

Developing a Process-Evaluation Plan for Assessing Health Promotion Program Implementation: A How-To Guide

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Process evaluation is used to monitor and document program implementation and can aid in understanding the relationship between specific program elements and program outcomes. The scope and implementation of process evaluation has grown in complexity as its importance and utility have become more widely recognized. Several practical frameworks and models are available to practitioners to guide the development of a comprehensive evaluation plan, including process evaluation for collaborative community initiatives. However, frameworks for developing a comprehensive process-evaluation plan for targeted programs are less common. Building from previous frameworks, the authors present a comprehensive and systematic approach for developing a process-evaluation plan to assess the implementation of a targeted health promotion intervention. Suggested elements

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for process-evaluation plans include fidelity, dose (delivered and received), reach, recruitment, and context. The purpose of this article is to describe and illustrate the steps involved in developing a process-evaluation plan for any health-promotion program.

Keywords: *process evaluation; measuring program implementation*

Much emphasis is placed on outcome evaluation to determine whether a health-promotion program was successful. Process evaluation, which helps us understand why a program was or was not successful, is equally important (Bartholomew, Parcel, Kok, & Gottlieb, 2001; Steckler & Linnan, 2002a). In fact, process evaluation may be used to confirm that the intervention was indeed implemented before using resources to assess its effectiveness (Scheirer, Shediak, & Cassady, 1995). A program's lack of success could be attributed to any number of program-related reasons, including poor program design, poor or incomplete program implementation, and/or failure to reach sufficient numbers of the target audience. Process evaluation looks inside the so-called black box to see what happened in

the program and how that could affect program impacts or outcomes (Bouffard, Taxman, & Silverman, 2003; Harachi, Abbott, Catalano, Haggerty, & Fleming, 1999).

In recent years, an increasing emphasis has been placed on measuring program implementation, in part because of great variability in program implementation and policy adoption in school and community settings (Dusenbury, Brannigan, Falco, & Hansen, 2003; Harachi et al., 1999; Helitzer, Yoon, Wallerstein & Garcia-Velarde, 2000; McGraw et al., 2000; Scheirer et al., 1995;

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Zapka, Goins, Pbert, & Ockene, 2004). Several practical frameworks and models to guide the development of comprehensive evaluation plans, including process evaluation for collaborative community initiatives, have been developed. Included among these are Prevention Plus III (Linney & Wandersman, 1991), Community Coalition Action Theory (Butterfoss & Kegler, 2002), Getting to Outcomes (Chinman et al., 2001), and the CDC Framework (Millstein, Wetterhall, & CDC Evaluation Working Group, 2000). Although comprehensive evaluation plans such as these are available to practitioners, frameworks for developing a comprehensive process-evaluation plan for targeted programs are less common (Steckler & Linnan, 2002a). Recent advances have occurred in identifying and clarifying the components of process evaluation (Baranowski & Stables, 2000; Steckler & Linnan, 2002b). Steckler and Linnan (2002a) also provided an overview of the key steps in planning process evaluation as well as examples of process evaluation from studies in a variety of settings (Steckler & Linnan, 2002b).

In this article, we work from these previously identified process evaluation components, definitions, and steps to present a comprehensive, systematic, and user-friendly approach to planning process evaluation in public health interventions with an emphasis on assessing targeted program implementation. Specifically, we provide an in-depth guide for developing a plan to assess program implementation, which is one component of a comprehensive program-evaluation plan (e.g., Step 6, program plan, and Step 7, quality of implementation, of the Getting to Outcomes framework; Chinman et al., 2001). The process presented in this article is especially suited for planning process evaluation for tar-

► FORWARD FROM THE EDITORS

We are pleased to highlight Saunders, Evans, and Joshi's article, which offers a comprehensive, systematic approach for developing a process-evaluation plan. In this article, the authors describe the main elements of process-evaluation planning (fidelity, dose, reach, recruitment, and context) and its six steps (as adapted from Steckler & Linnan, 2002b). The real contribution of the work is that they then provide the reader with a step-by-step evaluation plan for a hypothetical school-based media training program, *Media Matters*.

Many health-promotion and disease-prevention programs are being implemented across the country with limited resources, often provided primarily by volunteers. We know that many of you who work in school and community settings are expected to document your programs and their effects, not to perform expensive, complex program evaluations. Effective process evaluation can be used to monitor program efforts so that programs are implemented as planned, use resources where needed, and change when appropriate. Process assessment data help provide accountability for administrators and funders and let planners know why the program worked or did not work. Process evaluation will help staff assess if the program is reaching its intended audience and provide a clear description of the program that was implemented so that it can be disseminated and shared with others. As always, one of the main goals of program evaluation is to make sure it is useful—to you, your administration, your funders, and your program participants. The following article is offered in the spirit of providing another practical, useful tool for our readers.

