DEMONSTRATING

YOUR

PROGRAM’S

WORTH

A Primer on Evaluation for Programs
to Prevent Unintentional Injury

Nancy J. Thompson, PhD
Helen O. McClintock

National Center for Injury Prevention and Control
Atlanta, Georgia
1998
Second Printing (with revisions), March 2000
We wrote this book to show program managers how to demonstrate the value of their work to the public, to their peers, to funding agencies, and to the people they serve. In other words, we're talking about how to evaluate programs—a scary proposition for some managers. Our purpose is to reduce the scare factor and to show that managers and staff need not be apprehensive about what evaluation will cost or what it will show.

Remember that there are two ways an injury-prevention program can be successful. The obvious way is if it reduces injuries and injury-related deaths. The other way is if it shows that a particular intervention does not work. A program is truly worthwhile if it implements a promising intervention and, through evaluation, shows that the intervention does not reduce injuries. Such a result would be of great value to the injury prevention community: it would save you and other programs from wasting further resources and time on that particular intervention.

In this book, we show why evaluation is worth the resources and effort involved. We also show how to conduct simple evaluation, how to hire and supervise consultants for complex evaluation, and how to incorporate evaluation activities into the activities of the injury prevention program itself. By learning to merge evaluation and program activities, managers will find that evaluation does not take as much time, effort, or money as they expected.
ACKNOWLEDGMENTS

We acknowledge and appreciate the contributions of several colleagues: Dr. Suzanne Smith saw the need for this primer and began the project; Drs. Terry Chorba and David Sleet enumerated the various types of injury programs (page 73); and Dr. Jeffrey Sacks, Dr. Katherine Miner, Dr. David Sleet, Ms. Susan Hardman, and Mr. Roger Trent reviewed the content and provided invaluable suggestions.
CONTENTS

Introduction — 1
How This Primer Is Organized — 3
Section 1: General Information — 5
Section 2: Stages of Evaluation — 19
Section 3: Methods of Evaluation — 35
References — 69
Appendix A: Examples of Questions to Ask, Events to Observe, and Who or What to Count — 71
Appendix B: Sample Forms — 107
Appendix C: Checklist of Tasks — 113
Appendix D: Bibliography — 117
Appendix E: Glossary — 121
Comment Form — 125
All too often public health programs do wonderful work that is not properly recognized by the public, by other health care professionals, or even by the people who benefit directly from the program’s accomplishments. Why should this be? In most cases, it is because program managers and staff strongly believe that their work is producing the desired results but have no solid evidence to demonstrate their success to people outside their program. In other words, such programs are missing one key component: evaluation.

Unfortunately, without objective evaluation, program managers and staff cannot show that their work is having a beneficial effect, and other public health programs cannot learn from their success.

In addition, without adequate evaluation, programs cannot publish the results of their work in medical, scientific, or public health journals, and they cannot show funding agencies that their work is successful. Obviously programs that produce facts and figures to prove their success are more likely to publish the results of their work and more likely to receive continued funding than are programs that cannot produce such proof.

And here is another important point about evaluation. It should begin while the program is under development, not after the program is complete. Indeed, evaluation is an ongoing process that begins as soon as someone has the idea for a program; it continues throughout the life of the program; and it ends with a final assessment of how well the program met its goals.

Why must evaluation begin so early? Consider, for example, if you were to set up a program to provide free smoke detectors to low socioeconomic households. You put flyers in the mail boxes of people you want to reach, inviting them to come by your location for a free detector. Many people respond but not as many as you expected. Why?

To find out, you evaluate. Perhaps you learn that your location is not on a bus line and many people in your target population do not own cars. Or, perhaps, the language in
your flyer is too complex to be easily understood by the people you want to read it. So you rewrite your flyer or move your location. Would it have been better to test the language in the flyer for readability and to assess the convenience of your location before beginning the program? Yes. It would have saved time and money—not to mention frustration for the program staff.

So, the moral is this: evaluate, and evaluate early. The earlier evaluation begins, the fewer mistakes are made; the fewer mistakes made, the greater the likelihood of success. In fact, for an injury prevention program to truly show success, evaluation must be an integral part of its design and operation: evaluation activities must interweave with—and sometimes merge into—program activities. If a program is well designed and well run, evaluating the final results can be a straightforward task of analyzing information gathered while the program was in operation. In all likelihood, the results of such an analysis will be extremely useful, not only to your own program but to researchers and to other injury prevention programs.

To help program managers avoid difficulty with evaluation, we produced this primer. Its purpose is to help injury prevention programs understand 1) why evaluation is worth the resources and effort involved, 2) how evaluation is conducted, and 3) how to incorporate evaluation into programs to prevent unintentional injuries. This primer can also help program managers conduct simple evaluation, guide them in how to hire consultants for more complex evaluation, and allow them to oversee the work of those consultants in an informed way.

Since we want to practice what we preach, we ask that you help us with our evaluation of this book. We encourage you to give us your opinion. Is this book useful? If so, how have you found it useful? Are all sections clear? If not, which sections are unclear? Is the book’s organization easy to follow? If not, where have you had difficulty? Should we add more details? If so, on which topics? We are interested in any comments or suggestions you might have to improve this book and make it more useful. Your close involvement with the people that you and CDC want to serve makes your feedback invaluable.

On page 125 is a form you can use to send us your comments. We look forward to hearing from you.

Please also visit our web site for more information about injury control and prevention and to order a variety of free publications: www.cdc.gov/ncipc/pub-res/pubs.htm
This book is designed to help program staff understand the processes involved in planning, designing, and implementing evaluation of programs to prevent unintentional injuries.

Section 1 has general background information explaining why evaluation is important, what components go into good evaluation, who should conduct evaluation, and what type of information evaluation will provide.

In Section 2, we describe each of the four stages of evaluation: formative, process, impact, and outcome. In particular, we discuss the appropriate time to conduct each stage and the most suitable methods to use. “Evaluation at a Glance” (page 23) is a quick reference that helps programs decide when to conduct each stage of evaluation, describes what kind of information each stage of evaluation will produce, and explains why such information is useful. For further help in deciding which stage of evaluation is appropriate for your program, we guide you through a set of questions (page 24). Your answers will tell you which stage is the right one for your program’s situation.

Section 3 is devoted to the methods for conducting evaluation. We provide enough information to enable you to conduct simple evaluation. However, the primary use is to enable you to communicate with, hire, and supervise evaluation consultants.

Appendix A contains sample questions for interviews, focus groups, and questionnaires. It also contains sample events to observe and items to count at certain stages of evaluation. These examples can be adapted for use in evaluating any program to prevent unintentional injury.

Appendix B contains sample forms to help keep track of contacts that the program makes with the target population, items received from the target population, and items dispensed during a product distribution program.
Appendix C is a checklist of tasks that all programs to prevent unintentional injury can follow to make sure they do not omit any evaluation step during program design, development, and implementation.

Appendix D contains a bibliography of sources for further information about various aspects of evaluation.

Appendix E is a glossary of terms used in this primer.

On page 125 is a form that you can use to send us comments about this book.
Section 1

General Information

Introduction — 7

History of Evaluation — 7

Purpose of Evaluation — 8

Side Benefits of Evaluation — 10

A Common Fear of Evaluation:
“It shows only what's wrong!” — 10

Choosing the Evaluator — 11

Cost of Evaluation — 13

Designing Your Program So That Evaluation
Is an Integral Part — 14

Components of an Evaluation — 15

Table

1. Four Categories of Information Produced by Evaluation — 11

Figures

1. Why Evaluate Injury-Prevention Programs? — 9
2. Characteristics of a Suitable Consultant — 13
3. Steps Involved in Any Evaluation — 17
**GENERAL INFORMATION**

**INTRODUCTION**

Evaluation is the process of determining whether programs—or certain aspects of programs—are appropriate, adequate, effective, and efficient and, if not, how to make them so. In addition, evaluation shows if programs have unexpected benefits or create unexpected problems.¹

All programs to prevent unintentional injury need to be evaluated whether their purpose is to prevent a problem from occurring, to limit the severity of a problem, or to provide a service.

And evaluation is much easier than most people believe. A well-designed and well-run injury prevention program produces most of the information needed to appraise its effects. As with most tasks, the key to success is in the preparation. Your program’s accomplishments—and the ease with which you can evaluate those accomplishments—depend directly on the effort you put into the program’s design and operation.

Ah, there’s the rub: whether ‘tis wiser to spend all your resources running the injury prevention program or to spend some resources determining if the program is even worth running. We recommend the second option: programs that can demonstrate, through evaluation, a high probability of success also have a high probability of garnering legislative, community, technical, and financial support.

**HISTORY OF EVALUATION**

Early attempts to evaluate programs took one of two forms:

- Evaluation based on practical experience.
- Evaluation based on academic rigor.
Practical evaluation was conducted by people involved in prevention programs or by program staff. They were careful not to disrupt program activities more than absolutely necessary and to divert as few resources as possible away from the people being served. As a result, the evaluation design was often weak, and the data produced by the evaluation lacked credibility.

In contrast, academic evaluation was, in general, well designed and rigorously conducted. However, it was labor-intensive, intrusive, and therefore not applicable to large portions of the population because the results represented only the knowledge, attitudes, beliefs, or behaviors of people who would complete a laborious regimen of evaluation procedures.2

Over the years, evaluation evolved. The discipline profited from both practical experience and academic discipline. Methods became more feasible for use in the program setting and, at the same time, retained much of their scientific value. Furthermore, we now understand that effective evaluation begins when the idea for a program is conceived. In fact, much of the work involved in evaluation is done while the program is being developed. Once the prevention program is in operation, evaluation activities interact—and often merge—with program activities.

**Purpose of Evaluation**

Data gathered during evaluation enable managers to create the best possible programs, to learn from mistakes, to make modifications as needed, to monitor progress toward the program’s goal, and to judge the program’s ultimate outcome (Figure 1).

Indeed, not evaluating an injury prevention program is irresponsible because, without evaluation, we cannot tell if the program benefits or harms the people we are trying to help. Just as we would not use a vaccine that was untested, we should not use injury interventions that are untested. Ineffective or insensitive programs can build public resentment and cause people to resist future, more effective, interventions.

Evaluation will also show whether interventions other than those planned by the program would be more effective. For example, program staff might ask police officers to talk to
students about the hazards of drinking and driving. The hope might be that stories the police tell about the permanently injured and dead teenagers they see in car crashes would scare the students into behaving responsibly.

Evaluation might show, however, that many teenagers do not respect or trust police officers and therefore do not heed what they say. Evaluation would also show what type of people the students would listen to—perhaps sports stars or other young people (their peers) who are permanently injured because of drinking and driving.

The right message delivered by the wrong person can be nonproductive and even counterproductive.

Why Evaluate Injury-Prevention Programs?

- To learn whether proposed program materials are suitable for the people who are to receive them.
- To learn whether program plans are feasible before they are put into effect.
- To have an early warning system for problems that could become serious if unattended.
- To monitor whether programs are producing the desired results.
- To learn whether programs have any unexpected benefits or problems.
- To enable managers to improve service.
- To monitor progress toward the program’s goals.
- To produce data on which to base future programs.
- To demonstrate the effectiveness of the program to the target population, to the public, to others who want to conduct similar programs, and to those who fund the program.

Figure 1.
SIDE BENEFITS OF EVALUATION

A side benefit of formal evaluation is that the people who are served by the program get an opportunity to say what they think and to share their experiences. Evaluation is one way of listening to the people you are trying to help. It lets them know that their input is valuable and that the program is not being imposed on them.

Another side benefit is that evaluation can boost employee morale—program personnel have the pleasure of seeing that their efforts are not wasted. Evaluation produces evidence to show either that their work is paying off or that management is taking steps to see that needed improvements are made.

A third side benefit is that, with good evaluation before, during, and after your program, the results may prove so valuable that the news media or scientific journals will be interested in publishing them. In addition, other agencies or groups may see how well you have done and want to copy your program.

A COMMON FEAR OF EVALUATION: “It shows only what’s wrong!”

Often, a major obstacle to overcome is the program personnel’s concern that evaluation will reveal something bad that they are unaware of. And the truth is that evaluation will reveal new information that shows any aspects of the program that are not working as effectively as planned. But that is not bad news; that is good news. Because now something can be done to improve matters. We promise that evaluation will also bring news about aspects that are working better than expected.

Indeed, all evaluation produces four categories of information (See Table 1).
Well-designed evaluation always produces unexpected information. That information is just as likely to be about something that works well as it is to be about something that needs improvement.

So remember to expect pleasant surprises; and recognize that, by showing you why certain components of your program do not work, evaluation will often make what seemed an intractable problem easy to solve. With this change in perspective, evaluation ceases to be a threat and becomes an opportunity.

**CHOOSING THE EVALUATOR**

The first step in any evaluation is deciding who will do it. Should it be the program staff or should outside consultants be hired?

In almost all cases, outside consultants are best because they will look at your program from a new perspective and thereby provide you with fresh insights. However, outside consultants do not necessarily have to come from outside your organization. Evaluators within your organization who are

---

**Table 1. Four Categories of Information Produced by Evaluation**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information staff knows already.</td>
<td>Data about aspects of program that work well, that program staff knows about, and that should be publicized whenever possible.</td>
</tr>
<tr>
<td>➤ Indicates program is working well.</td>
<td></td>
</tr>
<tr>
<td>2. Information staff knows already.</td>
<td>Data about aspects of program that need improvement, that staff knows about and hopes will not be found out. Staff is unlikely to mention these aspects to the evaluator.</td>
</tr>
<tr>
<td>➤ Indicates program needs improvement.</td>
<td></td>
</tr>
<tr>
<td>3. New information.</td>
<td>Data about aspects of program that work well, but staff does not know about them. All evaluation uncovers some pleasant surprises, but program staff rarely expects them.</td>
</tr>
<tr>
<td>➤ Indicates program is working well.</td>
<td></td>
</tr>
<tr>
<td>4. New information.</td>
<td>Data about aspects of program that need improvement and about which staff is unaware. This is the type of information staff most expects when evaluation begins.</td>
</tr>
<tr>
<td>➤ Indicates program needs improvement.</td>
<td></td>
</tr>
</tbody>
</table>
not associated with your program and who have no personal
interest in the results of an evaluation may serve your needs.
Figure 2 contains a list of the most important characteristics of
a consultant. Although these characteristics are listed with
some regard to order of importance, the actual order depends
on your program’s needs and the objectives for the evaluation.

Important factors to consider when selecting consultants are
their professional training and experience. Some specialize in
quantitative methods, others qualitative. Some have experi-
ence with one stage of evaluation, others with another stage.
Some consider themselves in partnership with program staff;
others see themselves as neutral observers. Some had formal
courses in evaluation; others learned evaluation on the job. In
other words, the background experiences of evaluators can
vary considerably. They can even come from different
professional disciplines (e.g., psychology, mathematics, or
medicine). Find a consultant whose tendencies, background,
and training best fit your program’s evaluation goals.

Another factor to consider is the consultant’s motivation
(beyond receiving a fee). Consultants’ personal motivations
will affect their perspective as they plan and implement the
evaluation. For example, some consultants may be interested
in publishing the results of your evaluation and consequently
may shade results toward what they believe would interest
journal editors. Other consultants may be interested in using
the findings from your evaluation in their own research
(e.g., they may be researching why certain people behave a
certain way). Find consultants whose professional interests
match the purpose of your evaluation. For example, if the
purpose of your evaluation is to ensure that the program’s
written materials are at the correct reading level for the
people you are trying to reach, find a consultant whose
interest is in producing data on which management can
base decisions.

Listed next are some areas consultants specialize in:

- Conducting basic research.
- Producing data on which managers can base decisions
  (data may cover broad social issues or focus on a
  specific problem).
- Solving problems associated with program management.
- Increasing a program’s visibility to one or more audiences.
- Documenting the final results of programs.
Make sure the consultants you hire have experience in conducting the evaluation methods you need, in evaluating programs similar to yours, and in producing the type of information you seek. Be sure to check all references before you enter into a contract with any consultant.

### Characteristics of a Suitable Consultant

- Is not directly involved in the development or running of the program being evaluated.
- Is impartial about evaluation results (i.e., has nothing to gain by skewing the results in one direction or another).
- Will not give in to any pressure by senior staff or program staff to produce particular findings.
- Will give staff the full findings (i.e., will not gloss over or fail to report certain findings for any reason).
- Has experience in the type of evaluation needed.
- Has experience with programs similar to yours.
- Communicates well with key personnel.
- Considers programmatic realities (e.g., a small budget) when designing the evaluation.
- Delivers reports and protocols on time.
- Relates to the program.
- Sees beyond the evaluation to other programmatic activities.
- Explains both benefits and risks of evaluation.
- Educates program personnel about conducting evaluation, thus allowing future evaluations to be done in house.
- Explains material clearly and patiently.
- Respects all levels of personnel.

---

**Figure 2.**

### Cost of Evaluation

Cost will vary depending on the experience and education of the consultant, the type of evaluation required, and the geographic location of your program. However, a good rule is for service programs (e.g., programs to distribute smoke
detectors to qualified applicants) to budget about 10% to 15% of available funds for evaluation.

Programs with experimental or quasi-experimental designs (see page 51) are essentially research projects, so evaluation is built into the design of the program: the cost of the program includes the cost of evaluation. Operating programs with an experimental or quasi-experimental design is more expensive than operating service programs, but experimental or quasi-experimental programs will show whether the service being provided to the target population produces the intended result. Indeed such programs are likely to produce publishable information that can benefit other programs to prevent unintentional injuries.

Be sure to include the cost of evaluation in your proposals for grant funds.

**Designing Your Program So That Evaluation Is an Integral Part**

The information needed to evaluate the effects of your program will develop naturally and almost effortlessly if you put the necessary time and resources into designing a good program, pilot testing your proposed procedures and materials, and keeping meticulous records while the program is in operation.

To be the most effective, evaluation procedures and activities must be woven into the program’s procedures and activities. While you are planning the program, also plan how you will judge its success.

Include the following components in the design of your program:

- A plan for pilot testing all the program’s plans, procedures, activities, and materials (see “Formative Evaluation,” page 25).

- A method for determining whether the program is working as it should and whether you are reaching all the people your program planned to serve (see “Process Evaluation,” page 27).

- A system for gathering the data you will need to evaluate the final results of your program (see “Impact Evaluation,” page 29, and “Outcome Evaluation,” page 32).
COMPONENTS OF AN EVALUATION³

Every evaluation must contain certain basic components (Figure 3):

- **A Clear and Definite Objective:**
  Write a statement defining clearly and specifically the objective for the evaluation.

  Without such a statement, evaluators are unfocused and do not know what to measure. The statement will vary depending on the aspect of the program that is being evaluated. For example, before the program begins, you will need to test any materials you plan to distribute to program participants. In such a case, your evaluation objective might read something like this:

  To learn whether the people in our target population can understand our new brochure about the benefits of smoke detectors.

  Your evaluation objective for a completed program might read like this:

  To measure how many deaths were prevented as a result of our program to increase helmet use among teenage bicyclists in XYZ County.

