful to form a team or advisory group composed of various stakeholders for logic model development.

Examples of PRC stakeholders:

State, county, and local health departments	Local nursing homes
Community members	Board of Education
Community-based organizations	State environmental agency
Schools	Chronic Disease Directors
Medical staff	University leadership

3.2 Common Practices in Developing Logic Models

The second step in developing a logic model is to decide which approach to use. There is no one correct way to create a logic model. However, the stage of development of the program (e.g., planning, implementation, or maintenance) should lead to one of two approaches to creating the model: right-to-left or left-to-right.

Right-to-left development

This approach, also called reverse logic, starts with desired outcomes and requires working backwards to develop activities and inputs. Usually used in the planning stage, this approach ensures that program activities will logically lead to the specified outcomes if the arrow bridges are well founded. Ask the question, “How?” when moving to the left in the logic model. This approach also is helpful for a program in the implementation stage that still has some flexibility in its program activities.

A basic example of this logic for the PRCs could be:

Long-term Outcome	Youth will incorporate the recommended daily amount of physical activity into their lifestyle. How?
Intermediate Outcome	Youth will engage in additional physical education activities in school. How?
Output/Short-term Outcome	Physical education curricula will be modified. How?
Activities	Physical education teachers will be taught how to modify their curricula to incorporate more lifelong physical activities. How?
Inputs	Trainers, model curriculum, facilities, money. How?

Left-to-right development

This approach, also called forward logic, may be used to evaluate a program in the implementation or maintenance stage that does not already have a logic model. Start by articulating the program inputs and activities. To move to the right in the model, ask the question, “Why?” Think of this approach as an “If ..., then ...” progression.

A basic example of this logic for the PRCs could be:

Inputs	Staff, incentives, materials Why?
Activities	Work Site Wellness Challenge. Why?
Output/Short-term Outcome	Employees’ attitudes will improve, and their knowledge about the recommended daily level of physical activity will increase. Why?
Intermediate Outcome	Employees’ levels of physical activity will increase and work site norms for physical activity will improve. Why?
Long-term Outcome	Employees take fewer sick days and general employee health improves. Why?

3.3 General Guidance on Developing a Logic Model

In addition to involving stakeholders and determining an approach to develop the center logic model, the following sections provide some additional guidance to the process.

Size of Logic Model

An essential design element of logic models is that they are contained on a **SINGLE** page. It is intended to be a quick snapshot or visual depiction of the program. The detail should be comprehensive enough to adequately portray the big picture of the center, but sparse enough to embody a single-page portrait of the center.

Logic Model Narrative

Because a logic model is contained on a single page, it is necessary to include a short narrative on subsequent pages to describe and clarify logic model components for reporting purposes and funding proposals. A narrative component to the logic model can convey the depth and detail of each activity and its intended outcome to the audience.

Layout of Logic Model Components

Each applicant's logic model will diagram the proposed center inputs, activities, outputs, outcomes, and underlying logic connecting the center components. This will be reflected in the content and layout of the logic model boxes and arrows. In the application, the applicant should describe and justify how the components of the center logic model are linked to or differentiate from the national PRC program conceptual framework.

Feedback Loops and Evaluation

Include feedback loops and evaluation on the model. These important components, as shown in the national conceptual framework, demonstrate how process and outcome measures can give feedback to the program. The feedback can enhance the program over time. However, evaluation of long-term outcomes may not be feasible because many factors can contribute to long-term outcomes, and empirical data to demonstrate a causal link between the center's proposed activities and long-term outcomes may be lacking. Therefore, applicants should consider the level of outcome that is feasible to evaluate for the center.

Including Other Funding Sources

Many applicants may receive funding outside of the PRC program core funding. It is up to the individual applicants to decide if they want to include other funding sources in the logic model. This could depend on what funding is being used for the PRC's core research project, and whether other funding is used to support projects within the mission and goals of the center. Due to the variety of structures and projects in the PRC program, there are no guidelines given to the applicants on how to conceptualize funding in the logic model.

Performance Indicators

The 13 National PRC performance indicators are listed in Appendix B. While these indicators do not need to be explicitly represented in the logic model and narrative, the concepts behind these indicators should guide the development of some components for the logic model. For example, indicator D1 states "Evidence of a PRC communication and dissemination plan, developed with input from key partners." Therefore, in the logic model, each PRC should make sure that communication and dissemination are represented.

3.4 Final Points to Consider

Once the logic model has been developed, consider the following points when reviewing the model:

- Does each component logically relate to the other?
- Are there missing components or arrows that disrupt the logic of the model?
- When implemented, can the model be used to assess whether the center is doing what it needs to do to achieve its identified outcomes?

It is important to remember that logic models change over time with changes in the scientific evidence, improvements to the program, shifting resources, and new initiatives.

More questions?

More guidance and resources on developing and using logic models are available at the end of this Guide. Further questions about the PRC RFA may be directed to the PRC Listserv by sending an e-mail to prev-centers@listserv.cdc.gov.

