Introduction to Program Evaluation for Public Health Programs:

A Self-Study Guide

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Contents

Executive Summary

This document is a "how to" guide for planning and implementing evaluation activities. The manual, based on CDC's Framework for Program Evaluation in Public Health, is intended to assist managers and staff of public, private, and community public health programs to plan, design, implement and use 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. Such needs include 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 aim to prevent or control disease, injury, disability and death. Over time, as this task has become more complex, programs themselves have become more complex. Increasingly, public health programs address large problems, the solutions 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 inter-organizational settings in which they are planted. At the same time that programs have become more complex, the demands for accountability from policymakers and other stakeholders have increased.

These changes in the environment in which public health programs operate mean that strong program evaluation is essential now more than ever. There is no one "right" evaluation. Rather, a host of evaluation questions may arise over the life of *a* 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

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 such elements as community mobilization, policy and regulatory action, strategic use of media and health communication, and funding of frontline programs. Program evaluation documents progress on program goals and the effectiveness of various strategies in producing this progress.

Program Accountability

Program evaluation is a tool with which to demonstrate accountability to an array of stakeholders who may include funding sources, policymakers, state, and local agencies implementing the program, and 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 integrates insights from previous Framework-based manuals developed by CDC's Office on Smoking and Health,[1] and Division of Nutrition and Physical Activity[2] for their grantees and state and local partners, and by the Center for the Advancement of Community Based Public Health for community health programs[3] as well as additional insights from conducting trainings and facilitations based on the Framework. The document is organized around Framework's six steps:

- 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.

[1] 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.
[2] 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.
[3] 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.*"[4] 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 a candidate for 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 distinguishes program evaluation from ongoing informal assessment is that program evaluation is conducted according to a set of guidelines. With that in mind, this manual defines 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."[5] Program evaluation does not occur in a vacuum; rather, it is influenced by real-world constraints. Evaluation should be practical and feasible and 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.

[4] Scriven M. Minimalist theory of evaluation: The least theory that practice requires. American Journal of Evaluation 1998;19:57-70.
[5] Patton MQ. Utilization-focused evaluation: The new century text. 3rd ed. Thousand Oaks, CA: Sage, 1997.

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 these groups:

- **Implementation:** Were your program's activities put into place as originally intended?
- **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?" 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 characterized as "surveillance," "research," or "program evaluation." It is important that organizations see these processes as related and do their best to integrate the insights from them. Other processes include:

Planning

Planning asks, "What are we doing and what should we do to achieve our goals?" By providing information on progress toward organizational goals and identifying which parts of the program are working well and/or poorly, program evaluation 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 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 interchangeably, 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, however, 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 to add questions for a particular program evaluation.

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 from specific questions for an evaluation are 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. Evaluators can also use qualitative methods (e.g., focus groups, semi-structured 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[6] and some evaluations aspire to make statements about attribution, "pure"

[6] Green LW, George MA, Daniel M, Frankish CJ, Herbert CP, Bowie WR, et al. Study of participatory research in health

research and evaluation serve somewhat different purposes (See "Distinguishing Principles of Research and Evaluation" table, page 4), 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. Of the ten concepts contrasted in the table, the last three 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.

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).

promotion: Review and recommendations for the development of participatory research in health promotion in Canada. Ottawa, Canada: Royal Society of Canada, 1995.

Concept	Research Principles	Program Evaluation Principles
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?

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.

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

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.[7] Recommendations immediately relevant to the evaluation of comprehensive public health programs include:

[7] 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.

- Encourage the adoption of participatory evaluation approaches 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.
- 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

Figure 1.1
Evaluation Framework

Program evaluation is one of ten essential public health services[8] and a critical organizational practice in public health.[9] 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.[10] The Framework, as depicted in Figure 1.1, defined six steps and four sets of standards for conducting good evaluations of public health programs.

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 evaluations on questions that are most salient, relevant, and important. 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.

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

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

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

The steps in the CDC Framework are informed by a set of standards for evaluation.[11] 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?
- **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. 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: (**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, 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 (Step 4). Asking these same kinds of questions as you approach evidence gathering will help identify ones what 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 Establish an Evaluation Team and Select a Lead Evaluator

Good evaluation requires a combination of skills that are rarely found in one person. The preferred approach is to choose an evaluation team that includes internal program staff, external stakeholders, and possibly consultants or contractors with evaluation expertise.

An initial step in the formation of a team is to decide who will be responsible for planning and implementing evaluation activities. 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

[11] 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.

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 text box below, 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 among stakeholders and to work with knowledgeable stakeholder representatives in designing and conducting the evaluation.

Seek additional evaluation expertise 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.[12]

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.

Characteristics of a Good Evaluator

- Experience in the type of evaluation needed
- Comfortable with quantitative data sources and analysis
- 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 in designing and conducting the evaluation
- Will give staff the full findings (i.e., will not gloss over or fail to report certain findings)

To generate discussion around evaluation planning and implementation, several states have formed evaluation advisory panels. Advisory panels typically generate input from local, regional, or

[12] 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.

national experts otherwise difficult to access. Such an advisory panel will lend credibility to your efforts and prove useful in cultivating widespread support for evaluation activities.

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
- 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.[13] 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.

13 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

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.

Each chapter also provides checklists and worksheets to help you apply the teaching points.

Step 1: Engage Stakeholders

Stakeholders are people or organizations invested in the program, interested in the results of the evaluation, and/or with 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, the following categories help you to think broadly and inclusively in identifying stakeholders:

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.

Use the evaluation standards to help identify those stakeholders who matter most. 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.

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.

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 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 identify the perspectives and needs of the key stakeholders and the implications for designing and implementing the evaluation. Note in the CLPP example that while all stakeholders may applaud 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 priorities for specific outcomes, also have preferences related to data collection—such as stipulating "no 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. 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.

Engage your program's critics in the evaluation, as well. Critics may 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 of participatory models or "action" research in the research community. 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.[14] 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.

[14] 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 Step 1: Engage 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 result

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:			
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**

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. Either way, the combination of stakeholder engagement and program description produces clarity and consensus long before data are available to measure program effectiveness. This clarity sets the stage for good program evaluation, and, also can be helpful in ensuring that strategic planning and performance measurement, operate from the same frame of reference about the program.

A comprehensive program description includes the following components:

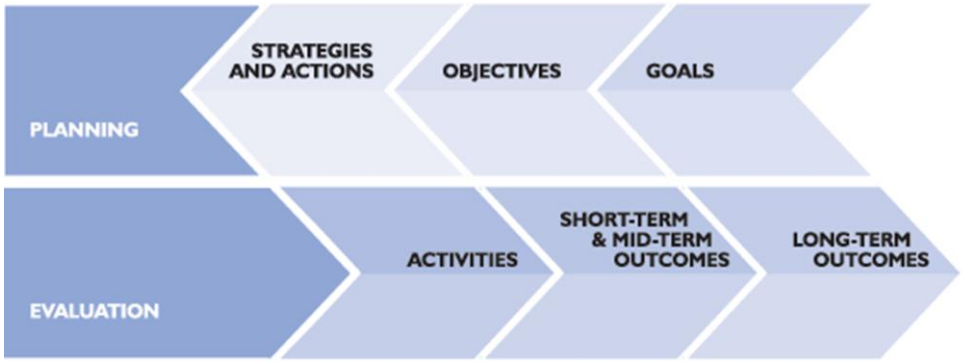
- **Need.** What is the big public health problem you aim to address with your program?
- **Targets.** Which groups or organizations need to change or take action to ensure progress on the public health problem?
- **Outcomes.** How and in what way do these targets need to change? What action specifically 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 may use different terms for similar concepts. The resulting confusion undermines integration of planning and evaluation. As noted below, plans proceed from abstract/conceptual goals, then specify 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. These terms may crosswalk to the components of our program description. The strategies may provide insights on the program's activities, the objectives may indicate some or all of the target audiences and short-term or intermediate outcomes, and the goal is likely to inform the long-term outcome desired by the program.



You need not start from scratch in defining the components of your program description. Use the goals and objectives in the program's mission, vision, or strategic plan to generate a list of outcomes (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 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

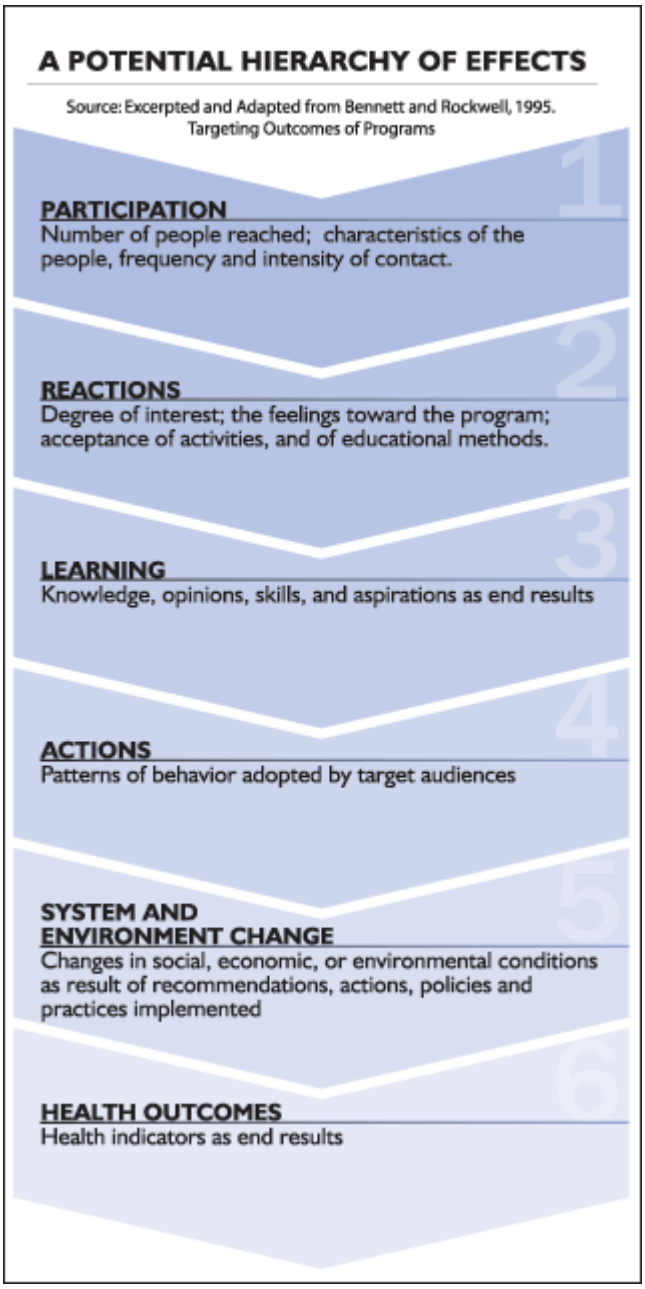
Target groups are the various audiences the program needs to spur to act in order to make progress on the public health problem. For the affordable housing program, eligible families, volunteers, and funders/sponsors need to take action. For the CLPP program, reducing EBLL requires some action by families, health care providers, and housing officials, among others.

Outcomes

Outcomes[15] 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 provides details not only on the intended long-term outcomes but on the short-term and intermediate outcomes that precede it.

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*** conditions that direct the long-term ***health outcomes*** of the community.

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.



[15] 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.

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

Activities

These are the actions mounted by the program and its staff to achieve the desired outcomes in the target groups. Activities will vary with the program. 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 oversee construction and handle the mechanics of home sale. The CLPP program does outreach and screening of children, and, for 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. 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.[16]

Resources/Inputs

These are the people, money, and information needed—usually from 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

[16] 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.

is dependent. If intended outcomes are not being achieved, look to the resources/inputs list for one reason why program activities could not be implemented as intended.

In the affordable housing program, for example, 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 medical treatment and clean-up of homes—are necessary inputs to mount a successful program.

Stages of Development

Programs can be roughly classed into three stages of development: planning, implementation, and maintenance/outcomes achievement. 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 very differently than a program that has been in existence for several years.

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 exists. Because external factors can present both opportunities and roadblocks, 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. Some communities, while approving affordable housing in principle, may resist construction of these homes in their neighborhood.

For the CLPP program, 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 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 may help to summarize the relationship among 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 evaluators use, 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 make up 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. 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.

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.

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

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.

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.

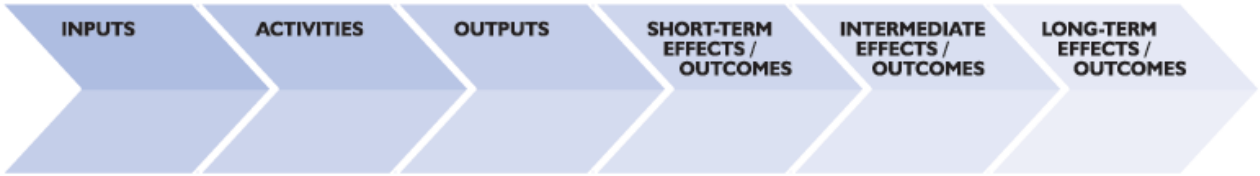
Develop a list of activities and intended outcomes

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. To stimulate the creation of a comprehensive list of activities and outcomes, ***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 (thechange 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?" helps elaborate downstream outcomes of the activities.

Logic models may depict all or only some of the elements of program description (see text box, p.24), depending on the use to which the model is being put. For example, Exhibit 2.1 is a simple, generic logic model. If relevant , the model could include references to components such as "context" or "stage of development." The examples below focus mainly on connecting a program's activities to its 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 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, a needs assessment should be conducted, then the survey should be developed and distributed.. Likewise, among the outcomes, change in knowledge and attitudes would generally 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. 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 provides all the clarity that is needed. If not, the next step is 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. 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.