- **A Description of the Target Population:**
  Define the target population and, if possible, the comparison (control) group. Be as specific as possible.

  The target population will vary depending on the reason for the evaluation. In Section 2 (page 19), we discuss how to select an appropriate target population at each stage of evaluation. An example definition of a target population might read like this:

  All children from 8 through 10 years old who own bicycles and who attend public schools in XYZ County.

- **A Description of What Is To Be Evaluated:**
  Write down the type of information to be collected and how that information relates to your program's objectives.

  For example, if the goal of your program is to increase the use of smoke detectors among people with low incomes,
the description of the information you need during the first stage of evaluation might read like this:

For baseline information on our target population, we need to know the number and percentage of people with incomes below $_______ in the city of XYZ who now have smoke detectors in their homes.

◆ Specific Methods:
Choose methods that are suitable for the objective of the evaluation and that will produce the type of information you are looking for.

In Section 2 (page 19), we discuss the four stages of evaluation and mention the methods most suitable for each stage. In Section 3 (page 35), we discuss the various methods in considerable detail.

◆ Instruments To Collect Data:
Design and test the instruments to be used to collect information.

In Section 3 (page 35), we discuss various methods of collecting information and the most suitable instruments for each method. For example, you could collect information on people’s attitude toward wearing seatbelts by doing a survey (the method) using a questionnaire (the instrument).

◆ Raw Information:
Collect raw information from the members of the target population.

Raw information is simply the information you collect as you run the program (e.g., the number of people who came to your location or the number of items you have distributed). Raw information is information that has not been processed or analyzed.

◆ Processed Information:
Put raw information into a form that makes it possible to analyze.

Usually, that means entering the information into a computer data base that permits the evaluator to do various statistical calculations.
• **Analyses:**
Analyzing either quantitative or qualitative information requires the services of an expert in the particular evaluation method used to gather the information.

We discuss analysis when we describe each method in detail (see Section 3, page 35).

• **Evaluation Report:**
Write a report giving results of the analyses and the significance (if any) of the results.

This report could be as simple as a memo explaining the results to the program manager. However, it could also be an article suitable for publication in a scientific journal or a report to a Congressional Committee. The type of report depends on the purpose of the evaluation and the significance of the results.

---

**Steps Involved in Any Evaluation**

1. Write a statement defining the objective(s) of the evaluation.
2. Define the target population.
3. Write down the type of information to be collected.
4. Choose suitable methods for collecting the information.
5. Design and test instruments appropriate to the chosen methods for collecting the information.
7. Process the raw information.
8. Analyze the processed information.
9. Write an evaluation report describing the evaluation’s results.

**Figure 3.**
SECTION 2

STAGES OF EVALUATION

Introduction — 21
Stage 1: Formative Evaluation — 25
Stage 2: Process Evaluation — 27
Stage 3: Impact Evaluation — 29
Stage 4: Outcome Evaluation — 32

Figures

4. Evaluation at a Glance — 23
5. Which Stage of Evaluation Are You Ready For? — 24
STAGES OF EVALUATION

INTRODUCTION

Ideally, evaluation is an ongoing process that begins as soon as the idea for an injury prevention program is conceived, interweaves with program activities throughout the life of the program, and ends after the program is finished. Sometimes evaluation continues for years after the program ends to see if program effects are sustained over time. By evaluating each step, programs can catch and solve problems early, which not only saves time and money but makes success more likely.

Evaluation has four stages that are begun in this order: formative, process, impact, and outcome. Planning for each stage begins while an injury prevention program is being developed, and no stage is truly complete until the program is over. Below is a brief description of each stage.

Formative Evaluation: Formative evaluation is a way of making sure program plans, procedures, activities, materials, and modifications will work as planned. Begin formative evaluation as soon as the idea for a program is conceived. Conduct further formative evaluation whenever an existing program is being adapted for use with a different target population or in a new location or setting. A program’s success under one set of circumstances is not a guarantee of success under other circumstances. For evaluation purposes, an adapted program is a new program. Another occasion for formative evaluation is when an operating program develops problems but the reason is unclear or the solution not obvious. For details, see “Formative Evaluation,” page 25.

Process Evaluation: The purpose of process evaluation is to learn whether the program is serving the target population as planned and whether the number of people being served is more or less than expected. Begin process evaluation as soon as the program goes into operation. At this stage, you are not looking for results. You are merely trying to learn whether
you are connecting with people in your target population as planned and whether they are connecting with you. Essentially, process evaluation involves counting all contacts with the people you are trying to reach and all events related to those contacts. For details, see “Process Evaluation,” page 27.

**Impact Evaluation:** The purpose of impact evaluation is to measure whatever changes the program creates in the target population’s knowledge, attitudes, beliefs, or behaviors. Collect baseline information for impact evaluation immediately before, or just as, the program goes into operation. Gather information on changes brought about by the program as soon as program personnel have completed their first encounter with an individual or group from the target population. For example, the first encounter might be with a person who responded to a newspaper advertisement announcing the availability of low-cost smoke detectors for people with low incomes. Or your first encounter might be with a group of people in a class on how to install a child’s car seat. Impact evaluation gives you intermediate results of the program (e.g., how much people’s knowledge or attitudes about restraining children in car seats have changed). For details, see “Impact Evaluation,” page 29.

**Outcome Evaluation:** For ongoing programs (e.g., a series of safety classes taught each year to all third graders in your area), conduct outcome evaluation at specified intervals (e.g., every year, every 3 years, or every 5 years). For one-time programs (e.g., distribution of a limited number of free smoke detectors to people with low incomes), conduct outcome evaluation after the program is finished. The purpose is to learn how well the program succeeded in achieving its ultimate goal (i.e., decreasing injury-related morbidity and mortality). Such decreases are difficult to measure, however, because the rates of morbidity and death due to unintentional injuries are low. Measuring changes in events that occur infrequently takes a long time (usually years) and requires a large number of study participants. However, we will show you a way to convert data on behavior change into estimates of changes in morbidity and mortality (page 64). For details on “Outcome Evaluation,” see page 32.

**A Word of Caution:** We said above that the rates of unintentional injuries are low, which may give the impression that working to prevent them is not a good use of resources. Nothing could be further from the truth. Rates of unintentional injury may be low; nevertheless, unintentional injury is the leading cause of death for young people 1 through 34 years old and the third leading cause of death for people 35 through 54 years old. Working to prevent unintentional injuries is a vital public health function.
Evaluation at a Glance

Stage 1: Formative Evaluation
(For details, see page 25)

When to use:
- During the development of a new program.
- When an existing program 1) is being modified, 2) has problems with no obvious solutions, or 3) is being used in a new setting, with a new population, or to target a new problem or behavior.

What it shows:
- Whether proposed messages are likely to reach, to be understood by, and to be accepted by the people you are trying to serve (e.g., shows strengths and weaknesses of proposed written materials).
- How people in the target population get information (e.g., which newspapers they read or radio stations they listen to).
- Whom the target population respects as a spokesperson (e.g., a sports celebrity or the local preacher).
- Details that program developers may have overlooked about materials, strategies, or mechanisms for distributing information (e.g., that the target population has difficulty reaching the location where training classes are held).

Why it is useful:
- Allows programs to make revisions before the full effort begins.
- Maximizes the likelihood that the program will succeed.

Stage 2: Process Evaluation
(For details, see page 27)

When to use:
- As soon as the program begins operation.

What it shows:
- How well a program is working (e.g., how many people are participating in the program and how many people are not).

Why it is useful:
- Identifies early any problems that occur in reaching the target population.
- Allows programs to evaluate how well their plans, procedures, activities, and materials are working and to make adjustments before logistical or administrative weaknesses become entrenched.

Stage 3: Impact Evaluation
(For details, see page 29)

When to use:
- After the program has made contact with at least one person or one group of people in the target population.

What it shows:
- The degree to which a program is meeting its intermediate goals (e.g., how awareness about the value of bicycle helmets has changed among program participants).
- Changes in the target population’s knowledge, attitudes, and beliefs.

Why it is useful:
- Allows management to modify materials or move resources from a nonproductive to a productive area of the program.
- Tells programs whether they are moving toward achieving these goals.

Stage 4: Outcome Evaluation
(For details, see page 32)

When to use:
- For ongoing programs (e.g., safety classes offered each year): at appropriate intervals (see When To Conduct, page 32).
- For one-time programs (e.g., a 6-month program to distribute car seats): when program is complete.

What it shows:
- The degree to which the program has met its ultimate goals (e.g., how much a smoke detector program has reduced injury and death due to house fires).

Why it is useful:
- Allows programs to learn from their successes and failures and to incorporate what they have learned into their next project.
- Provides evidence of success for use in future requests for funding.

Figure 4.
Which Stage of Evaluation Are You Ready For?

To find out which stage of evaluation your program is ready for, answer the questions below. Then follow the directions provided after the answer.

Q. Does your program meet any of the following criteria?
   - It is just being planned and you want to determine how best to operate.
   - It has some problems you do not know how to solve.
   - It has just been modified and you want to know whether the modifications work.
   - It has just been adapted for a new setting, population, problem, or behavior.

   Yes to any of the four criteria. Begin formative evaluation. Go to page 25.
   No to all criteria. Read the next question.

Q. Your program is now in operation. Do you have information on who is being served, who is not being served, and how much service you are providing?

   Yes. Read next question.
   No. Begin process evaluation. Go to page 27. You may also be ready for impact evaluation. Read next question.

Q. Your program has completed at least one encounter with one member or one group in the target population (e.g., completed one training class). Have you measured the results of that encounter?

   Yes. Read next question.
   No. You are ready for impact evaluation. Go to page 29. If you believe you have had enough encounters to allow you to measure your success in meeting your overall program goals, read the next question.

Q. For Ongoing Programs:
   Has sufficient time passed and have you had contact with a sufficient number of people to allow you to measure how well the program has done in meeting its ultimate goal of reducing morbidity and mortality? See When To Conduct, page 32.

   For One-Time Programs:
   Is the program complete?

   Yes. You are ready for outcome evaluation. Go to page 32.
   No. Reread the questions above and, if you are still unclear, reread "Introduction" (page 21) and look at Figure 4 on page 23. If you remain uncertain, you may need to contact a professional consultant.
**STAGE 1: FORMATIVE EVALUATION**

**Description:** Formative evaluation is the process of testing program plans, messages, materials, strategies, or modifications for weaknesses and strengths before they are put into effect. Formative evaluation is also used when an unanticipated problem occurs after the program is in effect.

**Purpose:** Formative evaluation ensures that program materials, strategies, and activities are of the highest possible quality (quality assurance). During the developmental stage of a program, the purpose is to ensure that the program aspect being evaluated (e.g., a home visit to check smoke detectors) is feasible, appropriate, meaningful, and acceptable for the injury prevention program and the target population.

In the case of an unanticipated problem after the program is in effect, the purpose is to find the reason for the problem and then the solution.

**When To Conduct:** Conduct formative evaluation when a new program is being developed and when an existing program is 1) being modified; 2) having problems with no obvious solutions; or 3) being adapted for a new setting, population, problem, or behavior.

**Target Population:** Whom you ask to participate in formative evaluation depends on the evaluation’s purpose. For example, if you are pilot testing materials for a new program, select people or households at random from the target population. If you want to know the level of consumer satisfaction with your program, select evaluation participants from people or households who have already been served by your program. If you want to know why fewer people than expected are taking advantage of your program, select evaluation participants from among people or households in the target population who did not respond to your messages.

**Type of Information Produced by Formative Evaluation While a Program Is Being Developed:** Whether the program being developed is surveillance or intervention, new or adapted, the formative evaluator's first concern is to answer questions similar to these:

- **Introduction:** When is the best time to introduce the program or modification to the target population?

- **Plans and Strategies:** Are the proposed plans and strategies likely to succeed?
Methods for Implementing Program: Are the proposed methods for implementing program plans, strategies, and evaluation feasible, appropriate, and likely to be effective; or are they unrealistic, poorly timed, or culturally insensitive?

Program Activities: Are the proposed activities suitable for the target population? That is, are they meaningful, barrier-free, culturally sensitive, and related to the desired outcome. For example, is the literacy level appropriate? Would a bicycle rodeo appeal to teenagers or would they see it as childish? Is a lottery for child safety seats acceptable or will some members of the population see it as gambling?

Logistics: How much publicity and staff training are needed? Are sufficient resources (human and fiscal) available? Are scheduling and location acceptable? For example, would scheduling program hours during the normal workday make it difficult for some people in the target population to use the program?

Acceptance by Program Personnel: Is the program consistent with staff’s values? Are all staff members comfortable with the roles they have been assigned? For example, are they willing to distribute smoke detectors door-to-door or to participate in weekend activities in order to reach working people?

Barriers to Success: Are there beliefs among the target population that work against the program? For example, do some people believe that children are safer if they are held by an adult than if they are restrained in a car seat?

Finding Solutions to Unanticipated Problems After a Program Is in Operation: If a program is already in operation but having unanticipated problems, evaluators can conduct formative evaluation to find the cause. They look at the same aspects of the program as they do during the developmental stage of the program to see 1) what is the source of the problem and 2) how to overcome the problem.

Methods: Because formative evaluators are looking for problems and obstacles, they need a format that allows evaluation participants free rein to mention whatever they believe is important. In such a case, qualitative methods (personal interviews with open-ended questions [page 38], focus groups [page 39], and participant-observation [page 39]) are best. A closed-ended quantitative method would gather information only about the topics identified in advance by program staff or the evaluator.
Occasionally, however, quantitative surveys (page 44) may be appropriate. They are useful when the purpose of evaluation is to find the level of consumer or staff satisfaction with particular aspects of the program.

**How To Use Results:** Well-designed formative evaluation shows which aspects of your program are likely to succeed and which need improvement. It should also show how problem areas can be improved. Modify the program’s plans, materials, strategies, and activities to reflect the information gathered during formative evaluation.

**Ongoing Process:** Formative evaluation is a dynamic process. Even after the injury prevention program has begun, formative evaluation should continue. The evaluator must create mechanisms (e.g., customer satisfaction forms to be completed by program participants) that continually provide feedback to program management from participants, staff, supervisors, and anyone else involved in the program.

**STAGE 2: PROCESS EVALUATION**

**Description:** Process evaluation is the mechanism for testing whether the program’s procedures for reaching the target population are working as planned.

**Purpose:** To count the number of people or households the program is serving, to determine whether the program is reaching the people or households it planned to serve, and to determine how many people or households in the target population the program is not reaching.

**When To Conduct:** Process evaluation should begin as soon as the program is put into action and continue throughout the life of the program. Therefore, you need to design the forms for process evaluation while the program is under development (see examples in Appendix B).

**Important Factor To Consider Before Beginning Process Evaluation:** The evaluator and program staff must decide whether the program should be evaluated on the basis of the number of people contacted or the number of contacts with people. The distinction is important.

For number of people contacted, count only once each person in the target population who had contact with your program regardless of how many times that person had contact.
For number of contacts with people, count once each time the program had contact with a member of the target population regardless of how many times some people had contact.

Obviously the number of contacts with people should be the same as, or higher than, the number of people contacted.

This distinction is especially meaningful when a person may receive independent value or additional benefit from each contact with the program.

**Target Population**: For process evaluation, the target population is the people or households that you actually reached, whereas your program’s target population is the people or households you want to reach.

**Methods**: Keep track of all contacts with the people or households who are served by the program. If appropriate, keep track of all program-related items distributed to, or received from, the target population.

- **Direct Contacts**: One method of keeping track of direct contacts is to use simple encounter forms (see Appendix B for an example), which can be designed to collect basic information 1) about each person or household that has direct contact with the program and 2) about the nature of the contact. Using these forms, you can easily count the number of people or households served by your program, the number of items distributed during a product-distribution program, or the number of items returned to a product-loan program.

  The forms must be designed while the program is being developed and ready for use as soon as the program begins.

- **Indirect Contacts**: Not all contact with a program is direct. A program’s target population may be reached directly, indirectly, or both. For example, many school-based programs provide information to schoolchildren (direct) who, in turn, take the information home to parents (indirect). Other programs train members of the target population as counselors (direct) to work with their peers in the school community (indirect). Such methods have been used by programs to promote the use of bicycle helmets. Often, a program’s stated purpose is to reach community members through indirect methods. Often also, programs have an indirect effect that was not planned.
To estimate the number of people the program reaches indirectly, you could ask the people with whom the program has direct contact to keep track of their contacts (the people to whom they give the program’s information or service). For this purpose, they could use a system similar to the program’s system of keeping track of its direct contacts.

Sometimes, however, asking people with whom the program has direct contact to keep track of their contacts is impractical, unreliable, or both. In such a case, devise a reliable method for estimating the number of indirect contacts. For example, you could estimate that half the third graders who attended a safety training program would speak to their parents about the information given to them.

- **Items Distributed or Collected:** Example forms for use in tracking items collected from the target population or given away during a safety product distribution campaign are in Appendix B.

**How To Use Results:** Use the results of process evaluation to show funding agencies the program’s level of activity (i.e., the number of people or households who have received the program’s service).

If process evaluation shows some unexpected problems, especially if it shows you are not reaching as many people in the target population as you expected to, do some more formative evaluation. That could include, for example, personal interviews with a random selection of people in your target population who had not participated in your program.

In addition, much of the information gathered during process evaluation can be used for impact and outcome evaluation when you will be calculating the effect your program has had on the target population.

**Stage 3: Impact Evaluation**

**Description:** Impact evaluation is the process of assessing the program’s progress toward its goals (i.e., measuring the immediate changes brought about by the program in the target population).

**Purpose:** To learn about the target population’s changes in knowledge, attitudes, and beliefs that may lead to changes in injury-prevention behavior. For example, evaluators might
want to know whether people are more likely to buy a bicycle helmet or smoke detector than they were before the program began. Or they might want to know whether people understand better the risks associated with not wearing seatbelts while driving.

At this stage, evaluators are not necessarily measuring changes in behavior (e.g., increases in the number of people using a bicycle helmet or smoke detector). Although information about behavior could be used to measure impact, it is a better measure of program outcome, which is the final stage of evaluation (see page 32).

To qualify for funding, programs need to incorporate evaluation—at least as far as the impact stage—into their program design.

**When To Conduct:** Take baseline measurements of the target population’s knowledge, attitudes, and beliefs immediately before the first encounter with the target population (e.g., before the first training class or before any products are distributed). Begin measuring changes in knowledge, attitudes, and beliefs immediately after the first encounter (see **Methods**, beginning at the bottom of this page).

**Target Population:** For impact evaluation, the target population consists of people or households that received the program service.

**Design:** Well-designed impact evaluation has two aspects:

- It measures the baseline knowledge, attitudes, and beliefs of the target population and demonstrates how these change as a result of the program.

- It eliminates the possibility that any demonstrated change could be attributed to some factor outside the program. See page 51 for program designs (experimental and quasi-experimental) that control for the effect of outside influences on your program’s results.

**Outside Influences To Be Eliminated as Explanations for Change:** The two main influences that must be eliminated as explanations for change in the participants’ knowledge, attitudes, beliefs, or behaviors are history and maturation. See page 54 for a full discussion.

