*I*ntroduction to Program Evaluation for Public Health Programs:

A Self-Study Guide

August 2005

Acknowledgments

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Contents

Executive Summary

This document is a "how to" guide for planning and implementing evaluation activities. The manual is based on CDC's *Framework for Program Evaluation in Public Health*, and is intended to assist state, local, and community managers and staff of public health programs in planning, designing, implementing, and using the results of comprehensive evaluations in a practical way. The strategy presented in this manual will help assure that evaluations meet the diverse needs of internal and external stakeholders, including assessing and documenting program implementation, outcomes, efficiency, and cost-effectiveness of activities, and taking action based on evaluation results to increase the impact of programs.

Why Evaluate Public Health Programs?

Public health programs have as their ultimate goal preventing or controlling disease, injury, disability, and death. Over time, this task has become more complex as programs themselves have become more complex. Increasingly, public health programs address large problems, the solution to which must engage large numbers of community members and organizations in a vast coalition. More often than not, public health problems—which in the last century might have been solved with a vaccine or change in sanitary systems—involve significant and difficult changes in attitudes and risk/protective behavior of consumers and/or providers.

In addition, the context in which public health programs operate has become more complex. Programs that work well in some settings fail dismally in others because of the fiscal, socioeconomic, demographic, interpersonal, and interorganizational setting in which they are planted. At the same time that programs have become more complex, the demands of policymakers and other stakeholders for accountability have increased.

All these changes in the environment in which public health programs operate mean that strong program evaluation is essential now more than ever, but also that there is no one "right" evaluation. Rather, a host of evaluation questions may arise over the life of the program that might reasonably be asked at any point in time. Addressing these questions about program effectiveness means paying attention to documenting and measuring the implementation of the program and its success in achieving intended outcomes, and using such information to be accountable to key stakeholders.

Program Implementation

The task of evaluation encourages us to examine the operations of a program, including which activities take place, who conducts the activities, and who is reached as a result. In addition, evaluation will show how faithfully the program adheres to implementation protocols. Through program evaluation, we can determine whether activities are implemented as planned and identify program strengths, weaknesses, and areas for improvement.

For example, a treatment program may be very effective for those who complete it, but the number of participants may be low. Program evaluation may identify the location of the program or lack of transportation as a barrier to attendance. Armed with this information, program managers can move the class location or meeting times or provide free transportation, thus enhancing the chances the program will actually produce its intended outcomes.

Program Effectiveness

The CDC and the Federal government have identified goals that public health programs should work toward to prevent or reduce morbidity and mortality. Comprehensive public health programs use multiple strategies to address these goals. Typically, strategies are grouped into program components that might include, for example, community mobilization, policy and regulatory action, strategic use of media and health communication, and funding of frontline programs. Program evaluation includes documenting progress on program goals and the effectiveness of these strategies in producing this progress.

Program Accountability

Program evaluation is a tool with which to demonstrate accountability to the array of stakeholders,who for a given program may include funding sources, policymakers, state, and local agencies implementing the program, or community leaders. Depending on the needs of stakeholders, program evaluation findings may demonstrate that the program makes a contribution to reducing morbidity and mortality or relevant risk factors; or that money is being spent appropriately and effectively; or that further funding, increased support, and policy change might lead to even more improved health outcomes. By holding programs accountable in these ways, evaluation helps ensure that the most effective approaches are maintained and that limited resources are spent efficiently.

This manual is based on CDC's *Framework for Program Evaluation in Public Health,*[1] and integrates insights from Framework-based manuals developed by CDC's Office on Smoking and Health,[2] and Division of Nutrition and Physical Activity[3] for their grantees and state and local partners, and by the Center for the Advancement of Community Based Public Health for community health programs.[4] This document is organized around the six steps of the CDC Framework:

- Engage Stakeholders
- Describe The Program
- Focus The Evaluation
- Gather Credible Evidence
- Justify Conclusions
- Ensure Use of Evaluation Findings and Share Lessons Learned

Each chapter illustrates the main points using examples inspired by real programs at the Federal, state, and local levels. In addition, following each chapter are supplementary materials that apply the main points of the chapter to your specific public health problem or area. These supplementary materials include one or more crosscutting case examples relevant to the specific public health area.

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[1] Centers for Disease Control and Prevention. Framework for program evaluation in public health. Atlanta, GA: MMWR 1999;48(NoRR-11):1-40.

[2] US Department of Health and Human Services. Introduction to program evaluation for comprehensive tobacco control programs. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, Office on Smoking and Health, November 2001.

[3] 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.

[4] Center for Advancement of Community Based Public Health. An evaluation framework for community health programs. Durham, NC: Center for Advancement of Community Based Public Health, June 2000.

Introduction

What Is Program Evaluation?

Most program managers assess the value and impact of their work all the time when they ask questions, consult partners, make assessments, and obtain feedback. They then use the information collected to improve the program. Indeed, such informal assessments fit nicely into a broad definition of evaluation as the "*examination of the worth, merit, or significance of an object.*"[5] And throughout this manual, the term "program" will be defined as "*any set of organized activities supported by a set of resources to achieve a specific and intended result.*" This definition is intentionally broad so that almost any organized public health action can be seen as able to benefit from program evaluation:

- Direct service interventions (e.g., a program that offers free breakfasts to improve nutrition for grade school children)
- Community mobilization efforts (e.g., an effort to organize a boycott of California grapes to improve the economic well-being of farm workers)
- Research initiatives (e.g., an effort to find out whether disparities in health outcomes based on race can be reduced)
- Advocacy work (e.g., a campaign to influence the state legislature to pass legislation regarding tobacco control)
- Training programs (e.g., a job training program to reduce unemployment in urban neighborhoods)

What makes true program evaluation different from the sort of informal assessment that any smart and dedicated manager is doing all the time? Mainly, it's that evaluation is conducted according to a set of guidelines (protocols) that are systematic, consistent, and comprehensive to assure the accuracy of the results. For purposes of this manual, we will define program evaluation as "*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.*"[6] Program evaluation does not occur in a vacuum; rather, it is influenced by real-world constraints. Evaluation should be practical and feasible and must be conducted within the confines of resources, time, and political context. Moreover, it should serve a useful purpose, be conducted in an ethical manner, and produce accurate findings. Evaluation findings should be used both to make decisions about program implementation and to improve program effectiveness.

As you will see, many different questions can be part of a program evaluation, depending on how long the program has been in existence, who is asking the question, and why the information is needed. In general, evaluation questions fall into one of these groups:

- **Implementation:** Were your program's activities put into place as originally intended?

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[5] Scriven M. Minimalist theory of evaluation: The least theory that practice requires. American Journal of Evaluation 1998;19:57-70.

[6] Patton MQ. Utilization-focused evaluation: The new century text. 3rd ed. Thousand Oaks, CA: Sage, 1997.

- **Effectiveness:** Is your program achieving the goals and objectives it was intended to accomplish?
- **Efficiency:** Are your program's activities being produced with appropriate use of resources such as budget and staff time?
- **Cost-Effectiveness:** Does the value or benefit of achieving your program's goals and objectives exceed the cost of producing them?
- **Attribution:** Can progress on goals and objectives be shown to be related to your program, as opposed to other things that are going on at the same time?

All of these are appropriate evaluation questions and might be asked with the intention of documenting program progress, demonstrating accountability to funders and policymakers, or identifying ways to make the program better.

Evaluation Supplements Other Types of Reflection and Data Collection

Evaluation is one of several ways in which the staff of a program might answer the question "How are we doing?" In most large organizations, that question might be posed at budgeting time, during strategic planning, in constructing performance measures, or even in establishing the marketing "brand" for the organization. And the question might be answered using approaches that might be characterized as "surveillance," as "research," or as "program evaluation." It is important that organizations see these processes as related and do their best to integrate the insights from them. Here's how:

Planning

Planning asks, "What *are* we doing and what *should* we do to achieve our goals?" Program evaluation, by providing information on progress toward organizational goals and identifying which parts of the program are working well and/or poorly, sets up the discussion of what can be changed to help the program better meet its intended goals and objectives.

Performance Measurement

Increasingly, public health programs are called to be accountable to funders, legislators, and the general public. Many programs do this by creating, monitoring, and reporting results for a small set of markers and milestones of program progress. Such "performance measures" are a type of evaluation—answering the question "*How* are we doing?" More importantly, when performance measures show significant or sudden changes in program performance, program evaluation efforts can be directed to the troubled areas to determine "*Why* are we doing poorly or well?"

Budgeting

Linking program performance to program budget is the final step in accountability. Called "activity-based budgeting" or "performance budgeting," it requires an understanding of program components and the links between activities and intended outcomes. The early steps in the program evaluation approach (such as logic modeling) clarify these relationships, making the link between budget and performance easier and more apparent.

Surveillance and Program Evaluation

While the terms *surveillance* and *evaluation* are often used together, each makes a distinctive contribution to a program, and it is important to clarify their different purposes. *Surveillance* is the continuous monitoring or routine data collection on various factors (e.g., behaviors, attitudes, deaths) over a regular interval of time. Surveillance systems have existing resources and infrastructure. Data gathered by surveillance systems are invaluable for performance measurement and program evaluation, especially of longer term and population-based outcomes. In addition, these data serve an important function in program planning and "formative" evaluation by identifying key burden and risk factors—the descriptive and analytic epidemiology of the public health problem. There are limits to how useful surveillance data can be for evaluators. For example, some surveillance systems such as the Behavioral Risk Factor Surveillance System (BRFSS), Youth Tobacco Survey (YTS), and Youth Risk Behavior Survey (YRBS) can measure changes in large populations, but have insufficient sample sizes to detect changes in outcomes for more targeted programs or interventions. Also, these surveillance systems may have limited flexibility when it comes to adding questions that a particular program evaluation might like to have answered.