Section 4: References

Centers for Disease Control and Prevention. "Framework for Program Evaluation in Public Health." MMWR 1999;48(No. RR-11).

Dwyer, J.M. and Makin, S. (1997). "Using a Program Logic Model that Focuses on Performance Measurement to Develop a Program." Canadian Journal of Public Health, 88(6): 421-425.

Institute of Medicine, *Linking Research and Public Health Practice: A Review of CDC's Program for Research and Demonstration of Health Promotion and Disease Prevention*, Washington, D.C.: National Academy Press, 1997.

Patton M.Q. *Utilization-Focused Evaluation: The New Century Text*. 3rd ed. Thousand Oaks, CA: Sage Publications; 1997.

University of Wisconsin--Extension. *Enhancing Program Performance with Logic Models*. <http://www1.uwex.edu/ces/lmcourse>, 2002.

University of Wisconsin--Extension. *Logic Models* (PowerPoint presentation). <http://www.uwex.edu/ces/pdande/evaluation/evalpresentations.html>, 2001.

W.K. Kellogg Foundation. *Using Logic Models to Bring Together Planning, Evaluation, & Action: Logic Model Development Guide*. Battle Creek, Michigan: December 2001.

Section 5: Resources

5.1 Worksheets

Worksheets on the following pages are provided to assist in the development of the applicant's logic model. These worksheets will facilitate the development of the logic model, particularly as stakeholders become involved in the process. These worksheets are only provided as tools, and **applicants to the Program Announcement Number 04003 are not obligated to use these worksheets as part of the application process.**

- Worksheet 1: Describe or Plan the Center
- Worksheet 2: Logic Model Components

Worksheet 1: Describe or Plan the Center*

This worksheet is provided as a resource for the RFA applicants developing center logic models.

1. Define and describe the primary community or communities that the center's activities will serve.

2. Plan or describe the national, regional, or local health priority or health disparity:

a. What is the nature of the health priority or disparity?

b. What is the magnitude of the health priority or disparity (including subpopulations)?

c. What are the consequences of the health priority or disparity?

d. What causes the health priority or disparity?

e. What changes or trends are occurring in the health priority or disparity?

3. Who are the stakeholders and partners that are involved in your center?

4. What resources and capacity are available to the center?

5. Plan or describe the center.

We know our end goal, so we will work right-to-left and ask, “**How?**”

OR We know what we have to put into the center, so we will work left-to-right and ask, “**Why?**”

6. How are your center’s inputs, activities, and outputs linked to the center’s outcomes?

****Adapted from worksheets provided in:***

The Center for the Advancement of Community Based Public Health. An Evaluation Framework for Community Health Programs Health. Durham, North Carolina: June 2000.

US Department of Health and Human Services. *Physical Activity Evaluation Handbook*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2002.

Worksheet 2: Example of Logic Model Components

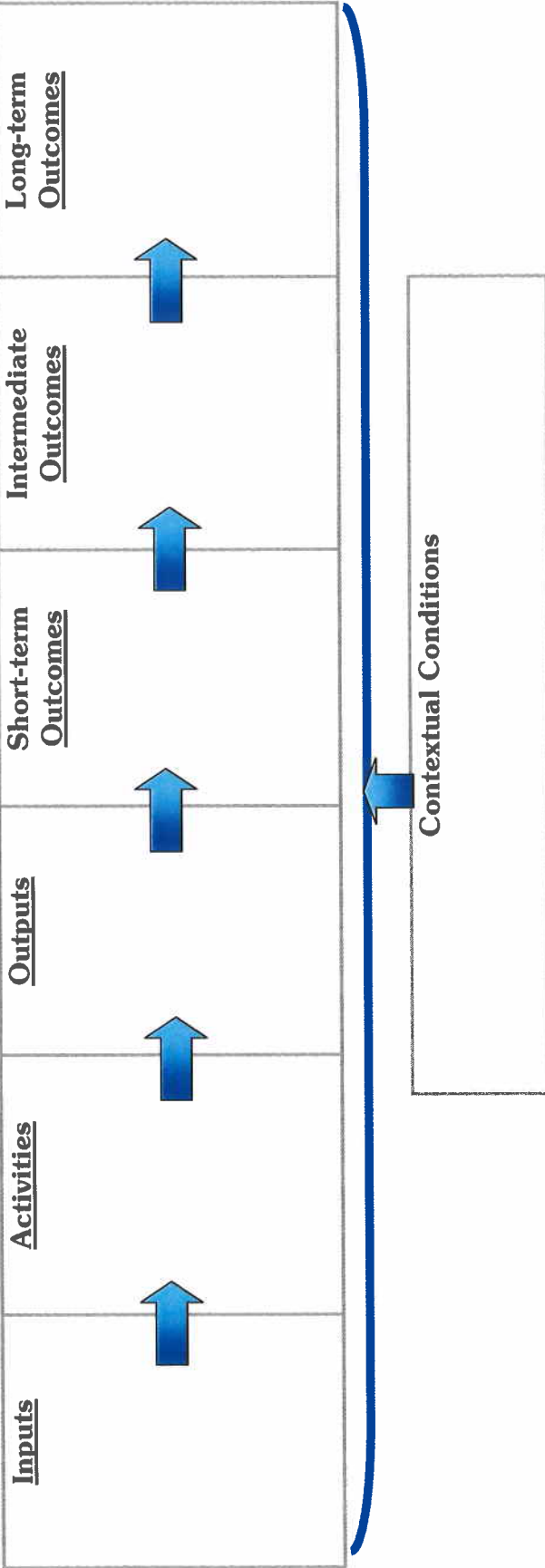
This worksheet is provided as a resource for the RFA applicants developing center logic models.