**Methods:** Measure the target population’s knowledge, attitudes, beliefs, and behaviors before any individual or group receives the program service (baseline measurement).
and again after the first person or group receives the service. Compare the two measurements to find out what changes occurred as a result of your program. Be careful not to conclude that your program brought about all change shown by these comparisons.

Knowledge, attitudes, and beliefs are almost always measured by a survey instrument, such as a questionnaire, containing closed-ended items (e.g., multiple-choice questions). For example, you could ask each person attending a training class to complete a questionnaire before and after the class to find out how much their knowledge, attitudes, and beliefs changed as a result of the training program.

**Tip:** Since you have a captive audience in a training class, you could also test their satisfaction with the class materials and the way the class was conducted (formative evaluation).

For information on conducting a survey, see page 44. For examples of close-ended items for survey instruments, see page 104.

Occasionally, however, knowledge, attitudes, and beliefs are assessed by direct observation. For example, an observer might check to see that seatbelts are positioned correctly or smoke detectors installed correctly. Evaluators might also observe group discussions to watch and listen for signs of participants’ attitudes or beliefs (see “Participant-Observation,” page 39). Observation is often more costly, less efficient, and less feasible than administering a survey instrument. For suggestions about events to observe during an evaluation, see page 89.

**How To Use Results:** If the results are positive, you can use the results of impact evaluation to justify continuing your program. If the results are negative, you can justify revising or discontinuing the program. Obviously, if impact evaluation shows that the program is ineffective, outcome evaluation is not necessary. Programs with positive results are likely to receive further funding; programs with negative results obviously will have a more difficult time getting funds. However, if an evaluator can show why the program was ineffective and how it could be modified to make it effective, the program may be able to justify receiving further funds.
**Stage 4: Outcome Evaluation**

**Description:** Outcome evaluation is the process of measuring whether your program met its ultimate goal of reducing morbidity and mortality due to injury.

Decisions about whether to continue funding a program often depend on the results shown by outcome evaluation. And, as you know by now, good quality outcome evaluation depends on a good design for the injury prevention program itself.

**Purpose:** The only difference in purpose between impact evaluation and outcome evaluation is the program effect that is measured. Impact evaluation measures changes in knowledge, attitudes, beliefs, and (possibly) preventive behaviors. Outcome evaluation measures changes in preventive behaviors and in injury-related morbidity and death.

**When To Conduct:** For ongoing programs (e.g., a series of fire-safety classes given each year in elementary schools), conduct outcome evaluation as soon as enough people or households have participated in the program to make outcome evaluation results meaningful. Depending on the number of children in fire-safety classes, you could conduct outcome evaluation, for example, every year, every three years or every five years.

For one-time programs (e.g., a six-month program to distribute free smoke detectors to low-income households), begin outcome evaluation as soon as the program is complete. Consider also conducting outcome evaluation, for example, a year or three years after the program is complete to find out how well the program's effects are sustained over time.

Preparation for outcome evaluation, however, begins when the program is being designed. The design of the program affects the quality of the data you will have for outcome evaluation. Furthermore, baseline data must be collected immediately before participants have their first encounters with the program.

**Target Population:** For outcome evaluation, the target population is all the people or households that received the program service.
**Methods:** The methods used for measuring changes in behavior are essentially the same relatively easy methods as those used to measure changes in knowledge, attitudes, and beliefs during impact evaluation. In general, however, measuring changes in morbidity and mortality is not so easy. For example, you can measure the change in helmet-wearing behavior of children who participated in a safety training class soon after the class is over (see **Methods**, page 30, in the section on impact evaluation). Measuring the reduction in morbidity and mortality as a result of those same children’s change in behavior is much more difficult.

A major cause of this difficulty is that the number of people who will die or suffer serious morbidity as a result of most unintentional injuries is small. In contrast, everyone has a certain attitude and behaves in a certain way with regard to the injury-preventive devices (e.g., bicycle helmets or smoke detectors) that your program is encouraging people to use. Therefore, documenting changes in morbidity and mortality that are directly the result of a program to reduce most unintentional injuries requires a vastly larger study population than does documenting changes in attitudes, beliefs, and behaviors.

In addition to a large study population, documenting changes in morbidity and mortality requires a long-term study, which is both expensive and time consuming.

So what to do? Convert data on behavior change into estimates of changes in morbidity and mortality.

When a long-term study is not feasible, you can convert the more readily accessible information on changes in behavior into estimates of changes in morbidity or mortality.

However, to do so, you must have three items of information:

- Data showing the effectiveness of the behavior in reducing morbidity or mortality (see page 119 for resources with data on various types of unintentional injury).

- Data showing the prevalence of the behavior before the program began (data on the pre-program behavior of the target population).

- Data showing the prevalence of the behavior after the program is complete (data on the post-program behavior of the target population).
Using these three sets of data, you can perform a simple series of calculations, which will estimate the number of lives saved by the program. See page 64 for full details on how to do the calculation.

Reiterating the Main Point: To calculate morbidity and mortality on the basis of behavioral data, you will need information that links the behavior in question to an already-calculated risk for morbidity and mortality. Fortunately, many such data are available.

You can also convert data on behavior change into estimates of financial savings (see page 66 for details).

How To Use Results: You can use positive results of outcome evaluation as even stronger evidence than the results of impact evaluation to justify continued funding for your program. If the results (positive or negative) are likely to be of value to researchers or other programs to prevent unintentional injury, you may also be able to publish them in scientific journals.

Possible Future Study: For a behavior for which data are not available on the relationship between that behavior and risk for death or injury, you might consider doing a study to produce this information. You could justify the cost by stressing the importance of quantifying relationships between a certain behavior and risk for morbidity and mortality. The data produced by your study could then be published and used in outcome evaluation by other injury prevention programs.
SECTION 3
METHODS OF EVALUATION

Qualitative Methods
Introduction — 37
Personal Interviews — 38
Focus Groups — 39
Participant-Observation — 39
General Information — 40

Quantitative Methods
Introduction — 43
Counting Systems — 43
Surveys — 44
Experimental and Quasi-Experimental Designs — 51
Factors To Be Eliminated as Contributors to
Program Results — 54
Schematics for Experimental and Quasi-Experimental
Designs — 55
Examples of Experimental Designs — 56
Examples of Quasi-Experimental Designs — 61
Converting Data on Behavior Change into Data on
Morbidity and Mortality — 64
Converting Data on Behavior Change into Data on
Cost Savings — 66
Summary of Quantitative Methods — 66

Tables
2. Qualitative Methods of Evaluation — 42
3. Advantages and Disadvantages of Methods of
   Administering Survey Instruments — 47
4. Relative Risk for Death or Moderate-to-Severe
   Injury in a Car Crash — 64
5. Quantitative Methods Used in Evaluation — 67
Because qualitative methods are open-ended, they are especially valuable at the formative stage of evaluation when programs are pilot testing proposed procedures, activities, and materials. They allow the evaluator unlimited scope to probe the feelings, beliefs, and impressions of the people participating in the evaluation and to do so without prejudicing participants with the evaluator’s own opinions. They also allow the evaluator to judge the intensity of people’s preference for one item or another.

Qualitative methods are also useful for testing plans, procedures, and materials if a problem arises after they are in use. Using these methods, evaluators can usually determine the cause of any problem. Armed with knowledge about the cause, program staff can usually correct problems before major damage is done.

For example, let us say you put an advertisement in the local newspaper offering smoke detectors to low income people. Not as many people respond as you expected, and you want to know why. Conducting formative evaluation using qualitative methods will usually reveal the reason. Perhaps the advertisement cannot be understood because the language is too complex, perhaps your target population seldom reads newspapers, perhaps most people in the target population cannot go to the distribution location because it is not on a public transportation line, or perhaps the problem is due to some other factor. Whatever the cause, once you learn what the problem is, you are in a position to remedy it.

In this section, we describe three methods of conducting qualitative research: personal interviews, focus groups, and participant-observation. Each has advantages and disadvantages.
PERSONAL INTERVIEWS

In-depth personal interviews with broad, open-ended questions are especially useful when the evaluator wants to understand either 1) the strengths and weaknesses of a new or modified program before it is in effect or 2) the cause of a problem should one develop after the program is in effect. Relatively unstructured personal interviews with members of the target population allow interviewees to express their point of view about a program’s good and bad points without being prejudiced by the evaluator’s own beliefs. Open-ended questions allow interviewees to focus on points of importance to them, points that may not have occurred to the evaluator. Personal interviews are particularly important when the target population differs in age, ethnicity, culture, or social background from program staff and when the program staff has a different professional background from those directing the program. Through the interview, the interviewee becomes a partner in, rather than the object of, the evaluation.5

The interviewer’s objective is to have as much of the conversation as possible generated spontaneously by the interviewee. For this reason, interviewers must avoid questions that can be answered briefly.

Personal interviews are the most appropriate form of qualitative evaluation when the subject is sensitive, when people are likely to be inhibited speaking about the topic in front of strangers, or when bringing a group of people together is difficult (e.g., in rural areas).

Personal interviews should be audiotaped and transcribed verbatim. Most commonly, evaluators analyze the results of personal interviews by looking through the transcripts for insightful comments and common themes. They then give a written report to program management. Thus, the interviewees’ words become the evaluation data with direct quotes serving as useful supporting evidence of the evaluators’ assessments.

Examples of open-ended questions to ask during personal interviews begin on page 76. See also the focus groups questions (page 81), many of which are suitable for personal interviews.
Focus Groups

Focus groups serve much the same function as personal interviews. The main difference is that, with focus groups, the questions are asked of groups. Ideally these groups comprise four to eight people who are likely to regard each other as equals. A feeling of equality allows all members of the group to express their opinions freely. Focus groups have an advantage over individual interviews because the comments of one participant can stimulate the thoughts and ideas of another. You must conduct several focus groups because different combinations of people yield different perspectives. The more views expressed, the more likely you are to develop a good understanding of whatever situation you are investigating.

As with personal interviews, focus-group discussions should be audiotaped and transcribed verbatim. The evaluator looks for insightful comments and common threads both within groups and across groups and uses direct quotes as the evaluation data. Also as with personal interviews, evaluators analyze the data and prepare a written report for program management. Many of the same questions may be used for personal interviews and for focus groups.

On page 81 are examples of questions that might be used with focus groups during formative evaluation of a program.

Participant-Observation

Evaluation by participant-observation involves having members of the evaluation team participate (to the degree possible) in the event being observed, look at events from the perspective of a participant, and make notes about their experiences and observations. Aspects to observe include physical barriers for participants, smoothness of program operation, areas of success, and areas of weakness. Observers should be unobtrusive and ensure that their activities do not disrupt the program. They should be alert, trained in observational methods, and aware of the type of observations of greatest importance to the program evaluation.
Participant-observation is particularly valuable to the study of behavior for several reasons:

- The parties involved in a problem may not realize the effect of their actions or words on other people, or they may not be fully aware of their own reactions to particular situations.

- Unlike personal interviews or focus groups, participant-observation can produce information from people who have difficulty verbalizing their opinions and feelings.

- Problems of which participants are unaware can come to light. For example, parents may not be aware that an infant car seat is improperly installed and would therefore not report in an interview or focus group that they had difficulty understanding the instructions for installing the seat.

A major disadvantage of participant-observation is that it is time consuming for the evaluator.

Examples of events to observe begin on page 89.

**General Information**

**Who To Interview, Invite to Focus Groups, or Observe:**
If you are evaluating your program’s methods, procedures, activities, or materials, select people similar to those your program is trying to reach. Indeed, you could even select members of the target population itself, if that is possible.

If you are conducting formative evaluation because a large group of people dropped out of the program or refused to join the program, then select people from that group to interview, observe, or invite to focus groups. They are the people most likely to provide information about aspects of the program that need correction.

**Number of People To Interview, Focus Groups To Conduct, or Events To Observe:** The number depends on the size and diversity of the target population. The larger and more diverse the target population, the more interviews, focus groups, or observations are needed. In all cases, the more interviews, observations, or focus groups you conduct, the more likely you are to get an accurate picture of the situation you are investigating.
Trainee Evaluator: For several reasons, all qualitative evaluation must be conducted by people trained in the particular method (interview, focus group, or participant-observation) being used:

- They are experienced in asking open-ended questions (more difficult than you might think) and in probing deeper into a subject when an unexpected situation calls for such probing.
- They know how to elicit comments and keep people talking.
- They are experienced in encouraging shy people to participate in the conversation and in silencing domineering people.
- They are experienced in not showing what they feel or believe about a particular subject or about someone’s response to a question.
- They do not bring their own values into the discussion.
- They recognize when the discussion has gone far afield of the evaluation’s objectives.
- They know when disagreement is productive rather than counterproductive.
- Their interest in the results is more impersonal than any program staff member’s interest would be.
- They know how to summarize and present the results in a meaningful way.

See Table 2 for a summary of qualitative methods of evaluation, including the advantages and disadvantages of each.
<table>
<thead>
<tr>
<th>Method</th>
<th>Purpose</th>
<th>Number of People To Interview or Events To Observe</th>
<th>Resources Required</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Interviews</td>
<td>To have individual, open-ended discussion on a range of issues.</td>
<td>The larger and more diverse the target population, the more people must be interviewed.</td>
<td>Trained interviewers, Written guidelines for interviewer, Recording equipment, A transcriber, A private room</td>
<td>Can be used to discuss sensitive subjects that interviewee may be reluctant to discuss in a group.</td>
<td>Time consuming to conduct interviews and analyze data.</td>
</tr>
<tr>
<td></td>
<td>To obtain in-depth information on an individual basis about perceptions and concerns.</td>
<td></td>
<td></td>
<td>Can probe individual experience in depth.</td>
<td>Transcription can be time-consuming and expensive.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Can be done by telephone.</td>
<td>Participants are one-on-one with interviewer, which can lead to bias towards “socially acceptable” or “politically correct” responses.</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>To have an open-ended group discussion on a range of issues.</td>
<td>4 to 8 interviewees per group.</td>
<td>Trained moderator(s), Appropriate meeting room, Audio and visual recording equipment</td>
<td>Can interview many people at once.</td>
<td>Individual responses influenced by group.</td>
</tr>
<tr>
<td></td>
<td>To obtain in-depth information about perceptions and concerns from a group.</td>
<td></td>
<td></td>
<td>Response from one group member can stimulate ideas of another.</td>
<td>Transcription can be expensive.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Participants choose to attend and may not be representative of target population.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Because of group pressure, participants may give “politically correct” responses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Harder to coordinate than individual interviews.</td>
</tr>
<tr>
<td>Participant-</td>
<td>To see firsthand how an activity operates.</td>
<td>The number of events to observe depends on the</td>
<td>Trained observers</td>
<td>Provides firsthand knowledge of a situation.</td>
<td>Can affect activity being observed.</td>
</tr>
<tr>
<td>Observation</td>
<td></td>
<td>purpose. To evaluate people’s behavior during a</td>
<td></td>
<td>Can discover problems the parties involved are unaware of (e.g., that their own actions in particular situations cause others to react negatively).</td>
<td>Can be time consuming.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>meeting may require observation of only one event (meeting). But to see if products are installed correctly may require observation of many events (installations).</td>
<td></td>
<td>Can determine whether products are being used properly (e.g., whether an infant car seat is installed correctly).</td>
<td>Can be labor intensive.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Can produce information from people who have difficulty verbalizing their points of view.</td>
<td></td>
</tr>
</tbody>
</table>
Quantitative Methods

Introduction

Quantitative methods are ways of gathering objective data that can be expressed in numbers (e.g., a count of the people with whom a program had contact or the percentage of change in a particular behavior by the target population). Quantitative methods are used during process, impact, and outcome evaluation. Occasionally, they are used during formative evaluation to measure, for example, the level of participant satisfaction with the injury prevention program.

Unlike the results produced by qualitative methods, results produced by quantitative methods can be used to draw conclusions about the target population. For example, suppose we find that everyone in a focus group (randomly selected from bicyclists in the target population) wears a helmet while riding. We cannot then conclude that all bicyclists in the target population wear helmets. However, let’s say that, instead of a focus group, we conducted a valid survey (a quantitative method) and found that 90% of respondents wear helmets while bicycling, we could then estimate that the percentage of bicyclists who wear helmets in the target population is in the 85% to 95% range.

Next we will explain four quantitative methods: counting systems, surveys, experimental designs, and quasi-experimental designs. We will also describe a method for converting quantitative data on changes in behavior by the target population into estimates of changes in morbidity and mortality (page 64) and into estimates of financial savings per dollar spent on your program (page 66).

Counting Systems

A counting system is the simplest method of quantifying your program’s results and merely involves keeping written records of all events pertinent to the program (e.g., each contact with a member of the target population or each item distributed during a product-distribution program). Counting systems are especially useful for process evaluation (see page 27). Simply design and use forms on which you can record all pertinent information about each program event (see Appendix B for sample forms).
**Surveys**

**Description**: A survey is a systematic, nonexperimental method of collecting information that can be expressed numerically.

**Conducting a Survey**: Surveys may be conducted by interview (in person or on the telephone) or by having respondents complete, in private, survey instruments that are mailed or otherwise given to them. Which method to use is determined by the objectives of the survey. For example, if you want to survey businesses or public agencies, the telephone may be best because staff from those organizations are readily accessible by telephone. On the other hand, if you want to survey people who received a free smoke detector, personal visits to their homes may be best since many people in poor areas do not have telephones. In this example, personal visits also have the advantage of allowing you to observe whether the smoke detectors are installed and working properly.

Response rates are generally highest for personal interviews, but telephone and mail surveys allow more anonymity. Therefore, respondents are less likely to bias their responses toward what they believe to be socially acceptable or “politically correct.” Telephone surveys are the quickest to conduct and are useful during the development of a program. However, households with telephones are not representative of all households. Indeed, the people we most want to reach with public health programs are often the people most likely not to have telephones.

**Purpose of Surveys**: While a program is under development, surveys have several uses:

- Surveys can identify the aspects of a program that potential users like and dislike before those aspects are put into effect. Such information allows you to modify the aspects that are unlikely to be successful. For example, you might ask people to rate on a scale of 1 to 5 how well they understood the instructions for installing a child’s safety seat. If many people respond that they had difficulty following the instructions, then it is important to clarify the language in the instructions before distributing those instructions on a large scale.

- Surveys can gather baseline data on the knowledge, attitudes, and beliefs of the target population. For example, if your goal is to get more people to wear bicycle helmets, you can survey people in the target population, before the
program begins, to see how much they know about the value of bicycle helmets, what their attitudes are toward wearing bicycle helmets, and what they believe about bicycle helmets as a safety device.

- Surveys can gather baseline data on the rates at which members of the target population engage in behaviors of interest to the program. For example, if your program goal is to reduce the number of people who are injured or die in car crashes because they do not wear seatbelts, you can find out the number of people who already wear seatbelts. Having such information allows you to set a realistic goal for how much you want to increase that number.