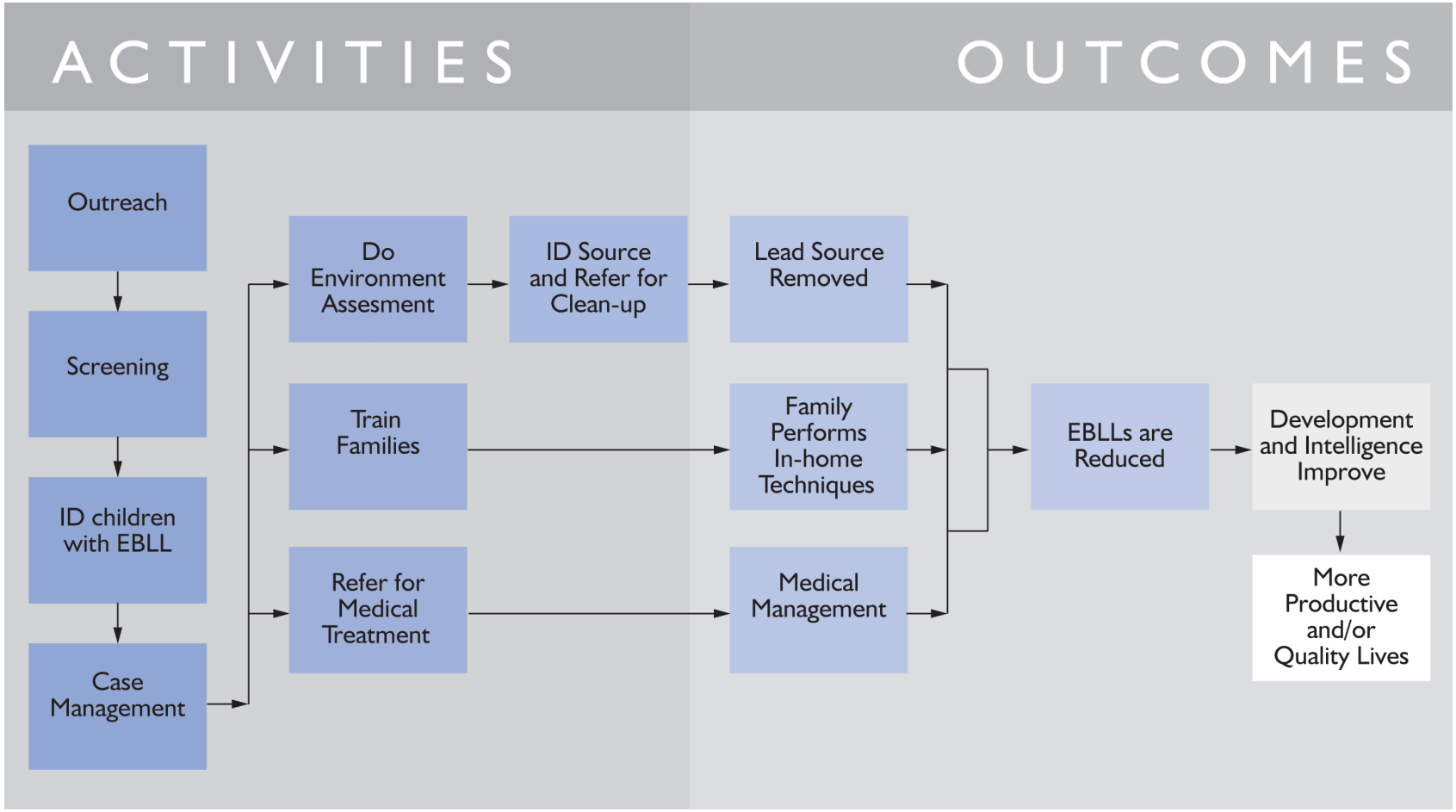
CLPP Program: Logic Model with Inputs and Outputs					
Inputs	**Early Activities**	**Later Activities**	**Outputs**	**Early Outcomes**	**Later Outcomes**
▪ Funds ▪ Trained staff for screening and clean-up ▪ Relationships with organizations ▪ Legal authority	▪ Outreach ▪ Screening ▪ Identification of 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 ▪ Development "slide" stopped ▪ Q of L improved

Draw arrows to depict intended causal relationships. The multi-column table of inputs, activities, outputs, and outcomes that has been developed so far contains enough detail to convey the components of a program in a global way. However, when the model is used to set the stage for planning and evaluation discussions, drawing arrows that show the causal relationships among activities and outcomes can be helpful. 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 - **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

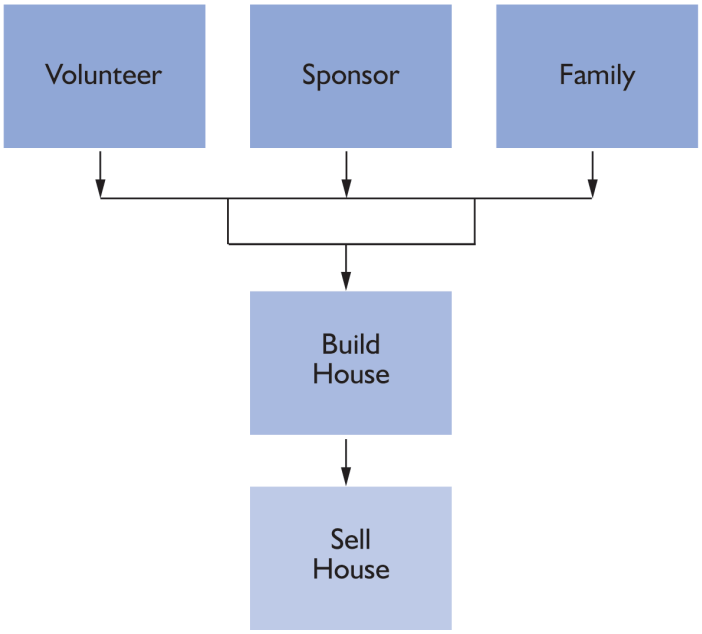
Logic models are a picture depicting your "program theory"—why *should* your program work? The simple logic models developed in these few steps may work fine for that purpose, but programs may benefit from elaborating their simple logic models in some of the following ways:

- **Elaborating distal outcomes:** Sometimes the simple model will end with 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. Ask, "So then what happens?" of the last outcome depicted in the simple model, then continuing to ask that of all subsequent outcomes until more distal ones are included.

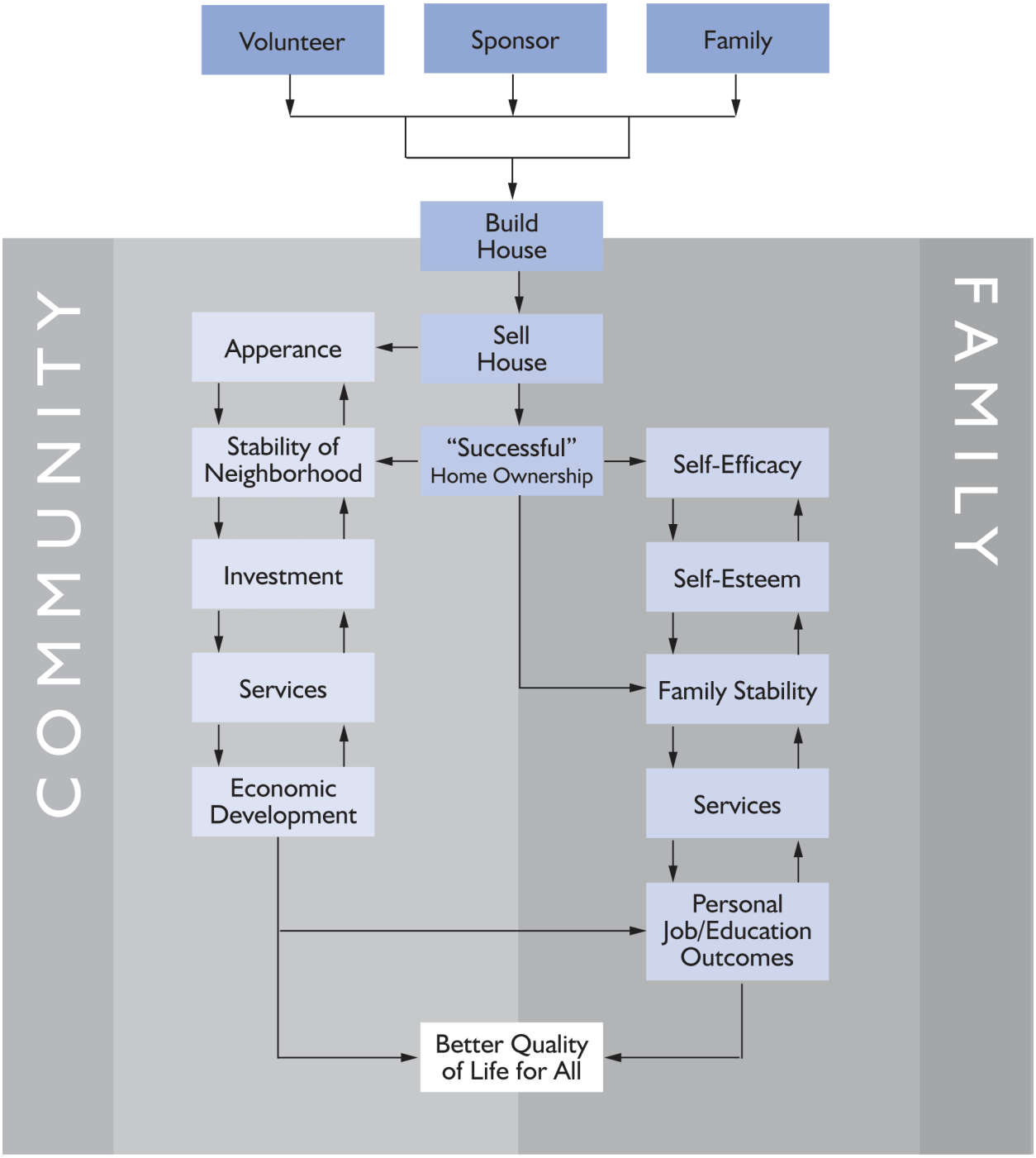
  In Exhibit 2.3, the very simple logic model that might result from a review of the narrative about the home ownership program is elaborated by asking, "So then what happens?" Note that the original five-box model remains as the core of the elaborated model, but the intended outcomes now include a stream of more distal outcomes for both the new home-owning families and for the communities in which houses are built. 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



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 can help 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). 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

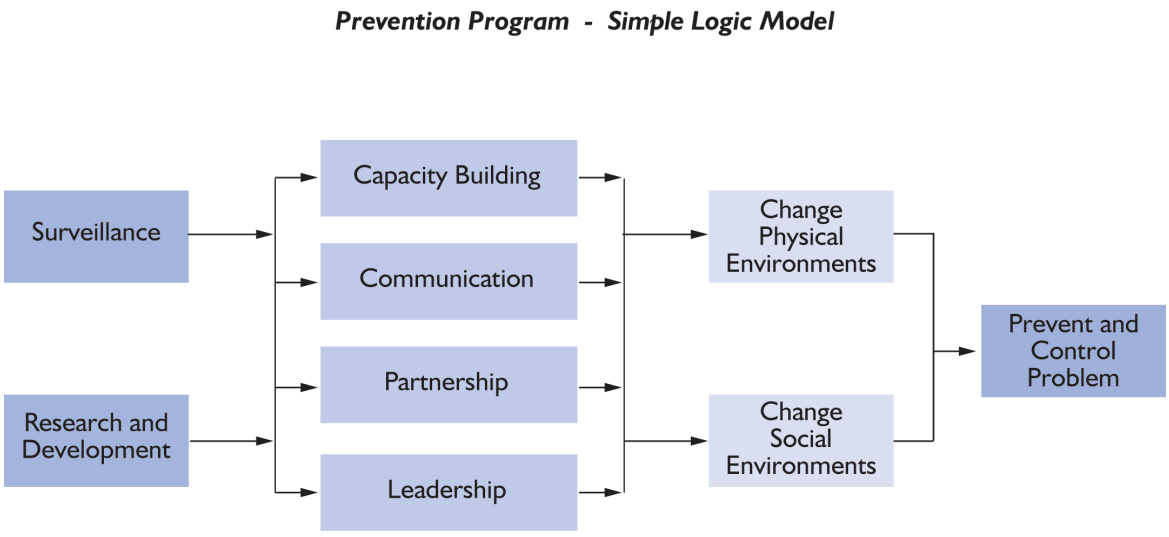
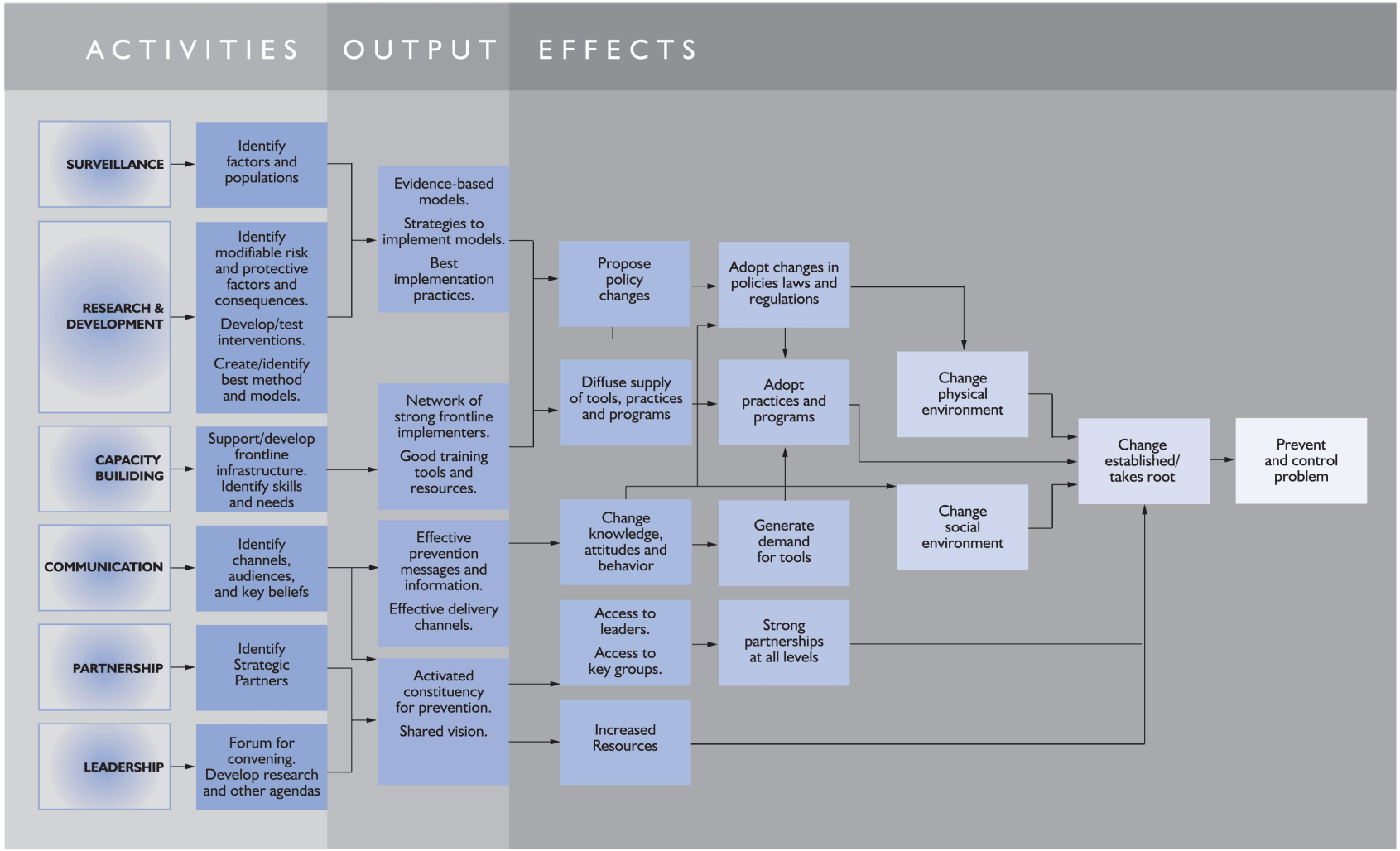