In the best of all worlds, surveillance and evaluation are companion processes that can be conducted simultaneously. *Evaluation* may supplement surveillance data by providing tailored information to answer specific questions about a program. Data collection that flows from the specific questions that are the focus of the evaluation is more flexible than surveillance and may allow program areas to be assessed in greater depth. For example, a state may supplement surveillance information with detailed surveys to evaluate how well a program was implemented and the impact of a program on participants' knowledge, attitudes, and behavior. They can also use qualitative methods (e.g., focus groups, feedback from program participants from semistructured or open-ended interviews) to gain insight into the strengths and weaknesses of a particular program activity.

Research and Program Evaluation

Both research and program evaluation make important contributions to the body of knowledge, but fundamental differences in the purpose of research and the purpose of evaluation mean that good program evaluation need not always follow an academic research model. Even though some of these differences have tended to break down as research tends toward increasingly participatory models[7] and some evaluations aspire to make statements about attribution, "pure" research and evaluation serve somewhat different purposes ("Distinguishing Principles of Research and Evaluation" table), nicely summarized in the adage "Research seeks to prove; evaluation seeks to improve." Academic research focuses primarily on testing hypotheses; a key purpose of program evaluation is to improve practice. Research is generally thought of as requiring a controlled environment or control groups. In field settings directed at prevention and control of a public health problem, this is seldom realistic. The last three attributes in the table are especially worth noting. Unlike pure academic research models, program evaluation acknowledges and incorporates differences in values and perspectives from the start, may address many questions besides attribution, and tends to produce results for varied audiences.

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[7] Green LW, George MA, Daniel M, Frankish CJ, Herbert CP, Bowie WR, et al. Study of participatory research in health promotion: Review and recommendations for the development of participatory research in health promotion in Canada. Ottawa, Canada: Royal Society of Canada, 1995.

Distinguishing Principles of Research and Evaluation

Concept	Research Principles	Program Evaluation Principles
Planning	**Scientific method** • State hypothesis. • Collect data. • Analyze data. • Draw conclusions.	**Framework for program evaluation** • Engage stakeholders. • Describe the program. • Focus the evaluation design. • Gather credible evidence. • Justify conclusions. • Ensure use and share lessons learned.
Decision Making	**Investigator-controlled** • Authoritative.	**Stakeholder-controlled** • Collaborative.
Standards	**Validity** • Internal (accuracy, precision). • External (generalizability).	**Repeatability program evaluation standards** • Utility. • Feasibility. • Propriety. • Accuracy.
Questions	**Facts** • Descriptions. • Associations. • Effects.	**Values** • Merit (i.e., quality). • Worth (i.e., value). • Significance (i.e., importance).
Design	**Isolate changes and control circumstances** • Narrow experimental influences. • Ensure stability over time. • Minimize context dependence. • Treat contextual factors as confounding (e.g., randomization, adjustment, statistical control). • Understand that comparison groups are a necessity.	**Incorporate changes and account for circumstances** • Expand to see all domains of influence. • Encourage flexibility and improvement. • Maximize context sensitivity. • Treat contextual factors as essential information (e.g., system diagrams, logic models, hierarchical or ecological modeling). • Understand that comparison groups are optional (and sometimes harmful).
Data Collection	**Sources** • Limited number (accuracy preferred). • Sampling strategies are critical. • Concern for protecting human subjects. **Indicators/Measures** • Quantitative. • Qualitative.	**Sources** • Multiple (triangulation preferred). • Sampling strategies are critical. • Concern for protecting human subjects, organizations, and communities. **Indicators/Measures** • Mixed methods (qualitative, quantitative, and integrated).
Analysis & Synthesis	**Timing** • One-time (at the end). **Scope** • Focus on specific variables.	**Timing** • Ongoing (formative and summative). **Scope** • Integrate all data.
Judgments	**Implicit** • Attempt to remain value-free.	**Explicit** • Examine agreement on values. • State precisely whose values are used.
Conclusions	**Attribution** • Establish time sequence. • Demonstrate plausible mechanisms. • Control for confounding. • Replicate findings.	**Attribution and contribution** • Establish time sequence. • Demonstrate plausible mechanisms. • Account for alternative explanations. • Show similar effects in similar contexts.
Uses	**Disseminate to interested audiences** • Content and format varies to maximize comprehension.	**Feedback to stakeholders** • Focus on intended uses by intended users. • Build capacity. **Disseminate to interested audiences** • Content and format varies to maximize comprehension. • Emphasis on full disclosure. • Requirement for balanced assessment.

Why Evaluate Public Health Programs?

> **Some Reasons to Evaluate Public Health Programs**
> - To monitor progress toward the program's goals.
> - To determine whether program components are producing the desired progress on outcomes.
> - To permit comparisons among groups, particularly among populations with disproportionately high risk factors and adverse health outcomes.
> - To justify the need for further funding and support.
> - To find opportunities for continuous quality improvement.
> - To ensure that effective programs are maintained and resources are not wasted on ineffective programs.

Program staff may be *pushed* to do evaluation by external mandates from funders, authorizers, or others, or they may be *pulled* to do evaluation by an internal need to determine how the program is performing and what can be improved. While push *or* pull can motivate a program to conduct good evaluations, program evaluation efforts are more likely to be sustained when staff see the results as useful information that can help *them* do their jobs better.

Data gathered during evaluation enable managers and staff to create the best possible programs, to learn from mistakes, to make modifications as needed, to monitor progress toward program goals, and to judge the success of the program in achieving its short-term, intermediate, and long-term outcomes. Most public health programs aim to change behavior in one or more target groups and to create an environment that reinforces sustained adoption of these changes, with the intention that changes in environments and behaviors will prevent and control diseases and injuries. Through evaluation, you can track these changes and, with careful evaluation designs, assess the effectiveness and impact of a particular program, intervention, or strategy in producing these changes.

Recognizing the importance of evaluation in public health practice and the need for appropriate methods, the World Health Organization (WHO) established the Working Group on Health Promotion Evaluation. The Working Group prepared a set of conclusions and related recommendations to guide policymakers and practitioners.[8] Recommendations immediately relevant to the evaluation of comprehensive public health programs include:

- Encourage the adoption of participatory approaches to evaluation that provide meaningful opportunities for involvement by all of those with a direct interest in initiatives (programs, policies, and other organized activities).
- Require that a portion of total financial resources for a health promotion initiative be allocated to evaluation—they recommend 10%.
- Ensure that a mixture of process and outcome information is used to evaluate all health promotion initiatives.
- Support the use of multiple methods to evaluate health promotion initiatives.
- Support further research into the development of appropriate approaches to evaluating health promotion initiatives.

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[8] WHO European Working Group on Health Promotion Evaluation. Health promotion evaluation: Recommendations to policy-makers: Report of the WHO European working group on health promotion evaluation. Copenhagen, Denmark: World Health Organization, Regional Office for Europe, 1998.

- Support the establishment of a training and education infrastructure to develop expertise in the evaluation of health promotion initiatives.
- Create and support opportunities for sharing information on evaluation methods used in health promotion through conferences, workshops, networks, and other means.

CDC's Framework for Program Evaluation in Public Health

Program evaluation is 1 of 10 essential public health services[9] and a critical organizational practice in public health.[10] Until recently, however, there has been little agreement among public health officials on the principles and procedures for conducting such studies. In 1999, CDC published *Framework for Program Evaluation in Public Health* and some related recommendations.[11] The Framework, as depicted in Figure 1.1, defined six steps and four sets of standards for conducting good evaluations of public health programs.
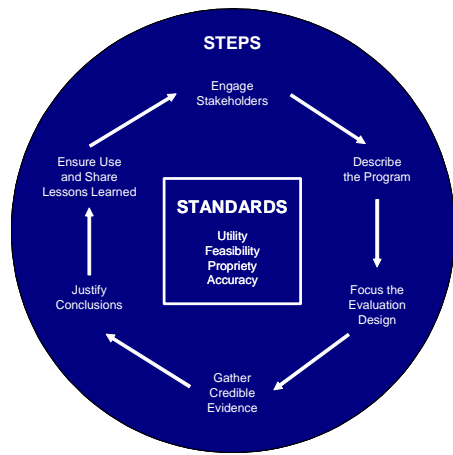

Figure 1.1
Evaluation Framework

The underlying logic of the Evaluation Framework is that good evaluation does not merely gather accurate evidence and draw valid conclusions, but produces results that are *used* to make a difference. To maximize the chances evaluation results will be used, you need to create a "market" before you create the "product"—the evaluation. You determine the market by focusing your evaluations on questions that are most salient, relevant, and important. And you ensure the best evaluation focus by understanding where the questions fit into the full landscape of your program description, and especially by ensuring that you have identified and engaged stakeholders who care about these questions and want to take action on the results.

The steps in the CDC Framework are informed by a set of standards for evaluation.[12] These standards do not constitute a *way* to do evaluation; rather, they serve to *guide* your choice from among the many options available at each step in the Framework. The 30 standards cluster into four groups:

- **Utility:** Who needs the evaluation results? Will the evaluation provide relevant information in a timely manner for them?
- **Feasibility:** Are the planned evaluation activities realistic given the time, resources, and expertise at hand?

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[9] Public Health Functions Steering Committee. Public health in America. Fall 1994. Available at <http://www.health.gov/phfunctions/public.htm>. January 1, 2000.

[10] Dyal WW. Ten organizational practices of public health: A historical perspective. American Journal of Preventive Medicine 1995;11(6)Suppl 2:6-8.

[11] Centers for Disease Control and Prevention. op cit.