After the program is in effect, surveys also have several uses:

- Surveys can measure the level of participants’ satisfaction with the program. You can determine whether people in the target population are receiving information about the program, what the most common sources for the information are, and whether the information they are receiving is correct. With such knowledge, you can eliminate the expenses (e.g., cost of newspaper advertisements) for program aspects that are not working.

- If the program is having unexpected problems with no clear solution, surveys can often locate the source of the problem, which may then lead to the solution. For example, surveys can show you how people who do not participate in your program differ from those who do. Perhaps you will find that the people who do not participate do not have cars and therefore have difficulty getting to your location. Whatever the reason, once you know what it is, you can modify the program to remove whatever problem you discover.

- During impact evaluation, surveys can measure the effect your program is having on the target population’s knowledge, attitudes, beliefs, and behaviors (i.e., how much they have changed since the program began). For example, if your bicycle-helmet program is successful, the target population’s knowledge of and belief in bicycle helmets will have increased, and the attitude toward bicycle helmets will have improved.

- During impact or outcome evaluation, surveys can show how many more people report they are engaging in the behavior you are interested in (e.g., how many more people report that they fasten their seatbelts than did so before the program, or how many more people report that they have installed smoke detectors).
Selecting the Survey Population: Who to survey depends in part on the purpose of the survey. To evaluate the level of consumer satisfaction with the program, the survey population may be selected from among those who use the program. To learn about barriers that prevent people from using the program, select a survey population from among people who are eligible to use the program but do not. Before the program is in effect, select from a representative sample of the entire target population to determine what they like or dislike about the program's proposed procedures, materials, activities, and methods.

In all cases, you will need a complete list of the people or households targeted by the program. Such a list is called a sampling frame. From the sampling frame, you may select the people to be surveyed using statistical techniques such as random sampling, systematic sampling, or stratified sampling. You must use stratified sampling if you want a representative sample of both those who participate in the program and those who do not. A full discussion of sampling techniques is outside the scope of this book. However, several textbooks (e.g., Measurement and Evaluation in Health Education and Health Promotion) can provide you with information on sampling methods.

Survey Instruments: A survey instrument is the tool used to gather the survey data. The most common one is the questionnaire. Other instruments include checklists, interview schedules, and medical examination record forms.

Methods for Administering Survey Instruments: Before designing a survey instrument, you must decide on the method you will use to administer it because the method will dictate certain factors about the instrument (length, complexity, and level of language). For example, instruments designed to be completed by the respondent without an interviewer (i.e., self-administered) must be shorter and easier to follow than those to be administered by a trained interviewer.

There are three methods for administering survey instruments: personal interview, telephone interview, or distribution (e.g., through the mail) to people who complete and return the questionnaire to the program. The advantages and disadvantages of each method are laid out in Table 3.

The best method to use depends on the purpose of the evaluation and the proposed respondents to the survey. Let's say, for example, you want to evaluate a training program. If class participants have a moderate level of education, having them complete and return a questionnaire before they leave the
classroom is clearly the least expensive and most efficient method. On the other hand, if class participants have problems reading, a questionnaire to be completed in class would not be useful, and you may need to conduct personal interviews.

Likewise, if you are evaluating a program to distribute smoke detectors in a well-defined, low-income housing area, you may need to interview. In this case, face-to-face would be better than telephone interviews, since income is an issue and some poor people do not have telephones.

Table 3. Advantages and Disadvantages of Methods of Administering Survey Instruments

<table>
<thead>
<tr>
<th>Method</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal interviews</td>
<td>• Least selection bias: can interview people without telephones—even homeless people.</td>
<td>• Most costly: requires trained interviewers and travel time and costs.</td>
</tr>
<tr>
<td></td>
<td>• Greatest response rate: people are most likely to agree to be surveyed when asked face-to-face.</td>
<td>• Least anonymity: therefore, most likely that respondents will shade their responses toward what they believe is socially acceptable.</td>
</tr>
<tr>
<td></td>
<td>• Visual materials may be used.</td>
<td></td>
</tr>
<tr>
<td>Telephone interviews</td>
<td>• Most rapid method.</td>
<td>• Most selection bias: omits homeless people and people without telephones.</td>
</tr>
<tr>
<td></td>
<td>• Most potential to control the quality of the interview: interviewers remain in one place, so supervisors can oversee their work.</td>
<td>• Less anonymity for respondents than for those completing instruments in private.</td>
</tr>
<tr>
<td></td>
<td>• Easy to select telephone numbers at random.</td>
<td>• As with personal interviews, requires a trained interviewer.</td>
</tr>
<tr>
<td></td>
<td>• Less expensive than personal interviews.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Better response rate than for mailed surveys.</td>
<td></td>
</tr>
<tr>
<td>Instruments to be completed by respondent</td>
<td>• Most anonymity: therefore, least bias toward socially acceptable responses.</td>
<td>• Least control over quality of data.</td>
</tr>
<tr>
<td></td>
<td>• Cost per respondent varies with response rate: the higher the response rate, the lower the cost per respondent.</td>
<td>• Dependent on respondent’s reading level.</td>
</tr>
<tr>
<td></td>
<td>• Less selection bias than with telephone interviews.</td>
<td>• Mailed instruments have lowest response rate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Surveys using mailed instruments take the most time to complete because such instruments require time in the mail and time for respondent to complete.</td>
</tr>
</tbody>
</table>
General Guidelines for Survey Instruments: When designing a survey instrument, keep in mind that it must appeal as much as possible to the people you hope will respond:

➤ Use language (in the instructions and the questions) at the reading level of the least educated people in your target population.

➤ Avoid abbreviations and terms that may not be easily understood by the target population.

➤ Keep the number of items to the minimum needed to fulfill the requirements of the survey. The more items, the less likely people are to respond.

➤ Make the appearance attractive. Appearance involves such factors as type font, font size, text layout, use of headings, and use of white space. The denser the text and the smaller the print, the less likely people are to respond.

Steps Involved in Designing Survey Instruments: Instrument design is a multistep process, and the steps need to be done in order.

1. **Clearly define the population you want to survey.** (See page 15, *A Description of the Target Population.*)

2. **Choose the method you will use to administer the survey.** (See page 46 for more information.)

3. **Develop the survey items meticulously.** Survey items are the questions or statements in the survey. Items that are closed-ended are easiest for respondents to complete and least subject to error. Closed-ended items are multiple-choice, scaled, or questions answerable by yes or no or by true or false (See page 104 for examples.)

4. **Put items in correct order.** Begin with the least sensitive items and gradually build to the most sensitive. Respondents will not answer sensitive questions until they are convinced of the survey’s purpose and have developed a rapport with the “person behind the survey” (the person or group they believe is requesting the information).

Demographic questions such as those about age, education, ethnicity, marital status, and income can be sensitive. For this reason, these questions should be at the end. Not only are they more likely to be answered then, but when a survey has solicited intimate or emotional information, the demographic questions draw respondents’ attention away from the survey’s subject matter and back to everyday activities.
Survey items should progress from general to specific, which eases respondents into a subject and therefore increases the likelihood that they will answer and do so accurately and truthfully. If the survey instrument covers several subjects (e.g., seatbelt use, speeding, and driving while intoxicated), the survey items for each subject should be grouped together, again progressing from general to specific within each group. Put the least sensitive subject first and the most sensitive last.

5. **Give the survey instrument an appropriate title.** This step is particularly important for survey instruments to be completed by the respondent, since the title is the respondent’s first impression of the group collecting the information. To increase the number of responses you get, emphasize the importance of the survey in the title and show any relationship between your injury prevention program and the people you want to respond to the questionnaire. Examples of good titles are “Survey of the Health Needs of Our Community” and “Survey of Your Level of Satisfaction with Our Services.”

6. **Assess the reliability of the survey instrument.**
   This step involves measuring the degree to which the results obtained by the survey instrument can be reproduced. Assess reliability by one of three methods:
   1) determine the stability of the responses given by a respondent, 2) determine the equivalence of responses by one respondent to two different forms of the questionnaire, or 3) determine the internal consistency of the instrument, which is the degree to which all questions in the questionnaire are measuring the same thing.

Following are details on the three methods:

- **Stability** is measured by administering the survey instrument to the same person at two different times (test-retest) and comparing the responses given each time. Do not expect all traits (e.g., attitudes and beliefs) to be stable. For example, enthusiasm for wearing a bicycle helmet may wax and wane throughout a day or over weeks or seasons. Thus, measuring stability may not always be an appropriate way to assess the reliability of a survey instrument.

- **Equivalence** is measured by administering two different forms of the survey instrument (alternate forms) to the same person or set of people and comparing the responses to each. This method of measuring reliability is not often used because of the cost and difficulty of constructing one good survey instrument, let alone two equally strong forms of the instrument.
Internal consistency is measured by comparing the same person's responses to various items in the survey instrument. If the answer to each item contributes to the respondent's overall score, then the answers to each question should correlate with the overall score. There are several formulas for calculating the internal consistency of a survey instrument. A discussion of those formulas is outside the scope of this book. See Anastasi's Psychological Testing for more information.

7. Assess the validity of the survey instrument. Validity is the degree to which the instrument measures what it purports to measure. For example, how well data on seatbelt use gathered from questionnaires completed by respondents agree with actual seatbelt use reflects the questionnaire's degree of validity. Clearly, if data produced by responses to a questionnaire—in this example, the extent of self-reported seatbelt use—cannot be reproduced using a more direct method of gathering data (e.g., counting the number of people who are actually wearing seatbelts), then the questionnaire is not valid. There are three main types of validity: face validity, content validity, and construct validity.

Face validity is the degree to which the instrument appears to measure what it is intended to measure. Face validity is important for good rapport between interviewer (questioner) and respondent. If the interviewer informs the respondent that the survey is about safety habits, but the respondent believes it is about something else, the respondent may distrust the evaluator's intent and may refuse to answer or may not answer truthfully. Assess face validity through pilot tests (e.g., focus groups or personal interviews with a subgroup of the target population) and by having subject-matter experts review the questionnaire.

Content validity is the degree to which all relevant aspects of the topic being addressed are covered by the survey instrument. Assess content validity by having subject-matter experts review the content of the instrument.

Construct validity is the degree to which the survey instrument accurately measures the set of related traits that it is intended to measure. The easiest way to establish construct validity is to compare the results obtained using your instrument with those obtained using a related one for which validity has already been demonstrated.
If no related survey instruments exist, establish construct validity through hypothesis testing. For example, if you developed a survey instrument to determine how often people exceed the speed limit, you could hypothesize that people who most frequently exceed the speed limit are likely to have more traffic citations than people who do not often exceed the speed limit. You could then gather traffic citation data and determine whether the people identified by the survey instrument as the most frequent speeders had more citations, as hypothesized.

8. **Pilot test the survey instrument.** Before an instrument can be used on the entire target population, you must pilot test it on a group of people similar to the target population or, preferably, on a small group within the target population. The purpose is to determine whether the survey instrument is effective for use with the people who are potential respondents. The evaluator’s job is to find out if any survey items are confusing, ambiguous, or phrased in language unfamiliar to the intended audience. The evaluator will also determine if certain words differ in meaning from one ethnic group to the next and if certain questions are insensitive to the feelings of many people in the target population.

   **Tip:** If the survey instrument is not significantly modified as a result of the pilot test (a rare event), the information gathered from the people who participated in the pilot test can be added to the information obtained from the people in the full survey.

9. **Modify.** At each step of the design, modify survey items and the survey instrument itself on the basis of information gathered at that step, particularly information gathered during the pilot test.

Many good references are available on the design of survey instruments (see “Bibliography,” page 117).

**Experimental and Quasi-Experimental Designs**

**Introduction:** In this section, we discuss research designs that you can use during several stages of evaluation:

- During **formative evaluation** to pilot test particular components of a program. For example, you can determine which of several advertisements is most effective in getting
people to participate in your program or which of several media messages is best at making people aware of your program. By knowing which advertisement or message is most effective, you can conserve resources by using them only for the items you know in advance are most likely to work.

- During **impact evaluation** to measure how well a program is influencing knowledge, attitudes, and beliefs. For example, you can measure how much participants’ awareness of the hazards of driving without a seatbelt has increased from what it was before a program to increase seatbelt use began.

- During **outcome evaluation** to measure how well a program met its overall goal. For example, you can measure how many more people are wearing seatbelts than before the program began and, as a consequence, how many lives have been saved and injuries prevented.

How you operate your program will be influenced by how you plan to evaluate it. If you use an experimental or quasi-experimental design, impact and outcome evaluation will be a breeze because, in effect, you will be operating and evaluating the program at the same time.

**Experimental Designs:** The best designs for impact and outcome evaluation are experimental designs. Evaluation with an experimental design produces the strongest evidence that a program contributed to a change in the knowledge, attitudes, beliefs, behaviors, or injury rates of the target population.

The key factor in experimental design is randomization: evaluation participants are randomly assigned to one of two or more groups. One or more groups will receive an injury intervention, and the other group(s) will receive either no intervention or a placebo intervention. The effects of the program are measured by comparing the changes in the various groups’ knowledge, attitudes, beliefs, behaviors, or injury rates.

Randomization ensures that the various groups are as similar as possible, thus allowing evaluators of the program’s impact and outcome to eliminate factors outside the program as reasons for changes in program participants’ knowledge, attitudes, beliefs, behavior, or injury rates. See “Factors To Be Eliminated as Contributors to Program Results” (page 54) for a full discussion.
Difficulties with Experimental Designs: Although experimental designs are ideal for program evaluation, they are often difficult—sometimes impossible—to set up. The difficulty may be due to logistical problems, budgetary limitations, or political circumstances.

To demonstrate the difficulties, let us consider the example of introducing a curriculum on bicycle safety for third graders at a certain school. Selecting children at random to participate in the program would cause many problems, including the following:

- **Logistical Problems:** The program could not be administered to children in their regular classroom, since (with randomization) not all children in a classroom would be assigned to participate.
- **Budgetary Problems:** Costs would increase if an extra teacher were required to administer the program while other teachers maintained their regular schedules.
- **Political Problems:** Parents might complain if their children were not selected for the “special program.” And if, as a result of parent complaints, all children had to participate in the “special program,” costs would increase and the value of randomization would be lost.

In addition, evaluation of the program’s effectiveness would be compromised if children in the safety class shared information with the children who were not in the safety class.

Another difficulty with experimental designs is that participants must give their informed consent. People who willingly agree to participate in a program in which they may not receive the injury intervention are probably different from people in the general population. Therefore, program effects shown through evaluation involving randomized studies may not be generalizable (i.e., they may not reflect the probable effects for all people).

For example, let us suppose you want to test how effective a bicycle rodeo is at getting bicyclists to wear helmets. You ask a random sample of 500 children who do not own bicycle helmets to attend a bicycle rodeo you have organized for the following Saturday morning. Let’s say, 300 agree to go. The 200 who do not agree are probably different from the 300 who do agree: perhaps the 200 who do not agree have other activities on Saturday morning (if they are poor, they may work; if they are rich, they may go horseback riding), or they may be rebellious and refuse to listen to adults, or they may believe bicycle helmets and bicycle rodeos are not “cool,” or
they may have some other reason. Whatever the reason, it makes those who refuse to participate in the study different from those who agree. And because of that difference, the results of your study will not be generalizable to the whole population of children who do not wear bicycle helmets.

**Quasi-Experimental Designs:** Because of the difficulties with experimental designs, programs sometimes use quasi-experimental designs. Such designs do not require that participants be randomly assigned to one or another group. Instead, the evaluator selects a whole group (e.g., a third-grade class in one school) to receive the injury intervention and another group (e.g., the third-grade class in a different school) as the comparison or control group.

As an alternative, if a suitable comparison group cannot be found, the evaluator could take multiple measurements of the intervention group before providing the intervention.

When using quasi-experimental designs with comparison groups, evaluators must take extra care to ensure that the intervention group is similar to the comparison group, and they must be able to describe the ways in which the groups are not similar.

**Factors To Be Eliminated as Contributors to Program Results**

Events aside from the program can produce changes in the knowledge, attitudes, beliefs, and behaviors of your program's target population, thus making your program seem more successful than it actually was. Therefore, anyone evaluating an injury prevention program's success must guard against assuming that all change was produced by the program. Experimental designs minimize (i.e., decrease to the least possible amount) the effects of outside influences on program results; quasi-experimental designs reduce those effects.

The two main factors evaluators must guard against are history and maturation.

**History:** What may seem like an effect produced by your program, an apparent impact, may often be more accurately attributed to history if the people who participate in your program are different from those who do not. For example, suppose you measured bicycle-helmet use among students at a school that had just participated in your injury-prevention program and also at a school that did not participate. Let us
say that more students wore helmets at the school with your program. You have not demonstrated that your program was the reason for difference in helmet use unless you can show that the students at the school with the program did not wear helmets any more frequently before the bicycle-helmet program began than did the students at the school without the program. In other words, you must show that the students at the school with the program did not have a history of wearing helmets more often than did the students at the school without the program.

**Maturation:** Sometimes events outside your program cause program participants to change their knowledge, attitudes, beliefs, or behavior while the program is under way. Such a change would be due to maturation, not to the program itself. For example, suppose you measured occupant-restraint use by the 4- and 5-year-olds who attended a year-long Saturday safety seminar, both when they began the seminar and when they completed it. Let us say that the children used their seatbelts more frequently after attending the program. You have not demonstrated that the program was effective unless you can also show that seatbelt use by a similar group of 4- and 5-year-olds did not increase just as much simply as a result of other events (e.g., the children's increased manual dexterity due to development, exposure to a children's television series about using seatbelts which ran at the same time as the seminar, or a new seatbelt law that went into effect during the course of the seminar).

**Schematics for Experimental and Quasi-Experimental Designs**

**Introduction:** The steps involved in the various experimental and quasi-experimental designs are presented verbally and then in schematic form. In each schematic, we use the same symbols:

- **R** = Randomization
- **O₁** = The first, or baseline, observation (e.g., results of a survey to measure the knowledge, attitudes, beliefs, behaviors, or injury rates of the target population)
- **O₂** = The second observation (O₃ = the third, etc.)
- **X** = Intervention
- **P** = Placebo (usually in parenthesis to indicate that a placebo may or may not be used)
The schematic for each intervention and comparison group is shown on a separate line. For example,

\[ O_1 \times O_2 \]

means that there is only one group (one line), that the group is observed for a baseline measurement \((O_1)\), provided with the intervention \((X)\), and observed again \((O_2)\) to measure any changes.

Another example:

\[
\begin{array}{c}
RO_1 \\
RO_1 (P)
\end{array}
\times \ 

O_2
\]

means that people are randomly assigned \([R]\) to one of two groups (two lines). Both are observed for baseline measurements \([O_1]\). One is provided with the injury intervention \([X]\); the other may or may not get a placebo intervention \([P]\). Both groups are observed again \([O_2]\) for any change.

**Definition of Placebo:** A placebo is a service, activity, or program material (e.g., a brochure) that is similar to the intervention service, activity, or material but without the characteristic of the intervention that is being evaluated. For example, to test the effectiveness of the content of a brochure about the value of installing smoke detectors, the intervention group will be given the brochure to read and discuss with the evaluator and the comparison group might be given a brochure on bicycle helmets to read and discuss with the evaluator.