Exhibit 2.4 – **Elaborating Intermediate Outcomes In Your Logic Model**

Prevention Program - Elaborated Logic Model



Setting the Appropriate Level of Detail

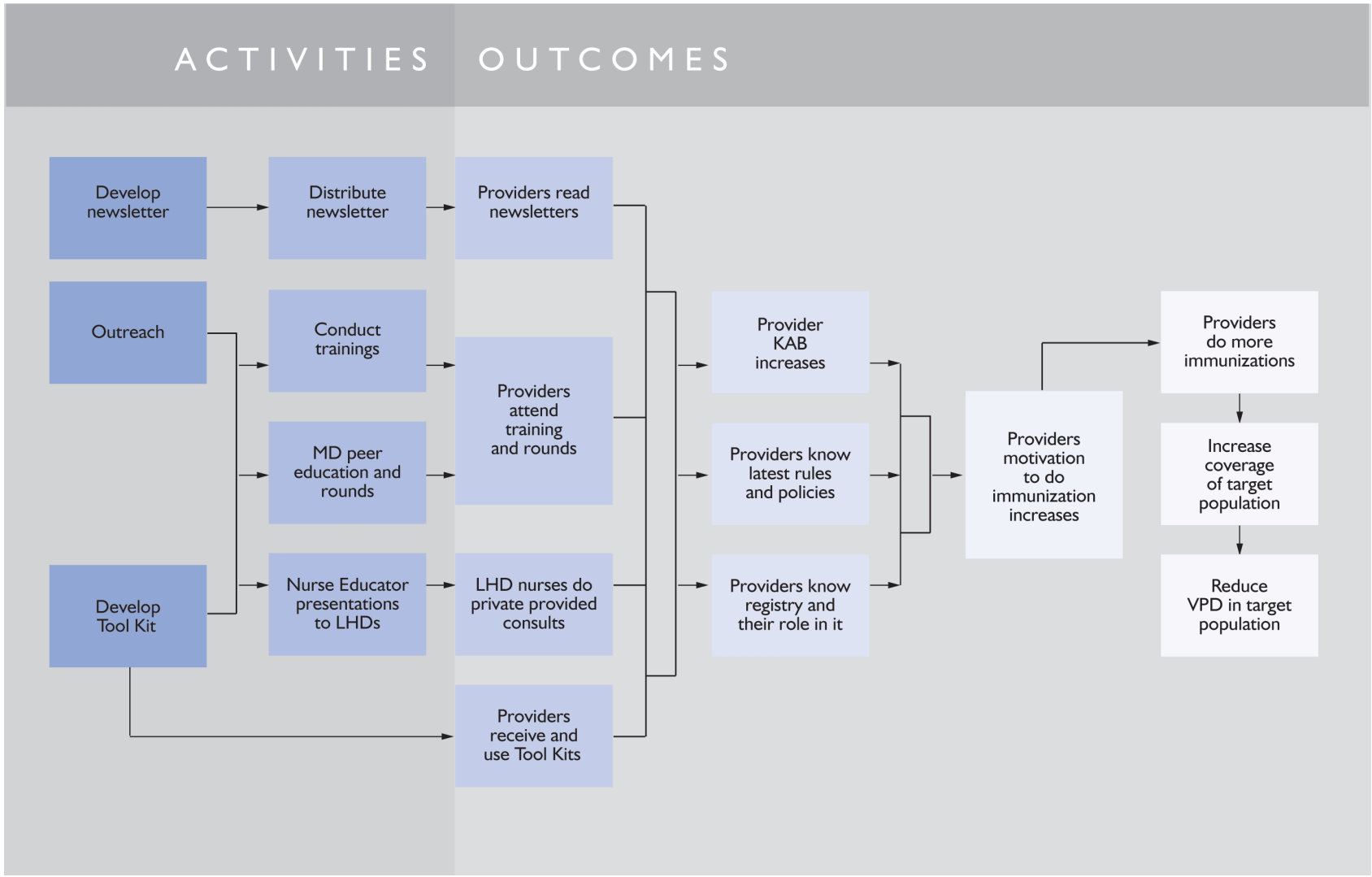
Logic models can be broad or specific. The level of detail depends on the use to which the model is being put and the main audience for the model. A global model works best for stakeholders such as funders and authorizers, but program staff may need a more detailed model that reflects day-to-day activities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

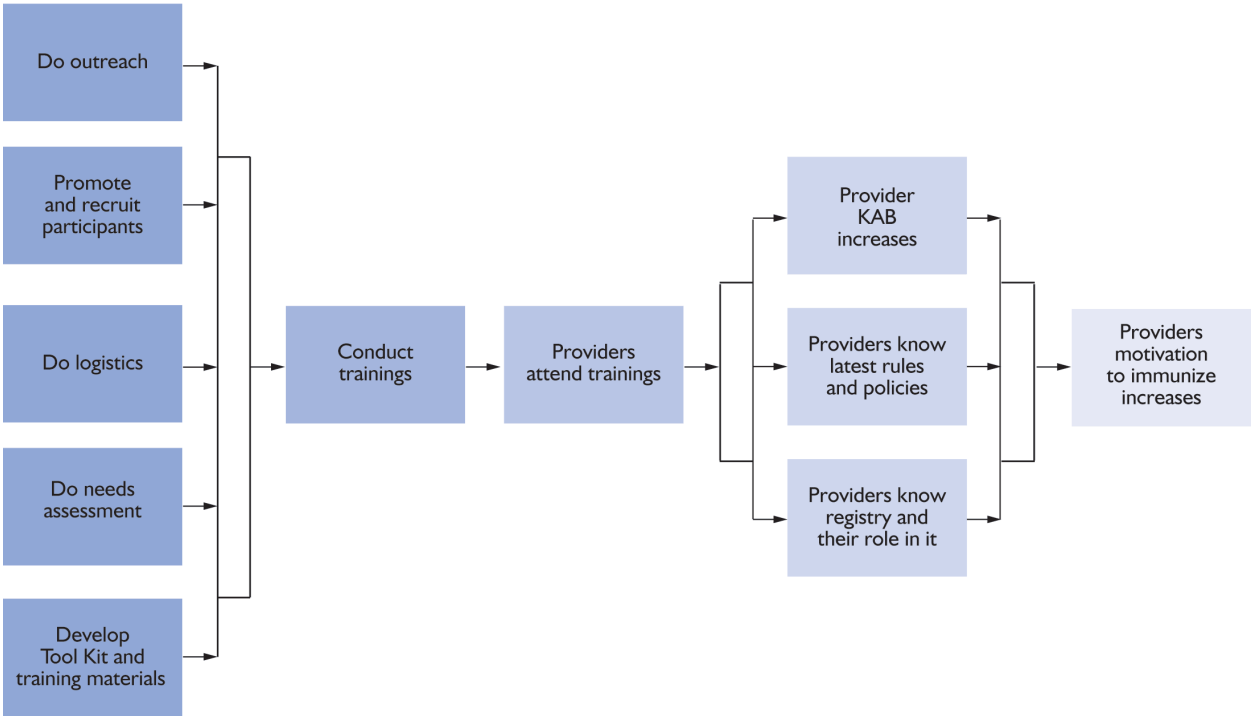
Provider Education- "Casual Roadmap - Emphasis on Training Impacts



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.

Provider Education - "Zoom-In" Roadmap - Training



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 decisions/description intelligible to those who need to use it to make evaluation planning
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 Step 2: 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**

Step 3: Focus the Evaluation Design

After completing Steps 1 and 2, you and your stakeholders should have a clear understanding of the program and have reached consensus. Now your evaluation team will need to focus the evaluation. This includes determining the most important evaluation questions and the appropriate design for the evaluation. Focusing the evaluation assumes that the entire program does not need to be evaluated at any point in time. Rather, the right evaluation of the program depends on what question is being asked, who is asking the question, and what will be done with the information.

Since resources for evaluation are always limited, this chapter provides a series of decision criteria to help you determine the best evaluation focus at any point in time. These criteria are inspired by the evaluation standards: specifically, utility (who will use the results and what information will be most useful to them) and feasibility (how much time and resources are available for the evaluation).

The logic models developed in Step 2set the stage for determining the best evaluation focus. The approach to evaluation focus in the CDC Evaluation Framework differs slightly from traditional evaluation approaches. Rather than a summative evaluation, conducted when the program had run its course and asking "Did the program work?" the CDC framework views evaluation as an ongoing activity over the life of a program that asks," Is the program working?"

Hence, a program is always ready for *some* evaluation. Because the logic model displays the program from inputs through activities/outputs through to the sequence of outcomes from short-term to most distal, it can guide a discussion of what you can expect to achieve at a given point in the life of your project. Should you focus on distal outcomes, or only on short- or mid-term ones? Or conversely, does a process evaluation make the most sense right now?

Types of Evaluations

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 evaluation information is needed. In general, evaluation questions for an existing program[17] fall into one of the following groups:

Implementation/Process

Implementation evaluations (process evaluations) document whether a program has been implemented as intended—and why or why not? In process evaluations, you might examine whether the activities are taking place, who is conducting the activities, who is reached through the activities, and whether sufficient inputs have been allocated or mobilized. Process evaluation

[17] There is another type of evaluation—"formative" evaluation—where the purpose of the evaluation is to gain insight into the nature of the problem so that you can "formulate" a program or intervention to address it. While many steps of the Framework will be helpful for formative evaluation, the emphasis in this manual is on instances wherein the details of the program/intervention are already known even though it may not yet have been implemented.

is important to help distinguish the causes of poor program performance—was the program a bad idea, or was it a good idea that could not reach the standard for implementation that you set? In all cases, process evaluations measure whether actual program performance was faithful to the initial plan. Such measurements might include contrasting actual and planned performance along all or some of the following:

- The locale where services or programs are provided (e.g., rural, urban)
- The number of people receiving services
- The economic status and racial/ethnic background of people receiving services
- The quality of services
- The actual events that occur while the services are delivered
- The amount of money the project is using
- The direct and in-kind funding for services
- The staffing for services or programs
- The number of activities and meetings
- The number of training sessions conducted

When evaluation resources are limited, only the most important issues of implementation can be included. Here are some "usual suspects" that compromise implementation and might be considered for inclusion in the process evaluation focus:

- **Transfers of Accountability:** When a program's activities cannot produce the intended outcomes unless some other person or organization takes appropriate action, there is a transfer of accountability.

- **Dosage:** The intended outcomes of program activities (e.g., training, case management, counseling) may presume a threshold level of participation or exposure to the intervention.

- **Access:** When intended outcomes require not only an increase in consumer demand but also an increase in supply of services to meet it, then the process evaluation might include measures of access.

- **Staff Competency:** The intended outcomes may presume well-designed program activities delivered by staff that are not only technically competent but also matched appropriately to the target audience. Measures of the match of staff and target audience might be included in the process evaluation.

Our childhood lead poisoning logic model illustrates such potential process issues. Reducing EBLL presumes the house will be cleaned, medical care referrals will be fulfilled, and specialty medical care will be provided. These are transfers of accountability beyond the program to the housing authority, the parent, and the provider, respectively. For provider training to achieve its outcomes, it may presume completion of a three-session curriculum, which is a dosage issue. Case management results in medical referrals, but it presumes adequate access to specialty medical providers. And because lead poisoning tends to disproportionately affect children in

low-income urban neighborhoods, many program activities presume cultural competence of the caregiving staff. Each of these components might be included in a process evaluation of a childhood lead poisoning prevention program.