[12] Joint Committee on Standards for Educational Evaluation. The program evaluation standards: How to assess evaluations of educational programs. 2nd ed. Thousand Oaks, CA: Sage Publications, 1994.

- **Propriety:** Does the evaluation protect the rights of individuals and protect the welfare of those involved? Does it engage those most directly affected by the program and changes in the program, such as participants or the surrounding community?
- **Accuracy:** Will the evaluation produce findings that are valid and reliable, given the needs of those who will use the results?

Sometimes the standards broaden your exploration of choices; as often, they help reduce the options at each step to a manageable number. For example, in the step "Engaging Stakeholders," the standards can help you think broadly about who constitutes a stakeholder for your program, but simultaneously can reduce the potential list to a manageable number by posing the following questions based on the standards: (**Utility**) Who will use these results? (**Feasibility**) How much time and effort can be devoted to stakeholder engagement? (**Propriety**) To be ethical, which stakeholders need to be consulted, for example, those served by the program or the community in which it operates? (**Accuracy**) How broadly do you need to engage stakeholders to paint an accurate picture of this program?

Similarly, there are unlimited ways to "gather credible evidence." Asking these same kinds of questions as you approach evidence gathering will help identify ones that will be most useful, feasible, proper, and accurate for *this* evaluation at *this* time. Thus, the CDC Framework approach supports the fundamental insight that there is no such thing as *the* right program evaluation. Rather, over the life of a program, any number of evaluations may be appropriate, depending on the situation.

How to Select a Lead Evaluator and Establish an Evaluation Team

Good evaluation requires a combination of skills that are rarely found in a single person. An evaluation team that includes internal program staff, external stakeholders, and possibly consultants or contractors with evaluation expertise is the preferred approach. An initial step in the formation of a team is to decide who will be responsible for planning and implementing evaluation activities. At least one program staff person should be selected as the lead evaluator to coordinate program efforts. This person should be responsible for evaluation activities, including planning and budgeting for evaluation, developing program objectives, addressing data collection needs, reporting findings, and working with consultants. The lead evaluator is ultimately responsible for engaging stakeholders, consultants, and other collaborators who bring the skills and interests needed to plan and conduct the evaluation.

Although this staff person should have the skills necessary to competently coordinate evaluation activities, he or she can choose to look elsewhere for technical expertise to design and implement specific tasks. However, developing in-house evaluation expertise and capacity is a beneficial goal for most public health organizations.

Of the characteristics of a good evaluator listed in the accompanying text box, the evaluator's ability to work with a diverse group of stakeholders warrants highlighting. The lead evaluator should be willing and able to draw out and reconcile differences in values and standards of different stakeholders and to work with knowledgeable stakeholder representatives in designing and conducting the evaluation.

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│                    Characteristics of a Good Evaluator                    │
│                                                                           │
│   •   Has experience in the type of evaluation needed.                    │
│   •   Is comfortable with qualitative and quantitative data sources and   │
│       analysis.                                                           │
│   •   Is able to work with a wide variety of stakeholders, including      │
│       representatives of target populations.                              │
│   •   Can develop innovative approaches to evaluation while considering   │
│       the realities affecting a program (e.g., a small budget).           │
│   •   Incorporates evaluation into all program activities.                │
│   •   Understands both the potential benefits and risks of evaluation.    │
│   •   Educates program personnel about designing and conducting the       │
│       evaluation.                                                         │
│   •   Will give staff the full findings (i.e., will not gloss over or     │
│       fail to report certain findings for any reason).                    │
│   •   Havsstrong coordination and organization skills.                    │
│   •   Explains material clearly and patiently.                            │
│   •   Respects all levels of personnel.                                   │
│   •   Communicates well with key personnel.                               │
│   •   Exhibits cultural competence.                                       │
│   •   Delivers reports and protocols on time.                             │
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Additional evaluation expertise sometimes can be found in programs within the health department, through external partners (e.g., universities, organizations, companies), from peer programs in other states and localities, and through technical assistance offered by CDC.[13]

You can also use outside consultants as volunteers, advisory panel members, or contractors. External consultants can provide high levels of evaluation expertise from an objective point of view. Important factors to consider when selecting consultants are their level of professional training, experience, and ability to meet your needs. Overall, it is important to find a consultant whose approach to evaluation, background, and training best fit your program's evaluation needs and goals. Be sure to check all references carefully before you enter into a contract with any consultant.

To generate discussion around evaluation planning and implementation, several states have formed evaluation advisory panels. Advisory panels typically generate input from local, regional, or national experts otherwise difficult to access. Such an advisory panel will lend additional credibility to your efforts and prove useful in cultivating widespread support for evaluation activities.

The evaluation team members should clearly define their respective roles. Informal consensus may be enough; others prefer a written agreement that describes who will conduct the evaluation and assigns specific roles and responsibilities to individual team members. Either way, the team must clarify and reach consensus on the

- Purpose of the evaluation
- Potential users of the evaluation findings and plans for dissemination
- Evaluation approach

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[13] CDC's Prevention Research Centers (PRC) program is an additional resource. The PRC program is a national network of 24 academic research centers committed to prevention research and the ability to translate that research into programs and policies. The centers work with state health departments and members of their communities to develop and evaluate state and local interventions that address the leading causes of death and disability in the nation. Additional information on the PRCs is available at www.cdc.gov/prc/index.htm.

- Resources available
- Protection for human subjects.

The agreement should also include a timeline and a budget for the evaluation.

Organization of This Manual

This manual is organized by the six steps of the CDC Framework. Each chapter will introduce the key questions to be answered in that step, approaches to answering those questions, and how the four evaluation standards might influence your approach. The main points are illustrated with one or more public health examples that are composites inspired by actual work being done by CDC and states and localities.[14] Some examples that will be referred to throughout this manual:

Affordable Home Ownership Program
The program aims to provide affordable home ownership to low-income families by identifying and linking funders/sponsors, construction volunteers, and eligible families. Together, they build a house over a multi-week period. At the end of the construction period, the home is sold to the family using a no-interest loan.

Childhood Lead Poisoning Prevention (CLPP)
Lead poisoning is the most widespread environmental hazard facing young children, especially in older inner-city areas. Even at low levels, elevated blood lead levels (EBLL) have been associated with reduced intelligence, medical problems, and developmental problems. The main sources of lead poisoning in children are paint and dust in older homes with lead-based paint. Public health programs address the problem through a combination of primary and secondary prevention efforts. A typical secondary prevention program at the local level does outreach and screening of high-risk children, identifying those with EBLL, assessing their environments for sources of lead, and case managing both their medical treatment and environmental corrections. However, these programs must rely on others to accomplish the actual medical treatment and the reduction of lead in the home environment.

Provider Education in Immunization
A common initiative of state immunization programs is comprehensive provider education programs to train and motivate private providers to provide more immunizations. A typical program includes a newsletter distributed three times per year to update private providers on new developments and changes in policy, and provide a brief education on various immunization topics; immunization trainings held around the state conducted by teams of state program staff and physician educators on general immunization topics and the immunization registry; a Provider Tool Kit on how to increase immunization rates in their practice; training of nursing staff in local health departments who then conduct immunization presentations in individual private provider clinics; and presentations on immunization topics by physician peer educators at physician grand rounds and state conferences.

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[14] These cases are composites of multiple CDC and state and local efforts that have been simplified and modified to better illustrate teaching points. While inspired by real CDC and community programs, they are not intended to reflect the current operation of these programs.

At the conclusion of each chapter are three resources:

- Worksheets to help you apply the teaching points
- Customized information developed by your CDC program on applying the main points of the chapter to your particular public health program
- One or more detailed "worked cases" developed by your CDC program to illustrate how to apply the main points of the chapter to your public health program

Step 1: Engage Stakeholders

The first step in the CDC Framework approach to program evaluation is to engage the stakeholders. Stakeholders are people or organizations that are invested in the program, are interested in the results of the evaluation, and/or have a stake in what will be done with the results of the evaluation. Representing their needs and interests throughout the process is fundamental to good program evaluation.

Typical Stakeholders in Public Health

Key stakeholders for evaluations of public health programs fall into three major groups:

- Those involved in *program operations*: Management, program staff, partners, funding agencies, and coalition members.
- Those *served or affected* by the program: Patients or clients, advocacy groups, community members, and elected officials.
- Those who are intended *users* of the evaluation findings: Persons in a position to make decisions about the program, such as partners, funding agencies, coalition members, and the general public or taxpayers.

Clearly, these categories are not mutually exclusive; in particular, the primary users of evaluation findings are often members of the other two groups, i.e., the program management or an advocacy organization or coalition. While you may think you know your stakeholders well, these categories help you to think broadly and inclusively in identifying stakeholders.

Potential Stakeholders in Public Health Programs

- Program managers and staff.
- Local, state, and regional coalitions interested in the public health issue.
- Local grantees of your funds.
- Local and national advocacy partners.
- Other funding agencies, such as national and state governments.
- State or local health departments and health commissioners.
- State education agencies, schools, and other educational groups.
- Universities and educational institutions.
- Local government, state legislators, and state governors.
- Privately owned businesses and business associations.
- Health care systems and the medical community.
- Religious organizations.
- Community organizations.
- Private citizens.
- Program critics.
- Representatives of populations disproportionately affected by the problem.
- Law enforcement representatives.

Why Stakeholders Are Important to an Evaluation

Stakeholders can help (or hinder) an evaluation *before* it is conducted, *while* it is being conducted, and *after* the results are collected and ready for use. Because so many public health efforts are complex and because public health agencies may be several layers removed from frontline implementation, stakeholders take on particular importance in ensuring that the right evaluation questions are identified and that evaluation results will be used to make a difference. Stakeholders are much more likely to support the evaluation and act on the results and recommendations if they are involved in the evaluation process. Conversely, without stakeholder support, your evaluation may be ignored, criticized, resisted, or even sabotaged.