To ensure that the placebo conditions are comparable with those of the intervention, evaluators should give the same amount of time and attention to the comparison group as they give to the intervention group.

**Examples of Experimental Designs**

**Pretest-Posttest-Control Group Design:** Scientists often call this design a true experiment or a clinical trial. These are the steps involved:

1. Recruit people for the evaluation.

2. Randomly assign each person \([R]\) to one of two groups: one group will receive the injury intervention \([X]\) and the other will not \([P]\). To select at random, use a computer-generated list of random numbers, a table of random numbers (found at the back of most books on basic statistics), or the toss of a coin.
3. Observe (measure) each group’s knowledge, attitudes, beliefs, behaviors, injury rate, or any other characteristics of interest \([O_1]\). You could use a survey (page 44), for example, to make this measurement.

4. Provide the program service (the intervention) \([X]\) to one group and no service or a placebo service \([P]\) to the other group.

5. Again, observe (measure) each group’s knowledge, attitudes, beliefs, behaviors, injury rates, or whatever other characteristic you measured before providing the program service \([O_2]\).

The schematic for the pretest-posttest-control group design is as follows:

\[
\begin{array}{ccc}
R_0 & X & O_2 \\
R_0 & (P) & O_2 \\
\end{array}
\]

The effect of the program is the difference between

the change from pretest \([O_1]\) to posttest \([O_2]\) for the intervention \([X]\) group

and

the change from pretest \([O_1]\) to posttest \([O_2]\) for the comparison \([P]\) group.

To clarify, let’s take a hypothetical example of a study you might conduct during formative evaluation. Suppose you want to pilot test a proposed brochure designed to increase people’s awareness that working smoke detectors save lives.

1. Select a group of people at random from the target population. This group is your study [evaluation] population.

2. Randomly assign each person in the study population either to the intervention group or to the comparison group.

3. Test each group to see what the members know about smoke detectors.

4. Decide whether to give a placebo to the comparison group.

5. Show the proposed brochure on smoke detectors only to intervention group members and allow them time to study it. If a placebo is used, show a brochure, perhaps on bicycle helmets, to the comparison group members and allow them to study it. Give the same amount of time and attention to each group.
6. To see if their awareness has increased, test each group again to measure how much they now know about smoke detectors.

Unless the proposed brochure is a dud, the intervention group’s awareness of the benefits of smoke detectors will increase. However, the comparison group’s test scores might also increase because of the placebo effect. For example, the comparison group might develop a rapport with the evaluators and want to please them, thus causing group members to put more thought into their responses during the second observation than they did during the first. In addition, just completing the survey at the first observation may cause them to think or learn more about smoke detectors and give better answers during the second observation.

The effect of the brochure is the difference between the change (usually increase) in the intervention group’s awareness and the change (if any) in the comparison group’s awareness.

**Variations on the Pretest-Posttest-Control Group Design:**

There are several variations on the pretest-posttest-control group design.

The **pretest-posttest-control group-followup design** is used to determine whether the effect of the program is maintained over time (e.g., whether people continue to wear seatbelts months or years after a program to increase seatbelt use is over). This design involves repeating the posttest at scheduled intervals. The schematic for this design is as follows:

$$\begin{align*}
\text{RO}_1 &\quad X &\quad O_2 &\quad O_3 &\quad O_4 \\
\text{RO}_1 &\quad (P) &\quad O_2 &\quad O_3 &\quad O_4
\end{align*}$$

For example, suppose you want to test the effectiveness of counseling parents about infant car seats when parents bring their infants to a pediatrician for well-child care. First, select a target population for the evaluation (e.g., all the parents who seek well-child care during a given week). Then, observe (measure) the target population’s use of safety seats \([O_1]\). Next, randomly assign some parents to receive counseling about car safety seats \([X]\) and the remaining parents to receive a placebo (e.g., counseling on crib safety) \([P]\). At regular intervals after the counseling sessions, observe each group’s use of infant car seats to see how well the effect of the program is maintained over time (let’s say, 3 months \([O_2]\), 6 months \([O_3]\), and 9 months \([O_4]\)).
The **cross-over design** is used when everyone eligible to participate in a program must receive the intervention. Again, participants are randomly divided into two groups. Both groups are tested, but only one receives the intervention. At regular intervals, both groups are observed to see what changes (if any) have occurred in each group. After several observations, the second group receives the intervention, and both groups continue to be observed at regular intervals. Below is an example schematic for this design:

```
RO_1 X 0_2 0_3 0_4 0_5 0_6 0_7
RO_1 0_2 0_3 0_4 X 0_5 0_6 0_7
```

A program is effective if the effect being measured (e.g., increase in knowledge) changes for Group 1 after the first observation and for Group 2 after the fourth observation.

For example, suppose you wanted to evaluate whether children who took a fire-safety class presented by the fire department had better fire-safety skills than children who did not take the class. To conduct such an evaluation you could, for example, test the fire-safety skills of all the children in the third grade of the local elementary school, then randomly select half of the children (Group 1) to attend the fire-safety class on September 15. You would test the fire-safety skills of all the children again on, say, October 15, November 15, and December 15. In January the other half of the class (Group 2) would attend the fire-safety class. You would again test the fire-safety skills of all the children on January 15, February 15, and March 15. If the class were to increase the children’s fire-safety skills, the results of evaluation might look something like this.
The **Solomon four-group design** is useful when the act of measuring people's pre-program knowledge, attitudes, beliefs, or behaviors (getting baseline measurements) may affect the program's goals in one or both of the following ways:

- People may change their behavior as a result of being questioned about it. For example, simply asking people how often they fasten their seatbelts may remind them to do so, thereby increasing the use of seatbelts even before any program to increase seatbelt use begins.

- People's interest in a subject may increase simply because they are questioned about it. Such an increase would affect the program's outcome. For example, simply being questioned about smoke detectors may prime program participants to be more receptive to receiving information about them during a program to prevent house fires.

To compensate for those possibilities, this design expands the pretest-posttest-control group design from two groups (one intervention and one control) to four groups (two intervention and two control). To separate the effect of getting a baseline measurement from the effect produced by the program, the evaluator takes baseline measurements of only one intervention and one control group. The four groups are distinguished from one another as shown below:

**Group 1:** Provides baseline measurement and receives the intervention.

\[
[RO_1 \times O_2]
\]

**Group 2:** Provides baseline measurement and receives nothing or a placebo.

\[
[RO_1 \ (P) \ O_2]
\]

**Group 3:** Provides no baseline measurement and receives the intervention.

\[
[R \times O_2]
\]

**Group 4:** Provides no baseline measurement and receives nothing or a placebo.

\[
[R \ (P) \ O_2]
\]
Since the only difference between Groups 2 and 4 is that Group 2 provided a baseline measurement and Group 4 did not, the evaluator can compare the posttest results ($O_2$) of Group 2 with those of Group 4 to determine the effect of taking a baseline observation ($O_1$).

Similarly, since the only difference between Group 1 and Group 3 is whether they provided a baseline measurement, evaluators can compare their posttest results ($O_2$) to determine whether providing a baseline measurement primed program participants to be more interested in the program's information, thus increasing the program's effectiveness.

The schematic for the Solomon four-group design is as follows:

\[
\begin{array}{ccc}
\text{RO}_1 & \times & \text{O}_2 \\
\text{RO}_1 (P) & \times & \text{O}_2 \\
\text{R} & \times & \text{O}_2 \\
\text{R} (P) & \times & \text{O}_2 \\
\end{array}
\]

Unfortunately, however, since this variation increases the number of people required for study, it also increases the study's cost, time, and complexity. As a result, people who are willing to participate in an evaluation with this design may be even less representative of the general population than people who would participate in an evaluation with a less complex, randomized design.

**EXAMPLES OF QUASI-EXPERIMENTAL DESIGNS**

Here are some examples of quasi-experimental designs. These are useful when a randomized (experimental) design is not possible:

**Nonequivalent Control Group Design:** Sometimes it is difficult to introduce an injury-prevention program to some people and not to others (e.g., it is impossible to be sure that a radio campaign will reach only certain people in a town and not others). In such a case, the nonequivalent control group design is useful. It is similar to the pretest-posttest-control group design except that individual participants are not randomly assigned to separate groups. Instead an entire
group is selected to receive the program service and another
group not to receive it. For example, a radio campaign could be
run in one town but not in a similar town some distance away.

For this example, it is important to select two groups that are
well separated geographically in order to reduce the like-
lihood that the effect of the injury intervention will spill over to
the people who are not to receive the intervention. As the
name of the design indicates, without randomization the
groups will never be equivalent; however, they should be as
similar as possible with respect to factors that could affect the
impact of the program.

As with the pretest-posttest-control group design, pretest each
group \([O_1]\); the result of the pretest shows the degree to which
the two groups are not equivalent. Next, provide the interven-
tion to one group \([X]\) and a placebo or nothing \([P]\) to the
other. Then posttest each group \([O_2]\).

**Note:** The evaluator must look at history, in particular, as
a possible way in which the two groups are not equivalent.
See page 54 for a discussion of history as an explanation for
change.

The schematic for this design is as follows:

\[
\begin{array}{c}
O_1 \\
X \\
O_2 \\
O_1 (P) \\
O_2
\end{array}
\]

**Time Series Design:** Sometimes it is impossible to have a
control group that is even marginally similar to the inter-
vention group (e.g., when a state program wants to evaluate
the effect of a new state law). Although other states may be
willing to act as comparison groups, finding a willing state
that is similar with respect to legislation, population
demographics, and geography is not easy. Furthermore, it
is difficult to control the collection of evaluation data by a
voluntary collaborator and even more difficult to provide
funding to the other state.

The time series design attempts to control for the effects of
maturation when a comparison group cannot be found.
Maturation is the effect that events outside the program have
on program participants while the program is under way. See
page 55 for a full discussion on maturation.

To minimize the effect of maturation on program results, take
multiple measurements (e.g., \(O_1\) through \(O_4\)) of program
participants’ knowledge, attitudes, beliefs, or behaviors
before an injury-prevention program begins and enter those measurements into a computer. Then, using special software, you can predict the future trend of those measurements were the program not to go into effect. After the program is over, again take multiple measurements (e.g., $O_5$ through $O_8$) of program participants' knowledge, attitudes, beliefs, or behaviors to determine how much the actual post-program trend differs from the trend predicted by the computer.

If the actual trend in participants' knowledge, attitudes, beliefs, or behaviors during the course of the program is statistically different from the computer-predicted trend, then you can conclude that the program had an effect. The major disadvantage to this design is that it does not completely rule out the effect of outside events that occur while the program is under way. For example, this design would not separate the effect of a new law requiring bicyclists to wear helmets from the effect of increased marketing by helmet manufacturers. Although this design cannot eliminate the effects of outside events, it does limit them to those that are introduced simultaneously with the injury-prevention program.

The schematic for this design is as follows:

\[ O_1 \ O_2 \ O_3 \ O_4 \ X \ O_5 \ O_6 \ O_7 \ O_8 \]

**Multiple Time Series Design:** This design combines the advantages of the nonequivalent control group design (page 61) with those of the time series design (page 62): the effects of history on program results are reduced by taking multiple baseline measurements, and the effects of maturation are reduced by the combined use of 1) a comparison group and 2) predicted trends in baseline measurements. As with the nonequivalent control-group design, a disadvantage of this design is that the groups are not strictly equivalent and may be exposed to different events that could affect results. The schematic for this design is as follows:

\[ O_1 \ O_2 \ O_3 \ O_4 \ X \ O_5 \ O_6 \ O_7 \ O_8 \]

\[ O_1 \ O_2 \ O_3 \ O_4 \ O_5 \ O_6 \ O_7 \ O_8 \]
CONVERTING DATA ON BEHAVIOR CHANGE INTO DATA ON MORBIDITY AND MORTALITY

You can convert data on changes in the behavior your program was designed to modify into estimates of changes in morbidity and mortality if you know the effectiveness of the behavior in reducing morbidity and mortality.

As an example, let us suppose your program was designed to increase seatbelt use. Let us also suppose that you counted the number of people wearing seatbelts at a random selection of locations around your city both before and after the program. You found that 20% more people in large cars and 30% more people in small cars are wearing seatbelts after the program than before.

To convert that 20% increase in seatbelt use (for people in large cars) to a decrease in deaths and injuries, you will need two sets of information:

- The difference between a traveler’s likelihood of (risk for) injury or death while wearing a seatbelt and while not wearing a seatbelt.
- The number of deaths and number of injuries sustained by people involved in car crashes before the program began.

In our example, both sets of information are available.

- Boehly and Lombardo (cited in Risk Factor Update Project: Final Report, p. IV-79) showed the relative risk for death or moderate-to-severe injury for people traveling under four conditions (see Table 4).

- Statistics on deaths and injuries due to motor vehicle crashes are available, by state and by county, from the National Highway Traffic Safety Administration’s Fatality Analysis Reporting System.

<table>
<thead>
<tr>
<th>Car Size</th>
<th>Seatbelt Buckled</th>
<th>Seatbelt Unbuckled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large &gt;3,000 lbs</td>
<td>1.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Small ≤3,000 lbs</td>
<td>2.1</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Table 4. Relative Risk for Death or Moderate-to-Severe Injury in a Car Crash

---

Risk Factor Update Project: Final Report, p. IV-79
Let’s say, for our example, that 125 people were severely injured or died in large cars and 500 in small cars during the year before the program began. Now the calculation:

1. Subtract the risk ratio for people wearing seatbelts in large cars (1.0) from the risk ratio for people not wearing seatbelts in large cars (2.3):
   \[ 2.3 - 1.0 = 1.3 \]
   The result (1.3) is the amount of risk ratio that is attributable to not wearing seatbelts.

2. Divide this difference (1.3) by the total risk ratio for people not wearing seatbelts (2.3):
   \[ 1.3 \div 2.3 = 0.565 \]

3. Express the result as a percentage:
   \[ 0.565 \times 100 = 56.5\% \]
   This calculation tells us that, when riding in a large car, people reduce their risk for injury or death by 56.5% if they buckle their seatbelts.

4. Multiply the percentage of decreased risk (56.5%) by the increase in the percentage of people wearing seatbelts in large cars (in our example, 20%):
   \[ 56.6\% \times 20\% = 0.566 \times 0.20 = 0.1132 = 11.3\% \]
   This calculation shows that injuries and deaths are reduced by 11.3% among people in large cars when 20% more of them buckle their seatbelts.

5. Multiply the percentage of decreased risk in large cars (11.3%) by the number of injuries and deaths in large cars (in our example, 125):
   \[ 11.3\% \times 125 = 0.113 \times 125 = 14.125 \]
   This calculation shows that 14 fewer people will die or be seriously injured as a result of a 20% increase in seatbelt use by people traveling in large cars.

6. Repeat the same series of calculations for people traveling in small cars.

7. Add the numbers for large cars and for small cars to determine the total number of lives saved.
Converting Data on Behavior Change into Data on Cost Savings

To convert data on behavior change (e.g., increased seatbelt use) into estimates of financial savings per dollar spent on your program, you can do the same set of calculations as those used to convert data on behavior change into estimates of changes in morbidity and mortality (page 64). Then multiply the number of deaths and injuries prevented by the cost associated with deaths and injuries, and divide by the total cost of the program. For example, if your program to increase seatbelt use produces an estimate that it saved 14 lives during the previous year, multiply 14 by the average cost-per-person associated with a death due to injuries sustained in a car crash, then divide the result by the total cost of the program.

Summary of Quantitative Methods

Quantitative methods of evaluation allow you to express the results of your activities or program in numbers. Such results can be used to draw conclusions about the effectiveness of the program’s materials, plans, activities, and target population. Table 5 lists the quantitative methods we have discussed in this chapter and the purpose of each one.
<table>
<thead>
<tr>
<th>Method</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Counting systems               | ➤ To record the number of contacts with program participants and with people outside the program.  
                                  | ➤ To record the number of items a program distributes or receives.       |
| Surveys                        | ➤ To measure people’s knowledge, attitudes, beliefs, or behaviors.       |
| Experimental studies           | ➤ To minimize the effect of events outside the program on the assessment of a program’s effectiveness. |
| Quasi-experimental studies     | ➤ To reduce the effect of events outside the program on the assessment of a program’s effectiveness when experimental studies are impractical. |
| Converting data on behavior change into data on morbidity and mortality    | ➤ To estimate the number of deaths or injuries prevented as a result of program participants changing their behavior. |
| Converting data on behavior change into data on cost savings              | ➤ To estimate the financial savings per dollar spent on your program.    |
REFERENCES


APPENDIX A

EXAMPLES OF QUESTIONS TO ASK, EVENTS TO OBSERVE, AND WHO OR WHAT TO COUNT

How These Examples Are Organized — 73
Questions for Personal Interviews — 76
Questions for Focus Groups — 81
Events to Observe During Participant-Observation — 89
Who or What to Count During Process Evaluation — 98
Closed-Ended Questions and Statements — 104

Table

6. Page Number for Examples of Questions to Ask, Events to Observe, and Who or What to Count During Evaluation of Programs to Prevent Unintentional Injury — 75
EXAMPLES OF QUESTIONS TO ASK, EVENTS TO OBSERVE, AND WHO OR WHAT TO COUNT

HOW THESE EXAMPLES ARE ORGANIZED

The examples are divided into four categories: “Questions for Personal Interviews,” page 76, “Questions for Focus Groups,” page 81, “Events to Observe During Participant-Observation,” page 89, and “Who or What to Count During Process Evaluation,” page 98.

Each of these categories is further divided into items suitable for each of the 12 types of programs to prevent unintentional injury that CDC currently funds (see below). The programs range from those that are large-scale and reach many people to those that are small-scale and reach individual people.

1. **Programs to Build Infrastructure** (e.g., a state injury-control program):
   - Getting Budgetary Support
   - Institutionalizing a Program (i.e., getting an injury-prevention program included on the state’s health agenda)

2. **Programs to Build Coalitions** (e.g., advisory committees of government, community, or business organizations)

3. **Programs to Develop or Improve Injury-Prevention Legislation** (e.g., programs to support bicycle-helmet legislation)

4. **Public Information or Advertising Campaigns**
   (e.g., programs to increase awareness of the necessity for compliance with seatbelt laws)
5 Programs for Environmental Change (e.g., to increase the number of homes with smoke detectors or to re-engineer roadways)

6 Programs to Develop or Modify Products (e.g., programs to make bicycle helmets lighter and cooler)

7 Programs to Establish Data Bases or Record Systems (e.g., programs to set up a uniform data gathering system in all local hospitals)

8 Formal Education Programs (e.g., safety classes in elementary or high schools)

9 Training and Development Programs for Service Personnel (e.g., programs to train law-enforcement officials, emergency medical services [EMS] personnel, hospital medical staff, injury-control program personnel, and beverage servers)

10 Programs to Distribute Safety Products (e.g., programs to lend child safety seats to low-income families)

11 Programs to Enforce Safety Laws (e.g., programs to enforce DWI laws):
   ➤ Checkpoints for DWI (driving while intoxicated)
   ➤ Assessment and Treatment for DWI
   ➤ Periodic Increases in Enforcing Selected Laws (e.g., increases in speed-limit enforcement or checkpoints to inspect seatbelt use)

12 Programs to Change Individual Behavior (e.g., programs to encourage children to wear bicycle helmets):
   ➤ Counseling and Therapy
   ➤ Incentive Programs (e.g., giving prizes to children who wear bicycle helmets)
   ➤ Skills Training (e.g., teaching children to stop, drop, and roll if their clothes catch fire)
Table 6, which is essentially a table of contents, will help readers find suitable examples quickly. To use this table, first look through the list of CDC-funded programs for the program that most closely fits yours. Then refer to the program in Table 6 to find the page number with examples in whichever category is appropriate for your evaluation: personal-interview questions, focus-group questions, events to observe during participant-observation, or what to count during process evaluation.