Effectiveness/Outcome

Outcome evaluations assess progress on the sequence of outcomes the program is to address. Programs often describe this sequence using terms like short-term, intermediate, and long-term outcomes, or proximal (close to the intervention) or distal (distant from the intervention). Depending on the stage of development of the program and the purpose of the evaluation, outcome evaluations may include any or all of the outcomes in the sequence, including

- Changes in people's attitudes and beliefs
- Changes in risk or protective behaviors
- Changes in the environment, including public and private policies, formal and informal enforcement of regulations, and influence of social norms and other societal forces
- Changes in trends in morbidity and mortality

While process and outcome evaluations are the most common, there are several other types of evaluation questions that are central to a specific program evaluation. These include the following:

- **Efficiency:** Are your program's activities being produced with minimal use of resources such as budget and staff time? What is the volume of outputs produced by the resources devoted to your program?
- **Cost-Effectiveness:** Does the value or benefit of your program's outcomes exceed the cost of producing them?
- **Attribution:** Can the outcomes be related to your program, as opposed to other things going on at the same time?

All of these types of evaluation questions relate to part, but not all, of the logic model. Exhibits 3.1 and 3.2 show where in the logic model each type of evaluation would focus. Implementation evaluations would focus on the inputs, activities, and outputs boxes and not be concerned with performance on outcomes. Effectiveness evaluations would do the opposite—focusing on some or all *outcome boxes*, but not necessarily on the activities that produced them. Efficiency evaluations care about the *arrows linking inputs to activities/outputs*—how much output is produced for a given level of inputs/resources. Attribution would focus on the *arrows between specific activities/outputs and specific outcomes*—whether progress on the outcome is related to the specific activity/output.

Exhibit 3.1

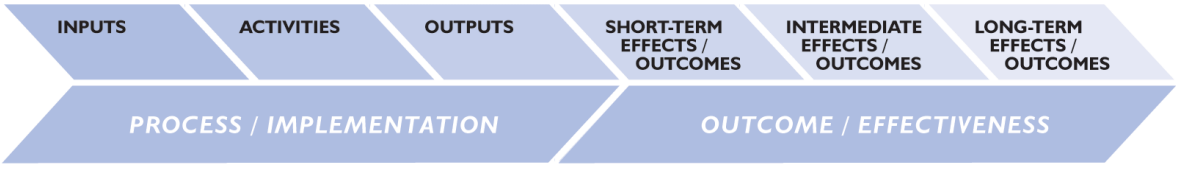
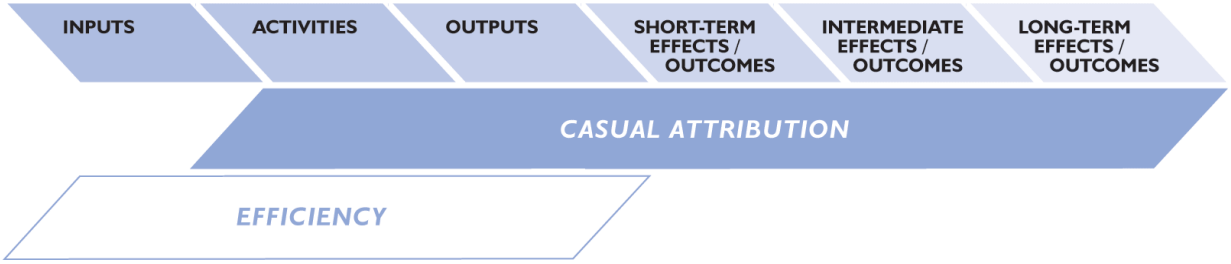


Exhibit 3.2



Determining the Evaluation Focus

Determining the correct evaluation focus is a case-by-case decision. Several guidelines inspired by the "utility" and "feasibility" evaluation standards can help determine the best focus.

Utility Considerations

1) What is the purpose of the evaluation?

Purpose refers to the general intent of the evaluation. A clear purpose serves as the basis for the evaluation questions, design, and methods. Some common purposes:

- **Gain new knowledge about program activities**
- **Improve or fine-tune existing program operations (e.g., program processes or strategies)**
- **Determine the effects of a program by providing evidence concerning the program's contributions to a long-term goal**
- **Affect program participants by acting as a catalyst for self-directed change (e.g., teaching)**

2) Who will use the evaluation results?

Users are the individuals or organizations that will employ the evaluation findings. The users will likely have been identified during Step 1 in the process of engaging stakeholders. In this step, you need to secure their input into the design of the evaluation and the selection of evaluation questions. Support from the intended users will increase the likelihood that the evaluation results will be used for program improvement.

3) How will they use the evaluation results?

Many insights on use will have been identified in Step 1. Information collected may have varying uses, which should be described in detail when designing the evaluation. Some examples of uses of evaluation information:

- To document the level of success in achieving objectives
- To identify areas of the program that need improvement
- To decide how to allocate resources
- To mobilize community support
- To redistribute or expand the locations where the intervention is carried out
- To improve the content of the program's materials
- To focus program resources on a specific population
- To solicit more funds or additional partners

4) What do *other* key stakeholders need from the evaluation?

Of course, the most important stakeholders are those who request or who will use the evaluation results. Nevertheless, in Step 1, you may also have identified stakeholders who, while not using the findings of the current evaluation, have key questions that may need to be addressed in the evaluation to keep them engaged. For example, a particular stakeholder may always be concerned about costs, disparities, or attribution. If so, you may need to add those questions to your evaluation focus.

Feasibility Considerations

The first four questions help identify the most useful focus of the evaluation, but you must also determine whether it is a realistic/feasible one. Three questions provide a reality check on your desired focus:

5) What is the stage of development of the program?

During Step 2, you will have identified the program's stage of development. There are roughly three stages in program development --planning, implementation, and maintenance -- that suggest different focuses. In the planning stage, a truly formative evaluation—who is your target, how do you reach them, how much will it cost—may be the most appropriate focus. An

evaluation that included outcomes would make little sense at this stage. Conversely, an evaluation of a program in maintenance stage would need to include some measurement of progress on outcomes, even if it also included measurement of implementation.

Are You Ready to Evaluate Outcomes?

Here are some handy rules to decide whether it is time to shift the evaluation focus toward an emphasis on program outcomes:

- **Sustainability:** Political and financial will exists to sustain the intervention while the evaluation is conducted.
- **Fidelity:** Actual intervention implementation matches intended implementation. Erratic implementation makes it difficult to know what "version" of the intervention was implemented and, therefore, which version produced the outcomes.
- **Stability:** Intervention is not likely to change during the evaluation. Changes to the intervention over time will confound understanding of which aspects of the intervention caused the outcomes.
- **Reach:** Intervention reaches a sufficiently large number of clients (sample size) to employ the proposed data analysis. For example, the number of clients needed may vary with the magnitude of the change expected in the variables of interest (i.e., effect size) and the power needed for statistical purposes.
- **Dosage:** Clients have sufficient exposure to the intervention to result in the intended outcomes. Interventions with limited client contact are less likely to result in measurable outcomes, compared to interventions that provide more in-depth intervention.

6) How intensive is the program?

Some programs are wide-ranging and multifaceted. Others may use only one approach to address a large problem. Some programs provide extensive exposure ("dose") of the program, while others involve participants quickly and superficially. Simple or superficial programs, while potentially useful, cannot realistically be expected to make significant contributions to distal outcomes of a larger program, even when they are fully operational.

7) What are relevant resource and logistical considerations?

Resources and logistics may influence decisions about evaluation focus. Some outcomes are quicker, easier, and cheaper to measure, while others may not be measurable at all. These facts may tilt the decision about evaluation focus toward some outcomes as opposed to others.

Early identification of inconsistencies between utility and feasibility is an important part of the evaluation focus step. But we must also ensure a "meeting of the minds" on what is a realistic focus for program evaluation at any point in time.

The affordable housing example shows how the desired focus might be constrained by reality. The elaborated logic model was important in this case. It clarified that, while program staff were focused on production of new houses, important stakeholders like community-based organizations and faith-based donors were committed to more distal outcomes such as changes in life outcomes of families, or on the outcomes of outside investment in the community. The model led to a discussion of reasonable expectations and, in the end, to expanded evaluation indicators that included some of the more distal outcomes, that led to stakeholders' greater appreciation of the intermediate milestones on the way to their preferred outcomes.

Illustrating Evaluation Focus Decisions

Because the appropriate evaluation focus is case-specific, let's apply these focus issues to a few different evaluation scenarios for the CLPP program.

Scenario 1

At the 1-year mark, a neighboring community would like to adopt your program but wonders, "What are we in for?" Here you might determine that questions of efficiency and implementation are central to the evaluation. You would likely conclude this is a realistic focus, given the stage of development and the intensity of the program. Questions about outcomes would be premature.

Scenario 2

At the 5-year mark, the auditing branch of your government funder wants to know, "Did you spend our money well?" Clearly, this requires a much more comprehensive evaluation, and would entail consideration of efficiency, effectiveness, possibly implementation, and cost-effectiveness. It is not clear, without more discussion with the stakeholder, whether research studies to determine causal attribution are also implied. Is this a realistic focus? At year 5, probably yes. The program is a significant investment in resources and has been in existence for enough time to expect some more distal outcomes to have occurred.

Note that in either scenario, you must also consider questions of interest to key stakeholders who are not necessarily intended users of the results of the current evaluation. Here those would be advocates, concerned that families not be blamed for lead poisoning in their children,

and housing authority staff, concerned that amelioration include estimates of costs and identification of less costly methods of lead reduction in homes. By year 5, these look like reasonable questions to include in the evaluation focus. At year 1, stakeholders might need assurance that you care about their questions, even if you cannot address them yet.

Defining the Specific Evaluation Questions

These focus criteria identify the components of the logic model to be included in the evaluation focus, i.e., these activities, but not these; these outcomes, but not these. At this point, you convert the components of your focus into specific questions, i.e., implementation, effectiveness, efficiency, and attribution. Were my activities implemented as planned? Did my intended outcomes occur? Were the outcomes due to my activities as opposed to something else? If the outcomes occurred at some but not all sites, what barriers existed at less successful locations and what factors were related to success? At what cost were my activities implemented and my outcomes achieved?

Deciding On the Evaluation Design

Besides determining the evaluation focus and specific evaluation questions, at this point you also need to determine the appropriate evaluation design. Of chief interest in choosing the evaluation design is whether you are being asked to monitor progress on outcomes or whether you are also asked to show attribution—that progress on outcomes is related to your program efforts. Attribution questions may more appropriately be viewed as research as opposed to program evaluation, depending on the level of scrutiny with which they are being asked.

Three general types of research designs are commonly recognized: experimental, quasi-experimental, and non-experimental/observational. Traditional program evaluation typically uses the third type, but all three are presented here because, over the life of the program, traditional evaluation approaches may need to be supplemented with other studies that look more like research.

Experimental designs use random assignment to compare the outcome of an intervention on one or more groups with an equivalent group or groups that did not receive the intervention. For example, you could select a group of similar schools, and then randomly assign some schools to receive a prevention curriculum and other schools to serve as controls. All schools have the same chance of being selected as an intervention or control school. Random assignment, reduces the chances that the control and intervention schools vary in any way that could influence differences in program outcomes. This allows you to attribute change in outcomes to your program. For example, if the students in the intervention schools delayed onset or risk behavior longer than students in the control schools, you could attribute the success to your program. However, in community settings it is hard, or sometimes even unethical, to have a true control group.

While there are some solutions that preserve the integrity of experimental design, another option is to use a *quasi-experimental design*. These designs make comparisons between nonequivalent groups and do not involve random assignment to intervention and control groups.

An example would be to assess adults' beliefs about the harmful outcomes of environmental tobacco smoke (ETS) in two communities, then conduct a media campaign in one of the communities. After the campaign, you would reassess the adults and expect to find a higher percentage of adults believing ETS is harmful in the community that received the media campaign. Critics could argue that other differences between the two communities caused the changes in beliefs, so it is important to document that the intervention and comparison groups are similar on key factors such as population demographics and related current or historical events.

Related to ***quasi-experimental design***, comparison of outcomes/outcome data among states and between one state and the nation as a whole are common ways to evaluate public health efforts. Such comparisons will help you establish meaningful benchmarks for progress. States can compare their progress with that of states with a similar investment in their area of public health, or they can contrast their outcomes with the results to expect if their programs were similar to those of states with a larger investment.

Comparison data are also useful for measuring indicators in anticipation of new or expanding programs. For example, noting a lack of change in key indicators over time prior to program implementation helps demonstrate the need for your program and highlights the comparative progress of states with comprehensive public health programs already in place. A lack of change in indicators can be useful as a justification for greater investment in evidence-based, well-funded, and more comprehensive programs. Between-state comparisons can be highlighted with time–series analyses. For example, questions on many of the larger national surveillance systems have not changed in several years, so you can make comparisons with other states over time, using specific indicators. Collaborate with state epidemiologists, surveillance coordinators, and statisticians to make state and national comparisons an important component of your evaluation.

Observational designs include, but are not limited to, time–series analysis, cross-sectional surveys, and case studies. Periodic cross-sectional surveys (e.g.., the YTS or BRFSS) can inform your evaluation. Case studies may be particularly appropriate for assessing changes in public health capacity in disparate population groups. Case studies are applicable when the program is unique, when an existing program is used in a different setting, when a unique outcome is being assessed, or when an environment is especially unpredictable. Case studies can also allow for an exploration of community characteristics and how these may influence program implementation, as well as identifying barriers to and facilitators of change.

This issue of "causal attribution," while often a central research question, may or may not need to supplement traditional program evaluation. The field of public health is under increasing pressure to demonstrate that programs are worthwhile, effective, and efficient. During the last two decades, knowledge and understanding about how to evaluate complex programs have increased significantly. Nevertheless, because programs are so complex, these traditional research designs described here may not be a good choice. As the World Health Organization

notes, "the use of randomized control trials to evaluate health promotion initiatives is, in most cases, inappropriate, misleading, and unnecessarily expensive."[18]

Consider the appropriateness and feasibility of less traditional designs (e.g., simple before–after [pretest–posttest] or posttest-only designs). Depending on your program's objectives and the intended use(s) for the evaluation findings, these designs may be more suitable for measuring progress toward achieving program goals. Even when there is a need to prove that the program was responsible for progress on outcomes, traditional research designs may not be the only or best alternative. Depending on how rigorous the proof needs to be, proximity in time between program implementation and progress on outcomes, or systematic elimination of alternative explanations may be enough to persuade key stakeholders that the program is making a contribution. While these design alternatives often cost less and require less time, keep in mind that saving time and money should not be the main criteria selecting an evaluation design. It is important to choose a design that will measure what you need to measure and that will meet both your immediate and long-term needs.