In reviewing the long list of stakeholders that might be generated in the three generic categories, use of some or all of the evaluation standards will help identify those who matter most.

Use of results will be enhanced if you give priority to those stakeholders who

- Can increase the *credibility* of your efforts or your evaluation
- Are responsible for day-to-day *implementation* of the activities that are part of the program
- Will *advocate* for or *authorize changes* to the program that the evaluation may recommend
- Will *fund* or *authorize the continuation or expansion* of the program.

In addition, to be proper/ethical and accurate, you need to include those who participate in the program and are affected by the program or its evaluation.

The worksheets at the end of this chapter are intended to help you identify key stakeholders. For example, in using the worksheets with the Childhood Lead Poisoning Prevention (CLPP) program, we identified the stakeholders in the sample worksheet 1A (see Table 1.1). Note that some stakeholders appear in more than one column; these are not exclusive classes of stakeholders so much as four ways of thinking about stakeholders to ensure we were thinking as broadly as possible. Second, note that not all categories have the same number of stakeholders. Indeed, for a simple project, there may be very few stakeholders and some categories may have none at all. The sample worksheet 1B (see Table 1.2) helped us identify the perspectives and needs of these key stakeholders and the implications for designing and implementing our evaluation. Note in the CLPP example that while all stakeholders may applaud our efforts to reduce EBLL in children, several stakeholders put priority on outcomes that might or might not agree with our priorities. For example, private physicians are most interested in "yield" of their screening efforts, while Congress cares about cost-effectiveness. Note that advocacy groups, in addition to specific outcomes that may be priorities for them, also have some preferences related to data collection—expressing a preference for methods other than surveys. All of these insights are helpful at the start of an evaluation to ensure that the evaluation goes smoothly and the results are used.

Table 1.1
CLPP Example: Identifying Stakeholders

Who are the key stakeholders we need to:			
Increase credibility of our efforts	**Implement the interventions that are central to this effort**	**Advocate for changes to institutionalize this effort**	**Fund/authorize continuation or expansion of this effort**
Physician associations Community associations	State and local health departments Housing authorities	Advocacy groups Maternal and child health groups Physician associations Community associations	Legislators and policymakers at Federal and state levels CDC Private industry Court system

Table 1.2
CLPP Example: What Matters to Stakeholders

Stakeholders		What component of intervention/outcome matters most to them
1	Physician associations	Sufficient "yield" of EBLL children to make their screening efforts "worth their time." Clear referral mechanisms that are easy and work.
2	Community associations	Cleaning up housing in their neighborhood. Support for families with EBLL children.
3	Housing authorities	No additional monetary and time burden for toxic clean-ups.
4	State and local health departments	Efforts lead to improved health outcome for EBLL children.
5	Advocacy groups	EBLL is seen as a housing problem and not a "failure" or example of bad child-rearing by poor families. No survey data collection with families.
6	Congress and policymakers	Efforts lead to improved health outcomes. "Cost-effectiveness" of the effort.

What to Ask Stakeholders

Throughout the evaluation planning process, you will be asking some or all stakeholders the following questions:

- Who do you represent and why are you interested in this program?
- What is important about this program to you?
- What would you like this program to accomplish?
- How much progress would you expect this program to have made at this time?

- What do you see as the critical evaluation questions at this time?
- How will you use the results of this evaluation?
- What resources (i.e., time, funds, evaluation expertise, access to respondents, and access to policymakers) might you contribute to this evaluation effort?

The Role of Stakeholders in an Evaluation

Stakeholder perspectives may influence every step of the CDC Framework. Obviously, stakeholder input in "describing the program" ensures a clear and consensual understanding of the program's activities and outcomes. This is an important backdrop for even more valuable stakeholder input in "focusing the evaluation design" to ensure that the key questions of most importance will be included. Stakeholders may also have insights or preferences on the most effective and appropriate ways to collect data from target respondents. In "justifying conclusions," the perspectives and values that stakeholders bring to the project are explicitly acknowledged and honored in making judgments about evidence gathered. Finally, the considerable time and effort spent in engaging and building consensus among stakeholders pays off in the last step, "ensuring use," because stakeholder engagement has created a market for the evaluation results. Stakeholders can be involved in the evaluation at various levels. For example, you may want to include coalition members on an evaluation team and engage them in developing questions, data collection, and analysis. Or consider ways to assess your partners' needs and interests in the evaluation, and develop means of keeping them informed of its progress and integrating their ideas into evaluation activities. Again, stakeholders are more likely to support the evaluation and act on results and recommendations if they are involved in the evaluation process.

In addition, it can be beneficial to engage your program's critics in the evaluation. In some cases, these critics can help identify issues around your program strategies and evaluation information that could be attacked or discredited, thus helping you strengthen the evaluation process. This information might also help you and others understand the opposition's rationale and could help you engage potential agents of change within the opposition. However, use caution: It is important to understand the motives of the opposition before engaging them in any meaningful way.

This emphasis on engaging stakeholders mirrors the increasing prominence in the research community of participatory models or "action" research. A participatory approach combines systematic inquiry with the collaboration of diverse stakeholders to meet specific needs and to contend with broad issues of equity and justice. As noted earlier, *The Study of Participatory Research in Health Promotion*, commissioned by the Royal Society of Canada, has published a set of guidelines for use by evaluators and funding agencies in assessing projects that aspire to be participatory.[15] The guidelines emphasize that traditional ways of conducting health research in populations must adapt to meet the educational, capacity-building, and policy expectations of more participatory approaches if the results of the research are to make a difference.

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[15] Green LW, George MA, Daniel M, Frankish CJ, Herbert CP, Bowie WR, et al. op cit.

Standards for Step 1: Engage Stakeholders

Standard	Questions
Utility	• Who will use these results?
Feasibility	• How much time and effort can be devoted to stakeholder engagement?
Propriety	• Which stakeholders need to be consulted to conduct an ethical evaluation, for example, to ensure we will identify negative as well as positive aspects of the program?
Accuracy	• How broadly do we need to engage stakeholders to paint an accurate picture of this program?

Checklist for Engaging Stakeholders

☐ Identify stakeholders, using the three broad categories discussed: those affected, those involved in operations, and those who will use the evaluation results.

☐ Review the initial list of stakeholders to identify key stakeholders needed to improve credibility, implementation, advocacy, or funding/authorization decisions.

☐ Engage individual stakeholders and/or representatives of stakeholder organizations.

☐ Create a plan for stakeholder involvement and identify areas for stakeholder input.

☐ Target selected stakeholders for regular participation in key steps, including writing the program description, suggesting evaluation questions, choosing evaluation questions, and disseminating evaluation results.

Worksheet 1A
Identifying Key Stakeholders

	Category	Stakeholders
1	Who is affected by the program?	
2	Who is involved in program operations?	
3	Who will use evaluation results?	

Which of these are key stakeholders we need to engage to:			
Increase <u>credibility</u> of our evaluation	<u>Implement</u> the interventions that are central to this evaluation	<u>Advocate for changes</u> to institutionalize the evaluation findings	<u>Fund/authorize</u> the continuation or expansion of the program

Worksheet 1B
What Matters to Stakeholders

	Stakeholders	What activities and/or outcomes of this program matter most to them?
1		
2		
3		
4		
5		
6		
7		
8		

Step 2: Describe the Program

Developing a comprehensive program description is the next step in the CDC Framework. A comprehensive program description clarifies all the components and intended outcomes of the program, thus helping you focus your evaluation on the most central and important questions. Note that in this step you are describing the *program* and not the evaluation. In this chapter, you will use a tool called "logic modeling" to depict these program components, but a program description can be developed without using this or any tool.

This step can either follow the stakeholder step or precede it. In either case, the combination of stakeholder engagement and program description produces clarity and consensus long before data are available to measure program effectiveness. This clarity on activities, outcomes, and their inter-relationships sets the stage for good program evaluation; in addition, they can be helpful in strategic planning and performance measurement, ensuring that insights from these various processes are integrated.

A comprehensive program description includes the following components:

- **Need.** What is the big public health problem you aim to address with your program?
- **Targets.** Which groups or organizations need to change or take action to make progress on the public health problem?
- **Outcomes.** How and in what way do these targets need to change? What action specifically do they need to take?
- **Activities.** What will your program and its staff do to move these target groups to change/take action?
- **Outputs.** What tangible capacities or products will be produced by your program's activities?
- **Resources/Inputs.** What is needed from the larger environment in order for the activities to be mounted successfully?
- **Relationship of Activities and Outcomes.** Which activities are being implemented to produce progress on which outcomes?

In addition to specifying these components, a complete program description includes discussion of:

- **Stage of Development.** Is the program just getting started, is it in the implementation stage, or has it been underway for a significant period of time?
- **Context.** What factors and trends in the larger environment may influence program success or failure?

Matching Terms from Planning and Evaluation

Planning and evaluation are companion processes. Unfortunately, they tend to use different terms to express similar concepts. This may get confusing and lead to less integration of insights from planning and evaluation than is desirable. As noted in the figure below, plans tend to work from abstract/conceptual goals, then specify the more tangible objectives needed to reach them, and then the strategies needed to reach the objectives. These strategies may be specified as actions, tactics, or a host of other terms. The cross-walk from these planning components to the program description step in an evaluation is relatively straightforward. The strategies will provide insights on the program's activities, the objectives will likely indicate some or all of the target audiences and short-term or intermediate outcomes, and the goal is likely to be close to the long-term outcome desired by the program.

