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Monitoring Your Progress

Evaluating the Process and Outcomes



Because of the lack of scientific evidence on the effectiveness of youth tobacco-use cessation interventions, rigorous evaluations are more critical for these interventions than they might be for others. A simple but thorough evaluation will help you determine how closely you have followed your original plans and assess whether and how well your intervention fared in helping youth to quit tobacco use. A *process evaluation* examines how well you implemented and operated your intervention. An *outcome evaluation* determines whether the strategies you used were effective in attaining your goals. Evaluations also can be used to demonstrate that you used your resources appropriately to meet the needs of the community (i.e., for accountability).¹ In addition, you can use evaluation data to adjust your intervention and increase its effectiveness and impact over time. Finally, you will help other programs by increasing knowledge about which tobacco-use cessation interventions actually help youth quit—information that is critically needed at this time.

As part of any evaluation, you should document who is conducting what activities, under what conditions, for whom, and with what level of effort.² Depending on the type of intervention you select and the goals and objectives you want to achieve, you may need to consult with evaluation experts or partner with local researchers interested in intervention effectiveness. Only you will be able to determine what type of evaluation you can conduct and what assistance you will need. However, all programs should conduct basic evaluation activities to determine if their interventions are helping the target population.

If you choose a prepackaged intervention, some evaluation data may already be available. This will help you determine the level of evaluation you need to

This chapter will help you

- Understand the importance of evaluating your intervention.
 - Develop an evaluation plan.
 - Evaluate how well you have implemented your intervention (i.e., a process evaluation).
 - Evaluate whether your intervention is effectively meeting your goals and addressing the needs of your target population (i.e., an outcome evaluation).
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conduct. If an intervention has been formally evaluated in an appropriate manner, you can conduct a less rigorous evaluation, because you will already have some sense of the intervention's effectiveness. Unfortunately, most of the interventions currently available have not been rigorously evaluated.

When reviewing evaluation data from an existing intervention, determine whether the evaluation was conducted by the people who developed the intervention or by external evaluators who might have been more objective. If an intervention has not been formally evaluated or if the previous evaluations were flawed, you will need to conduct a more rigorous evaluation to determine the intervention's effectiveness for your community.

The Ideal Evaluation to Test Effectiveness

Not all methods for collecting and comparing data are equally valid. The best way to determine the effectiveness of an intervention is to use an *experimental design* (also called *randomized control trials*). This type of evaluation allows you to determine whether different approaches or interventions result in different outcomes. Participants are randomly assigned to different interventions, and results are measured over time. If the participants are all randomly selected, they should be similar in important ways (e.g., similar sex, age, level of tobacco use, achievement in school, socioeconomic status) regardless of the intervention group to which they are assigned.

In some settings, particularly schools, randomly assigning individuals to different intervention groups can be difficult. One solution is to randomly assign an entire school, rather than individual students, to an intervention. This method is an example of a *quasi-experimental design*, which is the second most useful type of evaluation.

If randomly assigning individuals or schools to an intervention group is not appropriate or feasible, intervention groups can be distinguished according to specific conditions (e.g., school characteristics) or by specific characteristics of participants that may affect the outcome (e.g., age, tobacco use, school achievement). Schools with similar characteristics or participants can be used as control groups.

Experimental and quasi-experimental designs provide data that allow you to compare groups and determine whether an intervention has been effective. Unlike either of these designs, data collected on a single group receiving the same intervention does not allow for comparison. Thus, you cannot determine whether that intervention was effective.

Describing the Intervention and Participants

Before you implement an intervention, you must document the specific activities of your intervention and key information about potential participants. You should be aware of basic characteristics of the youth who express interest in your intervention, as well as those who actually participate. This information will help you determine whether you are reaching your target population or if you need to use different recruitment strategies to capture their interest. You also should prepare an evaluation plan (see Chapter 2) that lists your objectives and describes the basic elements of your intervention.

INFORMATION ABOUT THE INTERVENTION

- Develop SMART (specific, measurable, attainable, realistic, and time-sensitive) objectives for the intervention.
- Define what outcomes will qualify as cessation (e.g., total abstinence for a defined period of time assessed at 6 months after the intervention; whether cessation is validated biochemically or by peers).
- Describe the recruitment methods you will use (e.g., communication channels, sources of referrals).
- Identify selection criteria to determine who might use the intervention (e.g., youth with a certain tobacco-use status, frequency of use, level of dependence, motivation to quit, stage of readiness for change).
- Indicate whether consent for participation (e.g., informed, parental) is required and how it will be obtained.
- Identify the types of facilitators or providers that will be used (e.g., the qualifications required and/or selection criteria used; individual characteristics of personnel; length and type of any training provided; cost of providing the interventions).
- Identify the intended location of the intervention (i.e., the type of facility or space required) and/or the method of delivery (e.g., telephones, computers).
- Describe the planned length of the intervention (i.e., the number and length of sessions).
- Describe the materials to be used and their costs (e.g., print materials, software, videos, development costs, reproduction costs per participant).
- Indicate whether incentives will be used to increase retention (including the types and cost of the incentives).
- Indicate whether pharmacotherapy will be provided, encouraged without being provided, or neither encouraged nor provided.

ESSENTIAL INFORMATION ABOUT PARTICIPANTS

- Collect contact information from participants, including their addresses, telephone numbers, e-mail addresses, and the names and telephone numbers of three people who would likely be able to contact them if they moved (for evaluation follow-up).
- Ask participants about the amount and type of tobacco they use and the frequency with which they use it now and have used it in the past.
- Screen for psychological or behavioral problems and high-risk behaviors.
- Measure participants' levels of motivation to quit.

