

Physical Activity Evaluation Handbook



DEPARTMENT OF HEALTH
AND HUMAN SERVICES

Centers for Disease Control
and Prevention





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National Center for
Chronic Disease Prevention
and Health Promotion

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Centers for Disease Control and Prevention

Jeffrey P. Koplan, MD, MPH, Director

National Center for Chronic Disease Prevention and Health Promotion

James S. Marks, MD, MPH, Director

Division of Nutrition and Physical Activity

William H. Dietz, MD, PhD, Director

Technical Information and Editorial Services Branch

Christine Fralish, MLIS, Chief

Amanda Crowell, Writer-Editor

Compiled by

Sarah Levin, MS, PhD

Nancy E. Hood

For more information, contact
Division of Nutrition and Physical Activity
4770 Buford Highway N.E.
Mailstop K-46
Atlanta, GA 30041-3717
(770) 488-5692

This publication is available on the Internet at
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Preface

The landmark 1996 publication, *Physical Activity and Health: A Report of the Surgeon General*, identified substantial health benefits of regular physical activity. In January 2000, *Healthy People 2010* released a set of 10 priority health indicators that include physical activity as one of the major concerns for public health attention.

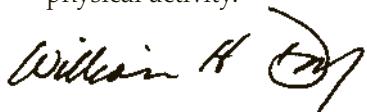
The Physical Activity and Health Branch of CDC's Division of Nutrition and Physical Activity recently partnered with other national organizations to develop guidelines for increasing physical activity across an array of settings and populations. These include

- *Promoting Better Health for Young People Through Physical Activity and Sports*. Available at <http://www.cdc.gov/nccdphp/dash/presphysactrp>.
- *Promoting Physical Activity: A Guide for Community Action*. Available at <http://www.cdc.gov/nccdphp/dnpa/pahand.htm>.
- *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*. Available at http://www.cdc.gov/nccdphp/dnpa/pr_blueprint.htm.
- *Increasing Physical Activity: A Report on Recommendations of the Task Force on Community Preventive Services*. Available at <http://www.cdc.gov/nccdphp/dnpa/physical/recommendations.htm>.

We hope the recommendations and strategies described in these and other resources will help users improve existing programs and develop new approaches. As innovative programs emerge and evolve, ongoing program evaluation must be used to

- Measure the effectiveness of new and enhanced interventions.
- Determine whether funds and other resources are being used efficiently.
- Assess the appropriateness and effectiveness of recommended interventions in different settings and populations.
- Demonstrate accountability and influence policy makers.
- Evaluate the effects of comprehensive state approaches.

This handbook provides tools for state and local agencies and community-based organizations that are evaluating physical activity programs. We hope these tools will help users demonstrate program outcomes and continuously improve physical activity promotion programs. The goal is clear: we need to get moving! Program evaluation will enhance our knowledge of the resources, methods, and strategies necessary to increase physical activity.



William H. Dietz, MD, PhD
Director, Division of Nutrition and Physical Activity
National Center for Chronic Disease Prevention and Health Promotion, CDC

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Introduction

Recognition of the importance of physical activity has reached a new height in America. In fact, physical activity was recently named as one of the 10 leading health indicators in *Healthy People 2010*.¹ Consequently, the imperative to evaluate our physical activity programs is greater than ever.

Why?

Physical activity programs must be evaluated to reflect on our progress, see where we're going and where we've come from, share what we've learned with our colleagues, put money to nonduplicative use, and improve our programs. After all, we will be held accountable.

Program evaluation can be used to

- Influence policy makers and funders.
- Build community capacity and engage communities.
- Share what works and what doesn't work with other communities.
- Ensure funding and sustainability.

Program evaluation can be conducted using these six major steps:

- Engage stakeholders.
- Describe or plan the program.
- Focus the evaluation.
- Gather credible evidence.
- Justify conclusions.
- Ensure use and share lessons learned.

What Is Evaluation?

Evaluation is "the systematic examination and assessment of features of an initiative and its effects, in order to produce information that can be used by those who have an interest in its improvement or effectiveness."²

¹ US Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: US Government Printing Office; 2000.

² WHO European Working Group on Health Promotion Evaluation. *Health Promotion Evaluation: Recommendations to Policymakers*. Copenhagen: World Health Organization; 1998.

Program evaluation differs from basic research in that its primary aim is not to add to a body of knowledge but to learn how to improve a program. Other distinctions include the following:

- Evaluation is controlled by those involved (the stakeholders) instead of being rigorously designed by an investigator.
- The steps of evaluation vary considerably from those of basic research.
- Standards of evaluation include usefulness, feasibility, accuracy, and fairness rather than internal and external validity.
- Evaluation assesses merit, worth, and importance rather than emphasizing associations.
- Evaluation is holistic and flexible by design to allow for changes and unexpected circumstances rather than being tightly controlled.
- Evaluation methods are both quantitative and qualitative.
- Evaluation is ongoing rather than being limited to a specific timeframe.
- The scope is broad, in an attempt to be integrative, rather than narrowly focused.
- Judgments from evaluation depend on agreed-upon or specifically stated values of a stakeholder rather than being value-free.
- Use of the data is imperative not just to further knowledge and help improve similar programs through publication, but also to build capacity or improve a program.

How?

In 1999, CDC published the *Framework for Program Evaluation in Public Health* (available on-line at <http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4811a1.htm>).³ The publication outlines six steps for program evaluation—engage stakeholders, describe the program, focus the evaluation design, gather credible evidence, justify conclusions, and ensure use and share lessons learned.

This handbook uses the *Framework for Program Evaluation in Public Health*, its companion, *An Evaluation Framework for Community Health Programs*,⁴ and *Promoting Physical Activity: A Guide for Community Action*⁵ as guiding documents to outline these six steps as they relate to physical activity program evaluation.

³ Centers for Disease Control and Prevention. Framework for Program Evaluation in Public Health. MMWR 1999;48(No RR-11).

⁴ The Center for the Advancement of Community Based Public Health. *An Evaluation Framework for Community Health Programs*. Durham, NC: The Center for the Advancement of Community Based Public Health; 2000.

⁵ US Department of Health and Human Services. *Promoting Physical Activity: A Guide for Community Action*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 1999.

Features unique to this handbook include



We challenge you to “think outside the box” when you consider your own evaluation plans.



We provide KidsWalk-to-School examples to illustrate the main points. CDC’s KidsWalk-to-School is a community-based program that aims to increase opportunities for daily physical activity by encouraging children to walk to and from school in groups accompanied by adults.



We provide a worksheet that you can photocopy and use to help you apply each step to your physical activity programs.



We include appendices to provide more detail on certain aspects of program evaluation in relation to physical activity programming, including evaluation indicators and case studies ([see Appendices 1–6](#)).

For additional evaluation links and resources, visit the American Evaluation Association’s Web site at <http://www.eval.org/EvaluationLinks/links.htm>.

Standards

Thirty standards provide the guiding principles for your evaluation ([see Appendix 1](#)).⁶ The standards are based on four key questions that you should ask yourself throughout the six steps of program evaluation.

Is the evaluation

- Useful?** Will the amount and type of information you collect meet the needs of those who intend to use the evaluation findings?
- Feasible?** Will the evaluation be practical, doable, and realistic?
- Accurate?** Will the evaluation findings be correct?
- Fair?** Will the evaluation be conducted with awareness of the rights of the people involved in the program?

All standards cannot be achieved equally in every situation. However, some standards must always be preserved. Although an accurate measurement of physical activity might not be feasible because of its cost or complexity, you can never skimp on fairness. Likewise, an evaluation is not worth doing if the results will not be used.

⁶ The 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.

Six Steps for Evaluating Physical Activity Programs

Step 1: Engage Stakeholders

How often have you seen evaluation documents gathering dust? A successful evaluation process begins with stakeholders—the people with a vested interest in a program and the future use of its evaluation. With stakeholder input in program planning and evaluation, you will develop and assess a program that meets the needs of those who will use the program and the evaluation results. The first step is to identify all stakeholders whether they are currently at the table or not. A diverse group of stakeholders is critical to success. You can group stakeholders (i.e., people or organizations) in any or all of four main categories, depending on your specific program.

- **Implementers:** those involved in program operations.
- **Partners:** those who actively support the program.
- **Participants:** those served or affected by the program.
- **Decision makers:** those in a position to do or decide something about the program.

Once you have created a complete list of stakeholders, identifying how each should be involved in making decisions about the program and its evaluation is important. Involving every stakeholder in each step would be unwieldy. Decisions about stakeholder involvement are not easy, but can be made according to their needs and interests, authority or control of project resources, or specific knowledge or skills. Certain stakeholders might be key for certain stages of the process.

The size and scope of the program and the intended uses of the evaluation results also affect decisions about stakeholder involvement. For example, having only a few stakeholders involved in evaluating the outreach strategy for a physical activity program in a small, community-based organization might be appropriate if the evaluation's primary purpose is to improve that program. However, if the state department of education is piloting a physical education curriculum that could be mandated for all school districts if deemed successful, many stakeholders should be involved in decision making throughout the evaluation.

Thus, the stakeholders you identify for your evaluation will be a subset of all program stakeholders. They should be the people who will use the evaluation results to make decisions about the program. This relatively small group of people should be present for all major decisions about the evaluation. However, other stakeholders can be consulted or enlisted to implement components of the evaluation. All stakeholders can be kept informed through meeting minutes and regular updates at larger stakeholder meetings.



Think Outside the Box

Even if you are familiar with your program, look for previously unidentified stakeholders. Ask everyone involved with the program to brainstorm a list of stakeholders.

- Include both professional and lay persons.
- Include your opponents or adversaries to avoid future criticism of the program or the evaluation.

Questions for Stakeholders

Throughout the evaluation planning process, you will be asking various subgroups of stakeholders the following questions:

- What is important about this program?
- Who do you represent and why are you interested in this program?
- What would you like this program to accomplish?
- What are the critical evaluation questions?
- How will you use the results of this evaluation?
- What resources (e.g., time, evaluation experience, funding) can you contribute to this evaluation?

Examples of Stakeholders for Physical Activity Programs

Use this list to help you identify a master list of stakeholders. Your evaluation stakeholders will be a subset of all program stakeholders.

Community sector

- Target audience members.
- Community residents.
- Youth.

Government sector

- National, state, and local elected officials.
- Regional or local planning commissions.
- State or county departments of education.
- State or county departments of parks and recreation.
- State departments of tourism.
- Law enforcement agencies.
- Public housing communities.

Health sector

- Wellness councils or physical activity coalitions.
- Physicians in private practice.
- Physical and occupational therapists.
- Insurance companies.
- National and state nursing and medical associations.
- National and state health education associations.

Education sector

- Universities and colleges.
- Technical schools.
- State and local chapters of professional teachers' and administrators' associations.
- Students.

Transportation and environmental development sector

- U.S. Environmental Protection Agency.
- National and state highway traffic and safety officials.
- Professional associations and environmental advocacy groups.

Business sector

- Chamber of Commerce.
- Professional sports teams.
- Large and small businesses and industries.

Media and communication sector

- Television stations.
- Radio station managers.
- Professional journal editors.
- Health and fitness publication editors.

Recreation sector

- National, state, and local parks.
- Walking, hiking, or running clubs.
- State games associations (e.g., Senior Games and Corporate Games).
- Sports governing bodies and state athletic associations.

Religious sector

- Clergy and ministerial associations or councils.
- Youth groups.
- Church-owned recreation facilities, camps, etc.

Voluntary or service organizations sector

- National associations and foundations.
- Parent-teacher associations.
- Graduate students in applicable programs.
- Special public or private foundations.
- Economic development agencies.



KidsWalk-to-School Stakeholders

Implementers

- Parents.
- School teachers and staff.
- Parent/teacher organizations.
- Local health department.

Partners

- 4-H clubs.
- Boys and Girls clubs.
- CDC.

Participants

- Parents.
- Kids.
- Neighbors.

Decision makers

- Principals.
- School boards.
- Elected officials.

Worksheet: Step 1—Engage Stakeholders

Worksheets can be photocopied and used for each program.



Name of program _____

1. Identify stakeholders.

- Who is involved in the program operations?

- Who are the partners?

- Who is served or affected by the program?

- Who are the decision makers for the program?

2. Describe how you will assess your stakeholders' interests, needs, resources, and contributions throughout the planning process.

3. Identify the people who will use the results of the evaluation and be involved in most evaluation decisions (i.e., evaluation stakeholders).

Step 2: Describe or Plan the Program

Program planning and evaluation planning should go hand in hand, directed by input from identified stakeholders. A program description includes a definition of the problem that your program will address as well as program activities, resources, expected effects, and context. If you are evaluating an existing program, you should still complete Step 2 because stakeholders may come to the table with different perceptions about what the program is and what it should accomplish. Developing a thorough program description ensures that everyone has the same basic understanding of the program ([see Appendix 2 for physical activity program interventions recommended by the Guide to Community Preventive Services](#)).

A complete program description has three primary components. First is identification of your program's stage of development. Second is a statement of the problem that your program addresses. Once the need for your program is clear and justified, the third component, a logic model, provides a useful framework for describing or planning the rest of the program.

Stage of Development

The three general program stages are planning, implementation, and maintenance. Your program's stage of development will affect the entire evaluation planning process, starting with the program description. If your program is in the planning stage, you might want to conduct a needs assessment (sometimes called a formative evaluation) to determine the extent of the problem that you want to address or the need that your program might meet. For a program that is already being implemented or maintained, your evaluation planning process will focus more on measuring the implementation of program activities and identifying the expected outcomes for program participants and the contextual factors that affect the process or outcomes of the program. All steps in planning your evaluation will be tailored to your program's stage of development.

Three Components of a Program Description

- Stage of development.
- Statement of problem.
- Logic model.

Statement of Problem

These questions help define the problem and the corresponding need for the program. Each question includes a hypothetical answer.

- What is the nature of the problem?
Physical activity is one of 10 leading health indicators for the nation (Healthy People 2010).
- What is the magnitude of the problem (including subpopulations)?
According to the state Youth Risk Behavior Surveillance System (YRBSS), only 45% of children in grades 9–12 perform the recommended level of physical activity per week.
- What are the consequences of the health problem?
Physical inactivity leads to many chronic diseases or conditions, such as obesity, cardiovascular disease, and osteoporosis.



Think Outside the Box

Did you notice the multiple sources of data used to describe the problem? Can you think of other sources?