Planning	Strategies and Actions	⇐	Objectives	⇐	Goals
Evaluation	Activities	⇒	ST and MT Outcomes	⇒	LT Outcomes
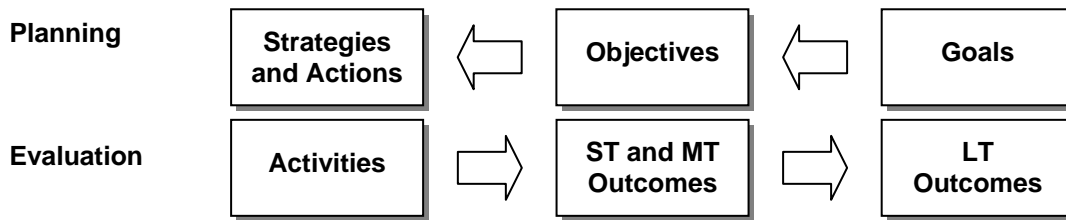
You need not start from scratch in defining the components of your program description. For example, a good source for generating a list of outcomes is the goals and objectives that may already exist for the program in its mission, vision, or strategic plan (see text box). The specific objectives outlined in documents like *Healthy People 2010* are another starting point for defining some components of the program description for public health efforts (see http://www.health.gov/healthypeople).

Illustrating Program Descriptions

Let's use some of our cases to illustrate the components of a program description.

Need for the Program

The need is the public health or other problem addressed by the program. You might define the need, in terms of its consequences for the state or community, the size of the problem overall, the size of the problem in various segments of the population, and/or significant changes or trends in incidence or prevalence.

For example, the problem addressed by the affordable housing program is compromised life outcomes for low-income families due to lack of stability and quality of housing environments. The problem need for the Childhood Lead Poisoning Prevention (CLPP) program is halting the developmental slide that occurs in children with elevated blood-lead levels (EBLL).

Target Groups

Target groups are the various audiences that the program needs to move into action in order to make progress on the public health problem. For the affordable housing program, action of some kind needs to be taken by eligible families, volunteers, and funders/sponsors. For the CLPP program,

reducing EBLL requires some action by families, health care providers, and housing officials, among others.

Outcomes

Outcomes[16] are the changes in someone or something (other than the program and its staff) that you hope will result from your program's activities. For programs dealing with large and complex public health problems, the ultimate outcome is often an ambitious and long-term one, such as eliminating the problem or condition altogether or improving the quality of life of people already affected. Hence, a strong program description usually provides details not only on the intended long-term outcomes but on the short-term and intermediate outcomes that precede it and the sequence in which they are likely to occur.

The text box "A Potential Hierarchy of Effects" outlines a potential sequence for a program's outcomes (effects). Starting at the base of the hierarchy: Program activities aim to obtain *participation* among targeted communities. Participants' *reactions* to program activities affect their *learning*—their knowledge, opinions, skills, and aspirations. Through this learning process, people and organizations take *actions* that result in a *change in social, behavioral, and/or environmental* condition that directs the long-term *health outcomes* of the community.

In thinking about this hierarchy or any sequence of outcomes, keep in mind that the higher order outcomes are usually the "real" reasons the program was created, even though the costs and difficulty of collecting evidence increase as you move up the hierarchy. Evaluations are strengthened by showing evidence at several levels of hierarchy; information from the lower levels helps to explain results at the upper levels, which are longer term.

The sequence of outcomes for the affordable housing program is relatively simple: Families, sponsors, and volunteers must be engaged and work together for several weeks to complete the house, then the sponsor must sell the house to the family, and then the family must

A Potential Hierarchy of Effects

6. Health Outcomes
Health indicators as end results

5. System and Environment Change
Changes in social, economic, or environmental conditions as result of recommendations, actions, policies and practices implemented

4. Actions
Patterns of behavior adopted by target audiences

3. Learning
Knowledge, opinions, skills, and aspirations as end results

2. Reactions
Degree of interest; the feelings toward the program; acceptance of activities, and of educational methods.

1. Participation
Number of people reached; characteristics of the people, frequency and intensity of contact.

Source:
Excerpted and Adapted from Bennett and Rockwell, 1995.
Targeting Outcomes of Programs

maintain the house payments. For the CLPP program, there are streams of outcomes for each of the target groups: Providers must be willing to test, treat, and refer EBLL children. Housing officials must be willing to clean up houses that have lead paint, and families must be willing to get children and houses screened, adopt modest changes in housekeeping behavior, and adhere to any treatment

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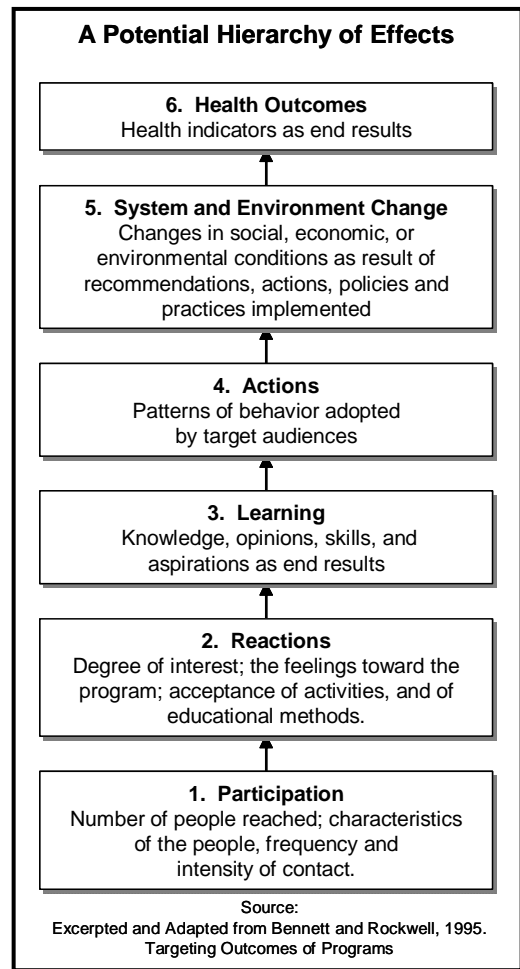
[16] Program evaluation and planning are replete with terms that are used inconsistently. In this document, the term "outcomes" is used to refer to the intended changes that will result from the program. However, others may use different terms to refer to the early and late outcomes: results, impacts, and outcomes is a typical sequence.

schedule to reduce EBLL in children. Together, these ensure higher order outcomes related to reducing the EBLL and arresting the developmental slide.

Activities

These are the actual actions mounted by the program and its staff to achieve the desired outcomes in the target groups. Obviously, activities will vary with the program. Some typical program activities may include, among others, outreach, training, funding, service delivery, collaborations and partnerships, and health communication. For example, the affordable housing program must recruit, engage, and train the families, sponsors, and volunteers, and also oversee construction and handle the mechanics of home sale. The CLPP program does outreach and screening of children, and, for those children with EBLL, does case management, referral to medical care, assessment of the home, and referral of lead-contaminated homes for cleanup.

Outputs

Outputs are the direct products of activities, usually some sort of tangible deliverable produced as a result of the activities. Outputs can be viewed as activities redefined in tangible or countable terms. For example, the affordable housing program's activities of engaging volunteers, recruiting sponsors, and selecting families have the corresponding outputs: number of volunteers engaged, number of sponsors recruited and committed, and number and types of families selected. The CLPP activities of screening, assessing houses, and referring children and houses would each have a corresponding output: the number of children screened and referred, and the number of houses assessed and referred.[17]

Resources/Inputs

These are the people, money, and information needed—usually from others outside the program—to mount program activities effectively. It is important to include inputs in the program description because accountability for resources to funders and stakeholders is often a focus of evaluation. Just as important, the list of inputs is a reminder of the type and level of resources on which the program is dependent. If, in fact, intended outcomes are not being achieved, the resources/inputs list reminds you to look there for one reason that program activities could not be implemented as intended.

In the affordable housing program, for example, a supply of supervisory staff, community relationships, land, and warehouse are all necessary inputs to activities. For the CLPP program, funds, legal authority to screen children and houses, trained staff, and relationships with organizations responsible for the activities that the program cannot undertake—in this case, medical treatment and clean-up of homes—are necessary inputs to mount a successful CLPP program.

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[17] In trying to distinguish "outputs" from "outcomes," remember that an outcome is a change in someone or something other than the program and its staff. But also remember that these definitions are guidelines and are not set in stone. Often, there are "gray areas" where something might be classified as an output by some programs and an outcome by others. For example, the number of trainees attending my program is an outcome in the sense that someone other than my program staff—the trainee—took an intentional action (attending the training), but many might classify this an output—number of trainees attending—since there really has not been a change in the trainee.

Stages of Development

Programs can be roughly classed into three stages of development: planning, implementation, and maintenance/outcomes achievement. As will be seen, the stage of development plays a central role in setting a realistic evaluation focus in the next step. A program in the planning stage will focus its evaluation on a very different part of the program than will a program that has been in existence for several years.

For example, both the affordable housing and CLPP programs have been in existence for several years and can be classed in the maintenance/outcomes achievement stage. Therefore, an evaluation of these programs would probably focus on the degree to which outcomes have been achieved and the factors facilitating or hindering the achievement of outcomes.

Context

The context is the larger environment in which the program is immersed. Because external factors can present both opportunities and roadblocks, you should be aware of and understand them. Program context includes politics, funding, interagency support, competing organizations, competing interests, social and economic conditions, and history (of the program, agency, and past collaborations).

For the affordable housing program, some contextual issues are the widespread beliefs in the power of home ownership and in community-wide person-to-person contact as the best ways to transform lives. At the same time, gentrification in low-income neighborhood drives real estate prices up, which can make some areas unaffordable for the program. And some communities, while approving of affordable housing in principle, may resist construction of these homes in their neighborhood. For the CLPP program, some contextual issues include increasing demands on the time and attention of primary health care providers, the concentration of EBLL children in low-income and minority neighborhoods, and increasing demands on housing authorities to ameliorate environmental risks.