Frances Butterfoss and Vincent T. Francisco

geted programs that are implemented as part of a coalition activity (e.g., Level 2, coalition evaluation; Butterfoss & Francisco, 2004) or as a stand-alone program in a specific setting (e.g., schools, work sites). The development of the process-evaluation plan is illustrated with a proposed, school-based case study, *Media Matters*.

► INTRODUCTION TO PROCESS-EVALUATION PLANNING

Ideally, process-evaluation planning is conducted with a collaborative planning team that includes key

stakeholders with a multidisciplinary professional perspective and an understanding of the iterative nature of process-evaluation planning (Bartholomew et al., 2001; Butterfoss & Francisco, 2004; Steckler & Linnan, 2002a). Important issues that must be addressed when developing a process-evaluation plan include (a) understanding the health promotion program and how it is supposed to work, (b) defining the purposes for the process evaluation, and (c) considering program characteristics and context and how these may affect implementation. Having a well-planned and theory-based health-promotion pro-

gram is the beginning point for planning process evaluation. The approach to process-evaluation planning described in this article assumes that the intervention has been planned in detail with guidance from appropriate theories and/or a conceptual model.

Broadly speaking, process-evaluation data can be used for both formative and summative purposes. Formative uses of process evaluation involve using process-evaluation data to fine-tune the program (e.g., to keep the program on track; Devaney & Rossi, 1997; Helitzer et al., 2000; Viadro, Earp, & Altpeter, 1997). Summative uses of process evaluation involve making a judgment about the extent to which the intervention was implemented as planned and reached intended participants (Devaney & Rossi, 1997; Helitzer et al., 2000). This information, in turn, can be used to interpret and explain program outcomes, analyze how a program works, and provide input for future planning (Baranowski & Stables, 2000; Dehar,

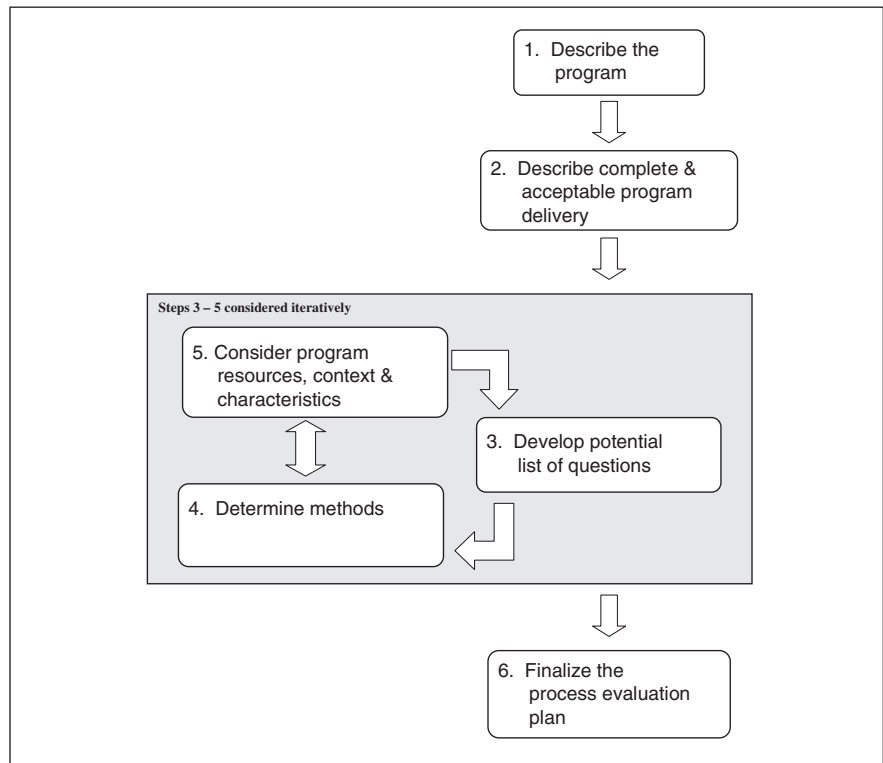


FIGURE 1 Steps in the Process-Evaluation Process

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Casswell, & Duignan, 1993; McGraw et al., 1994, 1996). Beyond these broad purposes, a process-evaluation plan will also have specific purposes that are unique to the program for which it is being designed, as described in the next section.

Health-behavior change is made in ongoing social systems that typically involve participating agencies (e.g., schools), program implementers (e.g., teachers), a proximal target person (e.g., student), and a distal target person (e.g., parent; Baranowski & Stables, 2000). Assessment of program implementation requires taking into account the surrounding social systems, including characteristics of the organization in which the program is being implemented, characteristics of persons delivering the program (Viadro et al.,

PROGRAM DESCRIPTION FOR MEDIA MATTERS

Media Matters is a school-based program designed to decrease adolescent risk behaviors by increasing individual and group empowerment among the participants. The overarching concept of the Media Matters program is that by developing an understanding of how media work—how they construct reality, create meaning, and influence behavior—students can increase their self-efficacy regarding their ability to deconstruct media messages and, thereby, become more critically aware of and resistant to the unhealthy behaviors that media sometimes reinforce. Because this curriculum includes a component in which students produce their own media, they also have an opportunity to put into practice the concepts and skills that they learn such as cooperation, team building, and responsibility. A venue is also provided for the students to create their own messages to influence the social norms regarding behaviors and issues with which they are directly involved. The highly participatory classroom strategies include small group work, demonstration and feedback, problem solving, and role playing.