- What causes the problem?

According to local school district data, only 40% of students are enrolled in physical education (PE) each semester.

- What changes or trends are occurring?

According to the school principal, PE enrollment has dropped and fewer children walk or ride the bus to school each year because more parents are dropping them off at school.

What Is a Logic Model?

At this stage of planning your program or evaluation, constructing a first draft of a logic model is helpful. If you are evaluating an existing program, obtain a copy of its logic model, if possible. Whether you start from scratch or an existing model, a logic model will help you complete the description of the program at this stage. A logic model is an iterative tool, providing a framework to revisit throughout program planning, implementation, and evaluation.

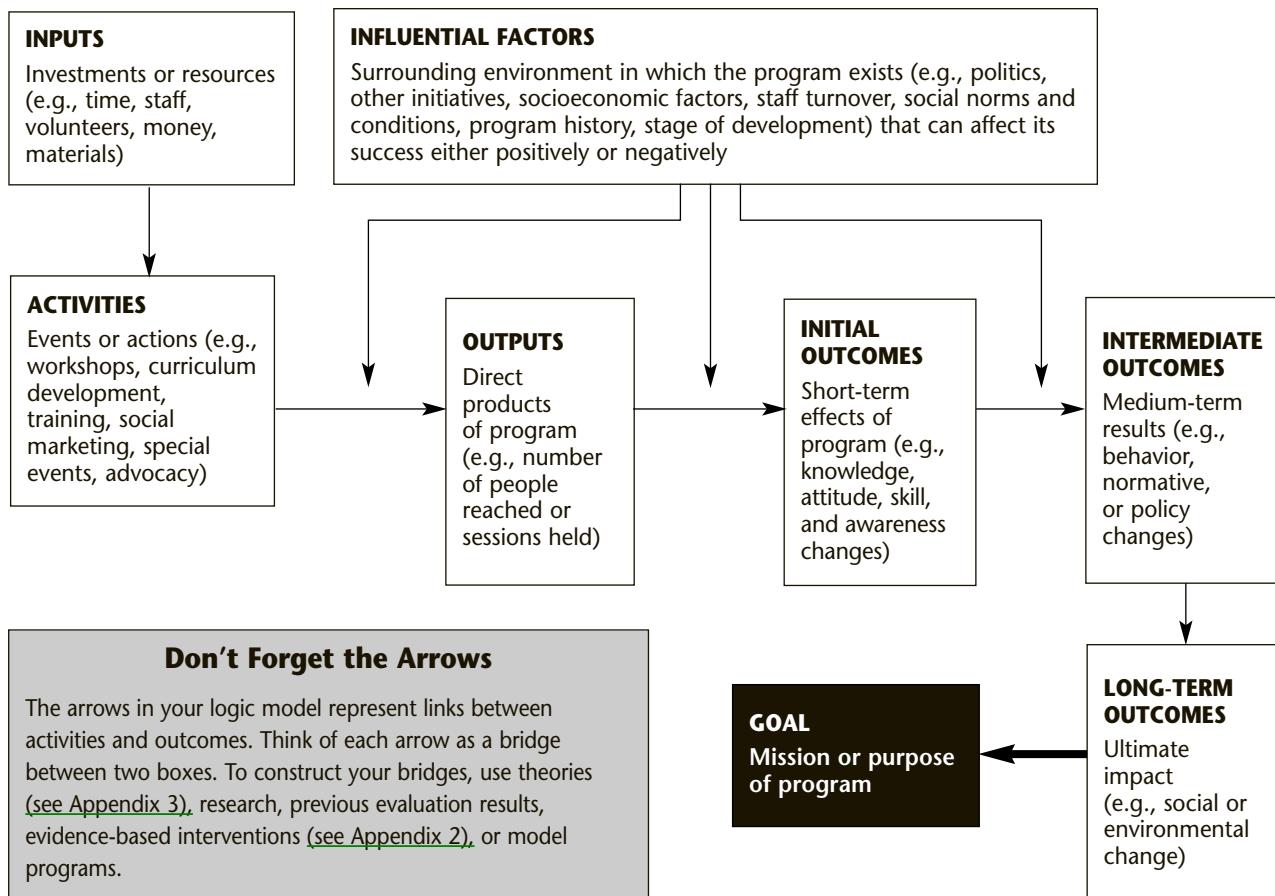
Ideally, the development of a logic model engages stakeholders and guides program development and evaluation planning simultaneously. This provides a forum to identify and consider stakeholders' differences and priorities.

A logic model can help you

- Describes the core components of the program.
- Illustrates the connection between program components and expected outcomes.
- Includes pertinent information regarding program context (i.e., influential factors).

- Clarify program strategy.
- Justify why the program will work.
- Assess the potential effectiveness of an approach.
- Identify appropriate outcome targets (and avoid overpromising).
- Set priorities for allocating resources.
- Incorporate findings from research and demonstration projects.
- Make midcourse adjustments and improvements in your program.
- Identify differences between the ideal program and its real operation.
- Specify the nature of questions being asked in the evaluation.
- Organize evidence about the program.
- Make stakeholders accountable for program processes and outcomes.
- Build a better program.

Components of a Basic Logic Model



Developing a Logic Model

There is no one correct way to create a logic model. However, the stage of development of the program (i.e., planning, implementation, or maintenance) should steer you to one of two approaches to creating your model: right-to-left or left-to-right.

Right-to-Left Logic Model ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←

This approach, also called reverse logic, starts with desired outcomes and requires you to work backwards to develop activities and inputs. Usually used in the planning stage, this approach ensures that program activities will logically lead to the specified outcomes if your arrow bridges are well-founded. You will ask the question, "How?" as you move to the left in your logic model. This approach is also helpful for a program in the implementation stage that still has some flexibility in its program activities.



Think Outside the Box

Logic models can take many shapes and sizes. At the end of this chapter you will find a generic logic model that includes a variety of physical activity program activities. You could use this model as a starting point, but feel free to change the design and put your own twist on your model. There is no one correct way to create or display a logic model.

Example

What is the desired long-term outcome?

Youth will incorporate the recommended daily amount of physical activity into their lifestyle.

How? ↗

What is the desired intermediate outcome?

Youth will gain increased skills and additional physical activity in school.

How? ↗

What is the desired short-term outcome?

Physical education curricula will be modified.

How? ↗

What activities are needed to achieve these outcomes?

Physical education teachers will be taught how to modify their curricula to incorporate more lifelong physical activities in a coordinated way with other courses.

How? ↗

What inputs are needed to achieve these outcomes?

Trainers, model curriculum, facilities, money.

Left-to-Right Logic Model → → → → → → → → → → → → →

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

Example

What are the existing inputs?

Staff, incentives, materials.

Why? ↗

What are the existing activities?

Work Site Wellness Challenge.

Why? ↗

What are the desired short-term outcomes?

Employees' attitudes will improve and their knowledge about the recommended daily level of physical activity will increase.

Why? ↗

What is the desired intermediate outcome?

Employees' levels of physical activity will increase.

Why? ↗

What is the desired long-term outcome?

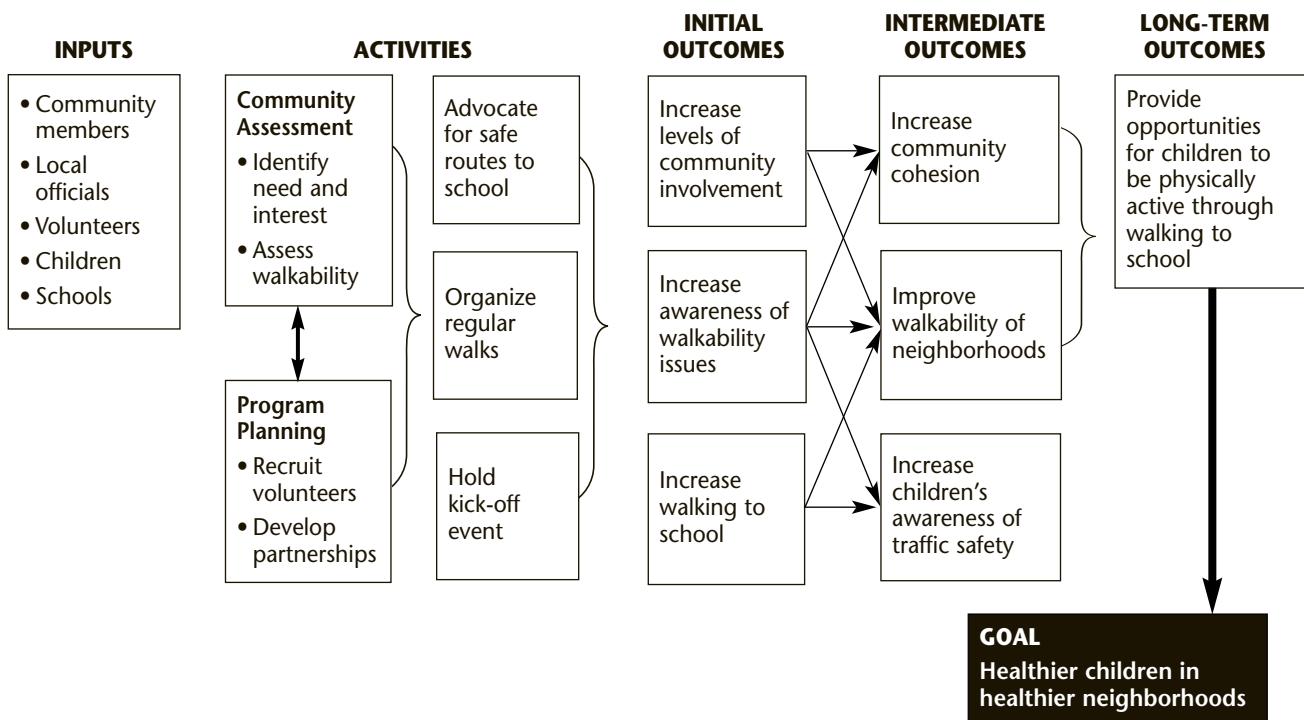
Work site norms for physical activity will improve.

Examples of Logic Models

Your model may illustrate details about an activity that is part of a larger program or diagram the interactions between all programs in your community or state that address physical activity. Multiple logic models can represent different levels for the same program. Your logic model is a work in progress. Throughout the planning and refining of your program and your evaluation, the logic model will probably need to be revised as well. Use it to identify the activities and outcomes that must be evaluated to keep your programs on track.

KidsWalk-to-School Logic Model*

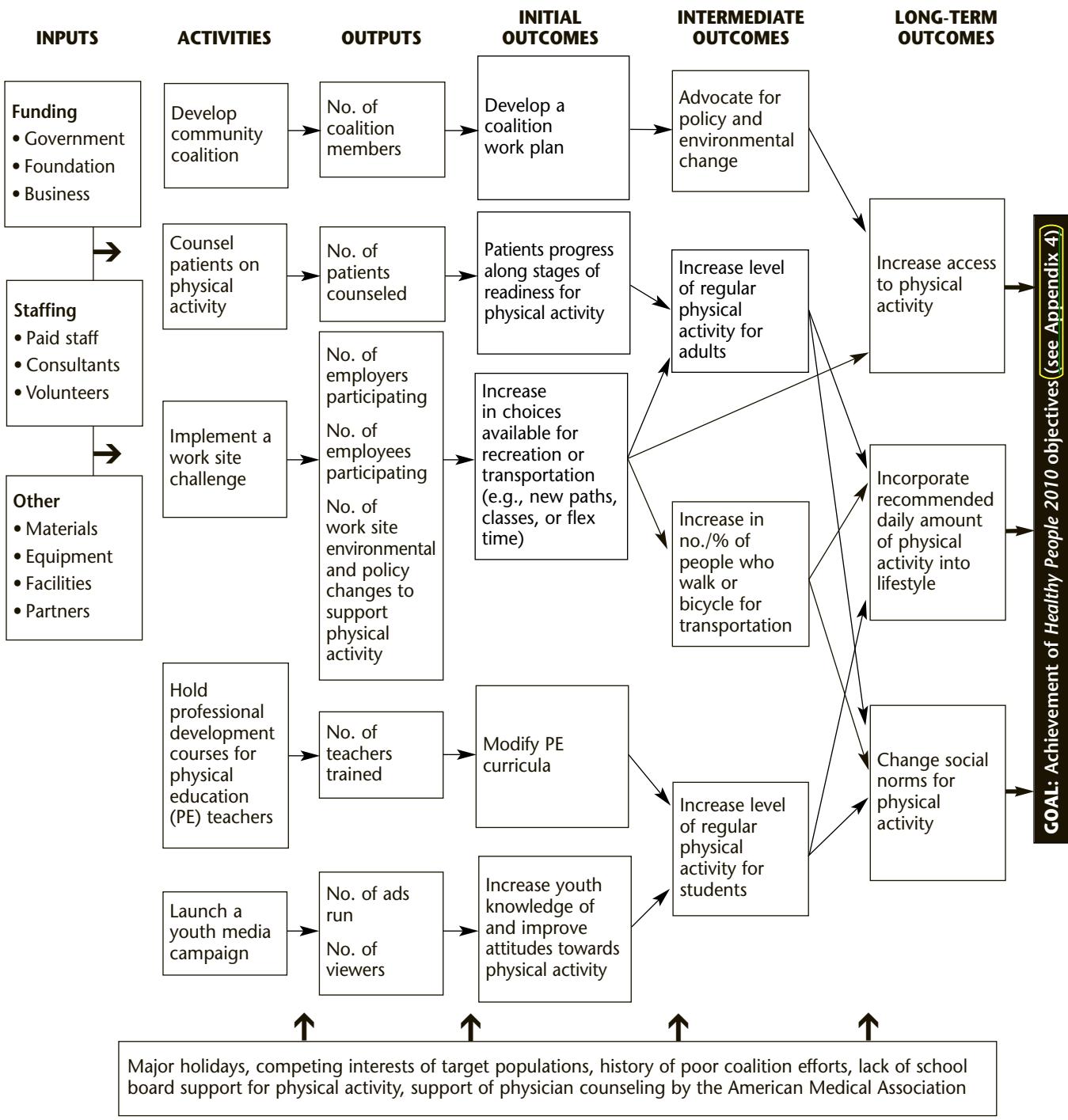
Statement of Problem: Few opportunities exist for schoolchildren to be physically active throughout the day.