Name of Center:

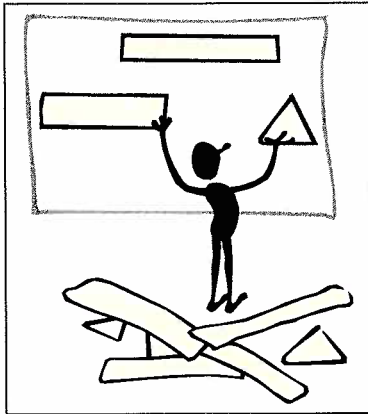
Mission of Center:

Evaluation

Remember to
add the
feedback loops!



5.2 Resources on Developing Logic Models* and Evaluation: References for CDC's Prevention Research Centers



Note: This document is an abbreviated list of major CDC and non-CDC resources on evaluation and logic models. A more comprehensive guide on developing a center logic model and linking it to the national conceptual framework (as required in the Request for Applications) will be distributed to all PRCs in early April.

Disclaimer: Links to non-Federal organizations found in this document are provided solely as a service to our users. These links do not constitute an endorsement of these organizations or their programs by CDC or the Federal Government, and none should be inferred. The CDC is not responsible for the content of the individual organization web pages found at these links.

The following resources are listed below:

- Guides and On-line Publications
- Websites
- Organizations and Institutions
- Peer-Reviewed Articles and Published Books

Some documents on this resource list are in Adobe(TM) Acrobat(TM) files. If you do not have a copy of the Acrobat Reader, it can be [downloaded for free](http://www.adobe.com/products/acrobat/readstep.html) from Adobe (<http://www.adobe.com/products/acrobat/readstep.html>).

Guides and On-Line Publications

An Evaluation Framework for Community Health Programs

Citation: The Center for the Advancement of Community Based Public Health. An Evaluation Framework for Community Health Programs Health. Durham, North Carolina: June 2000.

On-line access: <http://www.cdc.gov/eval/evalcbph.pdf>

Order a copy: On-line only

Cost: No cost on-line

Logic Model

Guidance: Basic information on logic models is provided.

Summary: This document is an adapted version of the CDC *Framework for Program Evaluation in Public Health*, geared to community stakeholders. This version was developed to provide a

* The asterisk denotes resources that provide in-depth guidance on developing logic models.

practical tool for engaging community stakeholders in program evaluation activities. Community stakeholders are often prevented from participating because explanations of evaluation are written mainly for academic and professional readers. This document explains evaluation by speaking directly to people who live and work in communities. Adaptations were based on feedback gathered systematically from front-line practitioners and community members across the country. The result is a retooled version of the framework that is more accessible to community members and staff of community-based organizations. The CBPH version presents essentially the same content as the CDC publication using less technical language, more graphics, and more user-friendly layout. It also includes case examples and quotes provided by community-based practitioners.

CDC Framework for Program Evaluation in Public Health

- Citation:* Centers for Disease Control and Prevention. Framework for Program Evaluation in Public Health. MMWR 1999;48 (No. RR-11).
- On-line access:* <http://www.cdc.gov/eval/framework.htm>
- Order a copy:* Copies can be purchased from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325. Telephone: (202) 512-1800
- Cost:* No cost on-line. Printed version: domestic \$2.25, foreign \$2.81
- Logic Model*
- Guidance:* Basic information on logic models is provided.
- Summary:* The framework guides public health professionals in their use of program evaluation. It is a practical, nonprescriptive tool, designed to summarize and organize essential elements of program evaluation. The purposes of this framework are to 1) summarize and organize the essential elements of program evaluation, 2) provide a common frame of reference for conducting evaluations, 3) clarify the steps in program evaluation, 4) review standards for effective program evaluation, and 5) address misconceptions about the purposes and methods of program evaluation

***CDC Oral Health Infrastructure Development Tools**

- Citation:* Division of Oral Health, CDC. Oral Health Infrastructure Development Tools.
- On-line access:* Main website:
<http://www.cdc.gov/OralHealth/library/infrastructure.htm>
Logic Model Guide:
http://www.cdc.gov/OralHealth/library/pdf/logic_models.pdf

Order a copy: On-line only
Cost: No cost

Logic Model
Guidance:

On this website, there is a guide specifically for creating Logic Models, geared towards the state oral health programs.