The theoretical framework of the program is based largely on Bandura’s (1986) Social Cognitive Theory (SCT). The primary constructs of SCT, on which the Media Matters curriculum focuses, are self-efficacy, behavioral capability, situation, observational learning, knowledge, and attitudes. The primary objectives of the Media Matters intervention are to increase adolescents’ self-efficacy for abstaining from alcohol and tobacco consumption and to influence the social norms within the school environment so that alcohol and tobacco consumption are viewed as unhealthy choices. The Media Matters logic model is provided below:

<i>Inputs</i>	<i>Immediate Impacts</i>	<i>Short-Term Impacts</i>	<i>Behavioral Impacts</i>	<i>Health Outcomes</i>
Providing training, materials, and consultation, to teachers will	result in the development of a Media Matters team and cross-disciplinary implementation of the Media Matters curriculum, which will	result in changes in the school media environment, social norms, and development of students’ self-efficacy and skills for abstaining from alcohol and tobacco use, which	will result in reduced use of alcohol and tobacco and, ultimately,	improved health in students.

FIGURE 2 Media Matters Case Study—Step 1: Describe the Program

1997; Zapka et al., 2004), existing structures of the organizations and groups, organizational social system characteristics (e.g., interorganizational linkages, community agency partnerships; Scheirer et al., 1995; Zapka et al., 2004), and factors in the external environment (e.g., competing events, controversy about the program, external political factors, and history and events that happen concurrently with the program; Scheirer et al., 1995; Viadro et al., 1997; Zapka et al., 2004).

The characteristics of the program are also an important influence on program implementation, including the program’s age (new or old), size (large or small), coverage (single- or multisite, local, state, or national), and complexity (standardized or tai-

lored intervention, single or multiple treatments; Viadro et al., 1997). Program characteristics and context affect process evaluation in at least two ways. First, important contextual factors should be identified and measured in process evaluation. Second, as program size and complexity increase, the resources required to monitor and measure implementation will increase.

► **STEPS FOR DEVELOPING A PROCESS-EVALUATION PLAN**

Six steps to developing a process-evaluation plan for an intervention, adapted from Steckler and Linnan (2002a), are illustrated in Figure 1. As reflected in Figure 1, process-

evaluation planning is an iterative rather than linear process, particularly Steps 3 to 5. Each step of the process is described in more detail and illustrated with a case study in the following section. The steps presented in Figure 1 incorporate a detailed understanding of the program and its characteristics, contextual factors, and the purposes of the process evaluation.

Step 1: Describe the Program

In Step 1, the previously planned program is described fully, including its purpose, underlying theory, objectives, strategies, and the expected impacts and outcomes of the intervention. Ideally, this should

COMPLETE AND ACCEPTABLE DELIVERY OF MEDIA MATTERS

The ideally implemented Media Matters program will consist of four essential components: an environmental component focusing on creating a Media Matters intervention team; two curriculum modules, Deconstructing Media Messages and Youth-Produced Media; and a teacher training component.

The Environmental Component

A Media Matters team will be formed at each school to develop a strategic plan for delivering the program across several disciplines within the eighth-grade curriculum as documented by a written plan. Team membership will include at least one administrator, two teachers, and appropriate staff (media specialist/librarian). Additionally, the school environment will be supportive of media literacy/education by (a) strongly limiting the children's exposure to commercial media such as advertisements within the school (i.e., Channel 1 closed circuit TV, etc.) and (b) providing exhibition space and/or presentation time for counteradvertising media messages produced by eighth-grade students.

The Curriculum Component

The Media Matters curriculum is comprised of two primary modules —Deconstructing Media Messages and Youth-Produced Media—and is designed to be delivered during an 8-week period with an average time of 1.5 to 2 hours per week spent directly on the curriculum. The curriculum is designed to be highly participatory. Implementers are encouraged to engage the student participants in a manner that promotes critical thinking and discussion. These qualities will become more vital in the latter portion of the intervention when students are required to perform some role-playing activities and work in teams.

For implementation to be considered ideal, the curriculum should be delivered across multiple disciplines within the eighth-grade curriculum, one of which must include health. A likely combination of disciplines might include social studies, language arts, and health promotion/prevention. The curriculum components are designed to be delivered in sequential order because the knowledge and skills taught in the second require mastering those taught in the first.