* In addition to the logic model, you might also need to create SMART (specific, measurable, achievable, relevant, time-bound) objectives for both process and outcome measures (e.g., "In the first semester, weekly walks from five different locations will be held."). See Appendix 4.

Generic Physical Activity Logic Model

Statement of Problem: 85% of adults and 45% of youth do not achieve the recommended amount of moderate physical activity.



Worksheet: Step 2—Describe or Plan the Program

Worksheets can be photocopied and used for each program.



Name of program _____

1. Plan or describe the program.

- What is the nature of the problem?

- What is the magnitude of the problem (including subpopulations)?

- What are the consequences of the health problem?

- What causes the problem?

- What changes or trends are occurring?

2. Plan or describe the program.

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

OR

- We know what we have to put into the program, so we will work left-to-right and ask, "Why?"

Step 3: Focus the Evaluation

Steps 1 and 2 prepare you to decide what to evaluate. In Step 3, your evaluation stakeholders will clarify the primary purpose(s) and uses for the evaluation and identify the most appropriate questions to ask. Evaluating only one aspect of a larger set of activities that constitute a complex, communitywide program is common.

Focus your evaluation by considering the purposes, uses, and evaluation questions.

Purposes and Uses

Three general purposes for conducting evaluations are to gain insight, improve a program, or assess program effects. Possible uses can be grouped according to one of these purposes. Stakeholders should discuss and agree on the general uses of the evaluation up front.

Purpose	Sample Uses
Gain insight	<ul style="list-style-type: none">Assess the level of community interest in a physical activity program, and use that information to plan a physical activity program.Identify barriers to and facilitators of physical activity in schools, and use that information to advocate for school health policies.
Improve a program	<ul style="list-style-type: none">Monitor the implementation of a youth program, and use the results to enhance the physical activity component of the program.Survey the target audience that your physical activity message is reaching, and use that information to improve the content and delivery of a physical activity media message.
Assess program effects	<ul style="list-style-type: none">Measure the extent to which your performance indicators are met, and use these results to apply for additional funding.Use information about which employees benefited most from a work site wellness program to target future efforts more effectively.



Think Outside the Box

Though many of your evaluation questions will be answered by measuring the activities or outcomes from your logic model, encourage stakeholders not to limit their questions. Evaluation questions should ask more than whether outcomes were obtained.

Evaluation Questions

To focus the evaluation, stakeholders indicate what questions they believe the evaluation should answer. Encourage stakeholders to generate a long list of questions, which will then be prioritized based on the stage of your program's development, available resources and the intended uses of the results. The final list should include some questions that are acceptable to all stakeholders.

Ask your stakeholders what they want or need to know about

- Program activities.
- Initial, intermediate, and long-term program outcomes.
- Program participants.
- Larger effects of the program on organizations or communities.
- External factors that influence the program.

Evaluation Questions for Different Stages of Program Development

The stage of program development (i.e., planning, implementation, or maintenance) affects the type of evaluation you will conduct, as well as the types of questions you will ask.

Process Evaluation

Process evaluation documents all aspects of program implementation so that adjustments can be made, if necessary, to keep the program on track. This is the primary type of evaluation used for programs in the implementation stage. Some programs in the maintenance stage also assess process questions. Process questions relate to the inputs and activities outlined in your logic model (i.e., stakeholders may ask about the quantity or quality of inputs or activities). Additionally, questions about the program context (e.g., other initiatives, staff turnover, social norms and conditions, program history, politics) that could affect the inputs or activities can be important, depending on the intended uses of the evaluation.

Sample Questions

- What are we doing? When? Where? How much?
- Are we delivering the program as planned? If not, why has it varied?
- Are there external influences that have affected the program inputs or activities?
- Are we on track with time and resources?
- Are partnerships working effectively? Why or why not?
- What seems to be working and why?
- What is not working very well and why?
- Are we reaching the target audience?
- Should we be doing anything differently from now on? If so, do we need to revise our logic model?



KidsWalk-to-School

Parents wanted to know if their children could safely walk to school. The principal wanted to know if walking to school had an effect on students' school performance in academics and discipline. Although the parents' question could be answered with process measures, the principal's questions would take outcome measures (pretest or posttest). Parents could use the evaluation to give them peace of mind and determine how and whether their children would walk to school. The principal could use the evaluation to justify putting resources into the KidsWalk-to-School program.

Outcome Evaluation

Outcome evaluation (sometimes called impact or summative evaluation) measures the effects of the program on the short-term, intermediate, or long-term outcomes in your logic model. Outcome evaluations should be conducted only when a program is mature enough to potentially produce the desired outcomes. Usually, programs in the maintenance stage are the only ones that can realistically expect outcomes. However, you may be able to ask questions about short-term outcomes for a program in the implementation stage.

Sample Questions

- What did we accomplish? Did we achieve our outcomes? Why or why not?
- What is different as a result of our actions?
- What can we learn from the participants who dropped out of the program?
- How expensive was the program compared with other physical activity interventions?
- Is the program as effective as or more effective than similar programs?
- What went right? What went wrong?
- What could we do differently next time to achieve better outcomes?
- Were there any unintended effects of the program?
- Were there external influences that could have enhanced or hindered the achievement of expected outcomes?

Worksheet: Step 3—Focus the Evaluation

Worksheets can be photocopied and used for each program.



Name of program _____

1. What is the primary purpose of your evaluation?

2. List all potential uses for the evaluation results (be as specific as possible).

3. Identify whether a process or outcome evaluation (or a combination) is most appropriate for your program's stage of development. Then, list all potential evaluation questions. Many of your evaluation questions will come directly from the program logic model.

4. Go back to questions 2 and 3 and put a star beside the uses and evaluation questions that you think are most important and acceptable to stakeholders.

Step 4: Gather Credible Evidence

At this point, you have developed a program description, including a detailed logic model. Additionally, you have determined the primary questions that the evaluation should answer. Including stakeholders in these steps helps ensure that the data you collect will be perceived as reliable and relevant—as will the next step, developing a sound data collection plan. For all components of your data collection plan, you must consider how to obtain maximum quality and how to balance the quality and quantity of your evaluation activities. Also, your evaluation efforts must match your resources. For a minimally funded program, for example, an appropriate evaluation may only include monitoring program activities.

What Data Do You Need?

By developing a logic model and prioritizing the evaluation questions, you have already done much of the work necessary to answer this question. Now you must identify specific indicators to answer each evaluation question ([see Appendix 5](#)). For example, changes in participants' one-mile run times can indicate whether their aerobic fitness has improved since beginning your program. The percentage of adults who met a physical activity recommendation could indicate whether your program has increased physical activity levels in the community. Measuring these two outcomes with these indicators could be a way to answer a more general evaluation question—what effect is the program having on participants?

Where Will You Get Your Data?

Sources of data for program evaluations include people, documents, observations, or existing data sources. To increase the credibility of your evidence, collect data from more than one source when possible and use sources that your stakeholders consider credible.

People

- Program participants.
- Staff.
- General public.
- Community leaders.
- Funding officials.
- Critics or skeptics.
- Topic experts.

Documents

- Grant proposals, newsletters, and press releases.
- Publicity or educational materials.
- Quarterly reports.

Considerations for Indicators

Quality

Quality indicators are

- Well-defined.
- Measurable.
- Acceptable measures of the question you want to answer.

Quantity

- Don't try to measure every indicator.
- Choose several indicators for each evaluation question that assess different aspects of the question.
- Specify a use for every indicator you measure.

Ways To Collect Data from People

- Written or telephone surveys.
- Personal interviews.
- Activity logs.
- Focus groups.
- Physical measures (e.g., body weight, blood pressure, body mass index).
- See [Appendix 5](#) for data collection tool resources.

Considerations for Data Sources

Quality

- Use a random sample of your data source rather than a convenient sample that might be biased.
- Use different types of sources to assess different perspectives.
- Clearly state your criteria for selecting sources.
- Use both qualitative and quantitative sources.

Quantity

- Collect data from enough people to make results reliable, but not from so many that data collection is impractical.
- Estimate in advance the amount of data you will collect (consider consulting professional help).
- Minimize the burden on respondents (e.g., don't make the survey or interview too long).

- Medical records.
- Administrative records.
- Program attendance lists.
- Asset and needs assessments.
- Local, state, or national government reports.

Observations

- Direct observations of physical activity behavior.
- Direct observations of environment and/or physical activity facilities.
- Indirect observations via video camera or infrared light counter.

Existing Data

- State and national Behavioral Risk Factor Surveillance System (BRFSS).
- State and national YRBSS.
- National Health and Nutrition Examination Survey (NHANES III).
- National Health Interview Survey (NHIS).
- School fitness testing.
- Crime reports.
- University-based surveys.
- Phone book.

How Will You Know If You Are Successful?

Before collecting data, you should decide on the expected effects of the program on each indicator. This “goal” for each indicator, sometimes called a performance indicator, is often based on an expected change from a known baseline. For example, the average one-mile run time for program participants might be 10 minutes at the start of the program. How much of a decrease in run time must be achieved for the program to be successful? How many work sites need to add activity programs for employees before and after work for the program to be successful? How many communities must add “walkability” concerns to their zoning ordinances for the program to be successful? In Step 5, you will compare your results with these performance indicators to justify your conclusions about the program. Stating your performance indicators before collecting data is important. Performance indicators should be achievable, but challenging, and should consider the program’s stage of development, the logic model, and the stakeholders’ expectations ([see Appendix 5 for a list of common indicators](#)).

KidsWalk-to-School Example: Focus the Evaluation and Gather Credible Evidence



Evaluation Questions	Indicators	Data Sources	Performance Indicators
To what extent does program implementation use community resources?	<ul style="list-style-type: none"> Number of volunteers Longevity of volunteers Total volunteer time Description of volunteer activities School resources contributed to program 	<ul style="list-style-type: none"> Administrative records Volunteer activity logs Key informant interviews 	<ul style="list-style-type: none"> 25 volunteers total, including five core volunteers Total volunteer time meets need Volunteer activities meet need School contributed to program
What effects has the program had on school-children?	<ul style="list-style-type: none"> Number of days walked or biked to school in past week Children's attitudes towards walking to school (three-question scale for parents and children) Children's scores on traffic safety test 	<ul style="list-style-type: none"> Surveys of parents and children (before and after the program) 	<ul style="list-style-type: none"> 15% increase in number of days/week children walked or biked to school 20% increase in Likert scale average of three attitude questions 30% increase in children's traffic safety test scores from baseline
Has the program had any effect on other community members?	<ul style="list-style-type: none"> Community members' knowledge of physical activity recommendations Community members' intentions to exercise Community members' exercise in past 7 days Community cohesion scale 	<ul style="list-style-type: none"> Community household survey (before and after the program or after the program only) Key informant interviews 	<ul style="list-style-type: none"> 50% increase in community members' knowledge of physical activity recommendations 20% increase in community members' intentions to exercise 10% increase in community members' exercise in past 7 days 15% increase in community cohesion scale
How has the program affected the community's barriers to walking?	<ul style="list-style-type: none"> Description of original barriers to walking Description of barriers to walking after the program Quantity and quality of advocacy efforts 	<ul style="list-style-type: none"> Walkability survey (observations) Key informant interviews Volunteer questionnaires 	<ul style="list-style-type: none"> Qualitative improvement in walkability barriers Planned advocacy efforts were conducted

Design

After identifying and prioritizing the evaluation questions, indicators, data sources, and performance indicators, you must decide on an evaluation design. A randomized trial is the most rigorous design, but is probably not feasible or appropriate for a community-based physical activity program. Less rigorous designs have strengths and weaknesses and should be combined to maximize the effectiveness of the evaluation design; they also are commonly used to evaluate physical activity programs. Choose your evaluation design with your available expertise, resources, and timeline in mind.

Common Evaluation Designs for Physical Activity Programs

Pretest and posttest (one sample): Assess how many people use a walking trail before a campaign takes place and how many people use it afterward.

Pretest and posttest (two samples; quasi-experimental): Assess how many people walk before and after a campaign in a community, as well as in a similar community elsewhere.

Time-series design: Assess trail use before a campaign, then every other month for 1 year. A time-series design is most feasible with one sample (the community of interest), but more accurate when it includes a comparison community to rule out the possible effect of time itself influencing behavior in the community.

Cross-sectional design: Assess how many people use an existing trail as part of a formative evaluation to determine whether a trail-use campaign is needed. Or, in a posttest-only design, examine only the community where the intervention occurred and describe what happened. Or compare two similar communities after an intervention occurred in one of them. A cross-sectional design should not be used for outcome evaluation because you cannot determine cause and effect when data are collected only once.

Logistics

The methods, timing, and infrastructure for collecting and handling evidence must consider Steps 1–3. The logistics of data collection should particularly consider the cultural context of the program and protect the privacy of the data sources and confidentiality of the information. For example, the sex and race or ethnicity of a person taking measurements for a body mass index (BMI) might need to be matched to the sex and race or ethnicity of the participant. Survey respondents must be told that their individual responses will never be identified by their names.

Can You Answer These Questions?

- Is your method culturally acceptable to participants?
- When and how often will you collect the data?
- Who will be considered a participant in the evaluation?
- Will you collect data from a sample or from all participants?
- How will you follow up a survey to achieve a good response rate?
- Who will collect the information? How will they be trained?
- How will you ensure uniform data collection?
- Where and how will data be coded and entered?
- Who will analyze the results?
- How will you build routine error checking (i.e., quality assurance) into your data collection and entry?
- How will the security and confidentiality of the information be maintained?
- Do you need informed consent? Do you need approval from an institutional review board (IRB) at a university or public agency before collecting data?

Agreements

Agreements specify roles and responsibilities so that the evaluation is effectively and efficiently conducted. Elements of the agreement include purpose, users, uses, questions and methods, end products, time line, and budget. Ethical considerations throughout the evaluation process should be discussed in the agreement process ([see Appendix 1](#)). The formality of the agreements will depend on the needs and characteristics of the stakeholders, but written documents are recommended even for less formal agreements.

Worksheet: Step 4—Gather Credible Evidence

Worksheets can be photocopied and used for each program.



Name of program _____

Evaluation Questions	Indicators	Data Sources	Performance Indicators

Step 5: Justify Conclusions

The conclusions drawn from your evaluation will be justified by comparing the results with performance indicators and other agreed-upon values or standards set by the stakeholders. This process begins with analyzing and interpreting your data.