Summary:

This CDC resource is a “how to” guide for planning and implementing evaluation activities. The manual reflects the priorities of the Centers for Disease Control and Prevention for program planning, monitoring and evaluation. The purpose of this manual is to assist state programs in planning, design, implementation, and use of practical and increasingly comprehensive evaluation of oral health promotion and disease prevention efforts. The strategy presented in this manual will aid those responsible for program planning and evaluation activities to demonstrate accountability to diverse stakeholders.

Introduction to Program Evaluation for Comprehensive Tobacco Control Programs

Citation: MacDonald G, Starr G, Schooley M, Yee SL, Klimowski K, Turner K. Introduction to Program Evaluation for Comprehensive Tobacco Control Programs. Atlanta (GA): Centers for Disease Control and Prevention; 2001.

On-line access: http://www.cdc.gov/tobacco/evaluation_manual/contents.htm

Order a copy: Contact OSH Publications, Mail Stop K-50, CDC, 4770 Buford Highway NE, Atlanta, GA 30341-3717, Telephone: (770) 488-5703 (Press 3 to talk to an information specialist)

Cost: No cost

Logic Model

Guidance:

Basic information on developing logic models is provided.

Summary:

This CDC resource is a "how to" guide for planning and implementing evaluation activities geared towards state tobacco control program managers and staff. The manual reflects the priorities of the Centers for Disease Control and Prevention (CDC), Office on Smoking and Health (OSH), for program monitoring and evaluation. The purpose of this manual is to assist in the planning, design, implementation, and use of practical and increasingly comprehensive evaluations of tobacco control efforts. The strategy presented in this manual will aid those responsible for evaluation activities to demonstrate accountability to diverse stakeholders. In this case, accountability includes assessing and documenting the effectiveness of programs, measuring program outcomes, documenting implementation and cost effectiveness, and increasing the impact of programs.

Measuring Program Outcomes: A Practical Approach

- Citation:** United Way of America. *Measuring Program Outcomes: A Practical Approach*. Arlington, VA: 1996
- On-line access:** <http://national.unitedway.org/outcomes/resources/mpo/>
(Table of Contents and Excepts only)
- Order a copy:** Contact Sales Service/America at (800) 772-0008 (toll-free U.S.) or (703) 212-6300, and ask for Item #0989
- Cost:** \$5 (plus shipping and handling).
- Logic Model**
- Guidance:** A chapter on developing logic models is provided.
- Summary:** A step-by-step manual for health, human service, and youth- and family-serving agencies on specifying program outcomes, developing measurable indicators, identifying data sources and data collection methods, analyzing and reporting findings, and using outcome information. Demonstrates the use of logic models in clarifying and communicating outcomes, and cites experiences of many types of agencies. Includes worksheets, examples, and a bibliography on measurement issues and performance indicators.

Physical Activity Evaluation Handbook

- Citation:** U.S. Department of Health and Human Services. *Physical Activity Evaluation Handbook*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2002.
- On-line access:** <http://www.cdc.gov/nccdphp/dnpa/physical/handbook/index.htm>
- Order a copy:** Mailing Address: *Physical Activity Evaluation Handbook*, Nutrition and Physical Activity Program, NCCDPHP, CDC, 4770 Buford Highway, NE, MS/K-46, Atlanta, GA 30341-3717, Telephone: (770) 488-5820, E-mail: ccdinfo@cdc.gov, Fax: (770) 488-6000
- Cost:** No cost
- Logic Model**
- Guidance:** Basic information on developing logic models is provided.
- Summary:** This CDC resource outlines the six basic steps of program evaluation as recommended by CDC's *Framework for Program Evaluation in Public Health*. The guide illustrates each step with physical activity program examples. Appendices provide information about physical activity indicators, practical case studies, and additional evaluation resources.

W.K. Kellogg Foundation Evaluation Handbook

Citation: W.K. Kellogg Foundation. Evaluation Handbook. Battle Creek, Michigan: January 1998.

On-line access: <http://www.wkkf.org/Knowledgebase/Pubs>

Order a copy: Telephone: (800) 819-9997, request item #1203

Cost: No cost

Logic Model

Guidance: Basic information on developing logic models is provided.

Summary: This handbook provides a framework for thinking about evaluation as a relevant and useful program tool. It was written primarily for project directors who have direct responsibility for the ongoing evaluation of WKKF-funded projects.

***W.K. Kellogg Foundation (WKKF) Logic Model Development Guide**

Citation: W.K. Kellogg Foundation. Using Logic Models to Bring Together Planning, Evaluation, & Action: Logic Model Development Guide. Battle Creek, Michigan: December 2001.

On-line access: <http://www.wkkf.org/Knowledgebase/Pubs>

Order a copy: Telephone: (800) 819-9997, request item #1209

Cost: No cost

Logic Model

Guidance: Extensive guidance on developing logic models is provided throughout the guide.

Summary: This guide is geared towards nonprofits. In particular, it was developed to provide practical assistance in demonstrating the effectiveness of program activities by initiating and completing outcome-oriented evaluation of projects. In this guide, WKKF provides an orientation to the underlying principles of "logic modeling" to both staff and community members. The guide can be used to enhance organizational program planning, implementation, and dissemination activities.