A realistic and responsive evaluation will be sensitive to a broad range of potential influences on the program. An understanding of the context also lets users interpret findings accurately and assess the findings' generalizability. For example, the affordable housing program might be successful in a small town, but may not work in an inner-city neighborhood without some adaptation.

Relating Activities and Outcomes: Developing and Using Logic Models

Once the components of the program description have been identified, a visual depiction is often a helpful way to summarize the relationship among any or all of the components. This clarity can help with both strategic planning and program evaluation. While there are other ways to depict these relationships, logic models are a common tool employed by evaluators and the tool described most completely in the CDC Framework.

Logic models are *graphic depictions of the **relationship** between a program's activities and its **intended** outcomes.* Two words in this definition bear emphasizing:

- **Relationship:** Logic models convey not only the activities that comprise the program and the inter-relationship of those activities, but the link between those components and outcomes.
- **Intended:** Logic models depict "intended" outcomes of a program's activities, rather than reality at any point in time. As the starting point for evaluation and planning, the model serves as an "outcomes roadmap" that shows the underlying logic behind the program, i.e., why it should work. That is, of all activities that could have been undertaken to address this problem, these activities are chosen because, if implemented as intended, they should lead to the outcomes depicted. Over time, evaluation, research, and day-to-day experience will deepen the understanding of what does and does not work, and the model will change accordingly.

> **Other Names for a Logic Model**
> - Theory of change
> - Model of change
> - Theoretical underpinning
> - Causal chain
> - Weight-of-evidence model
> - Roadmap
> - Conceptual map
> - Blueprint
> - Rationale
> - Program theory
> - Program hypothesis

The logic model requires no new thinking about the program; rather, it converts the raw material generated in the program description into a picture of the program. The remainder of this chapter provides the steps in constructing and elaborating simple logic models. The next chapter, *Focus the Evaluation Design*, shows how to use the model to identify and address issues of evaluation focus and design.

Constructing Simple Logic Models

A useful logic model can be constructed in a few simple steps, as shown here using the CLPP program for illustration.

Develop a list of activities and intended outcomes. While logic models can include all of the components in the text box, we will emphasize using logic models to gain clarity on the relationship between the program's activities and its outcomes. There are many ways to develop a list of activities and outcomes that you will incorporate into your model, and indeed you may already have a comprehensive list from the program description. But, to stimulate the creation of a comprehensive list, *any* of the following methods will work.

- Review any information available on the program—whether from mission/vision statements, strategic plans, or key informants— and extract items that meet the definition of activity (something the program and its staff does) and of outcome (some

> **Logic Model Components**
>
> Logic models may depict all or only some of the following components of your program description, depending on their intended use:
>
> - **Inputs:** Resources that go into the program and on which it is dependent to mount its activities.
> - **Activities:** Actual events or actions done by the program and its staff.
> - **Outputs:** Direct products of program activities, often measured in countable terms (e.g., the number of sessions held).
> - **Outcomes:** The changes that result from the program's activities and outputs, often in a sequence expressed as short-term, intermediate, and long-term outcomes.

change in someone or something, other than the program and its staff, that you hope will result from the activities), **_or_**

- Work backward from outcomes. This is called "reverse logic" logic modeling and may prove helpful when a program is given responsibility for a new or large problem or is just getting started. There may be clarity about the "big change" (most distal outcome) the program is to produce, but little else. Working backward from the distal outcome by asking "how to" will help identify the factors, variables, and actors that will be involved in producing change, **_or_**
- Work forward from activities. This is called "forward logic" logic modeling and is helpful when there is clarity about activities but not about why they are part of the program. Moving forward from activities to intended outcomes by asking, "So then what happens?" is often helpful in elaborating downstream outcomes of the activities.

Logic models may depict all or only some of the elements of program description (see text box), depending on the use to which the model is being put. For example, Exhibit 2.1 is a simple, generic logic model. If relevant to the intended use, the model could include references to the remaining components of program description, such as "context" or "stage of development." Likewise, some of the examples presented below focus mainly on the connection of a program's activities to its sequence of outcomes. Adding "inputs" and explicit "outputs" to these examples would be a simple matter if needed.

Exhibit 2.1
Basic Program Logic Model
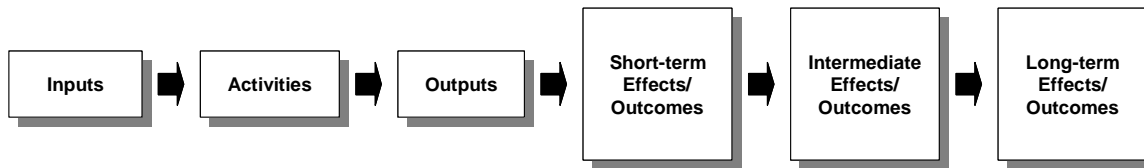
Note that Worksheet 2A at the end of this chapter provides a simple format for doing this categorization of activities and outcomes, no matter what method is used. Here, for the CLPP, we completed the worksheet using the first method.

CLPP Program: Listing Activities and Outcomes	
Activities	**Outcomes**
- Outreach - Screening - Case management - Referral to medical treatment - Identification of EBLL children - Environmental assessment - Environmental referral - Family training	- Lead source identified - Families adopt in-home techniques - EBLL children get medical treatment - Lead source gets eliminated - EBLL reduced - Developmental "slide" stopped - Quality of Life (Q of L) improved

Subdivide the lists to show the logical sequencing among activities and among outcomes. Logic models provide clarity on the order in which activities and outcomes are expected to occur. To help provide that clarity, it is useful to take the single column of activities (or outcomes) developed in the last step, and then distribute them across two or more columns to show the logical sequencing. The logical sequencing may be the same as the time sequence, but not always. Rather, the logical sequence says, "Before this activity (or outcome) can occur, this other one has to be in place."

For example, if the list of activities includes a needs assessment, distribution of a survey, and development of a survey, most would conclude that the needs assessment of content should occur first, and that the distribution of a survey must be preceded by development of the survey. Likewise, among the outcomes, most would generally concede that change in knowledge and attitudes would precede change in behavior.

Worksheet 2B provides a simple format for expanding the initial two-column table. For the CLPP, we expanded the initial two-column table to four columns. Note that no activities or outcomes have been added. But the original lists have been spread over several columns to reflect the logical sequencing. For the activities, we suggest that outreach, screening, and identification of EBLL children need to occur in order to case manage, assess the houses, and refer the children and their houses to follow-up. On the outcomes sides, we suggest that outcomes such as receipt of medical treatment, clean-up of the house, and adoption of housekeeping changes must precede reduction in EBLL and elimination of the resultant slide in development and quality of life.

CLPP Program: Sequencing Activities and Outcomes			
Early Activities	**Later Activities**	**Early Outcomes**	**Later Outcomes**
• Outreach • Screening • Identification of EBLL children	• Case management • Referral to medical treatment • Environmental assessment • Environmental referral • Family training	• Lead source identified • Lead source gets eliminated • Families adopt in-home techniques • EBLL children get medical treatment	• EBLL reduced • Developmental "slide" stopped • Q of L improved

Add any inputs and outputs. At this point, you may decide that the four-column logic model adds all the clarity that is needed. If not, the next step is often to add columns for inputs and for outputs. The inputs are inserted to the left of the activities while the outputs—as products of the activities—are inserted to the right of the activities but before the outcomes.
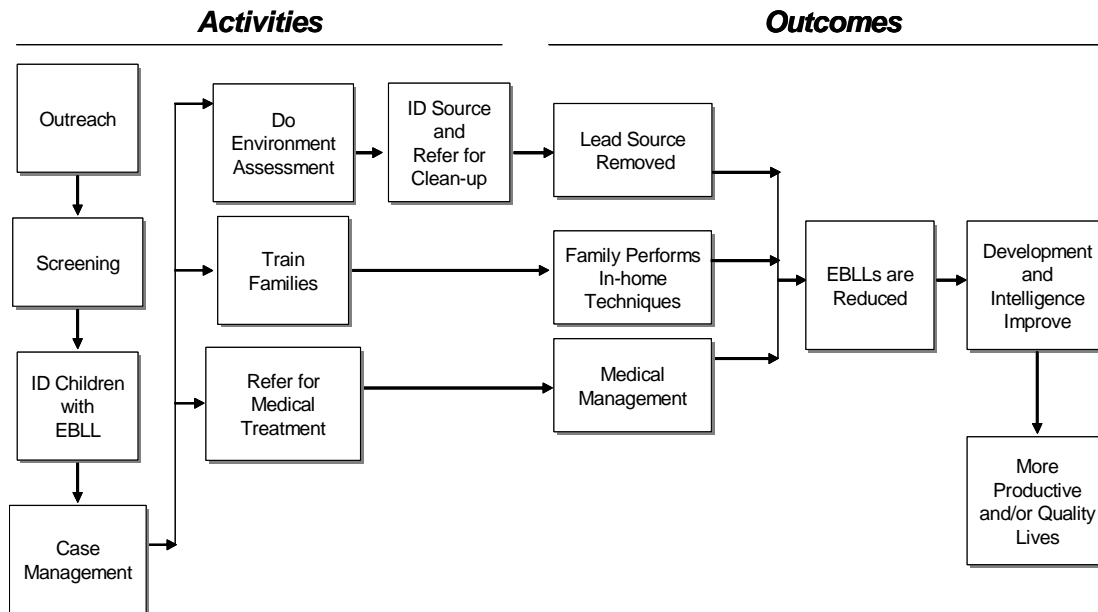
For the CLPP, we can easily define and insert both inputs and outputs of our efforts. Note that the outputs are the products of our activities, but do not confuse them with outcomes. No one has changed yet; while we have identified a pool of leaded houses and referred a pool of EBLL children, the houses have not been cleaned up, nor have the children been treated yet.