Analyze Data

- Enter the data into a computer (e.g., using EpiInfo, a free database available on-line at <http://www.cdc.gov/epiinfo>).
- Check for data entry errors.
- Tabulate the data (e.g., calculate the number of participants, percentage of participants meeting physical activity recommendations, percentage of participants who walked to school every day).
- Stratify data (e.g., by community, age, race or ethnicity, income level, fitness level).
- Make comparisons (e.g., differences between pretests and posttests or between a comparison and intervention community).
- Present data in a clear and uncomplicated format.

Interpret Results

What do the numbers, frequencies, averages, and statistical test results actually say about your program?

- Are your results similar to what you expected? If not, why do you think they are different?
- Are there alternative explanations for your results?
- How do your results compare with those of similar programs?
- What are the limitations of your evaluations (e.g., potential biases, generalizability of results, reliability, validity)? How well does your evaluation reflect the program as a whole?
- If you used multiple indicators to answer the same evaluation question, did you get similar results?
- Will others interpret the findings in an appropriate manner?



Think Outside the Box

Analyzing data requires expertise in data management and statistical testing. If you do not have this expertise among your staff or stakeholders, be creative in forming partnerships.

- Many university graduate students are looking for evaluation projects and might provide the expertise you need free of charge.
- If you have a larger budget, an evaluation consultant can bring years of experience to your analysis.
- Evaluation staff in local, state, or federal health departments or nongovernmental organizations could be helpful.



KidsWalk-to-School

What would happen to your KidsWalk-to-School program if a child got hurt while walking or bicycling to school? Would this one incident be the basis for the judgments made about the program? We hope not. We hope the process of working through the previous four steps with the stakeholders (and remembering the standards of usefulness, feasibility, accuracy, and fairness) leads to balanced judgments.

Judgments

By comparing the interpretation of your results to agreed-upon standards, you can make judgments about the program based on the purpose(s) and intended uses of the evaluation. Although not explicitly stated, the standards for making judgments have been discussed throughout the evaluation process as the stakeholders have taken the following steps:

- **Set performance indicators.** Performance indicators are standards in and of themselves. Decisions about what measures should be taken and how much they should change over time will be used to judge the process and outcome results of the evaluation.
- **Developed a logic model.** For some stakeholders, the fidelity of program implementation, as outlined by the logic model, is critical. If stakeholders insisted on a detailed logic model, this could indicate that the implementation process is significant to them. They might judge a program more harshly if the process evaluation indicated problems with implementation.
- **Prioritized evaluation questions.** In prioritizing the evaluation questions, stakeholders make their values known. If stakeholders prioritized feasibility, for example, a program might show positive outcomes but be judged according to how practical the continuation of the program is.
- **Made decisions regarding their involvement.** Some stakeholders, perhaps a funder or other resource provider, might want to judge the results of the program evaluation solely by whether resources were used efficiently. If the evaluation results showed an increase in participants' levels of physical activity, but the program was not cost-effective, these stakeholders would judge it differently than a stakeholder involved primarily to promote behavioral change.

Although forming these judgments might not be easy, the consensus-building process will help stakeholders understand the basis for the recommendations in Step 6, thereby helping ensure the future use of evaluation results.

Worksheet: Step 5—Justify Conclusions

Worksheets can be photocopied and used for each program.



Name of program _____

1. Who will analyze the data (and who will coordinate this effort)?
 2. Are your results similar to what you expected? If not, why do you think they are different?
 - Are there alternative explanations for your results?
 - How do your results compare with those of similar programs?
 - What are the limitations of your evaluations (e.g., potential biases, generalizability of results, reliability, validity)? How well does your evaluation reflect the program as a whole?
 - If you used multiple indicators to answer the same evaluation question, did you get similar results?
 - Will others interpret the findings in an appropriate manner?
 3. Against what “standards” will you compare your interpretations in forming your judgments?

Step 6: Ensure Use and Share Lessons Learned

The eventual uses of your evaluation results have guided the entire evaluation process. In this step, you will prepare tangible products of the evaluation (recommendations and reports), share them with stakeholders and other audiences (communication), and follow up to promote maximum use.

Recommendations

Recommendations for continuing, expanding, redesigning, or abandoning a physical activity program might follow straight from the judgments; however, you should also consider competing priorities and alternatives.

Recommendations Should Be

- Action oriented.
- Relevant.
- Useful.

Tips

- Consider your stakeholders' values and align recommendations when possible.
- Share draft recommendations with stakeholders and solicit feedback.
- Relate your recommendations to the original purposes and uses of the evaluation.
- Target your recommendations appropriately for each audience.

Potential audiences for your recommendations

- Schools.
- Workplace owners.
- Parents.
- National agencies and organizations.
- Health insurance agencies.
- Advocacy groups.
- Traffic safety planners and enforcers.
- State legislators.
- City councils.
- Community-based organizations and programs.
- State health department officials.
- Police departments.
- Nonprofit health and service organizations.

Communication

At this point, you have decided what to recommend and who needs to hear the recommendations, but how will you effectively share this information? Your strategy should consider both format and channels.

Format

Reports summarizing your evaluation results should be easy to understand and appropriate for the intended audience. Depending on your audiences, you may have to prepare more than one report. Some tips include

- Summarize the evaluation plan and procedures.
- List the strengths and weaknesses of the evaluation.
- List the pros and cons of each recommendation.
- Present clear and succinct results in tables and graphs.
- Summarize the stakeholders' roles and involvement in both the project and the follow-up plans.

Channels

Decide how you will get your information to the intended audiences. You may use

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



Think Outside the Box

Evaluation results can be communicated in ways other than traditional written reports, including

- Oral presentations.
- Diagrams and charts.
- Illustrations.
- Success stories.
- Newspaper articles.
- Radio reports.
- Local news stories.
- Fact sheets.

Follow Up

Because of the effort required, reaching justified conclusions and making sound recommendations can seem like an end in itself. However, active follow up is needed to

- Remind stakeholders and the audience of the intended uses of the evaluation results.
- Prevent lessons learned from being lost or ignored when complex program or policy decisions are made.
- Prevent misuse of results by ensuring that evidence is applied to the questions that were the evaluation's central focus and that the results are not taken out of context.



KidsWalk-to-School: Communicating the Evaluation

Springfield County recently named local resident Frank Jones coordinator of its Walk-to-School Day for 2002. Jones will receive a small stipend to work with schools across the county to involve them in this annual event that promotes the benefits of physical activity and pedestrian-friendly communities.

"We are delighted that Mr. Jones is willing to lead this project," said Springfield Sheriff Ivan Lee. "As a volunteer, he was instrumental in initiating the first Walk-to-School Day 2 years ago, in 2000, at Burnside Elementary School."

Last year, more than 1,000 schoolchildren had the opportunity to participate in Walk-to-School Day activities, which were held at 5 of the county's 20 elementary schools. The county's goal is for at least half of the elementary schools to participate next year. An informal evaluation indicated that Parent-Teacher Associations (PTAs) at each school were key partners in obtaining parental support and involvement. Therefore, Jones will focus on engaging PTAs in all of the county's elementary schools as he begins planning for the third annual Walk-to-School Day.

"It's rewarding to see kids and their parents out in the community," Jones said. "They are having fun, getting involved in making their communities better, and they hardly even realize that they are also getting exercise."

Worksheet: Step 6—Ensure Use and Share Lessons Learned

Worksheets can be photocopied and used for each program.



Name of program _____

1. Who needs to hear your recommendations in order to promote the use of the evaluation findings?

2. How will you effectively share your evaluation findings?

- Format.

- Channel.

3. Who will ensure follow up with users of the evaluation findings, and how will that be accomplished?

- Who.

- How.

Appendix 1



Program Evaluation Standards and How They Apply To the Six Steps of Program Evaluation*

Program Evaluation Standards	Program Evaluation Steps
Utility Standards <p>Utility standards are intended to ensure that an evaluation will serve the information needs of intended users.</p> <ul style="list-style-type: none">• Stakeholder identification: Persons involved in or affected by the evaluation should be identified so that their needs can be addressed.• Evaluator credibility: The persons conducting the evaluation should be both trustworthy and competent to perform the evaluation, so that the evaluation findings achieve maximum credibility and acceptance.• Information scope selection: Information collected should be broadly selected to address pertinent questions about the program and be responsive to the needs and interests of clients and other specified stakeholders.• Values identification: The perspectives, procedures, and rationale used to interpret the findings should be carefully described so that the bases for value judgments are clear.• Report clarity: Evaluation reports should clearly describe the program being evaluated, including its context and the purposes, procedures, and findings of the evaluation, so that essential information is provided and easily understood.• Report timeliness and dissemination: Significant interim findings and evaluation reports should be disseminated to intended users so that the information can be used in a timely fashion.• Evaluation impact: Evaluations should be planned, conducted, and reported in ways that encourage follow-through by stakeholders, so that the likelihood that the evaluation will be used is increased.	<p>Step 1: Engage stakeholders.</p> <p>Step 1: Engage stakeholders.</p> <p>Step 4: Gather credible evidence.</p> <p>Step 5: Justify conclusions.</p> <p>Step 6: Ensure use and share lessons learned.</p> <p>Step 6: Ensure use and share lessons.</p> <p>Step 6: Ensure use and share lessons learned.</p>
Feasibility Standards <p>Feasibility standards are intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal.</p> <ul style="list-style-type: none">• Practical procedures: The evaluation procedures should be practical to keep disruption to a minimum while needed information is obtained.• Political viability: The evaluation should be planned and conducted with anticipation of the different positions of various interest groups, so that their cooperation may be obtained and possible attempts by any of these groups to curtail evaluation operations or to bias or misapply the results can be averted.• Cost-effectiveness: The evaluation should be efficient and produce information of sufficient value that the resources expended can be justified.	<p>Step 3: Focus the evaluation.</p> <p>Step 3: Focus the evaluation.</p> <p>Step 3: Focus the evaluation.</p>

* The 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.

Program Evaluation Standards	Program Evaluation Steps
<p>Propriety (Ethical) Standards</p> <p>Propriety standards are intended to ensure that an evaluation will be conducted legally, ethically, and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results.</p> <ul style="list-style-type: none"> • Service orientation: Evaluations should be designed to assist organizations to address and effectively serve the needs of the full range of targeted participants. • Formal agreements: Obligations of the formal parties to an evaluation (what is to be done, how, by whom, when) should be agreed to in writing, so that these parties are obligated to adhere to all conditions of the agreement or formally to renegotiate it. • Rights of human subjects: Evaluations should be designed and conducted to respect and protect the rights and welfare of human subjects. • Human interactions: Evaluators should respect human dignity and worth in their interactions with other persons associated with an evaluation, so that participants are not threatened or harmed. • Complete and fair assessment: The evaluation should be complete and fair in its examination and recording of strengths and weaknesses of the program being evaluated, so that strengths can be built upon and problem areas addressed. • Disclosure of findings: The formal parties to an evaluation should ensure that the full set of evaluation findings along with pertinent limitations are made accessible to the persons affected by the evaluation and any others with expressed legal rights to receive the results. • Conflict of interest: Conflict of interest should be dealt with openly and honestly so that it does not compromise the evaluation process and results. • Fiscal responsibility: The evaluator's allocation and expenditure of resources should reflect sound accountability procedures and otherwise be prudent and ethically responsible, so that expenditures are accounted for and appropriate. 	<p>Step 3: Focus the evaluation.</p> <p>Step 1: Engage stakeholders.</p> <p>Step 1: Engage stakeholders.</p> <p>Step 1: Engage stakeholders.</p> <p>Step 3: Focus the evaluation.</p> <p>Step 6: Ensure use and share lessons learned.</p> <p>Step 1: Engage stakeholders.</p> <p>Step 3: Focus the evaluation.</p>

Program Evaluation Standards	Program Evaluation Steps
<p>Accuracy Standards</p> <p>Accuracy standards are intended to ensure that an evaluation will review and convey technically adequate information about the features that determine worth or merit of the program being evaluated.</p> <ul style="list-style-type: none"> • Program documentation: The program being evaluated should be described and documented clearly and accurately, so that the program is clearly identified. • Context analysis: The context in which the program exists should be examined in enough detail that its likely influences on the program can be identified. • Described purposes and procedures: The purposes and procedures of the evaluation should be monitored and described in enough detail that they can be identified and assessed. • Defensible information sources: The sources of information used in a program evaluation should be described in enough detail that the adequacy of the information can be assessed. • Valid information: The information gathering procedures should be chosen or developed and then implemented so that they will assure that the interpretation arrived at is valid for the intended use. • Reliable information: The information gathering procedures should be chosen or developed and then implemented so that they will assure that the information obtained is sufficiently reliable for the intended use. • Systematic information: The information collected, processed, and reported in an evaluation should be systematically reviewed and any errors found should be corrected. • Analysis of quantitative information: Quantitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered. • Analysis of qualitative information: Qualitative information in an evaluation should be appropriately and systematically analyzed so that evaluation questions are effectively answered. • Justified conclusions: The conclusions reached in an evaluation should be explicitly justified so that stakeholders can assess them. • Impartial reporting: Reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that reports fairly reflect the evaluation's findings. • Metaevaluation: The evaluation itself should be formatively and summatively evaluated against these and other pertinent standards, so that its conduct is appropriately guided and, on completion, stakeholders can closely examine its strengths and weaknesses. 	<p>Step 2: Describe or plan the program.</p> <p>Step 2: Describe or plan the program.</p> <p>Step 3: Focus the evaluation.</p> <p>Step 4: Gather credible evidence.</p> <p>Step 5: Justify conclusions.</p> <p>Step 5: Justify conclusions.</p> <p>Step 5: Justify conclusions.</p> <p>Step 6: Ensure use and share lessons learned.</p> <p>Steps 1–6: Continually evaluate the strengths and weaknesses of your evaluation.</p>

Appendix 2



Guide to Community Preventive Services* Recommendations

In 2001, the Task Force on Community Preventive Services published recommendations on evidence-based interventions to promote physical activity. Based on systematic reviews of the literature, these recommendations provide guidance to organizations and agencies that are planning or conducting programs to increase physical activity. However, the recommendations are based on a limited number of well-controlled interventions in specific settings with selected populations. Therefore, the implementation and effectiveness of a program in your specific environment should still be evaluated. Some interventions reviewed by the *Community Guide* revealed insufficient evidence to support a recommendation, but only recommended or strongly recommended interventions are presented here.