Web Sites

***CDC Evaluation Working Group**

- Website:* Homepage: <http://www.cdc.gov/eval/index.htm>
Resource list: <http://www.cdc.gov/eval/resources.htm>
Logic Model
Guidance: In the resource list, there is an extensive list of resources logic models and their development, including a bibliography of logic model references.
Summary: Use this website to learn about the CDC Evaluation Working Group and its effort to promote program evaluation in public health. Links provide an overview of the group, highlights of a framework for program evaluation, and an extensive resource list on topics such as standards, associations, logic models, and journals.

United Way Outcome Measurement Resource Network

- Website:* <http://national.unitedway.org/outcomes/>
Logic Model
Guidance: Some of the resources on this website provide information on logic models.
Summary: The United Way of America's Outcome Measurement Resource Network purpose is to provide United Way of America's and other organizations' outcome measurement resources and learnings.

Organizations and Institutions

***Program Development and Evaluation, University of Wisconsin-Extension**

- Website:* Main page: <http://www.uwex.edu/ces/pdande/index.html>
Logic Model training: <http://www.uwex.edu/ces/pdande/progdev/logicmodel.html>
Logic Model
Guidance: An on-line training resource on developing logic models is offered through this website. The curriculum modules are available on-line, and there is also an accompanying distance learning component available.
Summary: The mission of the Program Development and Evaluation Unit is to provide training and technical assistance that enables Cooperative Extension campus and community-based faculty

and staff to plan, implement and evaluate high quality educational programs.

The Evaluation Center, Western Michigan University

Website: <http://www.wmich.edu/evalctr/>

Logic Model

Guidance: Some of the resources on this website provide information on logic models.

Summary: The Evaluation Center's mission is to provide national and international leadership for advancing the theory and practice of program, personnel, and student/constituent evaluation, as applied primarily to education and human services. The Center's principal activities are research, development, dissemination, service, instruction, and leadership.

Peer-Reviewed Articles and Published Books

*Alter, C. and S. Murty (1997). "Logic modeling: a tool for teaching practice evaluation." Journal of Social Work Education, 33(1): 103-117.

*Dwyer, J.M. and Makin, S. (1997). "Using a Program Logic Model that Focuses on Performance Measurement to Develop a Program." Canadian Journal of Public Health, 88(6): 421-425.

McEwan, K. L. and D. A. Bigelow (1997). "Using a logic model to focus health services on population health goals." Canadian Journal of Program Evaluation, 12(1): 167-174.

*McLaughlin, J. A. and J. B. Jordan (1999). "Logic models: a tool for telling your program's performance story." Evaluation and Program Planning, 22(1): 65-72.

Patton, M. (1997). *Utilization-focused evaluation*, 3rd Edition. Thousand Oaks, CA: Sage Publications.

Russ-Eft, D. and Preskill, H. (2001). *Evaluation in Organizations: A Systematic Approach to Enhancing Learning, Performance, and Change*. Cambridge, MA: Perseus Publishing.

5.3 Glossary of Terms

Activities: Activities are the actual events or actions that take place as part of the program.

Arrows: In a logic model, arrows depict the logical links between inputs, activities, outputs, and outcomes.

Contextual conditions: Factors external to the program that may not be within the control of the program, but may influence implementation of program activities and achievement of outcomes.

Feedback loops: Show the dynamic nature of a program and show how what is learned through evaluation of achievement of outcomes influences other program components.

Inputs: The various resources that go into a program.

Logic Model: A systematic and visual way to present the perceived relationships among the resources you have to operate the program, the activities you plan to undertake, and the changes or results you hope to achieve. The logic models that the centers will develop for the RFA are referred to as “logic models.”

National Conceptual Framework: The national PRC logic model is referred to as the national conceptual framework to distinguish between the individual PRC logic models.

Outputs: The direct products of program activities; immediate measures of what the program did.

Outcomes: The results of program operations or activities; the effects triggered by the program.

Partners: For each PRC, partners may include community-based organizations, community groups, state and local health departments, educational and health entities, and others who provide input to the center and are engaged at multiple or all levels of developing and implementing an activity or activities of the center.

Program evaluation: The systematic collection of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness, and/or inform decisions about future program development (Patton, 1997).

Stakeholders: People or organizations who have an investment in the center’s activities and who are interested in learning about the center’s work or using the products or findings of the center’s research and training.