CLPP Program: Logic Model with Inputs and Outputs					
Inputs	**Early Activities**	**Later Activities**	**Outputs**	**Early Outcomes**	**Later Outcomes**
Funds Trained staff for screening and clean-up Relationships with organizations Legal authority	Outreach Screening Identification of EBLL children	Case management Referral to medical treatment Environmental assessment Environmental referral Family training	Pool (#) of eligible children Pool (#) of screened children Referrals (#) to medical treatment Pool (#) of "leaded" homes Referrals (#) for clean-up	Lead source identified Lead source gets eliminated Families adopt in-home techniques EBLL children get medical treatment	EBLL reduced Developmental "slide" stopped Q of L improved

<u>Draw arrows to depict intended causal relationships.</u> The multi-column table of inputs, activities, outputs, and outcomes that has been developed so far may contain enough detail, depending on the purposes for which the model will be used. In fact, for conveying in a global way the components of a program, it almost certainly will suffice. However, when the model is used to set the stage for planning and evaluation discussions, the logic model will benefit from adding arrows that show the causal relationships among activities and outcomes. These arrows may depict a variety of relationships: from one activity to another, when the first activity exists mainly to feed later activities; from an activity to an outcome, where the activity is intended to produce a change in someone or something other than the program; from an early outcome to a later one, when the early outcome is necessary to achieve the more distal outcome.

Examine the CLPP Logic Model (Exhibit 2.2) with causal arrows included. Note that no activities/outputs or outcomes have been added. Instead, arrows were added to show the relationships among activities and outcomes. Note also that streams of activities exist concurrently to produce cleaned-up houses, medically "cured" children, and trained and active households/families. It is the combination of these three streams that produces reductions in EBLL, which is the platform for stopping the developmental slide and improving the quality of life.

Exhibit 2.2
Lead Poisoning: "Causal" Roadmap

Activities | *Outcomes*

Outreach

Do Environment Assessment → ID Source and Refer for Clean-up → Lead Source Removed

Screening

Train Families → Family Performs In-home Techniques

ID Children with EBLL

Refer for Medical Treatment → Medical Management

Case Management

EBLLs are Reduced → Development and Intelligence Improve → More Productive and/or Quality Lives

Clean up the logic model. Early versions are likely to be sloppy, and a nice, clean one that is intelligible to others often takes several tries.
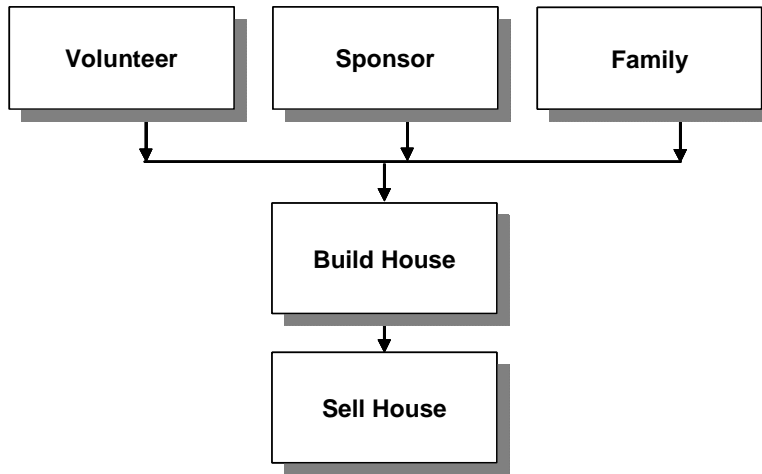
Elaborate the Simple Model

Logic models are a picture depicting your "program theory"—why *should* your program work? The simple logic models developed in these few steps may work fine for that purpose, but often programs benefit from elaborating their simple logic models in some of the following ways:

- **Elaborating distal outcomes:** Sometimes the simple model will end with the short-term outcomes or even outputs. While this may reflect a program's mission, usually the program has been created to contribute to some larger purpose, and depicting this in the model leads to more productive strategic planning discussions later. This elaboration is accomplished by asking "so then what happens?" of the last outcome depicted in the simple model, and then continuing to ask that of all subsequent outcomes until more distal ones are included.

  For example, in Exhibit 2.3, the very simple logic model that might result from a review of the narrative about the home ownership program is elaborated by asking, "So then what happens?" Note that the original five-box model remains as the core of the elaborated model, but the intended outcomes now include a stream of more distal outcomes for both the new home-owning families and also for the communities in which houses are built. As will be discussed later, the elaborated model can motivate the organization to think more ambitiously about intended outcomes and whether the right activities are in place to produce them.

Exhibit 2.3
Elaborating Your Logic Models "Downstream"

Affordable Housing Program - Logic Model Based on Mission

```
┌──────────┐    ┌──────────┐    ┌──────────┐
│ Volunteer│    │ Sponsor  │    │  Family  │
└────┬─────┘    └────┬─────┘    └────┬─────┘
     │               │               │
     └───────────────┼───────────────┘
                     ▼
              ┌──────────────┐
              │  Build House │
              └──────┬───────┘
                     ▼
              ┌──────────────┐
              │  Sell House  │
              └──────────────┘
```

Affordable Housing Program - Elaborated Logic Model
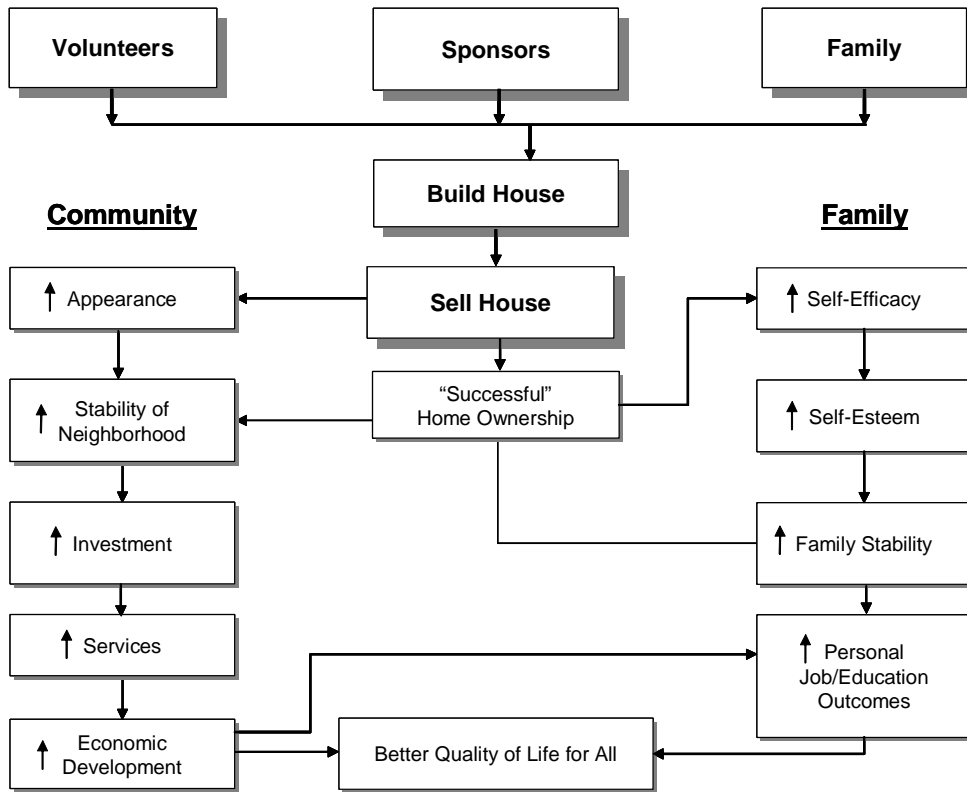
- **Elaborating intermediate outcomes:** Sometimes the initial model presents the program's activities and its most distal outcome in detail, but with scant information on *how* the activities are to produce the outcomes. In this case, the goal of elaboration is to better depict the program logic that links activities to the distal outcomes. Providing such a step-by-step roadmap to a distal destination helps with some or all of the following: identify gaps in program logic that might not otherwise be apparent; persuade skeptics that progress is being made in the right direction, even if the destination has not yet been reached; aid program managers in identifying what needs to be emphasized right now and/or what can be done to accelerate progress.

For example, the mission of many CDC programs can be displayed as a simple logic model that shows key clusters of program activities and the key intended changes in a health outcome(s) (Exhibit 2.4). The process of elaboration leads to the more detailed depiction of how the same activities *produce* the major distal outcome, i.e., the milestones along the way.