Intervention	Intervention Description	Task Force Recommendation for Use	Indicators Measured in Reviewed Studies
Informational Approaches			
Community-wide campaigns	Large-scale, high-intensity, community-wide campaigns with sustained high visibility. Messages regarding physical activity behavior are promoted through television, radio, newspaper columns and inserts, and trailers in movie theaters.	Strongly recommended	Percentage of persons active. Estimated energy expenditure. Time spent in physical activity. Scaled activity scores.
Point-of-decision prompts	Motivational signs placed close to elevators and escalators encouraging use of nearby stairs for health benefits of weight loss.	Recommended	Percentage of persons taking stairs instead of elevators or escalators (settings included train, subway, and bus stations; shopping malls; and university libraries).
Behavioral and Social Approaches			
Individually adapted health behavior change programs	Programs tailored to the person's readiness for change or specific interests. Designed to help participants incorporate physical activity into their daily routines by teaching them behavioral skills, including goal-setting and self-monitoring, building social support, behavioral reinforcement (self-reward and positive self-talk), structured problem-solving, and relapse prevention. May be delivered in group settings or by mail, telephone, or directed media.	Strongly recommended	Minutes spent in physical activity. Energy expenditure.

* Centers for Disease Control and Prevention. Increasing Physical Activity: A Report On Recommendations of the Task Force on Community Preventive Services. MMWR 2001;50(No. RR-18):1-16. Also see the *Guide to Community Preventive Services* Web site at <http://www.thecommunityguide.org>.

Intervention	Intervention Description	Task Force Recommendation for Use	Indicators Measured in Reviewed Studies
Behavioral and Social Approaches (continued)			
School-based physical education (PE)	Modified curricula and policies to increase the amount of moderate or vigorous activity, the amount of time spent in PE class, or the amount of time students are active during PE class. Interventions included changing the activities taught or modifying the rules of the game so that students are more active.	Strongly recommended	Minutes per week spent in moderate to vigorous physical activity (MVPA). Percentage of class time spent in MVPA. Estimated energy expenditure.
Social support interventions in community settings (does not include family settings)	Focus is on changing physical activity behavior through building, strengthening, and maintaining social networks that provide supportive relationships for behavior change. Strategies include creating new social networks or working within preexisting networks in a social setting (e.g., the workplace), setting up a buddy system, contracting with another person to complete specified levels of physical activity, or establishing walking groups or other groups to provide friendship and support.	Strongly recommended	Minutes spent in activity. Frequency of exercise episodes.
Environmental and Policy Approaches			
Creation of or enhanced access to places for physical activity combined with informational outreach activities	Access to places for physical activity can be created or enhanced by building trails or facilities or by reducing barriers to such places. Certain programs also provide training in using equipment and incentives (e.g., risk factor screening and counseling or other health education activities). Work site programs were also included in this category.	Strongly recommended	Percentage of persons exercising on X days per week. Self-reported exercise scores. Energy expenditure.

Appendix 3



Theories and Models Used in Physical Activity Promotion

As you are planning or describing your program, referring to individual, interpersonal, or community-level theories that relate to health behavior change is sometimes useful. For example, these theories could support the arrow bridges in your logic model or help you identify potential points of intervention. Because the theories and models presented here are supported by varying levels of research, use them as one piece of your planning puzzle.

Theory/Model	Summary	Key Concepts
Individual Level		
Health belief model	For people to adopt recommended physical activity behaviors, their perceived threat of disease (and its severity) and benefits of action must outweigh their perceived barriers to action.	Perceived susceptibility Perceived severity Perceived benefits of action Perceived barriers to action Cues to action Self-efficacy
Stages of change (transtheoretical model)	In adopting healthy behaviors (e.g., regular physical activity) or eliminating unhealthy ones (e.g., watching television), people progress through five levels related to their readiness to change—precontemplation, contemplation, preparation, action, and maintenance. At each stage, different intervention strategies will help people progress to the next stage.	Precontemplation Contemplation Preparation Action Maintenance
Relapse prevention	Persons who are beginning regular physical activity programs might be aided by interventions that help them anticipate barriers or factors that can contribute to relapse.	Skills training Cognitive reframing Lifestyle rebalancing
Information-processing paradigm	The impact of persuasive communication, which can be part of a social marketing campaign to increase physical activity, is mediated by three phases of message processing—attention to the message, comprehension of the content, and acceptance of the content.	Exposure Attention Liking/interest Comprehension Skill acquisition Yielding Memory storage Information search and retrieval Decision Behavior Reinforcement Postbehavior consolidation

Theory/Model	Summary	Key Concepts
Interpersonal Level		
Social learning/ social cognitive theory	Health behavioral change is the result of reciprocal relationships among the environment, personal factors, and attributes of the behavior itself. Self-efficacy is one of the most important characteristics that determine behavioral change.	Self-efficacy Reciprocal determinism Behavioral capability Outcome expectations Observational learning
Theory of reasoned action	For behaviors that are within a person's control, behavioral intentions predict actual behavior. Intentions are determined by two factors—attitude toward the behavior and beliefs regarding others people's support of the behavior.	Attitude toward the behavior <ul style="list-style-type: none"> • Outcome expectations • Value of outcome expectations Subjective norms <ul style="list-style-type: none"> • Beliefs of others • Desire to comply with others
Theory of planned behavior	People's perceived control over the opportunities, resources, and skills needed to perform a behavior affect behavioral intentions, as do the two factors in the theory of reasoned action.	Attitude toward the behavior <ul style="list-style-type: none"> • Outcome expectations • Value of outcome expectations Subjective norms <ul style="list-style-type: none"> • Beliefs of others • Desire to comply with others Perceived behavioral control
Social support	Often incorporated into interventions to promote physical activity, social support can be instrumental, informational, emotional, or appraising (providing feedback and reinforcement of new behavior).	Instrumental support Informational support Emotional support Appraisal support

Theory/Model	Summary	Key Concepts
Community Level		
Community organization model	Public health workers help communities identify health and social problems, and they plan and implement strategies to address these problems. Active community participation is essential.	Social planning Locality development Social action
Ecological approaches	Effective interventions must influence multiple levels because health is shaped by many environmental subsystems, including family, community, workplace, beliefs and traditions, economics, and the physical and social environments.	Multiple levels of influence <ul style="list-style-type: none"> • Intrapersonal • Interpersonal • Institutional • Community • Public policy
Organizational change theory	Certain processes and strategies might increase the chances that healthy policies and programs will be adopted and maintained in formal organizations.	Definition of problem (awareness stage) Initiation of action (adoption stage) Implementation of change Institutionalization of change
Diffusion of innovations theory	People, organizations, or societies adopt new ideas, products, or behaviors at different rates, and the rate of adoption is affected by some predictable factors.	Relative advantage Compatibility Complexity Trialability Observability

Sources

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2. National Institutes of Health. *Theory at a Glance: A Guide for Health Promotion Practice*. Bethesda, MD: National Institutes of Health, National Cancer Institute; 1995.
3. US Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.

Appendix 4



How to Write SMART Objectives

For many grants and reports, you might have to write goals and objectives. This handbook mentions goals briefly, using the words outcomes and indicators, but does not use the term objectives. However, throughout the process of evaluation planning, all of the decisions necessary for writing program goals and objectives have been made.

Program Goal

In Step 2, you designed a logic model for your program that probably included a goal or mission statement. If not, review your logic model and the description of the problem that the program is trying to address. Compose a phrase or short sentence that captures the overarching, ideal purpose of your program. This is your goal.

Specific
Measurable
Achievable
Relevant
Time-bound

Program Objectives

To formulate strong program objectives, use information from your logic model to write SMART (specific, measurable, achievable, relevant, and time-bound) objectives. You can write either process or outcome objectives by using the information in your logic model. Process objectives include content from the activities column of your logic model. Outcome objectives include content from the outcomes columns of your logic model.

Other components of the evaluation planning process that will help you write SMART objectives include evaluation questions, data sources, and performance indicators. You may also borrow the *Healthy People 2010** objectives or link your local objectives with these national objectives.

Healthy People 2010 Objectives for Physical Activity

As national priorities for physical activity promotion, these objectives may be used as the long-term objectives for your program.

- **Physical activity is a leading health indicator for the United States. To monitor progress for *Healthy People 2010*, the physical activity indicator is being measured by the following two objectives:**

- 22.7 Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness ≥3 days per week for ≥20 minutes per occasion.
- 22.2 Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.



KidsWalk-to-School Examples

Process Objective

In the first semester of KidsWalk-to-School, 20 community volunteers will commit to participating in organized walks to school.

Outcome Objective

By the end of this school semester, the number of students walking to school will increase by 20%.

* US Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: US Government Printing Office; 2000.

- **Additional physical activity objectives include**

Physical Activity in Adults

- 22.1 Reduce the proportion of adults who engage in no leisure-time physical activity.
- 22.3 Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness ≥ 3 days per week for ≥ 20 minutes per occasion.

Muscular Strength/Endurance and Flexibility

- 22.4 Increase the proportion of adults who perform physical activities that enhance and maintain muscular strength and endurance.
- 22.5 Increase the proportion of adults who perform physical activities that enhance and maintain flexibility.

Physical Activity in Children and Adolescents

- 22.6 Increase the proportion of adolescents who engage in moderate physical activity for at least 30 minutes on ≥ 5 of the previous 7 days.
- 22.7 Increase the proportion of the nation's public and private schools that require daily physical education for all students.
- 22.8 Increase the proportion of adolescents who participate in daily school physical education.
- 22.9 Increase the proportion of adolescents who spend at least 50% of school physical education class time being physically active.
- 22.10 Increase the proportion of adolescents who view television ≤ 2 hours on a school day.

Access

- 22.11 (Developmental) Increase the proportion of the nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (i.e., before and after the school day, on weekends, and during summer and other vacations).
- 22.12 Increase the proportion of work sites offering employer-sponsored physical activity and fitness programs.
- 22.13 Increase the proportion of trips made by walking.
- 22.14 Increase the proportion of trips made by bicycling.

Appendix 5



Indicators and Measurement Resources

Common Individual-Level Indicators for Physical Activity

These indicators can be used to measure individual-level outcomes of your physical activity program. This list is not comprehensive. Make sure you choose indicators that are realistic for your program and that can be measured using available resources.

Measure	Source of Data	Comments
Direct Measures		
Metabolic equivalent (MET)* intensity levels (MET-minutes per day or week) Light: <3 METs Moderate: 3–6 METs Vigorous: >6 METs	Questionnaire	<p><i>The Compendium of Physical Activities*</i> lists 605 specific activities that are each assigned an intensity level based on the rate of energy expenditure (EE), expressed as METs. One MET is considered a resting metabolic rate while sitting quietly. By expressing self-reported minutes of activities in MET-minutes, you create a standardized physical activity measure that you can compare with other MET-minutes of activity.</p> <p>Calculate from a past week's recall of physical activity as follows:</p> $\text{MET-mins/day} = (\text{frequency} \times \text{time} \times \text{intensity}) / 7 \text{ days}$
Minutes of physical activity per day or week	Questionnaire	<p>For minutes or MET-minutes, it may be helpful to separate the following types of physical activity for respondents: job-related; transportation; housework, house maintenance, and caring for family; and recreation, sport, and leisure-time.[†]</p> <p>Note that raw minutes of physical activity do not include the intensity of the activity.</p> <p>Calculate from a past week's recall of physical activity as follows:</p> $\text{Minutes/day} = (\text{frequency} \times \text{time}) / 7 \text{ days}$
Steps walked per day or week	Pedometer	Simple, relatively inexpensive tool to assess mobility.
Energy expenditure (EE) per day or week	Accelerometer	Accelerometer measures two or three dimensions of movement. Software can calculate EE based on the person's age, sex, height, and weight.

Measure	Source of Data	Comments
Indirect Measures		
Waist circumference	Tape measure	
Waist-hip ratio	Tape measure	Equals the circumference of the waist divided by the circumference of the hips.
Body mass index (BMI)	Scale Height board Self-report	BMI = weight (kg) / height (m) ²
Aerobic fitness (VO ₂ max)	Treadmill Bicycle tests Step test	The American College of Sports Medicine has established and published valid protocols for all of these tests to measure aerobic fitness. VO ₂ max can be estimated from heart rate or measured directly.
Aerobic fitness (field measure)	1-mile walk/run time	Time to complete one measured mile is an indirect measure of fitness.
Youth fitness scores	1/2-mile or 1-mile run time	FitnessGram [§] provides a complete protocol for youth fitness testing.
Intervening Measures		
Knowledge	Questionnaire	Do respondents know the recommended levels/frequency of physical activity? Do they know the different recommendations for moderate versus vigorous activity?
Attitudes	Questionnaire	How do respondents feel about being physically active? What do they think will happen if they increase their levels of physical activity? How confident are they about their ability to do physical activity?
Stage of change (transtheoretical model)	Questionnaire	Respondents might be at different stages in changing their behavior. Different interventions are more appropriate for different stages of change, and progress can be measured by assessing progression through the stages.

* Ainsworth BE, Haskell WL, Whitt MC, et al. Compendium of Physical Activities: An Update of Activity Codes and MET Intensities. *Med Sci Sports Exerc* 2000;32(suppl 9):S498-S516.

[†] International Physical Activity Questionnaire. Available on-line at <http://www.ipaq.ki.se>.

[§] FitnessGram. Available on-line at <http://www.cooperinst.org/ftgmain.asp>.

Emerging Community-Level Indicators* for Physical Activity

Consensus is growing in the public health community that public health interventions should focus on population-level changes in risk factors (i.e., a primary prevention strategy versus an individual-based approach focusing on persons at high risk). Community-level indicators (CLIs) are based on observations of communities, not individuals. CLIs are useful for evaluating community-based health interventions for two reasons. First, they can be cheaper to collect (e.g., visiting 10 large workplaces or using Geographical Information Systems to map mean distances from homes to recreation sites rather than surveying 1,000 people). For example, one study reported that measures of grocery store shelf space could detect community-level changes in dietary indicators (e.g., the percentage of people drinking low-fat milk) with roughly the same relative power as individual-level surveys, at less than one-tenth the cost. Second, CLIs are especially useful for measuring changes in policies and the environment because they help focus on distal communitywide conditions that influence behavior.