Another alternative to experimental and quasi-experimental models is a goal-based evaluation model, that uses predetermined program goals and the underlying program theory as the standards for evaluation, thus holding the program accountable to prior expectations. The CDC Framework's emphasis on program description and the construction of a logic model sets the stage for strong goal-based evaluations of programs. In such cases, evaluation planning focuses on the activities; outputs; and short-term, intermediate, and long-term outcomes outlined in a program logic model to direct the measurement activities.

The design you select influences the timing of data collection, how you analyze the data, and the types of conclusions you can make from your findings. A collaborative approach to focusing the evaluation provides a practical way to better ensure the appropriateness and utility of your evaluation design.

[18] WHO European Working Group on Health Promotion Evaluation. op cit.

Standards for Step 3: Focus the Evaluation Design

Standard	Questions
Utility	▪ What is the purpose of the evaluation? ▪ Who will use the evaluation results and how will they use them? ▪ What special needs of any other stakeholders must be addressed?
Feasibility	▪ What is the program's stage of development? ▪ How intense is the program? ▪ How measurable are the components in the proposed focus?
Propriety	▪ Will the focus and design adequately detect any unintended consequences? ▪ Will the focus and design include examination of the experience of those who are affected by the program?
Accuracy	▪ Is the focus broad enough to detect success or failure of the program? ▪ Is the design the right one to respond to the questions—such as attribution—that are being asked by stakeholders?

Checklist for Step 3: Focusing the Evaluation Design

- [ ] Define the purpose(s) and user(s) of your evaluation.
- [ ] Identify the use(s) of the evaluation results.
- [ ] Consider stage of development, program intensity, and logistics and resources.
- [ ] Determine the components of your logic model that should be part of the focus given these utility and feasibility considerations.
- [ ] Formulate the evaluation questions to be asked of the program components in your focus, i.e., implementation, effectiveness, efficiency, and attribution questions.
- [ ] Review evaluation questions with stakeholders, program managers, and program staff.
- [ ] Review options for the evaluation design, making sure that the design fits the evaluation questions.

Worksheet 3A - **Focusing the Evaluation in the Logic Model**

	If this is the situation …	Then these are the parts of the logic model, I would include in my evaluation focus:
1	**Who is asking evaluation questions of the program?**	
2	**Who will use the evaluation results and for what purpose?**	
3	**In Step 1, did we identify interests of other stakeholders that we must take into account?**	

Worksheet 3B - **"Reality Checking" the Evaluation Focus**

	If this is my answer to these questions…	Then I would conclude the questions in my evaluation focus are/are not reasonable ones to ask right now.
1	**How long has the intervention been underway?**	
2	**How intensive/ambitious is the intervention? Multi-faceted effort or simple intervention?**	
3	**How much (time and money) can be devoted to evaluation of this effort?**	

Step 4: Gather Credible Evidence

Now that you have developed a logic model, chosen an evaluation focus, and selected your evaluation questions, your next task is to gather the evidence. Gathering evidence for an evaluation resembles gathering evidence for any research or data-oriented project, with a few exceptions noted below.

What's Involved in Gathering Evidence?

Evidence gathering must include consideration of each of the following:

- Indicators
- Sources of evidence/methods of data collection
- Quality
- Quantity
- Logistics

Developing Indicators

Because the components of our programs are often expressed in global or abstract terms, indicators -- specific, observable, and measurable statements -- help define exactly what we mean or are looking for. Outcome indicators provide clearer definitions of global outcome statements such as "Children receive medical treatment" or "Families adopt in-home techniques." The medical treatment indicator might specify the type of medical treatment, the duration, or the adherence to the regimen. Likewise, the family indicator might indicate the in-home techniques and/or the intensity or duration of their adoption. For example, "Families with EBLL children clean all window sills and floors with the designated cleaning solution each week" or "Families serve leafy green vegetables at three or more meals per week." *Outcome indicators* such as these indicators provide clearer definitions of the global statement and help guide the selection of data collection methods and the content of data collection instruments.

Process indicators help define global activity statements such as "good coalition," "culturally competent training," and "appropriate quality patient care." What does "good" mean, what does "quality" or "appropriate" mean?

Keep the following tips in mind when selecting your indicators:

- Indicators can be developed for activities (process indicators) and/or for outcomes (outcome indicators).[19]

19 Note that if you are developing your evaluation after completing an evaluation plan, you may already have developed process or outcome objectives. If the objectives were written to be specific, measurable, action-oriented, realistic, and time-bound (so-called "SMART" objectives), then they may serve as indicators as well.

- There can be more than one indicator for each activity or outcome.
- The indicator must be focused and must measure an important dimension of the activity or outcome.
- The indicator must be clear and specific in terms of what it will measure.
- The change measured by the indicator should represent progress toward implementing the activity or achieving the outcome.

Consider CDC's immunization program, for example. The table below lists the components of the logic model included in our focus in Step 3. Each of these components has been defined in one or more indicators.

Table 4.1 - Provider Immunization Education Program:
Indicators for Program Component in Our Evaluation Focus

Program Component	Indicator(s)
Provider training	A series of 3 trainings will be conducted in all 4 regions of the state
Nurse educator LHD presentations	Nurse educators will make presentations to the10 largest local health departments (LHDs)
Physicians peer rounds	Physicians will host peer education rounds at the 10 largest hospitals
Providers attend trainings and rounds	Trainings will be well attended and reflect a good mix of specialties and geographic representation
Providers receive and use tool kits	50%+ of providers who receive tool kit will report use of it (or "call to action" cards will be received from 25% of all providers receiving tool kit)
LHD nurses conduct private provider consults	Trained nurses in LHDs will conduct provider consults with largest provider practices in county
Provider KAB increases	Providers show increases in knowledge, attitudes, and beliefs (KAB) on selected key immunization items
Provider motivation increases	Provider intent to immunize increases

You may need to develop your own indicators or you may be able to draw on existing indicators developed by others. Some large CDC programs have developed indicator inventories tied to major activities and outcomes for the program. Advantages of these indicator inventories:

- **They may have been pre-tested for relevance and accuracy.**
- **They define the best data sources for collecting the indicator.**
- **There are often many potential indicators for each activity or outcome, ensuring that at least one will be appropriate for your program.**
- **Because many programs are using the same indicator(s), you can compare performance across programs or even construct a national performance summary.**

Selecting Data Collection Methods and Sources

Now that you have determined the activities and outcomes you want to measure and the indicators you will use to measure progress on them, you need to select data collection methods and sources.

A key decision is whether there are existing data sources—*secondary* data collection—to measure your indicators or whether you need to collect new data—*primary* data collection.

Depending on your evaluation questions and indicators, some secondary data sources may be appropriate. Some existing data sources that often come into play in measuring outcomes of public health programs are:

- **Current Population Survey and other U.S. Census files**
- **Behavioral Risk Factor Surveillance System (BRFSS)**
- **Youth Risk Behavior Survey (YRBS)**
- **Pregnancy Risk Assessment Monitoring System (PRAMS)**
- **Cancer registries**
- **State vital statistics**
- **Various surveillance databases**
- **National Health Interview Survey (NHIS)**

Before using secondary data sources, ensure that they meet your needs. Although large ongoing surveillance systems have the advantages of collecting data routinely and having existing resources and infrastructure, some of them (e.g., Current Population Survey [CPS]) have little flexibility with regard to the questions asked in the survey, making it nearly impossible to use these systems to collect special data for your evaluation. By contrast, other surveys such as BRFSS or PRAMS are more flexible. You might be able to add program-specific questions, or you might expand the sample size for certain geographic areas or target populations, allowing for more accurate estimates in smaller populations.

Primary data collection methods also fall into several broad categories. Among the most common are:

- **Surveys, including personal interviews, telephone interviews, and instruments completed by respondent, received through the mail or e-mail**
- **Group discussions/focus groups**
- **Observation**
- **Document review, such as medical records, but also diaries, logs, minutes of meetings, etc.**

Choosing the right method from the many secondary and primary data collection choices must consider both the ***context*** (How much money can be devoted to collection and measurement? How soon are results needed? Are there ethical considerations?) and the ***content***_of the question (Is it a sensitive issue? Is it about a behavior that is observable? Is it something the respondent is likely to know?).

Some methods yield qualitative data and some yield quantitative data. If the question involves an abstract concept or one where measurement is poor, using multiple methods is often helpful. Insights from stakeholder discussions in Step 1 and the clarity on purpose/user/use obtained in Step 3 will help direct the choice of sources and methods. For example, stakeholders may know which methods will work best with some intended respondents and/or have a strong bias toward quantitative or qualitative data collection that must be honored if the results are to be credible. More importantly, the purpose and use/user may dictate the need for valid, reliable data that will withstand close scrutiny or may allow for less rigorous data collection that can direct managers.

Each method comes with advantages and disadvantages depending on the context and content of the data collection (see Table 4.2)

Table 4.2 - **Advantages and Disadvantages of Various Survey Methods**

Method	Advantages	Disadvantages
Personal interviews	▪ Least selection bias: can interview people without telephones—even homeless people. ▪ Greatest response rate: people are most likely to agree to be surveyed when asked face to face. ▪ Visual materials may be used.	▪ Most costly: requires trained interviewers and travel time and costs. ▪ Least anonymity: therefore, most likely that respondents will shade their responses toward what they believe is socially acceptable.
Telephone interviews	▪ Most rapid method. ▪ Most potential to control the quality of the interview: inter-viewers remain in one place, so supervisors can oversee their work. ▪ Easy to select telephone numbers at random. ▪ Less expensive than personal interviews. ▪ Better response rate than for mailed surveys.	▪ Most selection bias: omits homeless people and people without telephones. ▪ Less anonymity for respondents than for those completing instruments in private. ▪ As with personal interviews, requires a trained interviewer.
Instruments to be completed by respondent	▪ Most anonymity: therefore, least bias toward socially acceptable responses. ▪ Cost per respondent varies with response rate: the higher the response rate, the lower the cost per respondent. ▪ Less selection bias than with telephone interviews.	▪ Least control over quality of data. ▪ Dependent on respondent's reading level. ▪ Mailed instruments have lowest response rate. ▪ Surveys using mailed instruments take the most time to complete because such instruments require time in the mail and time for respondent to complete.

The text box below lists possible sources of information for evaluations clustered in three broad categories: people, observations, and documents.

Some Sources of Data

Who might you survey or interview?

- Clients, program participants, nonparticipants
- Staff, program managers, administrators
- Partner agency staff
- General public
- Community leaders or key members of a community
- Funders
- Representatives of advocacy groups
- Elected officials, legislators, policymakers
- Local and state health officials

What might you observe?

- Meetings
- Special events or activities
- On the job performance
- Service encounters

Which documents might you analyze?

- Meeting minutes, administrative records
- Client medical records or other files
- Newsletters, press releases
- Strategic plans or work plans
- Registration, enrollment, or intake forms
- Previous evaluation reports
- Records held by funders or collaborators
- Web pages
- Graphs, maps, charts, photographs, videotapes

When choosing data collection methods and sources, select those that meet your project's needs. Avoid choosing a data method/source that may be familiar or popular but does not necessarily answer your questions. Keep in mind that budget issues alone should not drive your evaluation planning efforts.

The four evaluation standards can help you reduce the enormous number of data collection options to a manageable number that best meet your data collection situation.

Here is a checklist of issues — based on the evaluation standards — that will help you choose appropriately:

Utility

- Purpose and use of data collection: Do you seek a point-in-time determination of a behavior, or to examine the range and variety of experiences, or to tell an in-depth story?
- Users of data collection: Will some methods make the data more credible with skeptics or key users?

Feasibility

- Resources available: Which methods can you afford?
- Time: How long until the results are needed?
- Frequency: How often do you need the data?
- Your background: Are you trained in the method, or will you need help from an outside consultant?

Propriety

- Characteristics of the respondents: Will issues such as literacy or language make some methods preferable to others?
- Degree of intrusion to program/participants: Will the data collection method disrupt the program or be seen as intrusive by participants?
- Other ethical issues: Are there issues of confidentiality or respondents' safety in seeking answers to questions on this issue?

Accuracy

- Nature of the issue: Is it about an observable behavior?
- Sensitivity of the issue: How open and honest will respondents be answering questions on this issue?
- Respondent knowledge: Is it something the respondent is likely to know?

Using Multiple Methods and Mixed Methods

Sometimes a single method is not sufficient to accurately measure an activity or outcome because the thing being measured is complex and/or the data method/source does not yield data reliable or accurate enough. Employing multiple methods (sometimes called "triangulation") helps increase the accuracy of the measurement and the certainty of your conclusions when the various methods yield similar results. Mixed data collection refers to gathering both quantitative and qualitative data. Mixed methods can be used sequentially, when one method is used to prepare for the use of another, or concurrently. An example of sequential use of mixed methods is when focus groups (qualitative) are used to develop a survey instrument (quantitative), and then personal interviews (qualitative and quantitative) are conducted to investigate issues that arose during coding or interpretation of survey data. An example of concurrent use of mixed methods would be using focus groups or open-ended personal interviews to help affirm the response validity of a quantitative survey.

Different methods reveal different aspects of the program. Consider some interventions related to tobacco control:

- You might include a group assessment of a school-based tobacco control program to hear the group's viewpoint, as well as individual student interviews to get a range of opinions.

- You might conduct a survey of all legislators in a state to gauge their interest in managed care support of cessation services and products, and you might also interview certain legislators individually to question them in greater detail.

- You might conduct a focus group with community leaders to assess their attitudes regarding tobacco industry support of cultural and community activities. You might follow the focus group with individual structured or semi-structured interviews with the same participants.

When the outcomes under investigation are very abstract or no one quality data source exists, combining methods maximizes the strengths and minimizes the limitations of each method. Using multiple or mixed methods can increase the cross-checks on different subsets of findings and generate increased stakeholder confidence in the overall findings.