In the examples, we occasionally refer to injury-prevention products (e.g., bicycle helmets, car occupant restraints, and smoke detectors). However, the questions can be adapted for use in evaluations of programs involving any type of injury-prevention device.

<table>
<thead>
<tr>
<th>Program</th>
<th>Personal Interview: Questions (page no.)</th>
<th>Focus Group: Questions (page no.)</th>
<th>Participant-Observation: Events to Observe (page no.)</th>
<th>Counting: Who or What to Count (page no.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs to Build Infrastructure</td>
<td>p. 76</td>
<td>p. 81</td>
<td>p. 89</td>
<td>p. 98</td>
</tr>
<tr>
<td>Programs to Build Coalitions</td>
<td>p. 76</td>
<td>p. 82</td>
<td>p. 90</td>
<td>p. 98</td>
</tr>
<tr>
<td>Programs to Develop or Improve Injury-Prevention Legislation</td>
<td>p. 76</td>
<td>p. 82</td>
<td>p. 91</td>
<td>p. 99</td>
</tr>
<tr>
<td>Public Information or Advertising Campaigns</td>
<td>p. 77</td>
<td>p. 83</td>
<td>p. 92</td>
<td>p. 99</td>
</tr>
<tr>
<td>Programs for Environmental Change</td>
<td>p. 77</td>
<td>p. 83</td>
<td>p. 92</td>
<td>p. 100</td>
</tr>
<tr>
<td>Programs to Develop or Modify Products</td>
<td>p. 77</td>
<td>p. 83</td>
<td>p. 92</td>
<td>p. 100</td>
</tr>
<tr>
<td>Programs to Establish Data Bases or Record Systems</td>
<td>p. 77</td>
<td>p. 84</td>
<td>p. 93</td>
<td>p. 101</td>
</tr>
<tr>
<td>Formal Education Programs</td>
<td>p. 78</td>
<td>p. 84</td>
<td>p. 93</td>
<td>p. 101</td>
</tr>
<tr>
<td>Training and Development Programs for Service Personnel</td>
<td>p. 78</td>
<td>p. 84</td>
<td>p. 94</td>
<td>p. 101</td>
</tr>
<tr>
<td>Programs to Distribute Safety Products</td>
<td>p. 79</td>
<td>p. 86</td>
<td>p. 94</td>
<td>p. 102</td>
</tr>
<tr>
<td>Programs to Enforce Safety Laws</td>
<td>p. 79</td>
<td>p. 86</td>
<td>p. 95</td>
<td>p. 102</td>
</tr>
<tr>
<td>Programs to Change Individual Behavior</td>
<td>p. 80</td>
<td>p. 88</td>
<td>p. 96</td>
<td>p. 103</td>
</tr>
</tbody>
</table>
Questions for Personal Interviews

The following are examples of questions that an evaluator might use during personal interviews. The most appropriate people to answer the suggested questions are listed in italics under the type of program.

1 Programs to Build Infrastructure: Getting Budgetary Support
   Interviewees: State government personnel in budget or injury areas
   ➤ Who were the main people involved in obtaining budgetary support for injury control?
   ➤ How did these people first come together?
   ➤ What steps did they take to start getting a budget?
   ➤ What were some of the competing budgetary demands that had to be addressed?

2 Programs to Build Infrastructure: Institutionalizing a Program
   Interviewees: Health department staff, injury-prevention staff
   ➤ How was it decided that a bicycle-helmet program should become a part of the Health Department?
   ➤ How was the idea initially received by your colleagues? Other staff members? Other department personnel?
   ➤ What were the barriers to creating a standing program?
   ➤ What concerned people about establishing such a program?

3 Programs to Build Coalitions
   Interviewees: Coalition members
   ➤ Tell me about the earliest days of the coalition. How did it get started?
   ➤ What would you change about the start-up of the coalition? (If appropriate) Have those changes occurred now?
   ➤ What do you remember about your first contact with the coalition?
   ➤ Were people supportive of the idea from the beginning? How did their support change? Probe: Why?

4 Programs to Develop or Improve Injury-Prevention Legislation
   Interviewees: Members of the general public
   ➤ Tell me about the state's new bicycle-helmet or seatbelt law.
   ➤ Do you think it is a good idea? Probe: Why? Why not?
   ➤ What do people you know say about the law?
Public Information or Advertising Campaigns
Interviewees: Members of the general public
➤ Have you noticed the new television advertisements to get people to use [bicycle helmets, smoke detectors, occupant restraints]?
➤ What do you think of the new advertisements?
➤ What have you heard about the advertisements from other people?

Programs for Environmental Change
Interviewees: Consumers, members of the general public
➤ Is this a good location for the smoke-detector sales display? Probe: Why? Why not?
➤ How do these bicycle helmets feel compared with others you have worn? Probe: Why?
➤ Is this seatbelt any different from others you have used? Probe: How is it different? Is it preferable?

Programs to Develop or Modify Products
Interviewees: Consumers of the products
➤ Which of the following bicycle helmets do you like best? Probe: Why? Why not?
➤ What do you think is unattractive about bicycle helmets? Probe: Why?
➤ What makes smoke detectors difficult to install?

Programs to Establish Data Bases or Record Systems
Interviewees: Potential users
➤ If you had an ideal record system, what type of information would you want from it?
➤ What information should this data base contain (at a minimum)?
➤ What other record systems would you want this ideal record system to link with?
➤ What information should be collected so the new system can be linked with other record systems?
➤ Have you tried to use the records or forms developed for the new system? Probe: What was your experience? What can be improved?
➤ Have you tried to access the data base? Probe: What was your experience? Why did you need the data? What can be improved?
Formal Education Programs
Interviewees: Students
▶ If I were in your health classes on bicycle safety, what would I see you doing?
▶ What did you like best about the bicycle-safety program that the police came and did at your school? Probe: Why?
▶ Was the Fire Department’s fire-safety class fun? Probe: Why? Why not?

Interviewees: Teachers
▶ How well did the module on using seatbelts work?
▶ What difficulties did you encounter?
▶ Was anything missing from the curriculum that you expected to cover? Probe: If so, what?

Training and Development Programs for Service Personnel
Interviewees: Law-enforcement officials
▶ Have you attempted to enforce the new legislation? Probe: What was your experience? What problems did you have?
▶ What additional support do you need to enforce the legislation effectively?
▶ What information do you need in order to educate drivers about the importance of using seatbelts?
▶ What do you think of the training materials?

Interviewees: People stopped for safety violations
▶ What was your experience when you were stopped by the police for failure to wear your seatbelt? Probe: Did the officer talk to you about safety?

Interviewees: Emergency medical services (EMS) personnel
▶ Describe a typical run to pick up a burn victim. Probe: Did you take any actions to prevent an inappropriate incident from re-occurring?
▶ If you were to talk to children about the importance of bicycle helmets, what would you tell them?
▶ What information might we provide that would help you do your job better?
▶ What resources do you need to be most effective in your work?
▶ What does your EMS team do least well? Probe: Why?
Interviewees: Hospital medical staff
➤ When children are brought in with bicycle-related injuries other than to the head, how might you talk to them about the importance of helmet use?
➤ When injury victims are released from the hospital, how might you provide information to prevent a future incident?
➤ With regard to emergency response, what is this hospital’s greatest shortcoming?

Interviewees: Injury-control program personnel
➤ What would you like to know about occupant restraints and occupant-restraint programs?
➤ What skills will be the most helpful to you in creating and running the injury-control program?
➤ How will you be able to use the information provided so far in this course?

Interviewees: Beverage servers
➤ What have you learned about the relationship between drinking and seatbelt use?
➤ Will the information and skills we have provided influence the way you do your job? Probe: How?
➤ Is there information we have not provided that you would like to receive?

Programs to Distribute Safety Products
Interviewees: Members of the program's target population
➤ What have you heard about the state's new smoke detector distribution program?
➤ Do you think people will take advantage of the program? Probe: Why? Why not?
➤ How might the program be changed to make it better?

Programs to Enforce Safety Laws: Checkpoints for DWI
Interviewees: People stopped at the checkpoint
➤ What was your experience when you were stopped for a breath test? Probe: Was any part of it bad?
Interviewees: Members of the general public

➤ What did you hear about the police setting up roadblocks to give breath tests?
➤ Do you believe that roadblocks will reduce driving under the influence? Probe: Why? Why not?

Programs to Enforce Safety Laws: Assessment and Treatment for DWI
Interviewees: People sent for assessment or treatment
➤ How were you referred to the DWI treatment program?
   What did you know about it before you came?
➤ What was your experience when you first contacted the DWI assessment program?
➤ Was any part of your experience difficult or uncomfortable? Probe: What was difficult or uncomfortable?
➤ Do you believe that attending a program like this will stop people from driving while intoxicated? Probe: Why? Why not?
➤ If you had designed this DWI program, how would it be different?

Programs to Enforce Safety Laws: Periodic Increases in Enforcing Selected Laws
Interviewees: People stopped for speeding
➤ Tell me about being stopped for speeding. Probe: How were you treated?

Interviewees: Members of the general public
➤ What have you heard about the crackdown on speeding in the area? Probe: Do people seem to think it is working?

Programs to Change Individual Behavior: Counseling and Therapy
Interviewees: People counseled
➤ Do you think your bicycle crash could have been prevented? Probe: Why? Why not?
➤ What has prevented you from getting or using a child safety seat for your child?
➤ Did the emergency-department nurse talk to you about how to avoid this type of injury? Probe: What were you told?

Programs to Change Individual Behavior: Incentive Programs
Interviewees: Members of the program’s target population
➤ What factors influenced you to buy the smoke detector?
Appendix A: Examples

➤ What rewards or prizes would make it worthwhile for you to wear your bicycle helmet?
➤ How did you hear about the reduction in homeowner’s insurance for people with properly installed smoke detectors?

Programs to Change Individual Behavior: Skills Training
Interviewees: Trainees
➤ What did you learn about installing the child safety seat that you did not know before?
➤ What were you least comfortable with before the training?
➤ How has that changed since the training?

Questions for Focus Groups

The following are examples of questions that an evaluator might use during focus groups. The most appropriate people to invite as group members are in italics under the type of program.

Programs to Build Infrastructure: Getting Budgetary Support
Group members: Government personnel and injury program personnel
➤ How did the idea of obtaining budgetary support for an injury-prevention program come about?
➤ How did you begin the process of obtaining funding? If you were to do it over, what would you do differently? Probe: Why?
➤ What actions have you taken to obtain funding? Probe: Tell me about [an action that interviewee described].
➤ What have you learned so far about how to obtain budgetary support for injury programs?
➤ Who would you say are the key people involved in the effort to obtain budgetary support for injury control? Probe: How did they become involved in this effort?
➤ How would you describe the legislative view on injury control when your efforts began? Has this view changed during the course of your efforts? Probe: Describe how it has changed.

Group members: Foundation personnel (includes volunteers)
➤ What have you done to get people involved in your efforts to obtain funding for injury-prevention activities?
What strategies have you found to be most effective in obtaining funding and other types of support?

What strategies to obtain support and funding have had problems? Probe: Tell me about the problems.

**Programs to Build Infrastructure:** Institutionalizing a Program

*Group members: Government personnel*

- Of all the steps you have taken, which would you say were the most valuable in moving you toward institutionalizing the injury program?
- What would you tell other programs to be sure to do when they attempt to institutionalize an injury program? What would you tell them to avoid?
- Who have you found to be most important in helping to make injury prevention a permanent program?
- What barriers have you encountered to incorporating injury control into the organizational structure?
- What have you done well to make this a permanent program? What would you do differently?

**Programs to Build Coalitions**

*Group members: Coalition members*

- How did you become involved in the coalition?
- Has your work with the coalition had any particularly positive moments? Probe: Tell me about one.
- Has your work with the coalition had any unpleasant moments? Probe: Tell me about one.
- Describe some of the barriers the coalition faced in coming together.
- What insights did you gain from overcoming the barriers?
- What about the coalition has worked well? Probe: What do you think made it work well?

**Programs to Develop or Improve Injury-Prevention Legislation**

*Group members: Members of the general public*

- When did you first hear about the state's new bicycle-helmet law?
- What was your reaction to the law?
- Why do you think the law was created?
- Do you think the law is making a difference? Probe: Why? Why not?
Public Information or Advertising Campaigns
Group members: Members of the general public

➤ What do you think of the new advertisements to get people to use occupant restraints?
➤ Do you think more people will use [seatbelts, bicycle helmets, smoke detectors] because of the campaign? Probe: Why? Why not?
➤ Who do you think is most likely to notice the advertisements?
➤ What have you heard about the campaign from children? Other adults?

Programs for Environmental Change
Group members: Engineers

➤ What was the most difficult part of re-engineering the road?
➤ Describe your experience of being involved in an environmental change. Probe: What was least satisfying about your involvement? Most satisfying?

Group members: Members of the general public

➤ Is there anything you dislike about the new highway design?
➤ Since the changes, what are people saying about the road?
➤ What do you notice most about the new road?

Programs to Develop or Modify Products
Group members: Injury-control personnel

➤ What barriers did you encounter in distributing the free smoke detectors?
➤ What would you do differently in a similar situation in the future?

Group members: Engineers

➤ Did you experience any false starts when you were developing or modifying the child safety seats? Probe: Describe what went wrong.
➤ What did you do particularly well when developing your bicycle helmets? Can some aspects be further improved?

Group members: Consumers

➤ Have you had any problems with the new child safety seats? Probe: Describe them.
➤ What might the engineers do to improve these seats?
➤ What do you think of the new bicycle helmets?
Is there anything you would like to see changed about the new helmets? Probe: What?

Is there anything about the helmets that you liked better before the change? Probe: What?

Programs to Establish Data Bases or Record Systems
Group members: Data collectors

- What resources does your county need in order to participate in the state injury record system?
- What problems has participation in the state record system caused for you?

Group members: Data users

- Are the monthly reports helpful to you? Probe: How have you used them?
- What information would you like to be able to get from an injury-data system?

Formal Education Programs
Group members: Students

- Why do you think some people your age don't wear their seatbelts?
- Which of these bicycle helmets do you like best? Probe: Why?
- Was any part of the fire-safety program boring? Probe: What made it boring?

Group members: Teachers

- Which activities of the fire-safety class did the children seem to enjoy most? Why do you think that is?
- What feedback have you gotten from the children about the bicycle-safety unit?

Training and Development Programs for Service Personnel
Group members: Law-enforcement personnel

- What problems do you see with the bicycle-helmet legislation?
- What do you think are the main reasons that people do not obey the new occupant-restraint law?
- What would you like to know about bicycle helmets and the bicycle-helmet law that the course did not cover?
- What would help you enforce the occupant-restraint law?
- What prevents you from educating parents and children about the importance of bicycle helmets?
Group members: Emergency medical services (EMS) personnel
➤ What role can EMS professionals play in educating people about injury prevention?
➤ What did your emergency medical technician (EMT) training teach you about injury prevention?
➤ What information provided by this training program will be most useful to you on your job?
➤ What did you hope to learn that was not covered?

Group members: Hospital medical staff
➤ How can emergency-department personnel help prevent injuries?
➤ What have you learned from this course that will change the way you treat patients with head injuries?
➤ What resources would you need in order to educate patients about preventing future injuries? Probe: Who might be able to provide these resources?
➤ Of all the material covered in this training program, what do you think will be the most valuable to you in treating injuries? The least valuable?

Group members: Injury-control program personnel
➤ What knowledge is the most important for injury-control personnel?
➤ What skills are the most important for injury-control personnel?
➤ What do you see as the primary responsibilities of an injury-control specialist?
➤ What are some aspects of bicycle safety about which most injury-control personnel still need training?
➤ How does an injury-control professional benefit from the information presented in this course?

Group members: Beverage servers
➤ Do you think beverage servers have a role in preventing motor-vehicle crashes? Probe: Why? Why not?
➤ What skills do beverage servers need to help prevent persons from driving while intoxicated?
➤ What do you think of the proposed training program?
➤ If you had created this training program, how would you have done it differently?
Programs to Distribute Safety Products
Group members: Program participants
➤ How did you find out about the distribution program?
➤ Tell me about your experience in getting the smoke detector?
➤ Have you talked with other people about the program? Probe: What do they have to say about it?
➤ Is your smoke detector installed? Was installing it difficult? Where did you put it?

Group members: Nonparticipants in program
➤ Has anyone you know taken advantage of the smoke detector distribution program? Probe: Why? Why not?
➤ How do you think people find out about programs like this?
➤ What would increase participation in the program?

Programs to Enforce Safety Laws: Checkpoints for DWI
Group members: People stopped at the checkpoint
➤ How were you treated by the roadblock personnel when you were stopped? Probe: Was it clear why you were stopped?
➤ How did you feel about being stopped at the roadblock? Probe: Was there anything about the personnel or the setting that caused you to feel that way? Probe: What was it?
➤ How could your experience have been improved?

Group members: Checkers (e.g., police officers)
➤ What do you think of the location(s) chosen for the roadblock(s)?
➤ At any time while you were conducting the checks did you feel at personal risk? Probe: Describe what happened.
➤ How might the roadblocks be improved?

Group members: Members of the general public
➤ What have you heard about roadblocks being set up to catch DWI offenders?
➤ Do you think roadblocks are a good way to catch DWI offenders? Probe: Why? Why not?
➤ What are some of the good points of setting up roadblocks to catch DWI offenders?
➤ What are some of the problems?
Programs to Enforce Safety Laws: Assessment and Treatment for DWI

Group members: People assessed or treated

- What did you expect this program to be like? Probe: Did it meet your expectations?
- Was there anything you wanted from this program that you did not get? Probe: What did you not get?
- How might this program help change your driving behavior?
- What circumstances tempt you to drive while intoxicated? Probe: Has this program helped you know how to deal with these circumstances?
- Would you recommend this assessment program to other people? Probe: Why? Why not?

Group members: Assessors and treatment counselors

- What is most difficult about performing a DWI assessment? Probe: What might make this less difficult?
- What additional resources might assist you in assessing or treating DWI offenders?
- Are there any changes you would make in the program materials you were given? Probe: What would you change?
- What are the strengths of this assessment or treatment program? What are its limitations?