The Deconstructing Media Messages module will contain, at a minimum, the following:

- Instructors will deliver Media Messages curriculum in which students view media examples with in-class discussion.
- Instructors will assign students a self-reflection assignment regarding media influence on personal behavior.
- Instructors will engage students in role-playing activities in which they view a scene from a movie depicting a particular risk behavior and then act out how the character could have better handled the situation. They will then enact the consequences of the behaviors.

The Youth-Produced Media module will be characterized by:

- Students working in teams to produce counteradvertising messages designed to promote healthy decisions related to alcohol and tobacco consumption.
- Students participating in the entire production process—brainstorming, scripting, storyboarding, and production.
- Students analyzing and critiquing each group's final product based on its use of the various techniques to increase its effectiveness.
- Counteradvertising messages will be publicly showcased.

The Training Component

Media Matters teachers will obtain needed skills (i.e., effective use of media in the classroom and teaching media production skills) through training sessions delivered by Media Matters program developers. Training will include 1 week during summer and booster training (a half day) in January. Additional consultation and support will be provided as needed. All necessary program materials will be provided during training.

The training will be characterized by:

- Having the appropriate teachers present (reflecting multiple disciplines).
- Coverage of primary content.
- Demonstration of interactive classroom strategies.
- Involvement of teachers through small group discussion, demonstration and feedback, role play, and developing counter messages.

The training will also address the Media Matters team, including:

- Appropriate team membership.
- Effective team functioning.
- The Media Matters team's role and activities in the school.
- Involving teachers, administrators, and staff outside of the Media Matters team.

FIGURE 3 Media Matters Case Study—Step 2: Describe Complete and Acceptable Delivery of the Program

TABLE 1
Elements of a Process-Evaluation Plan, With Formative and Summative Applications

<i>Component</i>	<i>Purpose</i>	<i>Formative Uses</i>	<i>Summative Uses</i>
Fidelity (quality)	Extent to which intervention was implemented as planned.	Monitor and adjust program implementation as needed to ensure theoretical integrity and program quality.	Describe and/or quantify fidelity of intervention implementation.
Dose delivered (completeness)	Amount or number of intended units of each intervention or component delivered or provided by interventionists.	Monitor and adjust program implementation to ensure all components of intervention are delivered.	Describe and/or quantify the dose of the intervention delivered.
Dose received (exposure)	Extents to which participants actively engage with, interact with, are receptive to, and/or use materials or recommended resources; can include “initial use” and “continued use.”	Monitor and take corrective action to ensure participants are receiving and/or using materials/resources.	Describe and/or quantify how much of the intervention was received.
Dose received (satisfaction)	Participant (primary and secondary audiences) satisfaction with program, interactions with staff and/or investigators.	Obtain regular feedback from primary and secondary targets and use feedback as needed for corrective action.	Describe and/or rate participant satisfaction and how feedback was used.
Reach (participation rate)	Proportion of the intended priority audience that participates in the intervention; often measured by attendance; includes documentation of barriers to participation.	Monitor numbers and characteristics of participants; ensure sufficient numbers of target population are being reached.	Quantify how much of the intended target audience participated in the intervention; describe those who participated and those who did not.
Recruitment	Procedures used to approach and attract participants at individual or organizational levels; includes maintenance of participant involvement in intervention and measurement components of study.	Monitor and document recruitment procedures to ensure protocol is followed; adjust as needed to ensure reach.	Describe recruitment procedures.
Context	Aspects of the environment that may influence intervention implementation or study outcomes; includes contamination or the extent to which the control group was exposed to the program.	Monitor aspects of the physical, social, and political environment and how they impact implementation and needed corrective action.	Describe and/or quantify aspects of the environment that affected program implementation and/or program impacts or outcomes.

NOTE: Adapted from Steckler and Linnan (2002a) and Baranowski and Stables (2000).

be conveyed in a logic model that specifies the theoretical constructs of interest, those expected to change, and mediators of the change process (Scheirer et al., 1995; Steckler & Linnan, 2002a). A description of Media Matters, the fictional case example we will use to illustrate process-evaluation planning, is provided in Figure 2. Media Matters is a school-based program with environmental and curricula components

designed to reduce alcohol and tobacco use among youth.

Step 2: Describe Complete and Acceptable Delivery of the Program

The elements that comprise the program are described in more detail in the second step of process-evaluation planning; this includes specific strategies, activities, media

products, and staff behaviors (Scheirer et al., 1995). The goal of this step is to state what would be entailed in complete and acceptable delivery of the program (Bartholomew et al., 2001). A description of complete and acceptable delivery of the program should be based on the details of the program (e.g., program components, theory, and elements in logic model) and guided by an external framework such as the rec-

TABLE 2
Sample Process Evaluation Questions for Fidelity, Dose Delivered, Dose Received, Reach, Recruitment, and Context