Illustrations from Cases

Table 4.3 presents data collection methods/sources for each of the indicators for the provider immunization education program. Table 4.4 shows both the indicators and the data sources for key components of the CLPP effort Note that in both cases the methods/sources can vary widely and that in some cases multiple methods will be used and synthesized.

Table 4.3 - Provider Immunization Education Program:
Data Collection Methods and Sources for Indicators

Indicator(s)	Data Collection Methods/Sources
A series of 3 trainings will be conducted in all 4 regions of the state	Training logs
Nurse educators will make presentations to the 10 largest local health departments (LHDs)	Training logs
Physicians will host peer education rounds at the10 largest hospitals	Training logs
Trainings will be well-attended and reflect a good mix of specialties and geographic representation	Registration information
50%+ of providers who receive the tool kit will report use of it (or "call to action" cards will be received from 25% of all providers receiving tool kit)	Survey of providers Analysis/count of call-to-action cards
Trained nurses in LHDs will conduct provider consults with the largest provider practices in county	Survey of nurses, survey of providers, or training logs
Providers show increases in knowledge, attitudes, and beliefs (KAB) on selected key immunization items	Survey of providers, or focus groups, or intercepts
Provider intent to immunize increases	Survey of providers, or focus groups, or intercepts

Table 4.4 - **CLPP: Indicators and Data Collection Methods/Sources**

Logic Model Element	Indicator(s)	Data Source(s) and Method(s)
Outreach	High-risk children and families in the district have been reached with relevant information	Logs of direct mail and health fair contacts Demographic algorithm Geographic Information System (GIS) algorithm
Screening	High-risk children have completed initial and follow-up screening	Logs and lab data
Environment assessment	Environments of all children over EBLL threshold have been assessed for lead poisoning	Logs of environmental health staff
Case management	All children over EBLL threshold have a case management plan including social, medical, and environmental components	Case file of EBLL child
Family training	Families of all children over EBLL threshold have received training on household behaviors to reduce EBLL	Logs of case managers Survey of families
"Leaded" houses referred	All houses of EBLL children with evidence of lead have been referred to housing authority	Logs and case files
"Leaded" houses cleaned	All referred houses have been cleaned up	Follow-up assessment by environmental health staff Housing authority logs

Quality of Data

A quality evaluation produces data that are reliable, valid, and informative. An evaluation is reliable to the extent that it repeatedly produces the same results, and it is valid if it measures what it is intended to measure. The advantage of using existing data sources such as the BRFSS, YRBS, or PRAMS is that they have been pretested and designed to produce valid and reliable data. If you are designing your own evaluation tools, you should be aware of the factors that influence data quality:

- **Design of the data collection instrument and how questions are worded**
- **Data collection procedures**
- **Training of data collectors**
- **Selection of data sources**
- **How the data are coded**
- **Data management**
- **Routine error checking as part of data quality control**

A key way to enhance the quality of primary data collection is through a pretest. The pretest need not be elaborate but should be extensive enough to determine issues of the logistics of data collection or the intelligibility of instruments prior to rollout. Obtaining quality data involves trade-offs (i.e., breadth vs. depth). Thus, you and stakeholders must decide at the beginning of the evaluation process what level of quality is necessary to meet stakeholders' standards for accuracy and credibility.

Quantity of Data

You will also need to determine the amount of data you want to collect during the evaluation. There are cases where you will need data of the highest validity and reliability, especially when traditional program evaluation is being supplemented with research studies. But there are other instances where the insights from a few cases or a convenience sample may be appropriate. If you use secondary data sources, many issues related to the quality of data—such as sample size—have already been determined. If you are designing your own data collection tool and the examination of your program includes research as well as evaluation questions, the quantity of data you need to collect (i.e., sample sizes) will vary with the level of detail and the types of comparisons you hope to make. You will also need to determine the jurisdictional level for which you are gathering the data (e.g., state, county, region, congressional district). Counties often appreciate and want county-level estimates; however, this usually means larger sample sizes and more expense. Finally, consider the size of the change you are trying to detect. In general, detecting small amounts of change requires larger sample sizes. For example, detecting a 5% increase would require a larger sample size than detecting a 10% increase. You may need the help of a statistician to determine adequate sample size.

Logistics and Protocols

Logistics are the methods, timing, and physical infrastructure for gathering and handling evidence. People and organizations have cultural preferences that dictate acceptable ways of asking questions and collecting information, and influence who is perceived as an appropriate person to ask the questions (i.e., someone known within the community versus a stranger from a local health agency). The techniques used to gather evidence in an evaluation must be in keeping with a given community's cultural norms. Data collection procedures should also protect confidentiality.

In outlining procedures for collecting the evaluation data, consider these issues:

- When will you collect the data? You will need to determine when (and at what intervals) to collect the information. If you are measuring whether your objectives have been met, your objectives will provide guidance as to when to collect certain data. If you are evaluating specific program interventions, you might want to obtain information from participants before they begin the program, upon completion of the program, and several months after the program. If you are assessing the effects of a community campaign, you might want to assess community knowledge, attitudes, and behaviors among your target audience before and after the campaign.

- Who will be participating in the evaluation? Are you targeting a relatively specific group (African-American young people), or are you assessing trends among a more general population (all women of childbearing age)?

- Are you going to collect data from all participants or a sample? Some programs are community-based, and surveying a sample of the population participating in such programs is appropriate. However, if you have a small number of participants (such as students exposed to a curriculum in two schools), you may want to survey all participants.

- Who will collect the information? Are those collecting the data trained consistently? Will the data collectors uniformly gather and record information? Your data collectors will need to be trained to ensure that they all collect information in the same way and without introducing bias. Preferably, interviewers should be trained together by the same person.

- How will the security and confidentiality of the information be maintained? It is important to ensure the privacy and confidentiality of the evaluation participants. You can do this by collecting information anonymously and making sure you keep data stored in a locked and secure place.

- If the examination of your program includes research as well as evaluation studies, do you need approval from an institutional review board (IRB) before collecting the data? What will your informed consent procedures be?

You may already have answered some of these questions while selecting your data sources and methods.

Agreements: Affirming Roles and Responsibilities

Agreements summarize the evaluation procedures, clarify everyone's role and responsibilities, and describe how the evaluation procedures will be implemented. Elements of an agreement include statements concerning the intended users, uses, purpose, questions, design, and methods, as well as a summary of the deliverables, timeline, and budget. An agreement might be a legal contract, a memorandum of understanding, or a detailed protocol. Creating an agreement establishes a mutual understanding of the activities associated with the evaluation. It also provides a basis for modification if necessary.

Standards for Step 4: Gather Credible Evidence

Standard	Questions
Utility	▪ Have key stakeholders who can assist with access to respondents been consulted? ▪ Are methods and sources appropriate to the intended purpose and use of the data? ▪ Have key stakeholders been consulted to ensure there are no preferences for or obstacles to selected methods or sources? ▪ Are there specific methods or sources that will enhance the credibility of the data with key users and stakeholders?
Feasibility	▪ Can the data methods and sources be implemented within the time and budget for the project? ▪ Does the evaluation team have the expertise to implement the chosen methods? ▪ Are the methods and sources consistent with the culture and characteristics of the respondents, such as language and literacy level? ▪ Are logistics and protocols realistic given the time and resources that can be devoted to data collection?
Propriety	▪ Will data collection be unduly disruptive? ▪ Are there issues of safety of respondents or confidentiality that must be addressed? ▪ Are the methods and sources appropriate to the culture and characteristics of the respondents—will they understand what they are being asked?
Accuracy	▪ Are appropriate QA procedures in place to ensure quality of data collection? ▪ Are enough data being collected—i.e., to support chosen confidence levels or statistical power? ▪ Are methods and sources consistent with the nature of the problem, the sensitivity of the issue, and the knowledge level of the respondents?

Checklist for Step 4: Gathering Credible Evidence

- [ ] Identify indicators for activities and outcomes in the evaluation focus.
- [ ] Determine whether existing indicators will suffice or whether new ones must be developed.
- [ ] Consider the range of data sources and choose the most appropriate one.
- [ ] Consider the range of data collection methods and choose those best suited to your context and content.
- [ ] Pilot test new instruments to identify and/or control sources of error.
- [ ] Consider a mixed-method approach to data collection.
- [ ] Consider quality and quantity issues in data collection.
- [ ] Develop a detailed protocol for data collection.

Worksheet 4A – **Evaluation Questions, Indicators, and Data Collection Methods/Sources**

Logic Model Components in Evaluation Focus		Indicator(s) or Evaluation Questions	Data Method(s)/Source(s)
1			
2			
3			
4			
5			

6			
7			
8			
9			
10			

Worksheet 4B – **Data Collection Logistics**

Data Collection Method/Source		From whom will these data be collected	By whom will these data be collected and when	Security or confidentiality steps
1				
2				
3				
4				
5				

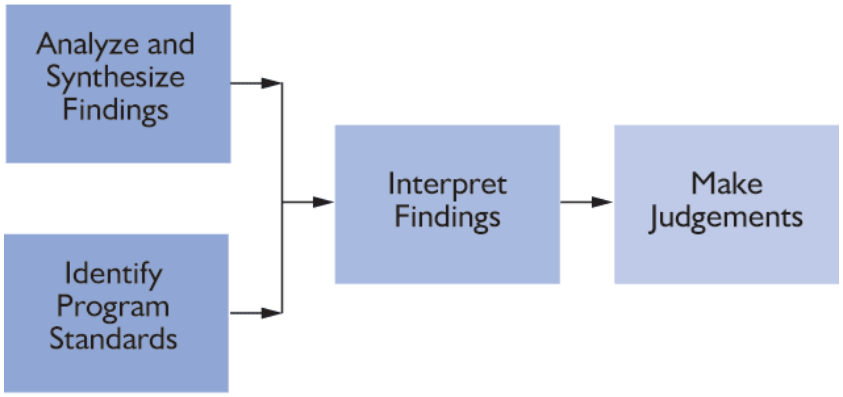
6				
7				
8				
9				
10				

Step 5: Justify Conclusions

Whether your evaluation is conducted to show program effectiveness, help improve the program, or demonstrate accountability, you will need to analyze and interpret the evidence gathered in Step 4. Step 5 encompasses analyzing the evidence, making claims about the program based on the analysis, and justifying the claims by comparing the evidence against stakeholder values.

Why Is It Important to Justify Conclusions?

Why isn't this step called analyze the data? Because as central as data analysis is to evaluation, evaluators know that the evidence gathered for an evaluation does not necessarily speak for itself. As the figure below notes, conclusions become justified when analyzed and synthesized findings ("the evidence") are interpreted through the prism of values (standards that stakeholders bring, and then judged accordingly. Justification of conclusions is fundamental to utilization-focused evaluation. When agencies, communities, and other stakeholders agree that the conclusions are justified, they will be more inclined to use the evaluation results for program improvement.



The complicating factor, of course, is that different stakeholders may bring different and even contradictory standards and values to the table. As the old adage, "where you stand depends on where you sit." Fortunately for those using the CDC Framework, the work of Step 5 benefits from the efforts of the previous steps: Differences in values and standards will have been identified during stakeholder engagement in Step 1. Those stakeholder perspectives will also have been reflected in the program description and evaluation focus.

Analyzing and Synthesizing The Findings

Data analysis is the process of organizing and classifying the information you have collected, tabulating it, summarizing it, comparing the results with other appropriate information, and presenting the results in an easily understandable manner. The five steps in data analysis and synthesis are straightforward:

- Enter the data into a database and check for errors. If you are using a surveillance system such as BRFSS or PRAMS, the data have already been checked, entered, and tabulated by those conducting the survey. If you are collecting data with your own instrument, you will need to select the computer program you will use to enter and analyze the data, and determine who will enter, check, tabulate, and analyze the data.

- Tabulate the data. The data need to be tabulated to provide information (such as a number or %) for each indicator. Some basic calculations include determining

- The number of participants

- The number of participants achieving the desired outcome

- The percentage of participants achieving the desired outcome.

- Analyze and stratify your data by various demographic variables of interest, such as participants' race, sex, age, income level, or geographic location.

- Make comparisons. When examination of your program includes research as well as evaluation studies, use statistical tests to show differences between comparison and intervention groups, between geographic areas, or between the pre-intervention and post-intervention status of the target population.

- Present your data in a clear and understandable form. Data can be presented in tables, bar charts, pie charts, line graphs, and maps.

In evaluations that use multiple methods, evidence patterns are detected by isolating important findings (analysis) and combining different sources of information to reach a larger understanding (synthesis).

Setting Program Standards for Performance

Program standards not to be confused with the four evaluation standards discussed throughout this document—are the benchmarks used to judge program performance. They reflect stakeholders' values about the program and are fundamental to sound evaluation. The program and its stakeholders must articulate and negotiate the values that will be used to consider a program successful, "adequate", or unsuccessful. Possible standards that might be used in determining these benchmarks are:

- Needs of participants
- Community values, expectations, and norms
- Program mission and objectives
- Program protocols and procedures
- Performance by similar programs
- Performance by a control or comparison group
- Resource efficiency
- Mandates, policies, regulations, and laws
- Judgments of participants, experts, and funders
- Institutional goals
- Social equity
- Human rights

When stakeholders disagree about standards/values, it may reflect differences about which outcomes are deemed most important. Or, stakeholders may agree on outcomes but disagree on the *amount* of progress on an outcome necessary to judge the program a success. This threshold for each indicator, sometimes called a "benchmark" or "performance indicator," is often based on an expected change from a known baseline. For example, all CLPP stakeholders may agree that reduction in EBLL for program participants and provider participation in screening are key outcomes to judge the program a success. But, do they agree on how *much* of an EBLL decrease must be achieved for the program to be successful, or how *many* providers need to undertake screening for the program to be successful? In Step 5, you will negotiate consensus on these standards and compare your results with performance indicators to justify your conclusions about the program. Performance indicators should be achievable but challenging, and should consider the program's stage of development, the logic model, and the stakeholders' expectations. Identify and address differences in stakeholder values/standards early in the evaluation is helpful. If definition of performance standards is done *while* data are being collected or analyzed, the process can become acrimonious and adversarial.