Exhibit 2.4
Elaborating Intermediate Outcomes in Your Logic Models

Prevention Program - Simple Logic Model
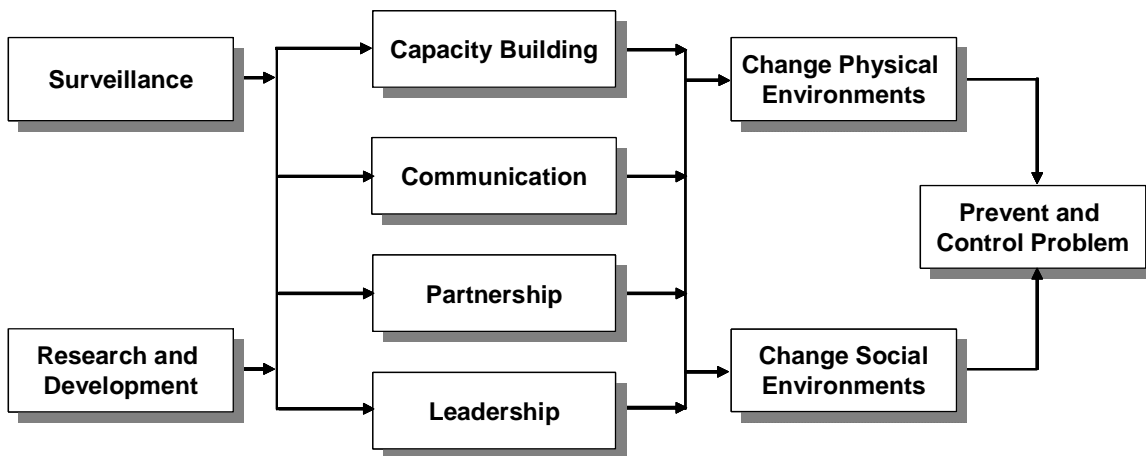
Prevention Program - Elaborated Logic Model

ACTIVITIES	OUTPUTS	EFFECTS

SURVEILLANCE → Identify factors and populations

RESEARCH & DEVELOPMENT → Identify modifiable risk and protective factors and consequences. Develop/test interventions. Create/identify best method and models

CAPACITY BUILDING → Support/develop frontline infrastructure. Identify skills and needs

COMMUNICATION → Identify channels, audiences, and key beliefs

PARTNERSHIP → Identify strategic partners

LEADERSHIP → Forum for convening. Develop research and other agendas

Evidence-based models. Strategies to implement models. Best implementation practices

Network of strong frontline implementers. Good training tools and resources

Effective prevention messages and information. Effective delivery channels

Activated constituency for prevention. Shared vision

Propose policy changes

Adopt changes in policies, laws and regulations

Change physical environment

Diffuse supply of tools, practices and programs

Adopt practices and programs

Change established/ takes root

Prevent and control problem

Change knowledge, attitudes and behavior

Generate demand for tools

Change social environment

Access to leaders. Access to key groups

Strong partnerships at all levels

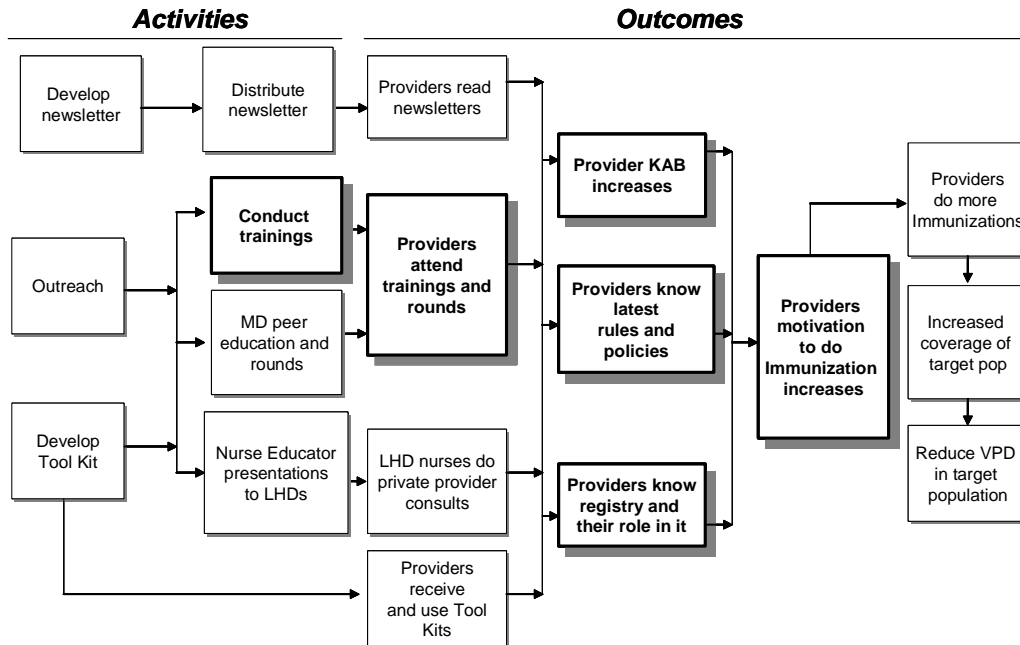Increased resources

Setting the Appropriate Level of Detail

Logic models can be broad or specific. The level of detail depends on the use to which the model is being put and the main audience for the model. A global model works best for stakeholders such as funders and authorizers, but program staff may need a more detailed model that reflects day-to-day activities and causal relationships.

When programs need both global and specific logic models, it is helpful to develop a global model first. The detailed models can be seen as more specific "magnification" of parts of the program. As in geographic mapping programs such as Mapquest, the user can "zoom in" or "zoom out" on an underlying map. The family of related models ensures that all players are operating from a common frame of reference. Even when some staff members are dealing with a discrete part of the program, they are cognizant of where their part fits into the larger picture.

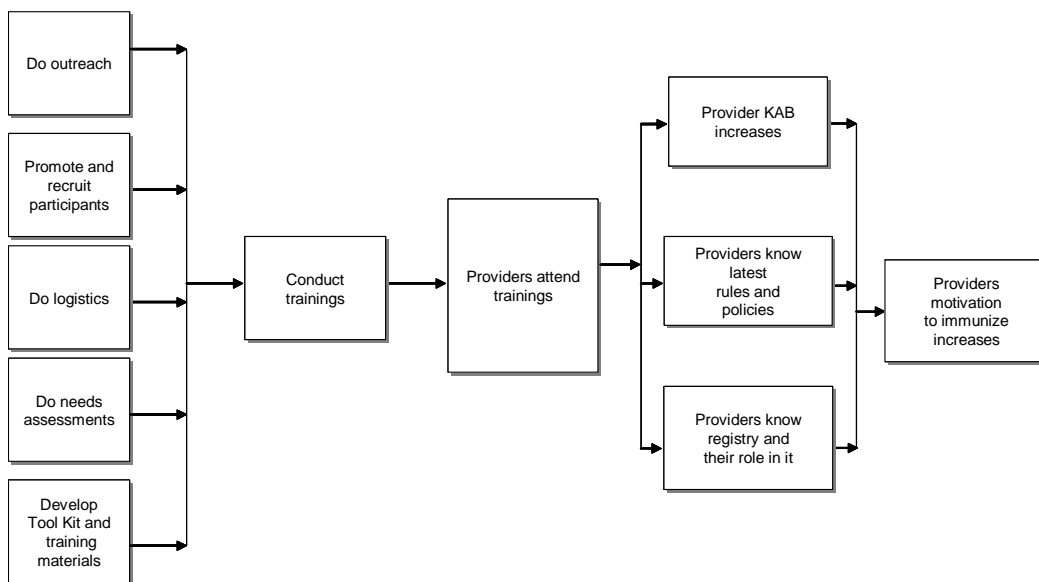The provider immunization program is a good example of "zooming in" on portions of a more global model. The first logic model (Exhibit 2.5) is a global one depicting all the activities and outcomes, but highlighting the sequence from training activities to intended outcomes of training. The second logic model magnifies this stream only, indicating some more detail related to implementation of training activities.

Exhibit 2.5
Focusing in on Portions of a Program

Provider Education - "Causal" Roadmap - Emphasis on Training Impacts

Activities

Outcomes

- Develop newsletter → Distribute newsletter → Providers read newsletters
- Outreach → Conduct trainings / MD peer education and rounds → Providers attend trainings and rounds
- Develop Tool Kit → Nurse Educator presentations to LHDs → LHD nurses do private provider consults
- Providers receive and use Tool Kits

- Provider KAB increases
- Providers know latest rules and policies
- Providers know registry and their role in it

- Providers motivation to do Immunization increases

- Providers do more Immunizations
- Increased coverage of target pop
- Reduce VPD in target population

Provider Education - "Zoom-In" Roadmap - Training

- Do outreach
- Promote and recruit participants
- Do logistics
- Do needs assessments
- Develop Tool Kit and training materials

→ Conduct trainings → Providers attend trainings →

- Provider KAB increases
- Providers know latest rules and policies
- Providers know registry and their role in it

→ Providers motivation to immunize increases

Applying Standards

As in the previous step, you can assure that the evaluation is a quality one by testing your approach against some or all of the four evaluation standards. The two standards that apply most directly to Step 2: Describe the Program are accuracy and propriety. The questions presented in the following table can help you produce the best program description.

Standards for Step 2
Describe the Program

Standard	Questions
Utility	• Thinking about how the model will be used, is the level of detail appropriate or is there too much or too little detail? • Is the program description intelligible to those who need to use it to make evaluation planning decisions?
Feasibility	• Does the program description include at least some activities and outcomes that are in control of the program?
Propriety	• Is the evaluation complete and fair in assessing all aspects of the program, including its strengths and weaknesses? • Does the program description include enough detail to examine both strengths and weaknesses, and unintended as well as intended outcomes?
Accuracy	• Is the program description comprehensive? • Have you documented the context of the program so that likely influences on the program can be identified?

Checklist for Describing the Program

☐ Compile a comprehensive program description including need, targets, outcomes, activities, and resources.

☐ Identify the stage of development and context of the program.

☐ Convert inputs, activities, outputs, and outcomes into a simple global logic model.

☐ Elaborate the model as needed.

☐ Develop more detailed models from the global model as needed.

Worksheet 2A
Raw Material for Your Logic Model

Activities	Outcomes
What will the program and its staff actually do?	What changes do we hope will result in someone or something other than the program and its staff?

Worksheet 2B
Sequencing Activities and Outcomes

Activities		Outcomes	
Early	**Later**	**Early**	**Later**