Appendix A

National Conceptual Framework

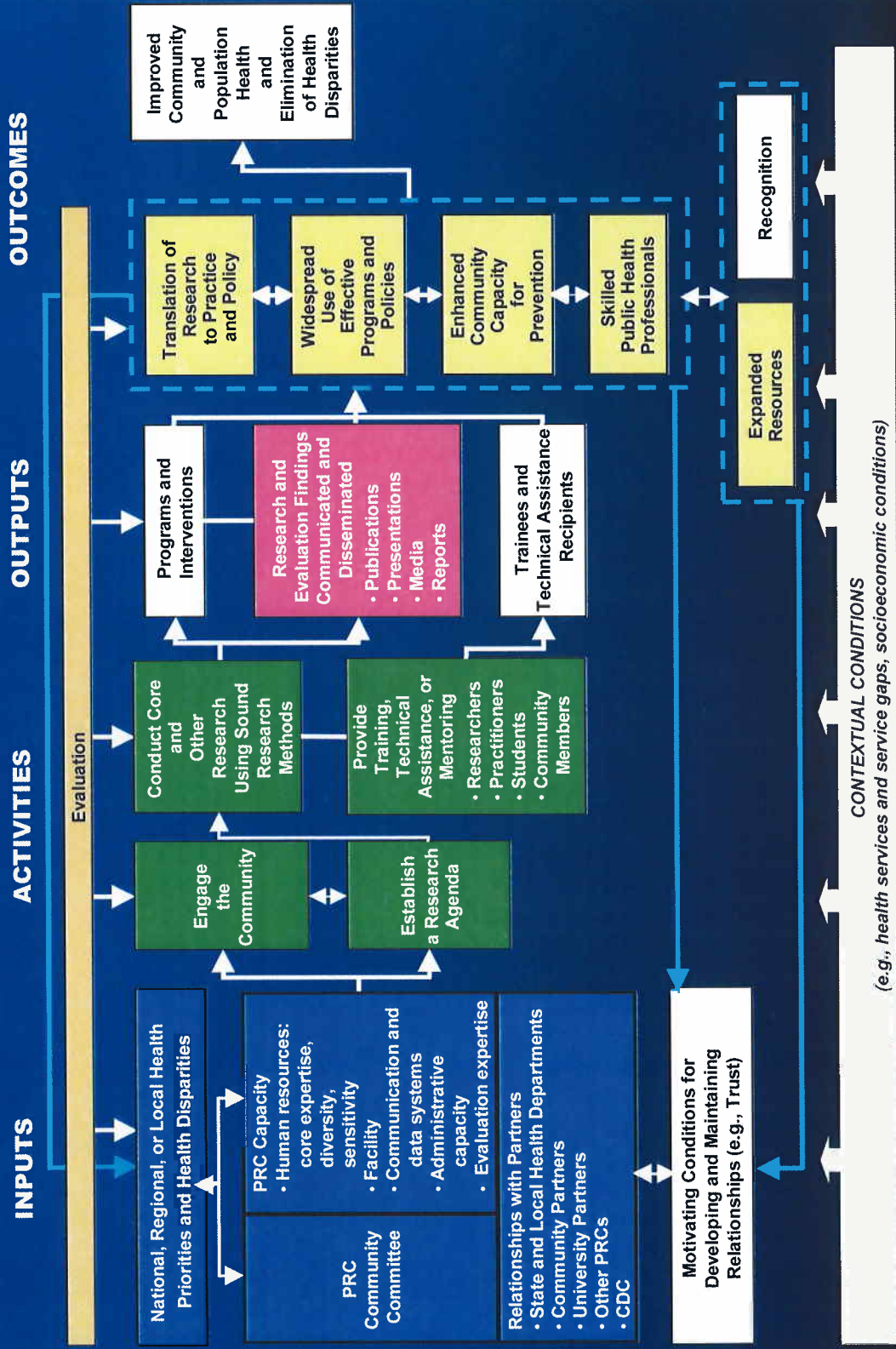
The conceptual framework for the national PRC Program was developed to describe the activities of the program and the outcomes it expects to achieve. The framework identifies the inputs, activities, outputs, and outcomes common to all PRCs and shows the expected relationships among these components. The diagram of the framework summarizes how the program is presumed to work. Although the boxes of the framework are shown in a linear fashion, the relationships among them are expected to be complex, interactive, and recursive over time.

The national framework does not imply that one size fits all. To reflect uniqueness, each PRC creates its own logic model by tailoring the national framework to the center's specific activities and goals. More mature PRCs, for example, may be more likely to have a large array of outputs than new centers are. The national framework cannot show the emphasis an individual PRC may place on one type of activity over another. The time required to achieve different outputs may vary among PRCs and depends on many factors, such as the type of research conducted and other activities undertaken, the amount of resources devoted to activities such as dissemination, and contextual factors. Thus, the framework does not specify the time it may take to achieve outputs or outcomes.

The national framework was created through a participatory process involving a diverse set of national, state, and local PRC stakeholders. The elements of the framework and its linkages are consistent with the program's Congressional authorization, the PRC Guiding Principles, and the PRC Research Policy Statement (<http://www.cdc.gov/prc>).

DIAGRAM NOTE: The size of the boxes in the diagram depends on the amount of text in each box and does not denote the relative importance of a specific element.

National Conceptual Framework for the PRC Program



Revised, March 2003

Inputs. The first column of the conceptual framework, inputs, refers to the assumptions underlying a program and the infrastructure that must be in place before a program can be implemented. The five inputs the framework captures are described below.

National, Regional, or Local Health Priorities and Health Disparities. Each PRC is established to address national, regional, or local health priorities and health disparities in a targeted community or a defined population. A PRC focuses its research activities on the health issues of high priority to the defined community and that address state or national health priorities, such as those stated in *Healthy People 2010*, or gaps identified in the *Guide to Community Preventive Services* or the *Guide to Clinical Preventive Services*.