	<i>Possible Question</i>	<i>Information Needed</i>
Fidelity	1. To what extent was the intervention implemented consistently with the underlying theory and philosophy?	1. What constitutes high-quality delivery for each component of the intervention? What specific behaviors of staff reflect the theory and philosophy?
	2. To what extent was training provided as planned (consistent with the underlying theory and/or philosophy)?	2. What behaviors of trainers convey the underlying theory and philosophy?
Dose delivered	3. To what extent were all of the intended units or components of the intervention or program provided to program participants?	3. How many units/components (and subcomponents as applicable) are in the intervention?
	4. To what extent were all materials (written and audiovisual) designed for use in the intervention used?	4. What specific materials are supposed to be used and when should they be used?
	5. To what extent was all of the intended content covered?	5. What specific content should be included and when should it be covered? What is the minimum and maximum time to spend on the content?
	6. To what extent were all of the intended methods, strategies, and/or activities used?	6. What specific methods, strategies, and/or activities should be used in what sessions?
Dose received	7. To what extent were participants present at intervention activities engaged in the activities?	7. What participant behaviors indicate being engaged?
	8. How did participants react to specific aspects of the intervention?	8. With what specific aspects of the intervention (e.g., activities, materials, training, etc.) do we want to assess participant reaction or satisfaction?
	9. To what extent did participants engage in recommended follow-up behavior?	9. What are the expected follow-up behaviors: reading materials, engaging in recommended activities, or using resources?
Reach	10. What proportion of the priority target audience participated in (attended) each program session? How many participated in at least one half of possible sessions?	10. What is the total number of people in the priority population?
Recruitment	11. What planned and actual recruitment procedures were used to attract individuals, groups, and/or organizations?	11. What mechanisms should be in place to document recruitment procedures?
	12. What were the barriers to recruiting individuals, groups, and organizations?	12. How will we systematically identify and document barriers to participation?
	13. What planned and actual procedures were used to encourage continued involvement of individuals, groups, and organizations?	13. How will we document efforts for encouraging continued involvement in intervention?
	14. What were the barriers to maintaining involvement of individuals, groups, and organizations?	14. What mechanisms should be in place to identify and document barriers encountered in maintaining involvement of participants?
Context	15. What factors in the organization, community, social/political context, or other situational issues could potentially affect either intervention implementation or the intervention outcome?	15. What approaches will be used to identify and systematically assess organizational, community, social/political, and other contextual factors that could affect the intervention? Once identified, how will these be monitored?

ommended elements of a process-evaluation plan. These elements include fidelity (quality of implementation), dose (dose delivered—amount of program delivered by implementers and dose received—extent to which participants receive and use materials or other resources), and reach (degree to which the intended priority audience participates in the intervention; Steckler & Linnan, 2002a). These four elements, plus two additional elements, are described in more detail in Step 3 below.

Describing fidelity or what constitutes high-quality implementation is often a challenging task (Steckler & Linnan, 2002a). Theory can provide a possible guide for defining fidelity. To illustrate, based on theory, two possible sources of efficacy information are direct experience (experiencing success) and vicarious experience (observing models similar to oneself experiencing success; Bandura, 1986). This suggests two intervention strategies: modeling (participants observing persons similar to themselves practicing a skill) and guided practice (opportunity for participants to practice the skill with constructive feedback and in such a way they experience success). Fidelity pertains to how well the implementation of these strategies reflects the spirit of the theory. For example, the models demonstrating the skills should be people that the participants can identify with, and the verbal and nonverbal behavior of staff leading the guided practice should be emotionally positive, providing gentle redirection only as needed and carefully reinforcing the aspects of the skills practice that are done correctly. In Figure 3, the expected characteristics of the four components of Media Matters are described to illustrate Step 2.

**POTENTIAL PROCESS-EVALUATION QUESTIONS
FOR MEDIA MATTERS**

Through a series of meetings, program planners developed a list of potential process-evaluation questions that included the following:

Fidelity

- To what extent was each of the program elements implemented as planned (as described in “complete and acceptable delivery” in Figure 3)?

Dose Delivered

- Were all intervention components delivered (e.g., did teachers deliver all units of the curriculum)?

Dose Received

- To what extent did instructors participate on the Media Matters team (i.e., coordinate with other team members on a strategic plan for delivering the Media Matters program across several disciplines)?
- To what extent did instructors make changes in their own curriculum to incorporate Media Matters modules?
- Did the school remove commercial advertising/media from school?
- Did students enjoy the Media Matters curriculum and activities?
- Were the Media Matters instructors in the intervention classes satisfied with the curriculum?

Reach

- Was the Media Matters curriculum delivered to at least 80% of the eighth-grade students?
- To what extent did Media Matters instructors participate in training?

Recruitment

- What procedures were followed to recruit teachers to training and to develop the Media Matters team?

Context

Organizational Factors

- Did the school allow common meeting time for Media Matters team planning?
- Did the school provide release time for implementers to attend trainings?

Other

- What other barriers and facilitators influenced delivery of the Media Matters program in the schools?