The CLIs listed here should be used to generate ideas for your evaluation. They have not been empirically validated. Make sure the measures you select are tailored to your particular intervention goals and are available at reasonable cost and effort. For more information about indicators, see *Health Promotion Indicators and Actions* (Kar, Snehendu. New York: Springer Publishing Co; 1989).

Policy and regulation	Presence of local policy to include physical education (PE) in public K–12 curriculum. Amount/percentage of local budget per capita devoted to physical activity/recreation. Presence of policies promoting inclusion of recreation facilities with new construction.
Information	Percentage of health-care providers that routinely advise patients to exercise more. Availability of materials in work sites linking physical activity to cardiovascular disease. Percentage of schools offering curricula in grades K–12. Number of media reports dealing with physical activity. “Point-of-purchase” education materials.
Environmental	Miles of walking trails per capita in schools. Number of physical activity facilities per capita in schools. Availability of facilities to community members (e.g., how many, hours of operation). Number of programs for physical activity offered in community. Number of agencies in community that sponsor physical activity events or programs. Level of enforcement of pedestrian/driver responsibilities (e.g., jaywalking, yielding to pedestrians). Zoning/development regulations that require or promote “smart growth.” Score on pedestrian walkability scales.
Behavioral outcome measures	Observations of usage (e.g., in malls, trails). Membership in physical activity organizations (e.g., YMCAs, YWCAs, health clubs). Sales of selected physical activity items (e.g., sports equipment, videos).

* Cheadle A, Sterling TD, Schmid TL, Fawcett SB. Promising Community-Level Indicators for Evaluating Cardiovascular Health-Promotion Programs. *Health Educ Res* 2000;15:109–116.

Measurement Resources

These resources are intended to help you develop data collection instruments to measure your selected indicators. Because some of these instruments have been tested for reliability and validity, you can improve the quality of your data collection by using them. Also, using items from an existing survey allows comparison of your responses with others. However, be careful to select items that actually measure the indicators your program is designed to affect. No one tool from this list is likely to be the most appropriate data collection instrument for your evaluation. You might need to combine items from several surveys or combine an environmental checklist with a questionnaire designed to assess behavior change. Also, some tools might be more appropriate for program planning than evaluation data collection. Review the examples critically as you develop your own data collection instruments and plans.

- National Health and Nutrition Examination Survey (NHANES), CDC. Physical Activity and Physical Fitness Questionnaire. Questions address activities related to transportation, daily activities, and leisure-time activities. Available on-line at <http://www.cdc.gov/nchs/about/major/nhanes/questexam.htm>.
- Behavioral Risk Factor Surveillance System, CDC. Physical activity questions. Using this national survey allows you to compare your results with the same questions at the state and national level. Available on-line at <http://www.cdc.gov/nccdphp/brfss/brfsques.htm>.
- A Collection of Physical Activity Questionnaires for Health Related Research. Seventeen of these complete questionnaires are used to survey the general population, four are used for older adults, and seven are used as part of major population-based surveys. *Med Sci Sports Exerc* 1997;29(suppl 6).
- International Physical Activity Questionnaire. Four internationally comparable questionnaires that measure adult levels of physical activity. Available on-line at <http://www.ipaq.ki.se/>.
- CDC KidsWalk-to-School Guide (Walk-to-School Survey and Walkable Routes to School Survey). Can be used to measure behavior and environmental changes for any program that promotes kids walking to school. Available on-line at http://www.cdc.gov/nccdphp/dnpa/kidswalk/kidswalk_guide.htm.
- HeartCheck (New York Department of Health). Used to assess work site facilities, practices, and policies that support a heart-healthy lifestyle. PDF file available. Contact Lori King at (518) 473-0673 or by E-mail at LSM06@health.state.ny.us.

- Local Index of Transit Availability (LITA) Manual, Local Government Commission. Outlines a system for rating transit availability in various parts of metropolitan areas. Available on-line at http://www.lgc.org/freepub/land_use/lita_manual.html.
- Walkability Checklist, Partnership for a Walkable America, Pedestrian and Bicycle Information Center and U.S. Department of Transportation. Simple checklist allows you to rate environmental walkability factors as you walk around your neighborhood. Available on-line at <http://www.walkinginfo.org/walkingchecklist.htm>.
- Promoting Active Communities Award, Community Self-Assessment Inventory. Governor's Council on Physical Fitness, Health, and Sports. Michigan Fitness Foundation. Assessment checklist includes the following categories: policies and planning, pedestrian and bicycle safety and facilities, community resources, work sites, schools, and public transportation. Call 1-800-434-8642 for more information.

Appendix 6



Sample Case Studies

Case Study 1: Active Play Project

This evaluation case study is an example of a program designed to achieve school-based physical education, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity ([see Appendix 2](#)).

Step 1: Engage Stakeholders

During the planning of the project, project staff conducted the following activities to gain stakeholder involvement from the beginning:

- Contacted **school principals** with a letter and a follow-up telephone call to assess their interest in the project and enlist their support.
- Visited **community health workers** at the local health department to assess current, related programming efforts and to inform them about the Active Play project.
- Conducted focus group with **parents** to understand their feelings about physical activity related to their children's health.
- Interviewed **students** in groups of two or three to learn what activities they enjoy.

Additional stakeholders for the evaluation included

- Implementers: **Teachers** (both classroom and physical education); **researchers** who planned the project.
- Partners: **Funder** (a local foundation).

Step 2: Describe or Plan the Program

Several school districts in the state were identified by annual school height and weight surveys as having significantly higher rates of overweight and obesity than other districts. Nationally, almost 1 out of every 5 students is overweight; in these school districts, almost 1 out of 4 students is overweight. Therefore, schools and university-based researchers came together to plan a pilot project targeted at increasing students' activity levels at school. Several schools from one of the districts with students at high risk were selected for the pilot project. The current evaluation was conducted during the implementation of the year-long pilot project. Note that the evaluation was planned simultaneously with the project planning, and key evaluation stakeholders were involved from the first meeting. The logic model outlines project activities and expected outcomes.

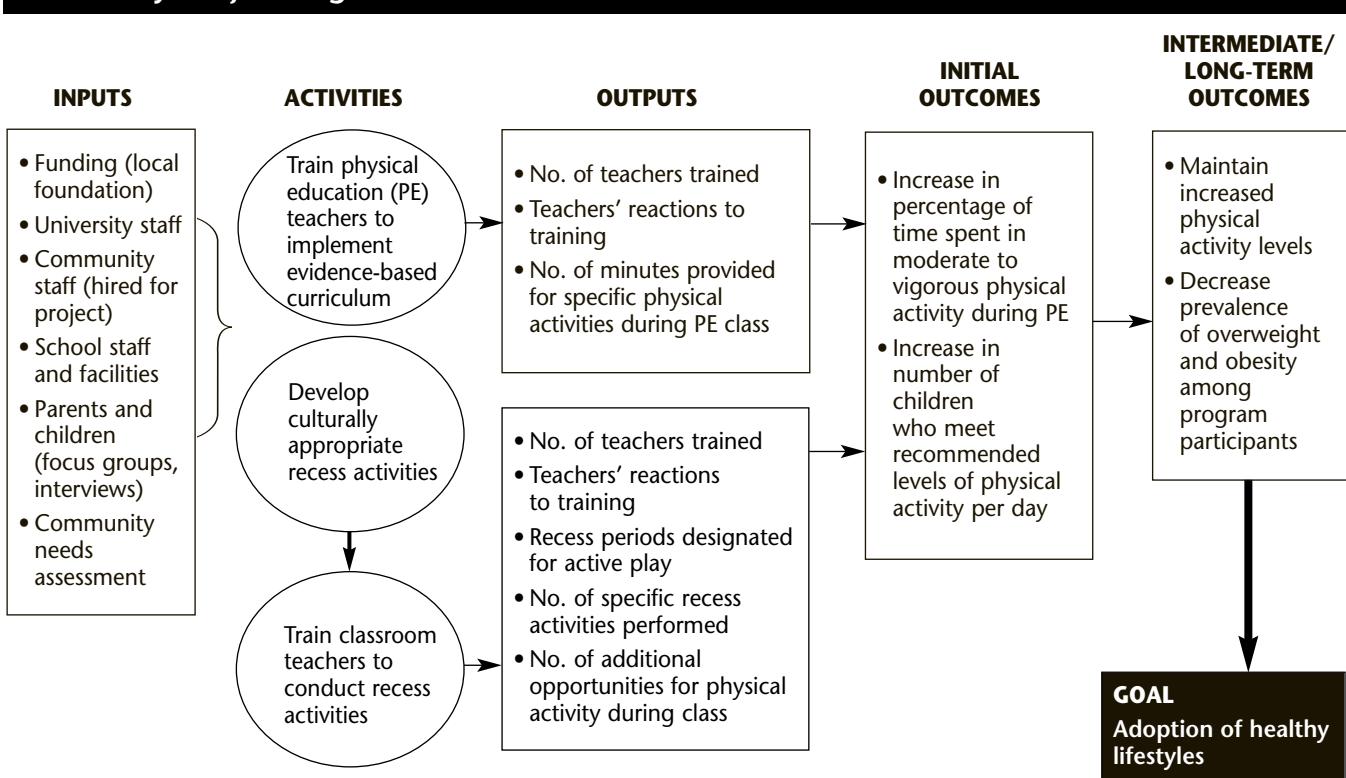
Step 3: Focus the Evaluation

The purpose of the evaluation of the Active Play pilot project was to identify ways to improve the project and to measure short-term outcomes. The project was in its first implementation year, so measuring longer-term impacts was not appropriate for this evaluation. The evaluation was used to create an annual report for the local funder, who would use it to determine whether to continue funding the project. The implementers used the evaluation to make informed changes to the project, which was likely to continue even if the funding decreased after the pilot year.

After meeting with each stakeholder, the evaluators compiled the following **evaluation questions**:

- Were the project components implemented as planned?
- Did students become more active as a result of the project?
- What were the reactions of students and teachers to the project?

Active Play Project Logic Model



Step 4: Gather Credible Evidence

This evaluation used a one-sample pretest and posttest.

Evaluation Questions	Indicators	Data Sources	Performance Indicators
Were the project components implemented as planned?	No. of teachers trained No. of minutes provided for specific physical activities during PE class No. of recess periods designated for active play No. of additional opportunities for physical activity during class	Training sign-in logs Observations of recess and PE classes (using SOFIT*) Teacher implementation checklist	80% of PE and classroom teachers trained 50% increase in minutes provided 20% increase in active play recess periods 15% increase in opportunities for physical activity
Did students become more active as a result of the project?	Percentage of time spent in moderate to vigorous physical activity in PE class Percentage of students who meet recommended levels of physical activity per day	Observations of recess and PE classes (using SOFIT) Accelerometer counts (worn by students) Interviews with students about their physical activity during the past day	50% increase in minutes active in PE class 20% increase in students who get recommended physical activity per day
What were the reactions of students and teachers to the project?	Teachers' reactions to training Students' reactions to recess activities	Posttraining evaluation forms Interviews with students	Not applicable

Step 5: Justify Conclusions

Researchers analyzed the data and provided preliminary interpretations. Generally, results indicated that project components were implemented as planned and reactions of students and teachers to the Active Play project were positive. However, the increase in the number of active play recess sessions did not meet the performance indicator as indicated by the implementation checklists for classroom teachers.

Looking at outcomes of the project, the number of students who achieved the recommended amounts of physical activity per day only increased by 5%. This increase was not significantly higher than preintervention levels and was well below the performance indicator of a 20% increase. Active minutes increased 10% as part of PE classes, which again was not significantly higher than the number of active minutes measured before the Active Play project. In interpreting these results, stakeholders had to make some decisions about which standards were most important for judging the data. To facilitate this process, stakeholders were brought together to review the findings and to make recommendations based on the data.

* McKenzie TL, Sallis JF, Nader PR. SOFIT: System For Observing Fitness Instruction Time.
J Teach Phys Educ 1991;11:195–205.

Step 6: Ensure Use and Share Lessons Learned

As expected, stakeholders went back and forth in their opinions regarding the strength of the positive feelings associated with the project versus the nonsignificant behavioral outcomes. Some quotes from the meeting help to illustrate the perspectives of different stakeholders.

Elementary school principal

"I think that this is a great project and we should make improvements based on the evaluation. We're moving in the right direction—the numbers show that kids are more active. This is a project that teachers and students like. It's fun for the kids and it challenges teachers to try something new."

Community health worker

"The problem is that the project only focuses on schools. When kids go home after school, their parents don't encourage them to be active—kids think it's a treat to get to sit in front of the TV for 4 hours every night."

Physical education teacher

"I don't know what else we can do besides offer time for kids to be active. One of the biggest issues is that the kids are only in PE 2 days a week. The only thing that matters to the school is proficiency tests these days."

Classroom teacher

"It was hard sometimes to get kids organized during recess to play structured games. They have structure all day. Recess is supposed to be a time for free play, for creativity and doing what they want to do, not what someone tells them to do. That was hard for me."

University researcher

"Even though there were some positive benefits to the project, we need to ask ourselves if those benefits are worth the time and money put into the project, because the outcomes that we wanted to see were not seen."

Despite these differing perspectives, stakeholders compiled a short, concrete list of recommendations for improving the project. Each person was given an opportunity to suggest changes, then the group voted on which changes could be made and which recommendations were priorities. Unfortunately, the foundation did not support the project for another year because behavioral outcomes were not supported by the evaluation. Nonetheless, based on the relationships between stakeholders that were built during the year-long project planning, implementation, and evaluation, the project continued. The university provided the minimal funds needed for additional training, and university staff conducted the training as part of their community service requirements. PE teachers from nearby schools attended the training based on positive feedback they heard from other PE teachers in the pilot schools.

Case Study 2: Evaluation of the Healthy Hawaii Initiative

This evaluation case study is an example of a community-wide campaign, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity ([see Appendix 2](#)).

Step 1: Engage Stakeholders

In 1999, Act 304 created a tobacco settlement special fund in the state treasury to be administered by the Hawaii Department of Health (DOH), mandating DOH to expend up to 25% of the tobacco settlement money for health promotion and disease prevention programs, promotion of healthy lifestyles (including fitness, nutrition, and tobacco control), and prevention-oriented public health programs.