DIAGRAM NOTE: Two-way arrows connect the health priorities and disparities box and the next three input boxes.

PRC Community Committee. CDC requires each PRC to form a PRC Community Committee (also called a Community Advisory Board or Community Advisory Committee by some PRCs). This group comprises members of the PRC's defined community and representatives of agencies and organizations serving that community. The inputs provided by a PRC Community Committee include advice, expertise, contacts, and intangible benefits. Some PRCs form additional advisory groups, such as a policy board or advisory committees for individual research projects. The decision to form these other groups depends on the needs of the PRC and the community.

PRC Capacity. Before conducting specific public health research projects and health promotion activities, a PRC must have the necessary internal capacity. At a minimum, this capacity includes faculty and staff who have the requisite expertise to implement PRC projects and activities, a facility or offices in which to work, communication and data systems that enable and facilitate work, administrative capacity (e.g., financial resources), experience working with the community, and expertise for evaluating the implementation of the PRC's activities and to assess its outcomes and accomplishments.

Relationships with Partners. Each PRC is also expected to form relationships with state and local health departments, community partners, university partners, other PRCs, and CDC. Partnerships are intended to make the PRC's research and capacity-building activities relevant to its identified community. Partners collaborate with the PRC in designing and conducting research and other PRC projects and in disseminating research findings, which are expected to help facilitate the translation of public health research to practice.

DIAGRAM NOTE: The boxes for community committee, capacity, and relationships with partners have borders touching each other to reflect that the PRC, its community, and its external partners are the major stakeholders and collaborate with

each other to implement the PRC Program. A two-way arrow connects the combined box for these inputs with that for the next input. One-way arrows also connect the combined box to the first two program activities.

Motivating Conditions for Developing and Maintaining Relationships. The conceptual framework also recognizes the conditions motivating the development and maintenance of relationships with community partners and others. These conditions may include trust and tangible or intangible benefits (such as access to expertise or acceptance by a community) gained from the partnership. These conditions may influence a partner's willingness to form a relationship with the PRC, the nature and strength of the relationship, and a PRC's ability to sustain the relationship over time.

Activities. The second and third columns of the conceptual framework capture activities, which include engaging the community, establishing a research agenda, conducting research, and providing training, technical assistance, or mentoring.

Engage the Community and Establish a Research Agenda. A PRC may engage stakeholders within its defined community in identifying research priorities, selecting projects, recruiting research participants, refining research methods, developing interventions, conducting research, and reporting and disseminating research findings.

DIAGRAM NOTE: A two-way arrow connects the boxes for engaging the community and establishing a research agenda. A one-way arrow connects the box for the research agenda to the next set of activities.

Conduct Core and Other Research Using Sound Research Methods. Research includes participatory, community-based activities to prevent disease and promote health. The PRC Program conducts various types of applied research: 1) determinant research, which examines how risk and protective factors affect health and how this research is essential for developing effective interventions; 2) intervention research, which examines the effectiveness of strategies or programs in reducing disease and promoting health; and 3) dissemination research, which examines strategies for promoting the adoption and maintenance of effective programs. Some PRCs' research activities also include secondary analysis to inform future community programs, interventions, and policy. CDC funds a core research project at each PRC. Some PRCs also conduct CDC-funded Special Interest Projects (SIPs). In addition, PRCs may conduct research funded by other federal agencies (such as the National Institutes of Health) and by state agencies, community-based organizations, and foundations. All research is expected to be conducted using sound research methods that further the field of prevention research.

Provide Training, Technical Assistance, or Mentoring. PRCs also train, provide technical assistance to, or mentor health professionals, researchers, practitioners, students, community members, and others. These activities, which are expected to be developed in collaboration with the recipients, may cover a range of topics, including health promotion, community building, research, and evaluation as well as other needs identified by PRC partners. PRCs may also train and provide technical assistance to community partners on implementing specific prevention and health promotion interventions, including best practices.

DIAGRAM NOTE: A line connects the box for conducting research and that for training, technical assistance, or mentoring. One-way arrows connect research to the first two outputs (interventions and dissemination; see below). A one-way arrow connects the box for training, technical assistance, or mentoring to the third output box, which represents trainees or technical assistance recipients.

Outputs. The fourth column captures outputs generated or produced as a result of program activities. The outputs are the measurable products of the PRC Program, as described below.

Programs or Interventions. Many PRCs develop and test disease prevention or health promotion programs or interventions in a community. A program may rely on a curriculum, a manual, or a particular prevention or health promotion tool, which is packaged and made available to interested organizations or individuals.

Research and Evaluation Findings Communicated and Disseminated. Research and evaluation findings are another type of output. These findings are typically published in peer-reviewed journals, books, and technical reports. They also may be presented to various audiences at professional conferences, community meetings, or other settings, and reported to the media. Findings from research conducted with a community should be shared with community partners.