Group members: Members of the general public

- What do you think is the purpose of a DWI assessment program?
- Do you think DWI treatment programs are effective? Probe: Why? Why not?
- Do you agree with spending public funds for a DWI treatment program? Probe: Why? Why not?

Programs to Enforce Safety Laws: Periodic Increases in Enforcing Selected Laws

Group members: Members of the general public

- Have you heard about the child safety seat enforcement program? Probe: How did you hear about it?
- What keeps people from using child safety seats?
- When and where are people least likely to use child safety seats? Probe: Why do you think that is?
- Is there anything that you think should be changed about the child safety seat enforcement program?
➤ Will the enforcement program make a difference?  
   Probe: Why? Why not?
➤ Do you think it works to enforce child safety laws  
   by stopping cars in some areas and not in others?  
   Probe: Why? Why not?

Group members: People cited for failure to comply with a law

➤ How did you react to being cited for failure to use a  
   child safety seat?

Group members: Enforcers (e.g., police officers)

➤ What problems are you likely to encounter in enforcing  
   the use of child safety seats by stopping cars at selected  
   checkpoints?
➤ How was the enforcement program received by drivers?  
   By the public?
➤ Would you make any changes in the locations or times  
   that were selected for enforcement? Probe: What would  
   you change?
➤ What, if anything, do you think is working particularly  
   well about the program? What needs improvement?
➤ What effect do you think this selective enforcement  
   program will have on the use of child safety seats?

Programs to Change Individual Behavior: Counseling and Therapy

Group members: Members of the general public

➤ Who do you think people trust most for information  
   about child safety seats? Probe: Why?
➤ What information do physicians usually provide about  
   child safety seats?
➤ What did you learn in this program?

Programs to Change Individual Behavior: Incentive Programs

Group members: Members of the general public

➤ What incentives would influence people to put a smoke  
   detector in their home?
➤ Do you think [name the incentives] are effective in getting  
   people to install smoke detectors? Probe: Why? Why not?
➤ What is the best way to let people know about the bicycle-  
   helmet incentive program?
Programs to Change Individual Behavior: Skills Training
Group members: Trainees

➤ Do you wear a bicycle helmet? Probe: Why? Why not?
➤ What kind of people do you think wear bicycle helmets?
➤ When is it hardest to wear a bicycle helmet?
  Probe: What makes it hard?
➤ Do other people ever say anything about your wearing a helmet? Probe: What do they say?
➤ Which items covered in the program do you think will help kids to start, or to keep, wearing helmets?

Events to Observe During Participant-Observation

Participant-observers both participate in a program and observe it. As observers, they watch for nonverbal—as well as verbal—reactions to situations and notice behaviors of which participants are unaware. Listed below (under each type of injury-prevention program) are suggested events, behaviors, or procedures to observe, and under those are lists of questions that observers can answer.

Programs to Build Infrastructure: Getting Budgetary Support
Observe: Meetings to identify potential resources
➤ Who participates in meetings?
➤ How are potential sources of support identified?
➤ How do participants make decisions about following up on any plans?

Observe: Meetings to plan strategies for obtaining support
➤ What alternatives are considered?
➤ How does the group decide whether to accept something (e.g., a procedure, a plan, or distribution materials)?

Observe: Documentation and distribution of meeting results
➤ Who provides documentation?
➤ How is the documentation verified?
➤ To whom is documentation distributed?
➤ What role does documentation play in monitoring the planning process?
Observe: Initial contact with potential supporters
➤ How is contact made?
➤ Who makes the contact?

Observe: Meetings with potential supporters
➤ What is the format of the meeting?
➤ What is the tone of the meeting? Does it change during the course of the meeting?
➤ How are the supporters’ concerns elicited?
➤ How is the meeting documented?

Observe: Correspondence with potential supporters
➤ What topics are discussed?
➤ How frequently does correspondence occur?
➤ How are commitments of support documented?

Programs to Build Infrastructure: Institutionalizing a Program
Observe: Marketing the idea for a program
➤ How are potential contacts identified?
➤ Who is contacted?
➤ How is the concept marketed? Orally? Through print media? Through other news media?
➤ What is the response of those approached?

Observe: Meetings to structure the program
➤ Who attends the meetings?
➤ What are the salient issues?
➤ On what issues is there consensus?

Programs to Build Coalitions
Observe: Meetings of coalition members
➤ How do staff from different agencies interact with one another?
➤ Is there a central agency to whom all the other agency representatives speak or defer?
➤ Are there subgroups of agencies that link with other subgroups, or do all agencies interact directly?
➤ How is leadership negotiated?
➤ Do members volunteer or are they nominated?
➤ Do agencies representing certain constituencies work in concert and exclude other agencies?
➤ How is the agenda established or disrupted?
Is the leadership supported by the other members of the group?
Which members are disruptive?
How are decisions made?
Are there specific accomplishments by the end of the meeting?
How are workloads divided?
Are certain agencies asked more often to perform tasks? If so, does the agency staff seem to object to, or to accept willingly, these requests?
Are the roles of new group members negotiated or assigned?

Programs to Develop or Improve Injury-Prevention Legislation

Observe: The legislative process
Who supports the bill?
What barriers are raised against the bill?
How does support change during the life of the bill?
How is the bill modified?

Observe: Application of a law
How do police enforce the law? Suggestion: Ride with police to see firsthand the police and public reaction to enforcing laws.
How do the courts react to enforcement of the laws? Suggestion: Attend court when cases pertaining to the law of interest are on the docket.
What are the legal consequences?
What are offenders’ reactions?

Observe: Acceptance of a law
What is public’s reaction to the law? Suggestion: Attend public meetings that discuss the laws of interest.
What views are presented at public meetings?
What concerns are raised?
Is media coverage positive or negative?
How frequently does coverage occur?
How extensive is coverage?
Does coverage wane? How quickly?
When (day and time) is coverage presented?
Who provides the most frequent coverage?
Public Information or Advertising Campaigns
Observe: Public reaction
➤ Are people paying attention to the billboard or advertisement?
➤ Do people have verbal or nonverbal reactions?
➤ What are the characteristics of people who react negatively?
➤ What are the characteristics of people who react positively?

Suggestion: Observe television watchers in airports, restaurants, and dormitory lobbies; radio listeners on street corners and in building lobbies; newspaper readers in hotel lobbies and on public transportation. To watch people's reaction to posters and billboards, stand as near as possible without being intrusive.

Programs for Environmental Change
Observe: Public's behavior related to an environmental change (e.g., a new ramp to a highway)
➤ Do people appear to notice the change?
➤ Are their reactions positive or negative?
➤ Does the design have obvious or visible problems?
➤ Do users appear to be confused by the design?
Suggestion: Ride with users.

Programs to Develop or Modify Products
Observe: Users' reaction to a new or modified product
➤ Do they struggle in any way when using the product (e.g., when they put on the helmet, install the child safety seat, or change the battery in the smoke detector)?
➤ Do some designs appear to be more cumbersome than others? Suggestion: Station observers where products are tested or used.
➤ Do people show concern? Irritation?
➤ What questions do they ask about the product?
➤ What is the general demeanor of those demonstrating or selling the new or modified items?
➤ Do they respond appropriately to questions?
Suggestion: Station observers where products are distributed.
Programs to Establish Data Bases or Record Systems

Observe: Data collection from study participants

➤ Did respondent understand questions clearly?
➤ How much thought did respondent give to each question?
➤ How long did respondent take to answer each question?
➤ Did recorder understand questions?
➤ Was recorder confused by any question or instruction?
➤ Did recorder follow the prescribed interview protocol?

Observe: Data entry into a computer

➤ How long did it take to abstract data?
➤ Did data entry clerk have difficulty with coding scheme, layout, or computer program used to store data?

Formal Education Programs

Observe: Students' behavior in the classroom

➤ Do particular sections of training program lose the students' attention?
➤ Do they appear to find some sections silly? Embarrassing? Demeaning?
➤ What is the content of any discussion among students and between students and teachers?
➤ What did they talk about positively? Negatively?

Observe: Students' behavior going to and from the school

➤ Do they engage in behaviors that risk injury?
➤ Do they wear bicycle helmets?
➤ Do they wear seatbelts?
➤ How do they behave as pedestrians?

Observe: Teachers' behavior in the classroom during the program

➤ Do they follow the curriculum?
➤ Are there specific parts of the curriculum they do not use?
➤ Are they able to answer all questions that students ask?

Observe: Teachers' behavior in the classroom after the program

➤ Do they incorporate injury prevention into other tasks (e.g., writing assignments)?
➤ Do they develop class exercises that focus on injury prevention?
Train the Development Programs for Service Personnel

Observe: Behavior of trainees during the training program

➤ Do particular sections of the training program lose trainees’ attention?
➤ How much do trainees participate in the discussion?
➤ What is the demeanor of trainees? Bored? Interested? Enthusiastic?

Observe: Behavior of trainees during breaks or social hours

➤ Do trainees discuss material learned during the course?
➤ What are their comments about the course?

Observe: Behavior of trainees on the job

➤ Do trainees refer to course materials?
➤ Did trainees incorporate what they learned into their work habits?

Programs to Distribute Safety Products

Observe: Recipients’ behavior

➤ What characteristics are similar among recipients? Are they mostly women? Mostly young?
➤ How are these characteristics similar to or different from those of the distributors?
➤ How do recipients react to, or interact with, distributors?
➤ How do recipients interact with each other?
➤ How do recipients react to the product?
➤ Do they immediately take it out of the box or bag? Try it on (if appropriate)?
➤ Do they ask questions about the product’s function or how to use it?

Observe: Distributors’ behavior

➤ How do they approach recipients?
➤ What (if any) information do they offer?
➤ Do they follow the established protocol (if one exists)?

Observe: Nonparticipants’ behavior

➤ What are the characteristics of people in the distribution locality who are not participating in the distribution program?
➤ Do they have similar characteristics? Are they mostly poor? Mostly apartment dwellers?
➤ Are these characteristics similar to those of participants? Are they mostly the same age?
➤ How are they similar to or different from the distributors?
➤ Are there any obvious barriers that prevent nonparticipants from using the program?

11 Programs to Enforce Safety Laws: Checkpoints for DWI
Observe: Characteristics of the checkpoint location
➤ What are the characteristics of the location (e.g., traffic density, socioeconomics of area)?
➤ Are there similarities among checkpoint locations?
➤ How do checkpoints correlate with the frequency of crashes in the area?
➤ Does the checkpoint disrupt neighboring businesses or other activities in the area?

Observe: Behavior of the people checked
➤ What are the characteristics of the people checked?
➤ What are their reactions to being checked?
➤ What are their reactions to the checker? Friendly? Belligerent? Fearful?
➤ Do the people stopped follow the directions of the checker?
➤ What problems do the people stopped appear to experience?

Observe: Behavior of the checkers (e.g., police officers)
➤ How do they interact with the people they stop? Are they friendly? Hostile?
➤ Do they give consistent instructions for all people they stop?
➤ Are they clear?
➤ How do they treat people who are not sober?
➤ Is their treatment consistent for everyone?
➤ Is their treatment consistent with protocol?

Programs to Enforce Safety Laws: Assessment and Treatment for DWI
Observe: Behavior of program staff
➤ How does staff interact with program participants?
➤ Are assessments standardized?
➤ Is staff attentive to participants’ responses?
➤ Is staff courteous?
➤ Do counselors allow enough time for participants to respond to questions?
Observe: Behavior of program participants
> Do they appear to be involved in the program?
> Are their questions and responses insightful?
> Do they respond to counselors’ questions freely?
> What is their general demeanor?
> Do they interact more freely with each other than with program personnel?

Observe: Behavior of program administrators
> How does staff elicit participant involvement?
> Does staff follow a standard protocol?

Programs to Enforce Safety Laws: Periodic Increases in Enforcing Selected Laws
Observe: Enforcers (e.g., police officers)
> Do they follow a standard protocol?
> How do they communicate with the drivers? Is their manner friendly? Hostile?

Observe: Drivers stopped
> What questions do drivers ask about the enforcement?

Programs to Change Individual Behavior: Counseling and Therapy
Observe: Characteristics of the setting where program is administered
> Is privacy ensured?
> Is the setting conducive to one-on-one or group interaction?

Observe: Behavior of counselors
> How do they show clients that they are paying attention?
> Do they pause for questions?
> Do they verify that the client has understood them?

Observe: Behavior of people being counseled
> Do they appear attentive?
> What questions do they ask?
> Do they demonstrate a change in behavior? (For example, when they leave the premises, do they buckle their own and their child’s seatbelts?)
Programs to Change Individual Behavior: Incentive Programs
Observe: Characteristics of distribution site
- Do activities appear to be well organized?
- Are records kept during the distribution?

Observe: Distributors’ behavior
- Are they courteous?
- Do they give all necessary instructions to recipients?
- How do they handle people who do not meet the requirements to receive product?

Observe: Recipients’ behavior
- How do they appear to respond to the incentive?
- What do they do with the product when they get it?
- What questions or concerns do they voice?

Programs to Change Individual Behavior: Skills Training
Observe: Characteristics of the setting
- Is it pleasant?
- Is it conducive to both observing and practicing the skills?

Observe: Trainers’ behavior
- Are they attentive to the trainees?
- Do they model the skill in an explicit way?
- Do they give feedback to the trainees? Positive feedback? Constructive criticism?

Observe: Trainees’ behavior
- Do they appear willing to attempt the skill?
- Do they appear confused or uncomfortable?
- Do they continue to practice the skill?
- How do they respond to the trainer’s feedback?
WHO OR WHAT TO COUNT DURING PROCESS EVALUATION

Next are examples of items and people to keep track of while the program is in operation. Keeping exact, detailed records of program activities is essential if the program is to be a success. The information tracked while your program is under way can tell you whether the program is reaching the target population and, if so, whether it is reaching as many as you expected in the target population. The information tracked becomes the data for process evaluation.

1 Programs to Build Infrastructure: Getting Budgetary Support or Institutionalizing a Program
Who or what to count
➤ People met.
➤ People favorable to budgetary support.
➤ Letters written.
➤ Supporting letters received.
➤ Meetings held.

Where to collect information for the count
➤ Calendars.
➤ Correspondence logs or files.
➤ Meeting minutes.
➤ Signatures on petitions.
➤ Contact forms (see Appendix B for an example).

2 Programs to Build Coalitions
Who or what to count
➤ Groups or agencies participating in a coalition.
➤ Meetings held.
➤ Communities represented.
➤ People participating.
➤ People served by participating agencies (measures potential effect of coalition).
➤ Requests for information.
➤ Agencies contacted.
➤ New program dollars generated.
➤ Additional resources garnered (e.g., helmets or smoke detectors donated).
Appendix A: Examples

Where to collect information for the count
- Attendance sheets.
- Calendars.
- Correspondence logs or files.
- Signatures on petitions.
- Contact forms (see Appendix B for an example).

3 Programs to Develop or Improve Injury-Prevention Legislation
Who or what to count
- Letters sent to supporters.
- People contacted for opinions (by age group).
- Public information meetings held.
- Attendees of public information meetings.
- Signatures of support.
- News media contacted.
- Press interviews given.
- Press releases prepared.
- Newspaper subscribers that the program contacted.
- Radio-station listeners contacted.
- Television-station viewers contacted.

Where to collect information for the count
- Contact forms (see Appendix B for an example).
- Attendance sheets.
- Files or logs of letters and news releases.

4 Public Information or Advertising Campaigns
Who or what to count
- Advertisements developed.
- Advertisements tested.
- Types of media for which advertisements were prepared.
- Subscribers for each newspaper where advertisement was placed.
- Listeners to each radio station where advertisement was run.
- Viewers of each television station where advertisement was run.
- Times advertisement was run in each newspaper and on each television or radio station.
- Press releases distributed.
- Articles written.
- Interviews or talks requested.
Interviews and talks given.
Interviews and talks taped.
Public-information sessions held.
People attending public-information sessions.
Churches and schools visited.

**Where to collect information for the count**
- Files or logs of letters, news releases, and interviews.
- Attendance sheets.
- Institution contact forms (see Appendix B for an example).
- Individual contact forms (see Appendix B for an example).

### Programs for Environmental Change

**Who or what to count**
- Users of vehicles passing a particular location.
- Positive and negative comments by letter.
- Positive and negative comments in news media.

**Where to collect information for the count**
- Observers at particular locations.
- Correspondence files.
- Local publications.

### Programs to Develop or Modify Products

**Who or what to count**
- Developers contacted.
- Developments or modifications tested.
- Advertisements run (new development or modification).
- Letters sent.
- Inquiries received.
- Inquiries answered.
- Units distributed or sold.
- Units returned.

**Where to collect information for the count**
- Correspondence files.
- Contact forms (see Appendix B for an example).
- Logs of media coverage.
- “Items Distributed” forms (see Appendix B for an example).
- “Items Received” forms (see Appendix B for an example).
Programs to Establish Data Bases or Record Systems

Who or what to count

- Counties and sites approached to participate in system.
- Counties and sites recruited.
- Counties and sites that adopted a standard form.
- Personnel trained on system.
- Lap-top computers purchased.
- Lap-top computers placed.
- Counties and sites that use new system.
- Records processed.

Where to collect information for the count

- Forms documenting contact with county.
- Correspondence files.
- Purchase orders.
- Attendance sheets.
- Record systems.

Formal Educational Programs

Who or what to count

- Teaching modules or curricula developed.
- School systems and teachers that requested information.
- School systems and teachers that request newly developed curricula.
- Classes that use newly developed curricula.
- Students taught.

Where to collect information for the count

- Telephone and correspondence logs.
- Attendance sheets.
- Student contact forms (see Appendix B for an example).

Training and Development Programs for Service Personnel

Who or what to count

- Teaching modules and curricula developed.
- Requests for information received.
- Training sessions held.
- Attendees.
Where to collect information for the count
- Telephone and correspondence logs.
- Attendance sheets.
- Participant contact forms (see Appendix B for an example).

**Programs to Distribute Safety Products**

Who or what to count
- Resources garnered (e.g., bicycle helmets or smoke detectors donated to program, use of vehicles offered).
- Dollar value of resources donated.
- Volunteers to distribute products.
- Offers of resources for future use.
- Items distributed (e.g., smoke detectors, bicycle helmets).
- People in households to which products were distributed.

Where to collect information for the count
- Donor lists (include resources offered and resources given).
- Distribution forms.
- Volunteer lists.

**Programs to Enforce Safety Laws: Checkpoints for DWI**

Who and what to count
- Days and shifts when sobriety checks were conducted.
- Checkpoint locations.
- Drivers stopped.
- Drivers checked.
- Drivers with blood-alcohol levels higher than the legal limit.
- Amount of media coverage.

Where to collect information for the count
- Time cards or time sheets.
- Maps showing checkpoint locations.
- Contact forms (see Appendix B for an example).
- Media files.
**Programs to Enforce Safety Laws**: Assessment and Treatment for DWI

Who or what to count
- Inquiries about the services.
- Assessments and treatments scheduled.
- Assessments and treatments completed.
- Sessions conducted.
- Fees collected.
- Professionals trained to assess or treat DWI offenders.