Interpreting the Findings and Making Judgments

Judgments are statements about a program's merit, worth, or significance formed when you compare findings against one or more selected program standards. In forming judgments about a program:

- Multiple program standards can be applied
- Stakeholders may reach different or even conflicting judgments.

Conflicting claims about a program's quality, value, or importance often indicate that stakeholders are using different program standards or values in making their judgments. This type of disagreement can prompt stakeholders to clarify their values and reach consensus on how the program should be judged.

Tips To Remember When Interpreting Your Findings

- Interpret evaluation results with the goals of your program in mind.
- Keep your audience in mind when preparing the report. What do they need and want to know?
- Consider the limitations of the evaluation:
  - Possible biases
  - Validity of results
  - Reliability of results
- Are there alternative explanations for your results?
- How do your results compare with those of similar programs?
- Have the different data collection methods used to measure your progress shown similar results?
- Are your results consistent with theories supported by previous research?
- Are your results similar to what you expected? If not, why do you think they may be different?

Source: 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.

Illustrations from Cases

Let's use the affordable housing program to illustrate this chapter's main points about the sources of stakeholder disagreements and how they may influence an evaluation. For example, the various stakeholders may disagree about the key outcomes for success. Maybe the organization's staff, and even the family, deem the completion and sale of the house as most important. By contrast, the civic and community associations that sponsor houses and supply volunteers or the foundations that fund the organization's infrastructure may demand that home ownership produce improvement in life outcomes, such as better jobs or academic performance. Even when stakeholders agree on the outcomes, they may disagree about the amount of progress to be made on these outcomes. For example, while churches may want to see improved life outcomes just for the individual families they sponsor, some foundations may be attracted to the program by the chance to change communities as a whole by changing the mix of renters and homeowners. As emphasized earlier, it is important to identify these values and disagreements about values early in the evaluation. That way, consensus can be negotiated so that program description and evaluation design and focus reflect the needs of the various stakeholders.

Standards for Step 5: Justify Conclusions

Standard	Questions
Utility	Have you carefully described the perspectives, procedures, and rationale used to interpret the findings? Have stakeholders considered different approaches for interpreting the findings?
Feasibility	Is the approach to analysis and interpretation appropriate to the level of expertise and resources?
Propriety	Have the standards and values of those less powerful or those most affected by the program been taken into account in determining standards for success?
Accuracy	Can you explicitly justify your conclusions? Are the conclusions fully understandable to stakeholders?

Checklist for Step 5: Justifying Your Conclusions

- [ ] Check data for errors.
- [ ] Consider issues of context when interpreting data.
- [ ] Assess results against available literature and results of similar programs.
- [ ] If multiple methods have been employed, compare different methods for consistency in findings.
- [ ] Consider alternative explanations.
- [ ] Use existing standards (e.g., *Healthy People 2010* objectives) as a starting point for comparisons.
- [ ] Compare program outcomes with those of previous years.
- [ ] Compare actual with intended outcomes.
- [ ] Document potential biases.
- [ ] Examine the limitations of the evaluation.

Worksheet 5 – **Justify Conclusions**

Question		Response
1	Who will analyze the data (and who will coordinate this effort)?	
2	How will data be analyzed and displayed?	
3	Against what standards will you compare your interpretations in forming your judgments?	
4	Who will be involved in making interpretations and judgments and what process will be employed?	
5	How will you deal with conflicting interpretations and judgments?	
6	Are your results similar to what you expected? If not, why do you think they are different?	
7	Are there alternative explanations for your results?	

8	How do your results compare with those of similar programs?	
9	What are the limitations of your data analysis and interpretation process (e.g., potential biases, generalizability of results, reliability, validity)?	
10	If you used multiple indicators to answer the same evaluation question, did you get similar results?	
11	Will others interpret the findings in an appropriate manner?	

Step 6: Ensure Use of Evaluation Findings and Share Lessons Learned

The ultimate purpose of program evaluation is to use the information to improve programs. The purpose(s) you identified early in the evaluation process should guide the use of the evaluation results. The evaluation results can be used to demonstrate the effectiveness of your program, identify ways to improve your program, modify program planning, demonstrate accountability, and justify funding.

Additional uses include the following:

- To demonstrate to legislators or other stakeholders that resources are being well spent and that the program is effective.
- To aid in forming budgets and to justify the allocation of resources.
- To compare outcomes with those of previous years.
- To compare actual outcomes with intended outcomes.
- To suggest realistic intended outcomes.
- To support annual and long-range planning.
- To focus attention on issues important to your program.
- To promote your program.
- To identify partners for collaborations.
- To enhance the image of your program.
- To retain or increase funding.
- To provide direction for program staff.
- To identify training and technical assistance needs.

What's involved in ensuring use and sharing lessons learned? Five elements are important in making sure that the findings from an evaluation are used:

- Recommendations
- Preparation
- Feedback
- Follow-up
- Dissemination
- Making Recommendations

Some Potential Audiences for Recommendations

- Local programs
- The state health department
- City councils
- State legislators
- Schools
- Workplace owners
- Parents
- Police departments or enforcement agencies
- Health care providers
- Contractors
- Health insurance agencies
- Advocacy groups

Recommendations are actions to consider as a result of an evaluation. Recommendations can strengthen an evaluation when they anticipate and react to what users want to know, and may undermine an evaluation's credibility if they are not supported by enough evidence, or are not in keeping with stakeholders' values.

Your recommendations will depend on the audience and the purpose of the evaluation (see text box). Remember, you identified many or all of these key audiences in Step 1, and have engaged many of them throughout as stakeholders. Hence, you have maximized the chances that the recommendations that you eventually make are relevant and useful to them. You know the information your stakeholders want and what is important to them. Their feedback early on in the evaluation makes their eventual support of your recommendations more likely.

Illustrations from Cases

Here are some examples, using the case illustrations, of recommendations tailored to different purposes and for different audiences:

Audience: Local provider immunization program.

Purpose of Evaluation: Improve program efforts.

Recommendation: Thirty-five percent of providers in Region 2 recalled the content of the monthly provider newsletter. To meet the current objective of a 50% recall rate among this population group, we recommend varying the media messages by specialty, and increasing the number of messages targeted through journals for the targeted specialties.

Audience: Legislators.

Purpose of Evaluation: Demonstrate effectiveness.

Recommendation: Last year, a targeted education and media campaign about the need for private provider participation in adult immunization was conducted across the state. Eighty percent of providers were reached by the campaign and reported a change in attitudes towards adult immunization—a twofold increase from the year before. We recommend the campaign be continued and expanded emphasizing minimizing missed opportunities for providers to conduct adult immunizations.

Audience: County health commissioners.

Purpose of Evaluation: Demonstrate effectiveness of CLPP efforts.

Recommendation: In this past year, county staff identified all homes with EBLL children in targeted sections of the county. Data indicate that only 30% of these homes have been treated to eliminate the source of the lead poisoning. We recommend that you incorporate compliance checks for the lead ordinance into the county's housing inspection process and apply penalties for noncompliance by private landlords.

Audience: Foundation funding source for affordable housing program.

Purpose of Evaluation: Demonstrate fiscal accountability.

Recommendation: For the past 5 years, the program has worked through local coalitions, educational campaigns, and media efforts to increase engagement of volunteers and sponsors, and to match them with 300 needy families to build and sell a house. More than 90% of the families are still in their homes and making timely mortgage payments. But, while families report satisfaction with their new housing arrangement, we do not yet see evidence of changes in employment and school outcomes. We recommend continued support for the program with expansion to include an emphasis on tutoring and life coaching by the volunteers.

Preparation

Preparation refers to the steps taken to eventually use the evaluation findings. Through preparation, stakeholders can:

Strengthen their ability to translate new knowledge into appropriate action.

Discuss how potential findings might affect decision-making.

Explore positive and negative implications of potential results and identify different options for program improvement.

Feedback

Feedback occurs among everyone involved in the evaluation. Feedback, necessary at all stages of the evaluation process, creates an atmosphere of trust among stakeholders. Early in an evaluation, giving and receiving feedback keeps an evaluation on track by keeping everyone informed about how the program is being implemented and how the evaluation is proceeding. As the evaluation progresses and preliminary results become available, feedback helps ensure that primary users and other stakeholders can comment on evaluation decisions. Valuable feedback can be obtained by holding discussions and routinely sharing interim findings, provisional interpretations, and draft reports.

Follow-up

Follow-up refers to the support that users need throughout the evaluation process. In this step it refers to the support users need after receiving evaluation results and beginning to reach and justify their conclusions. Active follow-up can achieve the following:

Remind users of the intended uses of what has been learned.

Help to prevent misuse of results by ensuring that evidence is applied to the questions that were the evaluation's central focus.

Prevent lessons learned from becoming lost or ignored in the process of making complex or political decisions.

Dissemination: Sharing the Results and the Lessons Learned From Evaluation

Dissemination involves communicating evaluation procedures or lessons learned to relevant audiences in a timely, unbiased, and consistent manner. Regardless of how communications are structured, the goal for dissemination is to achieve full disclosure and impartial reporting. Planning effective communications requires

Advance discussion of the reporting strategy with intended users and other stakeholders

Matching the timing, style, tone, message source, vehicle, and format of information products to the audience.

Some methods of getting the information to your audience include

- Mailings
- Web sites
- Community forums
- Media (television, radio, newspaper)
- Personal contacts
- Listservs
- Organizational newsletters.

If a formal evaluation report is the chosen format, the evaluation report must clearly, succinctly, and impartially communicate all parts of the evaluation (see text box). The report should be written so that it is easy to understand. It need not be lengthy or technical. You should also consider oral presentations tailored to various audiences. An outline for a traditional evaluation report might look like this:

- **Executive Summary**
- **Background and Purpose**
  - Program background
  - Evaluation rationale
  - Stakeholder identification and engagement
  - Program description
  - Key evaluation questions/focus
- **Evaluation Methods**
  - Design
  - Sampling procedures
  - Measures or indicators
  - Data collection procedures
  - Data processing procedures
  - Analysis
  - Limitations
- **Results**
- **Discussion and Recommendations**

Tips for Writing Your Evaluation Report

- Tailor the report to your audience; you may need a different version of your report for each segment of your audience.
- Present clear and succinct results.
- Summarize the stakeholder roles and involvement.
- Explain the focus of the evaluation and its limitations.
- Summarize the evaluation plan and procedures.
- List the strengths and weaknesses of the evaluation.
- List the advantages and disadvantages of the recommendations.
- Verify that the report is unbiased and accurate.
- Remove technical jargon.
- Use examples, illustrations, graphics, and stories.
- Prepare and distribute reports on time.
- Distribute reports to as many stakeholders as possible.

Applying Standards

The three standards that most directly apply to Step 6—Ensure Use and Share Lessons Learned—are utility, propriety, and accuracy. The questions presented in Table 6.1 can help you to clarify and achieve these standards.

Standards for Step 6: Ensure Use and Share Lessons Learned

Table 6.1

Standard	Questions
Utility	Do reports clearly describe the program, including its context, and the evaluation's purposes, procedures, and findings? Have you shared significant mid-course findings and reports with users so that the findings can be used in a timely fashion? Have you planned, conducted, and reported the evaluation in ways that encourage follow-through by stakeholders?
Feasibility	Is the format appropriate to your resources and to the time and resources of the audience?
Propriety	Have you ensured that the evaluation findings (including the limitations) are made accessible to everyone affected by the evaluation and others who have the right to receive the results?
Accuracy	Have you tried to avoid the distortions that can be caused by personal feelings and other biases? Do evaluation reports impartially and fairly reflect evaluation findings?

Evaluation is a practical tool that states can use to inform programs' efforts and assess their impact. Program evaluation should be well integrated into the day-to-day planning, implementation, and management of public health programs. Program evaluation complements CDC's operating principles for public health, which include using science as a basis for decision-making and action, expanding the quest for social equity, performing effectively as a service agency, and making efforts outcome-oriented. These principles highlight the need for programs to develop clear plans, inclusive partnerships, and feedback systems that support ongoing improvement. CDC is committed to providing additional tools and technical assistance to states and partners to build and enhance their capacity for evaluation.

Checklist for Step 6: Ensuring That Evaluation Findings Are Used and Sharing Lessons Learned

- [ ] Identify strategies to increase the likelihood that evaluation findings will be used.
- [ ] Identify strategies to reduce the likelihood that information will be misinterpreted.
- [ ] Provide continuous feedback to the program.
- [ ] Prepare stakeholders for the eventual use of evaluation findings.
- [ ] Identify training and technical assistance needs.
- [ ] Use evaluation findings to support annual and long-range planning.
- [ ] Use evaluation findings to promote your program.
- [ ] Use evaluation findings to enhance the public image of your program.
- [ ] Schedule follow-up meetings to facilitate the transfer of evaluation conclusions.
- [ ] Disseminate procedures used and lessons learned to stakeholders.
- [ ] Consider interim reports to key audiences.
- [ ] Tailor evaluation reports to audience(s.)
- [ ] Revisit the purpose(s) of the evaluation when preparing recommendations.
- [ ] Present clear and succinct findings in a timely manner.
- [ ] Avoid jargon when preparing or presenting information to stakeholders.
- [ ] Disseminate evaluation findings in several ways.

Worksheet 6A – **Communicating Results**

	I need to communicate to this audience	This format would be most appropriate	This channel(s) would be most effective
1			
2			
3			
4			
5			
6			

Worksheet 6B – **Ensuring Follow-up**

	The following will follow up with users of the evaluation findings	In this manner	This support is available for follow-up
1			
2			
3			
4			
5			
6			

Glossary

Accountability: The responsibility of program managers and staff to provide evidence to stakeholders and funding agencies that a program is effective and in conformance with its coverage, service, legal, and fiscal requirements.