Trainees or Technical Assistance Recipients. Outputs resulting from a PRC's training or technical assistance activities include the number of trainees and recipients of technical assistance, the number and duration of training or technical assistance events, and the satisfaction of participants with the training or technical assistance they received.

DIAGRAM NOTE: Together, all the output boxes connect to a set of four outcome boxes through a one-way arrow. These four outcomes connect to each other by two-way arrows.

Outcomes. The last two columns of the conceptual framework are outcomes, or the intended effects of program activities.

Translation of Research to Practice and Policy and Widespread Use of Effective Programs and Policies. One expected outcome is the uptake of research that results in changes to public health practice and policies. Research conducted by the PRCs is expected to be translated into community practice or policies adopted by local and state health departments, schools, other public agencies (e.g., recreation departments, housing authorities), and community-based organizations. Over time, these interventions and policies may be disseminated beyond a PRC's defined community and receive widespread use.

Enhanced Community Capacity for Prevention. One purpose of the PRC Program is to build capacity for public health practice. Therefore, an expected outcome is enhanced community capacity for prevention. Enhanced capacity includes an improved ability on the part of agencies and organizations to implement and make well-reasoned decisions about effective health prevention programs and services. This capacity combines a community's commitment, resources, and skills to respond to public health needs and priorities.

Skilled Public Health Professionals. Another expected outcome of the PRC Program is the development of skilled public health professionals. Those who collaborate with PRCs in the implementation of research projects and who participate in PRC-sponsored training and technical assistance improve their skills as a result.

Expanded Resources and Recognition. A PRC may be able to expand its resources beyond the core funding, research faculty, and initial organizational and agency partnerships that were formed when it first received CDC funding. A PRC may also gain recognition within a community and the nation for expertise in a particular field or on a public health topic and for its partnerships.

DIAGRAM NOTE: Two sets of dotted lines group the boxes for the outcomes. The first set surrounds the boxes for the first four outcomes. The second set surrounds the last two boxes (for expanded resources and recognition). These groupings show the potential relationships with other components of the framework with which they are logically connected or which they are likely to influence or be influenced by. The outcomes flow back through motivating conditions and up the input column. They also connect to health priorities and health disparities and down the input column. A one-way arrow also connects the outcomes to the ultimate goal, explained next.

Improved Community and Population Health and Elimination of Health Disparities. The right-most box of the conceptual framework shows the ultimate goal of the PRC Program: to improve community and population health and to eliminate health disparities.

Evaluation. Evaluation is a part of the PRC Program (noted at the top of the framework) that extends across all the inputs, activities, outputs, and outcomes, except for the ultimate outcome. The arrow to each column signifies that the PRC Program will evaluate aspects of each component, guided by performance monitoring and evaluation questions. Many factors can contribute to the final outcome, and empirical data demonstrating a causal link between proposed program activities and improvements in community health are lacking. Therefore, the PRC Program will not evaluate the PRCs' effect on improved community and population health and elimination of health disparities.

Evaluation provides useful data and feedback. For example, data may include information about how inputs are being used to shape the PRC Program, which activities are undertaken by the collective program, the quality of the activities, and the specific outcomes the program is accomplishing. CDC, PRCs, and other stakeholders can use evaluation findings for many purposes, including modification of program activities or enhancement and strengthening of relationships with community partners. Evaluation findings also provide information that can be shared with external stakeholders, can help document the program's value, and may provide justification for continuing or increasing program funding.

Contextual Conditions. The box across the bottom of the conceptual framework is for contextual conditions, which are socioeconomic, political, and cultural factors external to the PRC Program that may not be within its control but which may influence implementation of activities and achievement of outcomes. Note that these conditions may relate to all components of the framework.

Appendix B

Performance Indicators

- Evidence of community participation in determining health priorities
- Existence of written guidelines for PRC Community Committee, developed with the community
- Evidence of establishment and maintenance of partnerships with state and local agencies
- Evidence that the Prevention Research Center has a plan for developing its core capacity
- Evidence of a PRC communication/dissemination plan, developed with input from key partners
- Identification of research projects that were initially conceptualized or developed in collaboration with the PRC Community Committee
- Existence of explicit research agenda, developed with stakeholder input and with identified relationship to one or more HHS objectives: *Healthy People 2010*; local, state or CDC research priorities; or gaps identified in *Guide to Community Preventive Services* or *Guide to Clinical Preventive Services*
- Evidence that PRCs are furthering the field of prevention research by developing, testing, or disseminating theories, models, procedures, guidelines, methods or measures
- Evidence of plan and/or policy for training researchers, practitioners, and community, with measurable objectives
- Existence of PRC evaluation plan, developed in collaboration with PRC Community Committee, that is conducted in an ongoing way and tied to logic model for the Prevention Research Center
- Evidence of producing and disseminating research findings through peer-reviewed publications and educational and/or technical materials
- Examples of outcomes of PRC activities on target community and other communities, such as policy/environmental changes, uptake of interventions, and enhanced community capacity
- Evidence of new grants, contracts, and other resources awarded to Prevention Research Center and/or its partners