DOH, working in collaboration with its newly created Tobacco Settlement Health and Wellness Advisory Group (TAG), composed of representatives from leading community agencies and coalitions, and the Centers for Disease Control and Prevention (CDC), created The Healthy Hawaii Initiative (HHI). This initiative is a major statewide effort to encourage healthy lifestyles and the environments to support them, with an emphasis on the healthy development of children and adolescents in relation to the three critical risk factors that contribute significantly to the burden of chronic disease: poor nutrition, lack of physical activity, and tobacco use.

TAG was essential in designing the overall structure of the community programs outreach, creating community buy-in, and planning for the evaluation. Because of the scope of the project and the large amount of available money, TAG decided that an independent evaluator should conduct the HHI evaluation. The stakeholders on TAG remained involved in the evaluation by receiving regular reports. As the program implementer, DOH was directly involved in planning the evaluation and has remained the primary stakeholder in the ongoing HHI evaluation process.

Step 2: Describe or Plan the Program

This program encompasses a multicomponent approach to improving health in Hawaii. Funds were granted to organizations in the following areas:

- **Coordinated School Program.** Sixteen school complexes have been funded to implement the CDC eight-component model[†] of coordinated school health. In addition, a statewide office has been created with 10 state- and district-level resource teachers to implement the health and physical education (PE) performance and content standards at all schools.
- **Community Programs.** Community groups throughout the state have received funds to develop and implement an action plan to make system, environmental, and policy changes in the target behaviors. In addition, larger grants are available to make coordinated systems and environmental changes across the state.

[†] The eight components are health education, physical education, health services, nutrition services, health promotion for staff, counseling and psychological services, healthy school environment, and parent/community involvement.

- **Public and Professional Education.** Funds have been allocated to develop consistent health behavior messages across the state to raise awareness and motivate behavior change. This educational campaign will contain multiple components, including (but not limited to) traditional media, Internet-based approaches, and grassroots education.
- **Surveillance and Evaluation.** Funds have been allocated to create the Hawaii Outcomes Institute (HOI). This group will conduct an independent evaluation of HHI, create community health profiles, and serve as a data warehouse for health-related data in Hawaii.

To create measurable geographical categories, HHI divided the state into 46 distinct geographical regions based on high school catchment areas. These divisions were used for school and community programs and facilitated evaluation because the amount of exposure a person could get from the program could be calculated by zip code.

Step 3: Focus the Evaluation

Because of the complexity of HHI, DOH sponsored a conference for international physical activity experts to help design the evaluation. As a result of this 3-day conference, eight recommendations for evaluation were proposed.

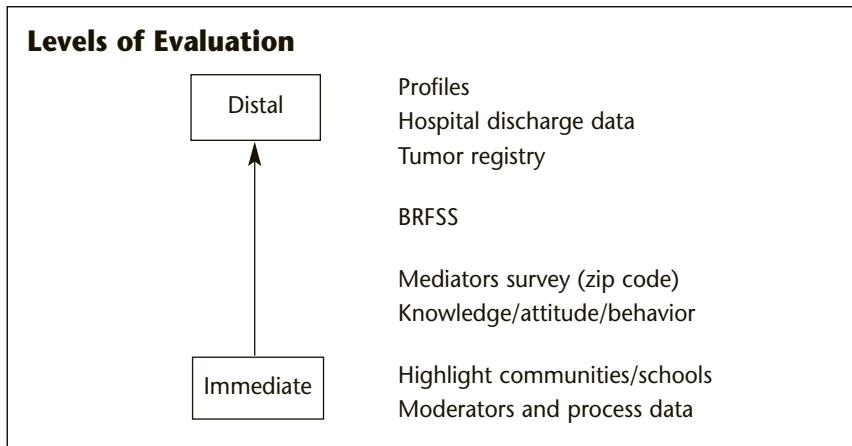
- Allow HOI to centrally guide the evaluation.
- Focus the evaluation on a limited number of target communities.
- Focus the major survey collection efforts on the Hawaii BRFSS.
- Form a technical advisory committee soon.
- Don't compromise quality for speed in entering the field.
- Keep the evaluation design simple.
- Keep the reporting requirements for community grants simple.
- Focus, focus, focus.

The final words of advice from the committee were

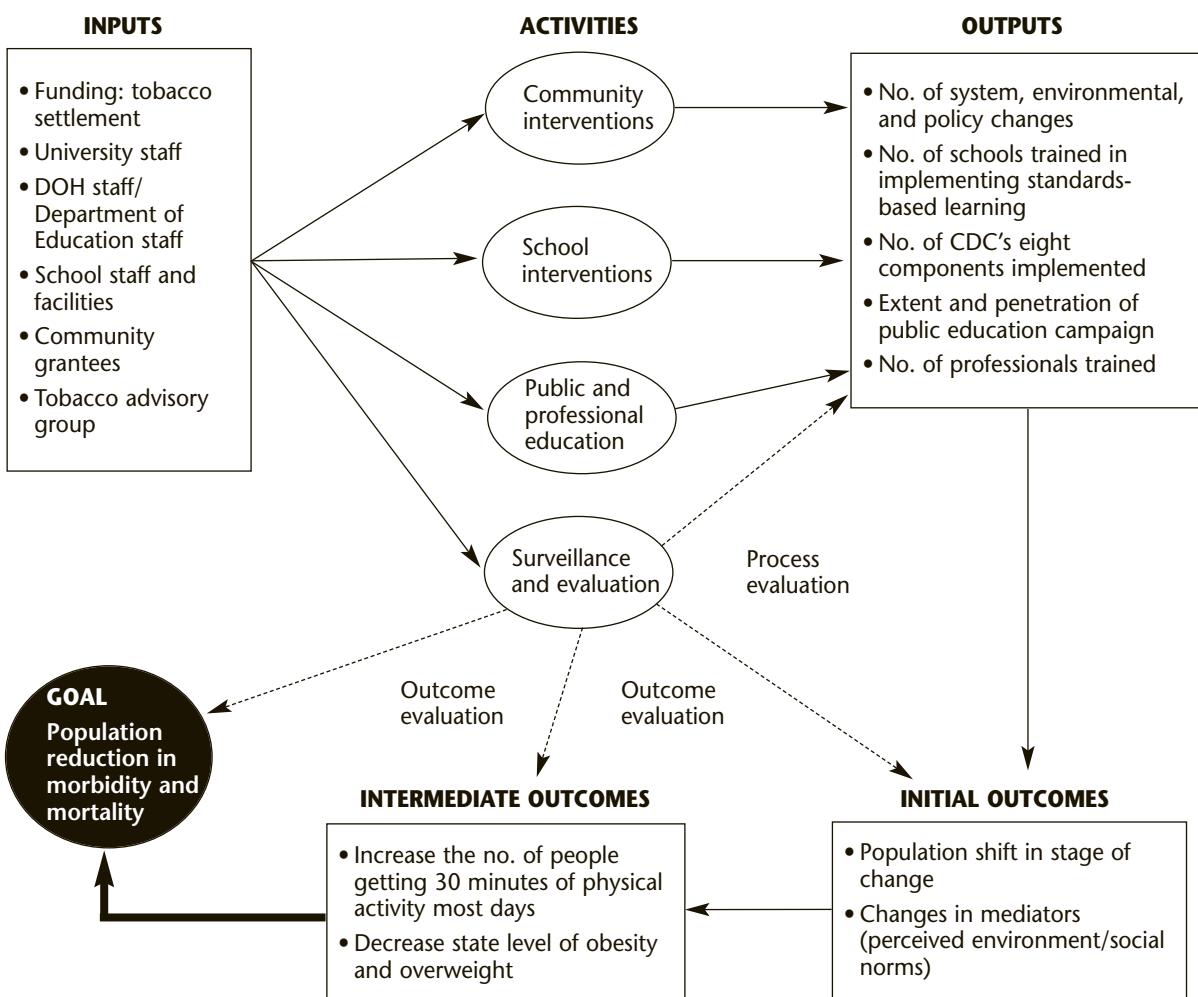
"Do fewer evaluations better."

"Do good process evaluation always, good impact evaluation sometimes."

The HHI evaluation team has been working for the last year to implement the recommendations of the expert panel. The evaluation is centrally guided by HOI under the direction of Jay Maddock, PhD, and Claudio Nigg, PhD, University of Hawaii. The evaluation design is simple. Process data is collected from all grantees using the University of Kansas (UK) Community Tool Box and tools developed by HOI. Intense, "highlight" evaluations are being conducted on six school and six community grantees. To supplement these data, a cross-sectional, longitudinal survey will be conducted in January 2002 and every 6 months thereafter. This survey will measure the mediators of change including stage of change, self-efficacy, perceived environment, attitude, subjective norm and benefits, and barriers for the three target behaviors. BRFSS will be used as the main behavioral outcome assessment, with the other 49 states serving as comparison groups. Tumor registry and hospital data will be used to measure the long-term impact of the program.



Healthy Hawaii Initiative Logic Model



Step 4: Gather Credible Evidence

A multilevel design was implemented to measure the effectiveness of the HHI. This included

- Process analysis of all grantees.
- Further in-depth analysis of highlight schools and communities.
- A statewide survey to measure initial outcomes (i.e., stage of change, knowledge, attitude, perceived environment).
- BFRSS (main behavioral outcome; sample size = 6,000).
- Morbidity and mortality indicators (hospital data, Hawaii Tumor Registry).

Evaluation Questions	Indicators	Data Sources	Performance Indicators
Were the project components implemented as planned?	CDC's eight components implemented in schools Percentage of community action plans completed Media penetration	University of Hawaii process tracking UK Community Toolbox Media survey	At least 6 of 8 CDC components implemented in all grantee schools All communities have implemented at least one structural or environmental change 50% recall of HHI message
Did the mediators of behavior change?	Stage of change Self-efficacy Perceived environment Attitudes Social norms	Statewide mediator survey	Significant population change for these measures
Did the target behaviors change?	Percentage of smokers Percentage of people physically active at least 30 minutes a day most days of the week Percentage of people eating ≥5 fruits and vegetables a day	BRFSS	Significant population change for these measures

Step 5: Justify Conclusions

Data will be analyzed in waves over the next several years. The first component will be an analysis of treatment fidelity. Process data from the three program areas will be analyzed, and each of the 46 catchment areas will be rated on the intensity of their intervention. A statewide summary for the end of each year (starting in 2002) will be developed to assess overall exposure to the program. Once this is complete, the mediators' survey will be analyzed to assess movement in the stages of change and other relevant behaviors on the target variables. The survey is designed to yield reliable estimates for all six of the islands in the state and to compare communities with grants to control communities. Finally, BRFSS data will be compared longitudinally with the other 49 states to assess trend changes in

the target behaviors. With population-based data, any significant change in the prevalence of the target behaviors (+1%) will have an important impact on the health of the state. For instance, a 1% decrease in the statewide prevalence of physical inactivity will equate to 8,700 people statewide.

Step 6: Ensure Use and Share Lessons Learned

With a large project like HHI, key stakeholders must be kept interested and motivated. Although we are just beginning our evaluation, we have developed several strategies to ensure continued success and share lessons learned.

- **Grantees.** Because of the numerous school and community grantees, we must maintain enthusiasm for the program, celebrate successes, and share lessons learned. Our evaluation of the highlight schools and communities will be used to feed information back to other grantees on what does and does not work well. This process should provide continual feedback to the grantees. Also, successes by the grantees will be highlighted in many ways, through community newsletters, grantee meetings, and public education. We feel these are important efforts to help grantees feel they are learning from each other and are not working in isolation. This information will also be fed back to DOH to guide future calls for proposals.
- **HHI staff.** Because of the many people at DOH and other organizations working on this project, feeding back information on successes and barriers is important. In addition to timely reporting of results, we are implementing a yearly survey with key stakeholders to assess their biggest successes and challenges of the past year and to ask them what could be done to make HHI more effective. This information will then be fed back to the team using summary data.
- **Legislators and community members.** HOI will develop a yearly summary of the progress of HHI to highlight the year's major accomplishments. The summary will be delivered to state legislators and interested community members to inform them of HHI's progress and future directions. In addition, periodic press releases will be written to inform the public of major milestones.
- **Professional dissemination.** HOI staff will prepare technical reports, conference presentations and reports, peer-reviewed publications, and book chapters to keep health professionals informed of HHI's progress. We believe informing public health officials throughout the country about methods to evaluate change in statewide programs is important, and this will be a cornerstone of our effort in this step of the evaluation.

This case study was prepared by Jay Maddock, PhD, and Claudio Nigg, PhD, University of Hawaii; and Angela Wagner, MPH, Hawaii State Department of Health. The authors would like to acknowledge the Hawaii DOH, which funded this evaluation through the Tobacco Settlement Fund; Bruce Anderson, PhD, and Virginia Pressler, MD, of HOI; the members of the HHI team who dedicated long hours to the development of the HHI; and Susan Jackson for her helpful comments on a earlier version of this case study.

Case Study 3: *Take Our Trail Campaign*[§]

This evaluation case study is an example of a program designed to create or enhance access to places for physical activity, combined with informational outreach activities, which is an intervention strongly recommended by the Task Force on Community Preventive Services to promote physical activity ([see Appendix 2](#)).

Step 1: Engage Stakeholders

This evaluation, which was planned simultaneously with the *Take Our Trail* campaign, included input from representatives of the following groups of stakeholders:

- Public health professionals—nurses, health educators, and outreach workers at the local health department.
- Local businesses—a local advertising firm made signs for free; donors contributed free food and T-shirts; and a local television station ran public service announcements (PSAs).
- Local nonprofit organizations—American Cancer Society, American Heart Association.
- Other local governmental agencies—city government and the Missouri Department of Transportation (DOT), Department of Parks and Recreation, and Department of Education.
- People who use the trail—representatives from walking, jogging, and cycling clubs; nearby work sites; and community residents.
- People who helped build the trail—community Heart Health coalition; community members who donated land, money, or other resources; city government (mayor, city clerk); and local businesses.