Where to collect information for the count
- Contact forms (see Appendix B for example).
- Appointment books.
- Billing records.
- Continuing-education records.

**Programs to Enforce Safety Laws**: Periodic Increases in Enforcing Selected Laws

Who or what to count
- Days and shifts on which enforcement was conducted.
- Personnel involved in enforcement.
- Sites involved.
- People stopped.
- Citations and warnings given.

Where to collect information for the count
- Time cards and time sheets.
- Maps showing checkpoints.
- Contact and encounter forms (see Appendix B for an example).
- Citations.

**Programs to Change Individual Behavior**: Counseling and Therapy

Who or what to count
- Professionals trained.
- Clients counseled.
- Sessions held.

Where to collect information for the count
- Continuing education records.
- Contact forms (see Appendix B for an example).
- Counselors’ process notes.
Programs to Change Individual Behavior: Incentive Programs
Who or what to count
➤ Inquiries received.
➤ Incentives given.

Where to collect information for the count
➤ Telephone contact forms (see Appendix B for an example).
➤ Record systems.

Programs to Change Individual Behavior: Skills Training
Who or what to count
➤ Teaching modules developed.
➤ Inquiries received.
➤ Clients served.
➤ Training sessions held.

Where to collect information for the count
➤ Contact forms (see Appendix B for an example).
➤ Logs of telephone inquiries.

CLOSED-ENDED QUESTIONS AND STATEMENTS

Next are examples of closed-ended questions and statements that can be used for surveys or interviews to assess people’s knowledge, attitudes, beliefs, or behaviors with regard to your program’s injury intervention. Such questions and statements as these can be used to gather data before your program begins (baseline data), when the program is in operation, and after the program is complete.

Multiple Choice
When you are driving 15 or more miles per hour (mph) over a 45-mph speed limit, how many times more likely are you to die than if you were driving within 9 mph of the speed limit? (Select one answer.)*

  a) no more likely  d) 8–10 times more likely
  b) 2–4 times more likely  e) over 10 times more likely
c) 5–7 times more likely

Multiple choice is particularly well-suited to questions that seek to find a person’s level of knowledge. The answers are easier to process than the answers to open-ended or fill-in-the-blank questions. The question itself should be clear and specific and the choices should be appropriate for the question. For an example, see below.

**Poor:** Which is the most important for preventing injuries?

a) slow down  
b) wear a helmet  
c) wear a seatbelt  
d) all of the above

**Good:** Which of the following can prevent head injuries?

a) not exceeding the speed limit when driving  
b) wearing a seatbelt when riding in a car  
c) wearing a helmet when riding a bicycle  
d) all of the above

The answers should be mutually exclusive (i.e., not more than one answer should be completely correct), and only one answer should be correct for each respondent. This means that, for demographic questions, the answers should be exhaustive (i.e., all possible answers should be included). See example below:

**Poor:** What is your current age?

a) 14 or younger  
b) 15 to 45  
c) 45 to 64  
d) over 65

**Good:** What was your age on your most recent birthday?

a) 14 or younger  
b) 15 to 44  
c) 45 to 64  
d) over 64

**Scaled**

How important do you believe it is to have a smoke detector in your home? (circle one)

<table>
<thead>
<tr>
<th>Extremely unimportant</th>
<th>Somewhat unimportant</th>
<th>Neither important nor unimportant</th>
<th>Somewhat important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Scaled questions are designed to reflect the strength or intensity of a response. In doing so, they allow the respondent a degree of flexibility in answering but preserve the ease of data processing for the evaluator. Such questions, therefore, are useful for measuring attitudes.
Semantic Differential

Mark the number which best represents your opinion.

A state law requiring the use of seatbelts —

| Should not be passed | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Is urgently needed |

Semantic differential items are designed to allow respondents to indicate which of two opposed descriptors or statements best reflect their opinion or attitude. It also permits them to indicate the degree to which the statement reflects their position. Once again, the format allows the respondent some flexibility, but preserves ease of data processing for the evaluator. The 10-point scale allows detection of smaller attitudinal differences than the 5-point scale. An even number of response choices (with no absolute middle choice) forces the respondent to lean in one direction or the other.

Visual Analog

Put an X in the place on the line which best represents your opinion.

How dangerous is riding a bicycle without a helmet?

| Very dangerous | ———— | ———— | ———— | ———— | ———— | ———— | ———— | ———— | ———— | Not at all dangerous |

The visual analog scale is similar to the semantic differential format, but the response is not associated with a numerical scale. This avoids bias towards respondents’ preference for particular numbers, or preconceived opinions regarding what constitutes a “6,” for example. Although the segments are not numbered for data collection, they can be numbered for data processing to make analysis easier.
APPENDIX B

SAMPLE FORMS

Contact or Encounter Form — 109
Form for Items Distributed — 110
Form for Items Received — 111
Design a brief form, similar to the one shown here, to keep track of all contacts related to program activities between program personnel and people outside the program. Tailor the type of contact and services provided sections to the activities conducted by your program. For example, an enforcement program might have a list of reasons for stopping drivers or a list of types of sobriety checks. If a category labeled Other is used frequently, you need to add new categories to accommodate items that are being assigned to Other. Below is a general contact form that can be adapted for any program to prevent unintentional injury.

**Contact or Encounter Form**

<table>
<thead>
<tr>
<th>Type of Contact</th>
<th>Other Assistance Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>Information Only</td>
</tr>
<tr>
<td>Personal Meeting</td>
<td>Training</td>
</tr>
<tr>
<td>Electronic Mail</td>
<td>Consultation</td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>Counseling</td>
</tr>
<tr>
<td></td>
<td>Curriculum or Materials</td>
</tr>
<tr>
<td></td>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who Initiated Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Staff</td>
</tr>
<tr>
<td>Program Participant</td>
</tr>
<tr>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Purpose of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for Financial Support</td>
</tr>
<tr>
<td>Request for Legislative Support</td>
</tr>
<tr>
<td>Request for Other Support</td>
</tr>
<tr>
<td>Request for Volunteer Services</td>
</tr>
<tr>
<td>Offer of Volunteer Services</td>
</tr>
<tr>
<td>Request to Participate in Program</td>
</tr>
<tr>
<td>Request for Information</td>
</tr>
<tr>
<td>Request for Incentive</td>
</tr>
<tr>
<td>Other (Specify)</td>
</tr>
</tbody>
</table>
**FORM FOR ITEMS DISTRIBUTED**

A distribution form should be completed for each unit (i.e., person or household in the target population) to whom items (e.g., infant safety seats) were distributed. The purpose is to document the number of items distributed and the characteristics of the people who received the item(s). Below is a generic form that can be adapted to suit your program.

<table>
<thead>
<tr>
<th>ITEMS DISTRIBUTED</th>
<th>Distribution No.</th>
<th>[Number Consecutively]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date:</td>
<td></td>
</tr>
<tr>
<td>List of Items Distributed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of item(s) distributed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location where item(s) were distributed:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Item(s) Distributed To Households**

Number of people in household: ________________

Age and sex of people in household: *Divide by appropriate intervals, say 5- or 10-year intervals*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Females:</th>
<th>Males:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years or under</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11–20 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21–30 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31–40 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41–50 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51–60 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61–70 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 years or older</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Item(s) Distributed To Individuals**

Age and sex of individual person: *Divide by appropriate intervals, say 5- or 10-year intervals*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Female:</th>
<th>Male:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years or under</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11–20 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21–30 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31–40 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41–50 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51–60 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61–70 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 years or older</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Assistance Provided**

Installation ☐  Training ☐  Counseling ☐  Referral ☐
Keep track of all items given to you by members of the target population. An example of items received would be car safety seats returned to a loan program. The purpose is to document the number of items received and the characteristics of the people who hand in the items. Below is a generic form that can be adapted to suit your program.

### ITEMS RECEIVED

<table>
<thead>
<tr>
<th>Receipt No.:</th>
<th>[Number Consecutively]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>________________________</td>
</tr>
</tbody>
</table>

**List of Items Received:**

**Number of item(s) received:**          **Location where item(s) were received:**

### Item(s) Received From Households

**Number of people in household:**

**Age and sex of people in household:** [Divide by appropriate intervals, say 5- or 10-year intervals]

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Females:</th>
<th>Males:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years or under</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>11–20 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>21–30 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>31–40 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>41–50 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>51–60 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>61–70 years</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>71 years or older</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

### Item(s) Received From Individuals

**Age and sex of individual person:** [Divide by appropriate intervals, say 5- or 10-year intervals]

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Female:</th>
<th>Male:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 years or under</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>11–20 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>21–30 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>31–40 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>41–50 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>51–60 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>61–70 years</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>71 years or older</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>

### Other Assistance Provided

<table>
<thead>
<tr>
<th>Assistance</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Referral</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Training</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>
APPENDIX C

CHECKLIST OF TASKS

For Programs to Prevent Unintentional Injury

Program Development

As soon as you or someone in your organization has the idea for a program to prevent unintentional injury, begin evaluation.

1. Investigate to make sure an effective program similar to the one you envision does not already exist in your community.

2. If a similar program does exist and if it is fully meeting the needs of your proposed target population, modify your ideas for the program so that you can fill a need that is not being met.

3. Decide where you will seek financial support.
   - Find out which federal, state, or local government agencies give grants for the type of program you envision.
   - Find out which businesses and community groups are likely to support your goals and provide funds to achieve them.

4. Decide where you will seek nonfinancial support.
   - Find out which federal, state, or local government agencies provide technical assistance for the type of program you envision.
   - Find out which businesses and community groups support your goals and are likely to provide technical assistance, staff, or other nonfinancial support.

5. Develop an outline of a plan for your injury-prevention program. Include in the outline the methods you will use to provide the program service to participants and the methods you will use to evaluate your program’s impact and outcome.
6. Evaluate the outline. For example, conduct personal interviews or focus groups with a small number of the people you will try to reach with your injury-prevention program. Consult people who have experience with programs similar to the one you envision, and ask them to review your plan. Modify your plan on the basis of evaluation results.

7. Develop a plan to enlist financial and nonfinancial support from all the agencies, businesses, and community organizations you have decided are likely sources of support. Use the outline of your plan for the injury-prevention program to demonstrate your commitment, expertise, and research.

8. Evaluate the plan for obtaining support. For example, conduct personal interviews with business leaders in your community. Modify your plan on the basis of evaluation results.

9. Put your plan for obtaining support into action.

10. Keep track of all contacts you make with potential supporters.

11. If unexpected problems arise while you are seeking support, re-evaluate your plan or the aspect of your plan that seems to be the source of the problem. For example, if businesses are contributing much less than you had good reason to expect, then seek feedback from businesses that are contributing and those that are not. Or if you did not receive grant funds for which you believed you were qualified, contact the funding agency to find out why your proposal was rejected. Modify your plan according to your re-evaluation results, and continue seeking support.

12. When you have enough support for your program, expand on the outline of your plan for the injury-prevention program. Include in the design a mechanism for evaluating the program's impact and outcome.

13. Evaluate your program's procedures, materials, and activities. For example, conduct focus groups within your target population. Modify the plan on the basis of evaluation results.

14. Develop forms to keep track of program participants, program supporters, and all contacts with participants, supporters, or other people outside the program.

15. Measure the target population's knowledge, attitudes, beliefs, and behaviors that relate to your program goals. The results are your baseline measurements.
Program Operation

1. Put your program into operation.
   - Track all program-related contacts (participants, supporters, or others). Track all items either distributed to or collected from participants.
   - As soon as the program has completed its first encounter with the target population, assess any changes in program participants’ knowledge, attitudes, beliefs, and (if appropriate) behaviors.

2. Continue tracking and assessing program-related changes in participants throughout the life of the program. Keep meticulous records.

3. If unexpected problems arise while the program is in operation, re-evaluate (using qualitative methods) to find the cause and solution. For example, your records might show that not as many people as expected are responding to your program’s message, or your assessment of program participants might show that their knowledge is not increasing. Modify the program on the basis of evaluation results.

4. Evaluate ongoing programs (e.g., classes on fire safety given each year to third graders) at suitable intervals to see how well the program is meeting its goal of reducing injury-related morbidity and mortality.

Program Completion

1. Use the data you have collected throughout the program to evaluate how well the program met its goals: to increase behaviors that prevent unintentional injury and, consequently, to reduce the rate of injuries and injury-related deaths.

2. Use the results of this evaluation to justify continued funding and support for your program.

3. If appropriate, publish the results of your program in a scientific journal.
APPENDIX D

BIBLIOGRAPHY

Evaluation in General


**Experimental and Quasi-Experimental Design**


**Psychological Testing**


**Questionnaires and Questionnaire Design**


Appendix D: Bibliography - 119


Risk for Morbidity or Mortality

Occupant Restraints in Motor Vehicles


Bicycle Helmets


**Smoke Detectors**


**Sampling Methods and Survey Research**


Glossary

**Attitudes:** People’s biases, inclinations, or tendencies that influence their response to situations, activities, people, or program goals.

**Baseline information:** Data gathered on the target population before an injury-prevention program begins.

**Closed-ended questions:** Questions that allow respondents to choose only from a list of possible answers. (Compare to open-ended questions.)

**Comparison group:** (see Control group)

**Contact:** Any personal interaction between program staff and a person or household in the target population (sometimes called encounter). Also the person or household with whom program staff interacted.

**Control group (or comparison group):** A group whose characteristics are as similar as possible to those of the intervention group. To evaluate program effects, evaluators compare differences in changes between the two groups. See also Intervention group.

**Encounter (contact):** In evaluation, any personal interaction between a program and a person, household, or group of people in the target population.

**Experimental designs:** In evaluation, methods that involve randomly assigning people in the target population to one of two or more groups in order to eliminate the effects of history and maturation. The program’s effects are measured by comparing the change in one group or set of groups with the change in another group or set of groups.

**Focus group:** A qualitative method of evaluating program materials, plans, and results. A facilitator moderates a discussion among four to eight people, allowing them to talk freely on the subject of interest.
Formative evaluation: Research conducted (usually while the program is being developed) on a program's proposed materials, procedures, and methods.

History: The knowledge, skills, or other attributes that people have with regard to the goals of an injury-prevention program before the program begins.

Impact evaluation: Research to determine how well a program is meeting its intermediate goals of changes in people's knowledge, attitudes, and beliefs.

Instrument: The tool used to gather information on people's knowledge, attitudes, beliefs, or behavior (e.g., a questionnaire).

Intervention: The method, device, or process used to prevent an undesirable outcome.

Intervention group: The group in an experimental study or evaluation who is to receive the intervention. See also Control group.

Item: One question or statement on an instrument used to measure knowledge, attitudes, beliefs, or behaviors.

Maturation: The knowledge, skills, or other attributes that people gain with regard to the goals of an injury-prevention program while the program is going on, but which are not due to program activities.

Morbidity: Any deviation from a state of well-being, either physiological or psychological; any mental or physical illness or injury.

Outcome evaluation: Research to determine how well programs succeeded in achieving their ultimate objective of reducing morbidity and mortality.

Open-ended questions: Questions that allow respondents to answer freely in their own words. (Compare Closed-ended questions.)

Pilot test: A small-scale trial conducted before a full-scale program begins to see if the planned methods, procedures, activities, and materials will work.

Placebo: A service, activity, or item that is similar to the intervention service, activity, or item but without the intervention characteristic that is being evaluated.

Prevalence: The amount of a factor of interest (e.g., knowledge or head injury) that is present in a specified population at a specified time.
**Probe:** A method of soliciting more information about an issue than respondents gave in their first response to questions.

**Process evaluation:** Research to determine how well a program is operating. Includes assessments of whether the program and its materials are reaching the target population and, if so, in what quantity.

**Qualitative methods:** Ways of collecting descriptive data on the knowledge, attitudes, beliefs, and behaviors of the target population. In general, information gathered using qualitative methods is not given a numerical value.

**Quality assurance:** A system to ensure that all aspects of a program will be of the highest possible caliber.

**Quantitative methods:** Ways of collecting numerical data on the target population. Use quantitative data to draw conclusions about the target population.

**Quasi-experimental design:** In evaluation, methods that do not involve randomly assigning members of the target population either to an intervention or to a comparison group but which, nevertheless, reduce the effects of history and maturation. Evaluators have less control over factors that affect the comparison group than they do with experimental designs.

**Randomization:** Assigning individuals by chance (using a predetermined method) to groups that will either receive the injury-prevention intervention or not receive it. It is used for experimental-design programs. The predetermined method is usually based on a table of random numbers or a computer-generated list.

**Rate:** A measurement of how frequently an event occurs among people in a certain population at a point in time or during a specified period of time.

**Reach:** The number of people or households who receive the program’s message or intervention.

**Readability:** The level of reading skill required to be able to understand written materials.

**Sample:** A subset of people in a particular population.

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

**Schematic:** The order (in symbols) in which events occur during an experimental or quasi-experimental study.
Survey: A quantitative (nonexperimental) method of collecting information at one point in time on the target population. Surveys may be conducted by interview (in person or by telephone) or by questionnaire.

Survey instrument: (see Instrument).

Survey item: (see Item)

Target population: The people or households the program intends to serve.

Unit: One person or household in the target population.
**Comment Form**

1. **Which sections of this book did you read? [Check all answers that apply]**

<table>
<thead>
<tr>
<th>Section</th>
<th>Useful</th>
<th>Somewhat Useful</th>
<th>Not Useful</th>
<th>Did Not Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>How This Primer Is Organized</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 1: General Information</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 2: Stages of Evaluation</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 3: Methods of Evaluation</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix A: Examples of Questions to Ask, Events to Observe, and Who or What to Count</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix B: Sample Forms</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix C: Checklist of Tasks</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix D: Bibliography</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix E: Glossary</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>

2. **What is your opinion of this book?**

<table>
<thead>
<tr>
<th>Section</th>
<th>Useful</th>
<th>Somewhat Useful</th>
<th>Not Useful</th>
<th>Did Not Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>How This Primer Is Organized</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 1: General Information</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 2: Stages of Evaluation</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Section 3: Methods of Evaluation</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix A: Examples of Questions to Ask, Events to Observe, and Who or What to Count</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix B: Sample Forms</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix C: Checklist of Tasks</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix D: Bibliography</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Appendix E: Glossary</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>

3. **How did you use this book? [Check all answers that apply]**

<table>
<thead>
<tr>
<th>Use Case</th>
<th>❏</th>
<th>❏</th>
<th>❏</th>
<th>❏</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal reference</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Staff instruction</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Library resource</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>

4. **Check your job category**

<table>
<thead>
<tr>
<th>Job Category</th>
<th>❏</th>
<th>❏</th>
<th>❏</th>
<th>❏</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Professional</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Other Professional</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Executive/Manager</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Educator</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
<td>❏</td>
</tr>
</tbody>
</table>
5. Check your employer’s category

- Government
- Academia
- Nonprofit Organization
- Private Corporation
- Other (Specify) _______________

6. Do you have suggestions on how to improve this book?

No postage necessary - Fold along dotted lines - Seal with tape