FIGURE 4 Media Matters Case Study—Step 3: Develop List of Potential Process-Evaluation Questions

TABLE 3
Issues to Consider When Planning Process-Evaluation Methods

<i>Methodological Component</i>	<i>General Definition</i>	<i>Examples of Quantitative and Qualitative Approaches</i>
Design	Timing of data collection: when and how often data are to be collected.	Observe classroom activities at least twice per semester with at least 2 weeks between observations. Conduct focus groups with participants in the last month of the program.
Data sources	Source of information (e.g., who will be surveyed, observed, interviewed, etc.).	For both quantitative and qualitative approaches, data sources include participants, teachers/staff delivering the program, records, the environment, etc.
Data collection tools or measures	Instruments, tools, and guides used for gathering process-evaluation data.	For both quantitative and qualitative approaches, tools include surveys, checklists, observation forms, interview guides, etc.
Data collection procedures	Protocols for how the data collection tool will be administered.	Detailed description of how to do quantitative and/or qualitative classroom observation, face-to-face or phone interview, mailed surveys, etc.
Data management	Procedures for getting data from field and entered; quality checks on raw data forms and data entry.	Staff turn in participant sheets weekly; process-evaluation coordinator collects and checks surveys and gives them to data entry staff. Interviewers transcribe information and turn in tapes and complete transcripts at the end of the month.
Data analysis/synthesis	Statistical and/or qualitative methods used to analyze, synthesize, and/or summarize data.	Statistical analysis and software that will be used to analyze quantitative data (e.g., frequencies and chi squares in SAS). Type of qualitative analysis and/or software that will be used (e.g., NUD*IST to summarize themes).

Step 3: Develop a List of Potential Process-Evaluation Questions

In Step 3, the initial wish list of possible process-evaluation questions based on the program (without full consideration of resources) needed is drafted. (Alternatively, these can be stated as process objectives.) This initial draft of process-evaluation questions can be organized by intervention component and guided by the elements of a process-evaluation plan. The elements (or components) of a process-evaluation plan are provided in Table 1 and include fidelity, dose delivered, dose received, reach, recruitment, and context (developed from Baranowski & Stables, 2000; Steckler & Linnan, 2002a). Each component can be used for both formative and summative purposes, as shown in the table.

To illustrate, a sampling of potential process-evaluation questions for a so-called generic school-based program is presented in Table 2; also noted is the information needed to answer each process-evaluation question, which should also be identified in this step. As noted previously, defining fidelity can be challenging and should be based on the underlying theory and philosophy of the program. Specifying dose delivered is fairly straightforward after the components of the intervention are defined because this pertains to the parts of the intervention that staff deliver. Dose received, the expected participant reaction or involvement, is somewhat more challenging in that it requires thoughtful consideration of the expected reactions and/or behaviors in participants. Note that dose

received is different from reach, discussed below! Although the quality of training is presented as a fidelity question in Table 2, it can also be considered a separate intervention component in which dose, reach, and fidelity are assessed, as in the case example (see Figure 3).

Process evaluation for reach, recruitment, and context often involves documentation and record keeping. Part of the planning for these elements involves specifying the specific elements to document or monitor. Attendance or records of participation often assess the reach of the intervention into the priority population. However, attendance records must be compared with the number of potential program participants (the number of people in the priority population) to be meaningful. Note that reach can be reported

► Process-Evaluation Methods

Because the process evaluation of the Media Matters program will be for both formative and summative purposes, one of the first issues to consider will be the timing for data collection and reporting. This required the planners to develop a data-collection, analysis, and reporting scheme that would assure that the program planners would receive formative feedback in a timely manner so that they could make adjustments to the program if necessary. Media Matters would also require a highly trained and coordinated data-collection and management staff. However, to maximize internal validity, evaluation staff will not perform both formative and summative assessments; an independent evaluation team that had no part in the intervention design or planning would be utilized for summative measures.

Potential process-evaluation methods (data sources, data-collection tools, and timing) for the Media Matters curriculum are summarized below:

Implementation fidelity for Media Matters curriculum. Possible data sources and methods include reports from teachers implementing the curriculum and Media Matters staff observation; both require developing a checklist of the expected characteristics of implementation.

Dose delivered for Media Matters curriculum. Possible data sources and methods include reports from teachers implementing the curriculum and Media Matters staff observation; both require developing a checklist of content to be covered and methods to be used in the curriculum.

Dose received. Possible data sources include teachers, staff, administrators, and students in the school; methods and tools include administering brief satisfaction scales and conducting interviews or focus groups with open-ended questions.

Reach. Data sources are the classes in which the Media Matters curriculum is taught; for each Media Matters session, the teacher could write down and report the head count, have students sign in on a sign-in sheet, or check students' names off on a class roll.

Recruitment. Media Matters staff document all activities involved in identifying and recruiting teachers for the Media Matters curriculum training.