Accuracy: The extent to which an evaluation is truthful or valid in what it says about a program, project, or material.

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

Attribution: The estimation of the extent to which any results observed are caused by a program, meaning that the program has produced incremental effects.

Breadth: The scope of the measurement's coverage.

Case study: A data collection method that involves in-depth studies of specific cases or projects within a program. The method itself is made up of one or more data collection methods (such as interviews and file review).

Causal inference: The logical process used to draw conclusions from evidence concerning what has been produced or "caused" by a program. To say that a program produced or caused a certain result means that, if the program had not been there (or if it had been there in a different form or degree), then the observed result (or level of result) would not have occurred.

Comparison group: A group not exposed to a program or treatment. Also referred to as a control group.

Comprehensiveness: Full breadth and depth of coverage on the evaluation issues of interest.

Conclusion validity: The ability to generalize the conclusions about an existing program to other places, times, or situations. Both internal and external validity issues must be addressed if such conclusions are to be reached.

Confidence level: A statement that the true value of a parameter for a population lays within a specified range of values with a certain level of probability.

Control group: In quasi-experimental designs, a group of subjects who receive all influences except the program in exactly the same fashion as the treatment group (the latter called, in some circumstances, the experimental or program group). Also referred to as a non-program group.

Cost-benefit analysis: An analysis that combines the benefits of a program with the costs of the program. The benefits and costs are transformed into monetary terms.

Cost-effectiveness analysis: An analysis that combines program costs and effects (impacts). However, the impacts do not have to be transformed into monetary benefits or costs.

Cross-sectional data: Data collected at one point in time from various entities.

Data collection method: The way facts about a program and its outcomes are amassed. Data collection methods often used in program evaluations include literature search, file review, natural observations, surveys, expert opinion, and case studies.

Depth: A measurement's degree of accuracy and detail.

Descriptive statistical analysis: Numbers and tabulations used to summarize and present quantitative information concisely.

Diffusion or imitation of treatment: Respondents in one group get the effect intended for the treatment (program) group. This is a threat to internal validity.

Direct analytic methods: Methods used to process data to provide evidence on the direct impacts or outcomes of a program.

Evaluation design: The logical model or conceptual framework used to arrive at conclusions about outcomes.

Evaluation plan: A written document describing the overall approach or design that will be used to guide an evaluation. It includes what will be done, how it will be done, who will do it, when it will be done, why the evaluation is being conducted, and how the findings will likely be used.

Evaluation strategy: The method used to gather evidence about one or more outcomes of a program. An evaluation strategy is made up of an evaluation design, a data collection method, and an analysis technique.

Ex ante cost-benefit or cost-effectiveness analysis: A cost-benefit or cost-effectiveness analysis that does not estimate the actual benefits and costs of a program but that uses hypothesized before-the-fact costs and benefits. This type of analysis is used for planning purposes rather than for evaluation.

Ex post cost-benefit or cost-effectiveness analysis: A cost-benefit or cost-effectiveness analysis that takes place after a program has been in operation for some time and that is used to assess actual costs and actual benefits.

Executive summary: A nontechnical summary statement designed to provide a quick overview of the full-length report on which it is based.

Experimental (or randomized) designs: Designs that try to ensure the initial equivalence of one or more control groups to a treatment group by administratively creating the groups through random assignment, thereby ensuring their mathematical equivalence. Examples of

experimental or randomized designs are randomized block designs, Latin square designs, fractional designs, and the Solomon four-group.

Expert opinion: A data collection method that involves using the perceptions and knowledge of experts in functional areas as indicators of program outcome.

External validity: The ability to generalize conclusions about a program to future or different conditions. Threats to external validity include selection and program interaction, setting and program interaction, and history and program interaction.

File review: A data collection method involving a review of program files. There are usually two types of program files: general program files and files on individual projects, clients, or participants.

Focus group: A group of people selected for their relevance to an evaluation that is engaged by a trained facilitator in a series of discussions designed for sharing insights, ideas, and observations on a topic of concern.

History: Events outside the program that affect the responses of those involved in the program.

History and program interaction: The conditions under which the program took place are not representative of future conditions. This is a threat to external validity.

Ideal evaluation design: The conceptual comparison of two or more situations that are identical except that in one case the program is operational. Only one group (the treatment group) receives the program; the other groups (the control groups) are subject to all pertinent influences except for the operation of the program, in exactly the same fashion as the treatment group. Outcomes are measured in exactly the same way for both groups and any differences can be attributed to the program.

Implicit design: A design with no formal control group and where measurement is made after exposure to the program.

Indicator: A specific, observable, and measurable characteristic or change that shows the progress a program is making toward achieving a specified outcome.

Inferential statistical analysis: Statistical analysis using models to confirm relationships among variables of interest or to generalize findings to an overall population.

Informal conversational interview: An interviewing technique that relies on the natural flow of a conversation to generate spontaneous questions, often as part of an ongoing observation of the activities of a program.

Inputs: Resources that go into a program in order to mount the activities successfully.

Instrumentation: The effect of changing measuring instruments from one measurement to another, as when different interviewers are used. This is a threat to internal validity.

Interaction effect: The joint net effect of two (or more) variables affecting the outcome of a quasi-experiment.

Internal validity: The ability to assert that a program has caused measured results (to a certain degree), in the face of plausible potential alternative explanations. The most common threats to internal validity are history, maturation, mortality, selection bias, regression artifacts, diffusion, and imitation of treatment and testing.

Interview guide: A list of issues or questions to be raised in the course of an interview.

Interviewer bias: The influence of the interviewer on the interviewee. This may result from several factors, including the physical and psychological characteristics of the interviewer, which may affect the interviewees and cause differential responses among them.

List sampling: Usually in reference to telephone interviewing, a technique used to select a sample. The interviewer starts with a sampling frame containing telephone numbers, selects a unit from the frame, and conducts an interview over the telephone either with a specific person at the number or with anyone at the number.

Literature search: A data collection method that involves an identification and examination of research reports, published papers, and books.

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 do, and the changes or results you hope to achieve.

Longitudinal data: Data collected over a period of time, sometimes involving a stream of data for particular persons or entities over time.

Macro-economic model: A model of the interactions between the goods, labor, and assets markets of an economy. The model is concerned with the level of outputs and prices based on the interactions between aggregate demand and supply.

Main effects: The separate independent effects of each experimental variable.

Matching: Dividing the population into "blocks" in terms of one or more variables (other than the program) that are expected to have an influence on the impact of the program.

Maturation: Changes in the outcomes that are a consequence of time rather than of the program, such as participant aging. This is a threat to internal validity.

Measurement validity: A measurement is valid to the extent that it represents what it is intended and presumed to represent. Valid measures have no systematic bias.

Measuring devices or instruments: Devices that are used to collect data (such as questionnaires, interview guidelines, and observation record forms).

Micro-economic model: A model of the economic behavior of individual buyers and sellers, in a specific market and set of circumstances.

Monetary policy: Government action that influences the money supply and interest rates. May also take the form of a program.

Mortality: Treatment (or control) group participants dropping out of the program. It can undermine the comparability of the treatment and control groups and is a threat to internal validity.

Multiple lines of evidence: The use of several independent evaluation strategies to address the same evaluation issue, relying on different data sources, on different analytical methods, or on both.

Natural observation: A data collection method that involves on-site visits to locations where a program is operating. It directly assesses the setting of a program, its activities, and individuals who participate in the activities.

Non-probability sampling: When the units of a sample are chosen so that each unit in the population does not have a calculable non-zero probability of being selected in the sample.

Non-response: A situation in which information from sampling units is unavailable.

Non-response bias: Potential skewing because of non-response. The answers from sampling units that do produce information may differ on items of interest from the answers from the sampling units that do not reply.

Non-sampling error: The errors, other than those attributable to sampling, that arise during the course of almost all survey activities (even a complete census), such as respondents' different interpretation of questions, mistakes in processing results, or errors in the sampling frame.

Objective data: Observations that do not involve personal feelings and are based on observable facts. Objective data can be measured quantitatively or qualitatively.

Objectivity: Evidence and conclusions that can be verified by someone other than the original authors.

Order bias: A skewing of results caused by the order in which questions are placed in a survey.

Outcome effectiveness issues: A class of evaluation issues concerned with the achievement of a program's objectives and the other impacts and effects of the program, intended or unintended.

Outcome evaluation: The systematic collection of information to assess the impact of a program, present conclusions about the merit or worth of a program, and make recommendations about future program direction or improvement.

Outcomes: The results of program operations or activities; the effects triggered by the program. (For example, increased knowledge, changed attitudes or beliefs, reduced tobacco use, reduced TB morbidity and mortality.)

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

Plausible hypotheses: Likely alternative explanations or ways of accounting for program results, meaning those involving influences other than the program.

Population: The set of units to which the results of a survey apply.

Primary data: Data collected by an evaluation team specifically for the evaluation study.

Probability sampling: The selection of units from a population based on the principle of randomization. Every unit of the population has a calculable (non-zero) probability of being selected.

Process evaluation: The systematic collection of information to document and assess how a program was implemented and operates.

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.

Program goal: A statement of the overall mission or purpose(s) of the program.

Propriety: The extent to which the evaluation has been conducted in a manner that evidences uncompromising adherence to the highest principles and ideals (including professional ethics, civil law, moral code, and contractual agreements).

Qualitative data: Observations that are categorical rather than numerical, and often involve knowledge, attitudes, perceptions, and intentions.

Quantitative data: Observations that are numerical.

Quasi-experimental design: Study structures that use comparison groups to draw causal inferences but do not use randomization to create the treatment and control groups. The treatment group is usually given. The control group is selected to match the treatment group as closely as possible so that inferences on the incremental impacts of the program can be made.

Random digit dialing: In telephone interviewing, a technique used to select a sample. A computer, using a probability-based dialing system, selects and dials a number for the interviewer.

Randomization: Use of a probability scheme for choosing a sample. This can be done using random number tables, computers, dice, cards, and so forth.

Regression artifacts: Pseudo-changes in program results occurring when persons or treatment units have been selected for the program on the basis of their extreme scores. Regression artifacts are a threat to internal validity.

Reliability: The extent to which a measurement, when repeatedly applied to a given situation consistently produces the same results if the situation does not change between the applications. Reliability can refer to the stability of the measurement over time or to the consistency of the measurement from place to place.

Replicate sampling: A probability sampling technique that involves the selection of a number of independent samples from a population rather than one single sample. Each of the smaller samples is termed a replicate and is independently selected on the basis of the same sample design.

Resources: Assets available and anticipated for operations. They include people, equipment, facilities, and other things used to plan, implement, and evaluate programs.

Sample size: The number of units to be sampled.

Sample size formula: An equation that varies with the type of estimate to be made, the desired precision of the sample and the sampling method, and which is used to determine the required minimum sample size.

Sampling error: The error attributed to sampling and measuring a portion of the population rather than carrying out a census under the same general conditions.

Sampling frame: Complete list of all people or households in the target population.

Sampling method: The method by which the sampling units are selected (such as systematic or stratified sampling).

Sampling unit: The unit used for sampling. The population should be divisible into a finite number of distinct, non-overlapping units, so that each member of the population belongs to only one sampling unit.

Secondary data: Data collected and recorded by another (usually earlier) person or organization, usually for different purposes than the current evaluation.

Selection and program interaction: The uncharacteristic responsiveness of program participants because they are aware of being in the program or being part of a survey. This interaction is a threat to internal and external validity.

Selection bias: When the treatment and control groups involved in the program are initially statistically unequal in terms of one or more of the factors of interest. This is a threat to internal validity.

Setting and program interaction: When the setting of the experimental or pilot project is not typical of the setting envisioned for the full-scale program. This interaction is a threat to external validity.

Stakeholders: People or organizations that are invested in the program or that are interested in the results of the evaluation or what will be done with results of the evaluation.

Standard: A principle commonly agreed to by experts in the conduct and use of an evaluation for the measure of the value or quality of an evaluation (e.g., accuracy, feasibility, propriety, utility).

Standard deviation: The standard deviation of a set of numerical measurements (on an "interval scale"). It indicates how closely individual measurements cluster around the mean.

Standardized format interview: An interviewing technique that uses open-ended and closed-ended interview questions written out before the interview in exactly the way they are asked later.

Statistical analysis: The manipulation of numerical or categorical data to predict phenomena, to draw conclusions about relationships among variables or to generalize results.

Statistical model: A model that is normally based on previous research and permits transformation of a specific impact measure into another specific impact measure, one specific impact measure into a range of other impact measures, or a range of impact measures into a range of other impact measures.

Statistically significant effects: Effects that are observed and are unlikely to result solely from chance variation. These can be assessed through the use of statistical tests.

Stratified sampling: A probability sampling technique that divides a population into relatively homogeneous layers called strata, and selects appropriate samples independently in each of those layers.

Subjective data: Observations that involve personal feelings, attitudes, and perceptions. Subjective data can be measured quantitatively or qualitatively.

Surveys: A data collection method that involves a planned effort to collect needed data from a sample (or a complete census) of the relevant population. The relevant population consists of people or entities affected by the program (or of similar people or entities).

Testing bias: Changes observed in a quasi-experiment that may be the result of excessive familiarity with the measuring instrument. This is a potential threat to internal validity.

Treatment group: In research design, the group of subjects that receives the program. Also referred to as the experimental or program group.

Utility: The extent to which an evaluation produces and disseminates reports that inform relevant audiences and have beneficial impact on their work.

Program Evaluation Resources

Some Web-based Resources

Centers for Disease Control and Prevention: http://www.cdc.gov/eval/

Community Tool Box, University of Kansas: http://ctb.ku.edu/

Harvard Family Research Project: http://www.gse.harvard.edu/hfrp/

Innovation Network: http://innonet.org

University of Wisconsin Cooperative Extension:

- Evaluation Resources: http://www.uwex.edu/ces/pdande/
- Logic Model Course: http://www1.uwex.edu/ces/lmcourse

W.K. Kellogg Foundation: http://www.wkkf.org/Programming/Overview.aspx?CID=281

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