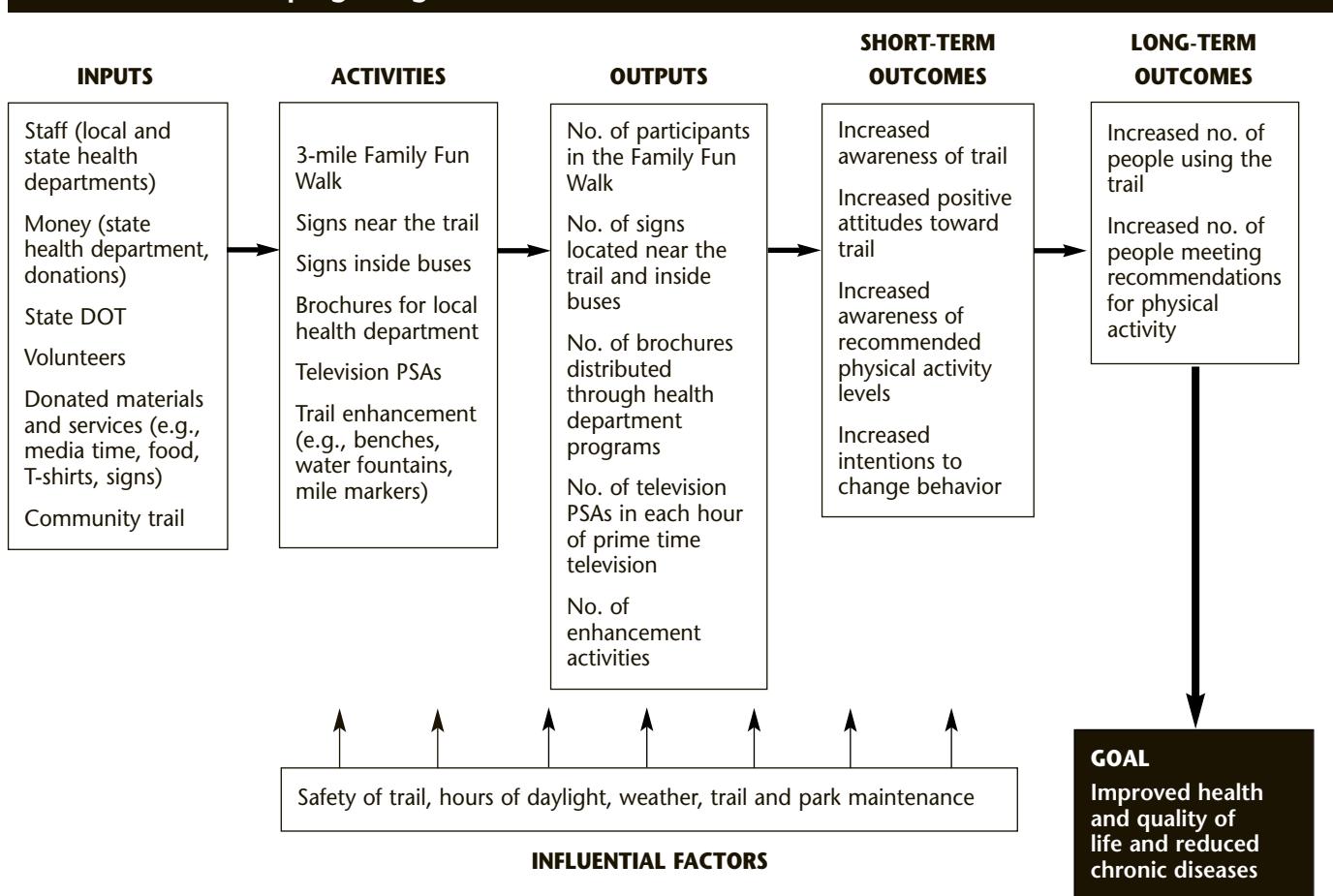
Step 2: Describe or Plan the Program

In 1997, data from the state BRFSS indicated that 60% of the state's population was overweight and 65% were not sufficiently active to meet public health recommendations. To address this health problem, state officials—with help from a community Heart Health coalition—funded construction of walking trails in two communities in 2000 through the state DOT. Community members, businesses, and city government donated additional funds. Although no formal evaluation was initially conducted, DOT staff members heard that the trails were underused because of safety concerns and lack of certain amenities (e.g., playground equipment or well-maintained restrooms). When other communities began requesting funds to build trails, state officials needed to know if the investment was worthwhile. To promote use of existing trails, state officials funded the local health department in one of the communities with a newly constructed trail to conduct an awareness campaign and trail enhancement activities. If community members were not more physically active after having both access to a walking trail and information about the trail and the benefits of regular physical activity, then state officials would probably not fund additional trails.

[§] This case study is based in part on activities occurring in southeast Missouri.

The resulting *Take Our Trail* campaign was conducted for 3 months in late spring 2001 by the health department and the Heart Health coalition. The campaign kicked off with a 3-mile Family Fun Walk, with T-shirts and refreshments donated by local businesses. For the length of the campaign, signs were strategically placed in busy areas throughout the community to raise community members' awareness of the trail. A small, simple brochure was developed and provided to all programs in the local health department to distribute to their clients, as well as to clinics, physician offices, church leaders, and the Heart Health coalition. The brochure contained information on the importance of physical activity, tips to increase walking, safety, the trail, and who to contact for walking club information. The local television station created a public service announcement to promote the trail and the importance of regular physical activity during the evening news. The public transportation system placed signs inside their buses encouraging riders to *Take Our Trail*. The Heart Health coalition helped develop walking clubs at work sites, churches, and social organizations. These clubs established times and days for club members to meet and walk together on the trail. Local law enforcement officials agreed to patrol the walking trail periodically. The coalition also worked with local businesses, city government, and churches to raise money to enhance the trail, adding amenities such as lights, benches, mile markers, painted lanes, and a water fountain.

***Take Our Trail* Campaign Logic Model**



Step 3: Focus the Evaluation

The primary purposes of this evaluation were to determine whether a promotional campaign would increase use of existing trails and whether trail use increases the number of persons who meet recommended levels of physical activity. Results of the evaluation would be used to make decisions about conducting a similar campaign in another community and about funding trail construction in additional communities. Therefore, the evaluation needed to include a) process measures for potentially replicating the campaign in the future and b) short-term outcome measures to see if behavior change or intentions to change behavior resulted from the campaign. Long-term physical activity behavior change also needed to be measured.

Stakeholders agreed on the following four primary evaluation questions:

- What activities were actually conducted as part of the *Take Our Trail* campaign?
- Did trail use increase as a result of the *Take Our Trail* campaign?
- Who uses the trail—both before and after the campaign?
- To what extent do trails increase physical activity levels of community members?

Step 4: Gather Credible Evidence

Because two communities already had trails in place, the evaluation work group (composed of a lead staff person from the local health department and volunteer stakeholders identified in Step 1) decided to conduct a quasi-experimental trial. By conducting the *Take Our Trail* campaign in one community but not the other, they could determine whether trail use appeared to increase because of the campaign. If the promotion proved effective, the control community would conduct a similar campaign. A third, geographically distinct, sociodemographically similar community with no walking trail or campaign was used as an additional comparison group for measuring the long-term effects of trails on physical activity behavior.

Stakeholders spent several meetings discussing and prioritizing indicators to measure their four primary evaluation questions and brainstorming about the best way to collect the necessary data. Two public health graduate students from a nearby university were recruited to plan and coordinate data collection as a project for an evaluation course. Additionally, several high school seniors in each community were recruited to help count and interview walkers as part of their community service requirement for graduation. The evaluation plan consisted of the following components:

- **Trail usage evaluation.** Process evaluation techniques were employed in the two communities with a walking trail. A multipurpose electronic counter[¶] was installed at

[¶]The multipurpose counters developed for subsequent intervention work in southeastern Missouri also included a card reader. Persons in the intervention group would swipe their card when they initiate and completed trail use. The length of time they spent on the trail and their pattern of use could be determined. This information allows individual tailoring of intervention messages.

each of the walking trails before campaign commencement to monitor usage with laser technology by day and time. Counter data were collected 1 month before, during, and 1 month after the promotional and enhancement campaign. Walking trail counter data was cross-referenced with weather and local events. Throughout the campaign, the graduate students periodically visited the walking trails to count how many people were using the walking trail at specific times, to compare this information with the counter data and to document demographic characteristics of trail users. These visits varied by time and day.

- **Trail user interviews.** Graduate students were paired with the high school volunteers to randomly interview trail users 1 month before, during, and 1 month after the promotional and enhancement campaign. Data included walking, trail use, and other physical activity behavior; assessment of how the person found out about the trail and awareness of campaign materials; trail likes and dislikes; individual perception of increased walking since the trail existed; and positive and negative community consequences of having the trail.
- **Stakeholder interviews.** Additional stakeholders (e.g., church leaders and physicians) were interviewed about trail usage in the community and perceived consequences (both positive and negative) of the trail's existence.
- **Event logs.** An event log system was developed to track all events that occurred in each community 1 month before, during, and 1 month after the promotional campaign and trail enhancement activities. First, everyone involved in the campaign (e.g., health department, Heart Health coalition) recorded activities on paper by hand. Recorded data included events at the walking trail, enhancements of the trail, formation of walking clubs, walking club meeting times and number of participants, and any other walking-related activities. These logs were then entered into a word processing program, and activities were categorized and coded by research assistants. Sample categories included services provided and community changes. Finally, coded data were used to make Microsoft Excel graphs to illustrate changes in different types of activities over the course of the campaign. Graduate students summarized these data for comparison between the two communities, and these data were used in conjunction with the counter data to explain increases or decreases in trail use.
- **Media review.** The graduate students were instructed to listen to PSAs, watch the evening news, and read newspaper articles to identify announcements relevant to the trail campaign. Staff members at health departments and clinics, physicians, and church leaders were surveyed to determine whether they had received *Take Our Trail* brochures and distributed them.
- **Long-term behavioral outcome evaluation.** Immediately before the *Take Our Trail* campaign began, a modified BRFSS survey composed of questions regarding walking behavior, chronic disease outcomes, and physical activity was randomly administered by telephone to a cross section of the two communities with a trail, as well as the community without a trail. The survey was administered again 1 year after this baseline data was collected.

Evaluation Questions	Indicators	Data Sources
What activities were actually conducted as part of the <i>Take Our Trail</i> campaign?	Number of bus signs Number of PSAs Number of newspaper articles Number of minutes of television coverage/promotion Number of brochures distributed Number of community events held at trail Number of community members at trail events Number of walking clubs formed Number of trail enhancements (e.g., benches, water fountains, restrooms, lights, mile markers, painted lanes) Hours of trail patrol by police force	Event logs Media review
Did trail use increase as a result of the <i>Take Our Trail</i> campaign?	Number of users before, during, and after the campaign in <i>Take Our Trail</i> community Number of users before, during, and after the campaign in control community with a trail Busiest time for trail use Awareness of campaign materials and messages	Electronic counter Observation Telephone survey
Who uses the trail, both before and after the campaign?	Demographics of users: age, race/ethnicity, place of residence, place of employment	Interviews with walkers on the trail Key stakeholder interviews Electronic counter with card reader
How much do trails increase physical activity levels of community members?	Percentage of community who achieved recommended levels of physical activity before and after the campaign in communities with trails Percentage of community who achieved recommended levels of physical activity before and after the campaign in the control community without a trail Trail users' perceptions of the effects of the trail on their physical activity behavior	Modified BRFSS telephone survey Interviews with walkers on the trail

Step 5: Justify Conclusions

In general, the 3-month walking trail counter results indicated increased trail usage in the *Take Our Trail* community. The *Take Our Trail* community had a 35% increase in trail use between 1 month before and 1 month after the campaign, compared with a 10% increase in the community without the campaign. Initial walking trail counter data indicated that trail usage was highest on weekday mornings and lowest at night, on weekends, and in inclement weather. Data from the walking trail counter also indicated that trail usage was higher during *Take Our Trail* events in the campaign community. Usage increased more when walking clubs were formed in both communities (several walking clubs formed naturally in the control community and were recorded in the event log system), but the

increase in the *Take Our Trail* community was significantly higher. In the final month of counter data collection, lunchtime trail usage increased, coinciding with formation of work site walking clubs. In addition, Sunday afternoon and Wednesday evening usage increased when church-based walking clubs were formed.

Interviews with stakeholders indicated that persons in the campaign community felt safer while walking, compared with the community with a trail and no campaign, because of walking with partners (e.g., walking clubs), trail lights, and police patrols. Approximately 60% of trail users in both communities indicated an increase in walking since the trail existed. Most walkers and stakeholders felt the trail was an asset to their community and a source of community pride because it provided a free place for people to exercise.

All types of people used the trail. Walkers were more likely to be women, older adults, athletes recovering from injuries, and persons with medical conditions that required a low-impact activity. Those who used the trail generally felt safe while using it. The perception of safety increased in the *Take Our Trail* community after lights were added and police surveillance increased. Trail users in the *Take Our Trail* community had more positive responses to the interview question about trail likes and dislikes than did the comparison community. When asked how they became aware of the trail, most respondents indicated that they lived or worked near the trail or had heard about it at church or work or from friends or family. Some learned about the trail from their doctors. Few trail users had seen the fliers or PSAs and were generally unaware of the promotional campaign.

The 1-year follow-up phone survey indicated a 5% increase in the number of persons meeting the physical activity recommendations in the *Take Our Trail* community, a 2% increase in the other community with a trail, and a 1% decrease in the community without a trail. Although these numbers are small, they could result in larger changes if the trends continue. For example, in 3 years, the community without a trail could have a 3% total decrease in the number of persons meeting the physical activity recommendations, whereas the *Take Our Trail* community could have a 15% increase—a substantial improvement over the current rate.

Step 6: Ensure Use and Share Lessons Learned

Results of this evaluation indicated that construction of walking trails increased physical activity and implementation of a campaign to promote trail usage increased physical activity more by increasing use of the new trail. These findings were shared with DOT, with a recommendation to build additional walking trails and support campaigns aimed at increasing trial usage. The report to DOT also suggested that the focus of these campaigns should include community-wide involvement in promoting the trail and walking and enhancement of the trails. The most effective way to reach people is through the organizations they are affiliated with and through members of their social networks. Increasing safety and security is a must.

Another positive, unexpected result resulted from this evaluation. Community members, church leaders, and civic leaders worked together to determine methods for providing indoor walking areas to be used during cold winter months and other times when the weather prohibits outdoor walking. This included several churches and a community center installing marked indoor walking areas in their buildings and allowing access to nonmembers.

This case study was prepared by Rashida Dorsey; Robyn A. Housemann, PhD, MPH; Imogene Wiggs, MBA; Ross C. Brownson, PhD; and Bernard Malone, MPA, of the Saint Louis University Prevention Research Center and Missouri Department of Health and Senior Services.