Context. Possible data sources include school teachers, staff, and administrators. The primary method and tool are interviews with open-ended questions to assess barriers to implementation.

FIGURE 5 Media Matters Case Study—Step 4: Determine Methods for Process Evaluation

► Program Resources, Context, and Characteristics

The Media Matters program is somewhat complex in terms of size and researcher control of the intervention. The initial study will involve two treatment and two comparison middle schools, each having between 250 and 350 eighth graders. Some aspects of the program are standardized (e.g., the curriculum), whereas other aspects (e.g., the environmental component) are tailored to the specific school. One of the primary issues that program planners had to consider when prioritizing and developing the process-evaluation questions was the project staff and respondent burden. Because the program is to be delivered within schools by instructors, training the instructors in the use of the curriculum is essential. Additionally, planners wanted to minimize the burden placed on these instructors in terms of collecting process-evaluation data or intruding on them a great deal during class times for observations. However, the planners wanted to ensure that the process data had a high level of reliability and validity. Finally, because of budget constraints, the project could devote only 1.5 FTE staff for process evaluation (coordination, data collection, management, entry, and analysis).

FIGURE 6 Media Matters Case Study—Step 5: Consider Program Resources, Context, and Characteristics

for each session or activity within each component of the program as well as overall for the program. Effective process evaluation for

recruitment involves a clear articulation of recruitment procedures as well as developing mechanisms to document recruitment activities and

barriers to recruitment. Similarly, an effective assessment of contextual issues requires that the team identify potential factors in the organizational, community, and political/social environment that may affect program implementation or program outcome and that they develop effective mechanisms to monitor or assess these factors. See Figure 4 for the Media Matters process-evaluation questions from Step 3.

Step 4: Determine Methods for Process Evaluation

In Step 4, the team begins to consider the methods that will be used to answer each question in the wish list of process-evaluation questions. Considering methods without also considering the resources needed to carry out the process evaluation is

TABLE 4
Final Process-Evaluation Plan for Media Matters Curriculum Implementation

	<i>Process-Evaluation Question</i>	<i>Data Sources</i>	<i>Tools/Procedures</i>	<i>Timing of Data Collection</i>	<i>Data Analysis or Synthesis</i>	<i>Reporting</i>
Fidelity	1. To what extent was the curriculum implemented as planned?	Teachers and Media Matters staff	Self-reported checklist and observation with checklist	Teachers report weekly; at least two observations per teacher scheduled	Calculate score based on percentage of intended characteristics included	Formative—informal feedback to staff weekly; summative—summarized by module, school, and overall
Dose delivered	2. To what extent were all modules and units within the curriculum implemented?	Teachers and Media Matters staff	Self-reported checklist and observation with checklist	Teachers report weekly; at least two observations per teacher scheduled	Calculate score based on percentage of intended modules and units included	Formative—informal feedback to staff weekly; summative—summarized by module, school, and overall
Dose received	3. Did students enjoy the Media Matters curriculum and activities? 4. Were Media Matters instructors satisfied with the curriculum?	Teachers and students	Focus groups with open-ended questions for teachers; brief satisfaction scales administered to students	Focus groups and scales administered at end of semester in which curriculum implemented	Teachers—themes identified through qualitative analysis; students—response frequencies summarized	Summative—reported after curriculum implementation is completed
Reach	5. Was the intervention delivered to at least 80% of the eighth-grade students?	Teachers	Classroom rosters	Taken for each class in which Media Matters is taught	Look at number of students participating in at least 80% of class sessions/total number of students	Formative—report weekly by class; summative—report by module, school, and overall
Recruitment	6. What procedures were followed to recruit teachers to Media Matters training?	Media Matters staff	Media Matters staff document all recruitment activities	Daily	Narrative description of procedures	Formative—examined weekly to prevent/solve problems; summative—described for project overall
Context	7. What were barriers and facilitators to implementing the Media Matters curriculum?	Teachers	Focus groups with open-ended questions for teachers	Administered at end of semester in which curriculum was implemented	Themes identified through qualitative analysis	Summative—reported after curriculum implementation is completed

► The Final Process-Evaluation Plan

After weighing carefully all the potential process questions that the program planners would ideally ask against the complexity of a program with limited resources, the team decided to focus on fidelity of implementation of the curriculum, reach of the curriculum into the student population, dose delivered (extent of curriculum implementation), dose received (satisfaction among students and teachers), and barriers to implementation (context).

The process-evaluation methods (data sources, tools/procedures, timing of data collection, data analysis/synthesis, and reporting) are summarized in Table 4. For each process-evaluation question the most appropriate data sources have been identified, and the instruments and methods used to collect that data are outlined. For example, Media Matters program planners determined that the most appropriate methods of assessing program fidelity (answering the question, “Was the program implemented as planned?”) was to use a combination of periodic observations by evaluation staff during program implementation and to collect reports from the instructors implementing the program. The decision to conduct periodic observations necessitated the development of an observation instrument (checklist) and protocol for adequately evaluating the implementation sessions. To ensure reliability and validity of the evaluation instruments, an evaluation protocol was developed and outlined during training sessions delivered to the evaluation staff. Additionally, the evaluation instruments were pilot-tested prior to actual implementation of the program.

FIGURE 7 Media Matters Case Study—Step 6: Finalize the Process-Evaluation Plan

difficult. Accordingly, Steps 4 and 5 are often considered simultaneously. However, for clarity of presentation, they are presented separately here.

Primary issues to consider in planning process-evaluation methods include design (when data are to be collected), data sources (from where the information will come), tools or measures needed to collect data, data-collection procedures, data-management strategies, and data-analysis or data-synthesis plans (see Table 3). Both qualitative and quantitative data-collection approaches are used in process evaluation. Common qualitative data-collection methods include open-ended questions in interviews and focus groups, logs, case studies, document review, open-ended surveys, and content analysis of videotapes; common quantitative methods include surveys, direct observation, checklists, attendance logs, self-administered forms and question-

naires, and project archives (Bartholomew et al., 2001; Devaney & Rossi, 1997; McGraw et al., 2000; Steckler & Linnan, 2002a). See Baranowski and Stables (2000) for a more detailed presentation of qualitative and quantitative aspects of data collection for each component of process evaluation.

The selection of specific methods is based on the process-evaluation questions (or objectives), resources available, as well as the characteristics and context of the program. Using multiple methods to collect data is recommended because different data sources may yield different conclusions (e.g., teacher report of classroom activity vs. observation of classroom activity; Bouffard et al., 2003; Helitzer et al., 2000; Resnicow et al., 1998). How the information will be used (for formative—immediate, or summative—longer term purposes) and the turnaround time between data collection to reporting are critical issues to consider. Data

that cannot be collected in a timely manner for their intended purpose may not need to be collected! Another issue concerns the level of objectivity needed for data collection and whether to use internal and/or external data collectors (Helitzer & Yoon, 2002). For example, although the same instruments or tools may be used for both purposes, different staff and reporting systems may be needed for summative and formative process evaluations.

Because process evaluation can generate voluminous amounts of information, planning data management and analysis is essential. Where do data go after they are collected? Who enters data? What is the protocol for data entry? Having an analysis and reporting plan is equally important. What type of data analysis will be conducted (e.g., frequency counts, qualitative analysis, means)? Who analyzes the data? How long will data analysis take? When will summary reports be generated? Who receives summary reports? When are the reports needed? See Figure 5 for the preliminary process-evaluation methods for Media Matters from Step 4.

Step 5: Consider Program Resources and Program Characteristics and Context

In Step 5, the team considers the resources needed to answer the potential process-evaluation questions listed in Step 3 using the methods proposed in Step 4. More than likely, the team has already begun to consider resource limitations even as the wish list of questions is growing! In addition to resources such as skilled staff, the team needs to consider the characteristics of the program itself. Programs that are longer, more complex, meet frequently, and/or have large numbers of partic-

ipants will require more resources, including time, to implement and to monitor. Certain settings (e.g., schools) may have scheduling and other constraints. If the intervention involves working collaboratively with a number of organizations or groups, complexity increases.

Resource considerations include the availability of qualified staff to develop and implement all aspects of the process evaluation as well as the time needed for planning, pilot-testing instruments and protocols, data collection, entry, analysis, and reporting. Program planners must also consider the feasibility of process data collection within the context of the intervention (e.g., disruptiveness to the intervention or the organization's regular operations) as well as staff and respondent burden. If new data-collection tools are needed, consider the time, staff, and level of expertise required. Most projects find it necessary to prioritize and reduce the number of the process-evaluation questions to accommodate project resources. See Figure 6 for the Media Matters analysis of program resources, characteristics, and context in Step 5.

Step 6: Finalize the Process-Evaluation Plan

The final process-evaluation plan emerges from the iterative team-planning process described in Steps 3 to 5. Although priorities for process evaluation will vary in different projects, Steckler and Linnan (2002a) recommended a minimum of four elements of process evaluation: dose delivered, dose received, reach, and fidelity. They also recommended documenting recruitment procedures and describing the context of the intervention. In the final plan, the process-evaluation questions should be described for each component of the intervention and

may vary somewhat by component. See Figure 7 and Table 4 illustrating Step 6 for the Media Matters curriculum component. Table 4 provides a template for a final process-evaluation plan.

► CONCLUSIONS

The components of and steps involved in process-evaluation planning have been identified in previous studies. After considering issues concerning process-evaluation purposes, process-evaluation methods, and the context in which health-promotion programs are implemented, we present a six-step approach to planning process evaluation, illustrated with a fictional case study. This description of how to plan process evaluation can provide further guidance for practitioners who wish to develop comprehensive process-evaluation plans for health-promotion programs.

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