OPTIONAL INFORMATION ABOUT PARTICIPANTS

- Collect demographic information on participants (e.g., sex, race/ethnicity, school status, type of school attended, highest grade completed).
- Ask about tobacco use by family members and friends.
- Ask about participants' previous cessation attempts and concurrent use of other interventions.
- Ask participants about their knowledge, attitudes, and beliefs about tobacco use and cessation interventions.

Evaluating Implementation

To evaluate how well your organization implemented its planned intervention, you should conduct a process evaluation. The resulting information can help program managers and administrators identify strengths, weaknesses, and opportunities for improvement.

Although you will have previously documented your implementation plans and your intended audience, you are now documenting exactly what is happening and who is participating. For example, you may plan to implement five 1-hour group sessions. But once you begin the intervention, you find that you can only deliver three 1-hour and two half-hour sessions because of scheduling constraints. Although this change might not seem significant, decreasing the dosage of the intervention can affect the outcome. You might need to conduct additional sessions to maintain the intended dosage.

When conducting a process evaluation of a youth tobacco-use cessation intervention, certain key questions should be asked. Figure 8 lists these questions and briefly describes the sources that can help you answer them and how the resulting information can be used. The specifics of how and when information

is gathered will vary depending on your program's objectives and available resources. However, the primary methods include attendance logs, client surveys, and focus groups.

FIGURE 8. Key Questions for Process Evaluations

KEY QUESTIONS	SOURCES OF INFORMATION	HOW TO USE THE INFORMATION
How many participants attended the first session?	Telephone logs (for interventions delivered via telephone). Records of meeting attendance.	To determine the relative success of your recruitment methods.
How did participants hear about the intervention?	Entrance or pre-entrance surveys.	To determine the success of your marketing efforts and adjust recruitment methods for future activities.
How many participants completed the intervention?	Exit or post-intervention surveys. Attendance records.	To determine the retention rate.
How satisfied were the participants with the quality of the services?	Exit or post-intervention surveys or focus groups. Follow-up surveys or focus groups with youth who dropped out of the intervention.	To understand reasons for participant retention and identify areas for improvement.
What types of activities and how many of each type occurred during the implementation of the intervention?	Logs of intervention activities that were actually implemented.	To document how closely the intervention followed your plan.
What was the amount of time spent with participants?	Logs of session length and frequency.	To document intervention fidelity and determine the allocation of resources (financial or otherwise).
What aspects of the intervention deviated from the protocol?	Logs of intervention activities that were actually implemented and exceptions that were made.	To document intervention fidelity.
What staffing was required to implement the intervention?	Staff logs that note the number of hours worked and the rate of pay per hour.	To determine the allocation of human resources and costs.
How many staff training workshops were conducted (if relevant)? What evidence existed that the training helped staff members deliver the intervention?	Logs of staff training hours. Staff surveys.	To determine the extent of staff training needed for a given level of effectiveness and to determine how much training improved staff effectiveness.
What money, services, and materials were used to provide the intervention?	Logs of program expenditures and donations of services and materials.	To determine if the intervention is cost-effective.

The information collected during the planning phase and during and after implementation will help you to assess how well you followed your implementation plan or protocol. Closely following the protocol throughout implementation will help you make more accurate conclusions about the effectiveness of your intervention. However, you may need to make some changes to your initial plan (e.g., adapting the intervention to the environment in which it is delivered or modifying it to respond to the changing needs of your target population). When this happens, document all changes from your original plan and take these changes into account in your evaluation.

Evaluating Effectiveness

An outcome evaluation will help you determine whether your intervention is meeting its objectives and understand the effect it is having on the target population. Outcome evaluations contribute to your knowledge as the intervention provider and to the knowledge in the field about which youth tobacco-use cessation interventions are effective. The data collected during the process evaluation also will help you to assess the relevance of the data collected during the outcome evaluation. Figure 9 lists these questions and briefly describes the sources that can help you answer them and how the resulting information can be used.

You can use the outcome evaluation to measure the quit rate of the participants in your intervention and determine whether this rate was higher than what you would expect for youth of similar backgrounds who did not receive the intervention (ideally, you will have a control group to compare your results against). Strongly consider measuring quit rates again after a follow-up period to determine if the intervention had a lasting effect. In addition to measuring intervention success, you should measure how many youth who initially agreed to participate actually remained in the intervention and how well they complied with the intervention.

When conducting an outcome evaluation, you should consider the following key concepts:

- **Retention.** Retention is expressed as a percentage that reflects the number of participants who stayed with the intervention through the last session divided by the number of participants who attended the first session. For example, if the intervention is intended to occur weekly for 8 weeks and 50 students participate in the first session but only 25 participate in the last session, the retention rate is 50%. This information is important because it gives you a sense of whether participants continued with the intervention long enough to receive the intended treatment. This is usually measured in the process evaluation.

FIGURE 9. Key Questions for Outcome Evaluations

KEY QUESTIONS	SOURCES OF INFORMATION	HOW TO USE THE INFORMATION
<p>How many tobacco users who started the intervention were no longer using tobacco</p> <ul style="list-style-type: none"> • At the end of the intervention? • 6 months post-intervention? • 12 months post-intervention? 	Exit and post-intervention client surveys conducted at end of intervention and regularly thereafter (6 and 12 months preferred).	To determine the effectiveness of the intervention.
How many tobacco users were chemically validated (if chemical validation was used)?	Records of chemical validation tests (e.g., expired carbon monoxide or saliva cotinine testing).	To confirm reports of quitting.
<p>How many serious quit attempts (e.g., >24 hours of nonuse with the intention of quitting) were made by each tobacco user</p> <ul style="list-style-type: none"> • At the end of the intervention? • 6 months post-intervention? • 12 months post-intervention? 	Exit and post-intervention client surveys conducted at end of intervention and regularly thereafter (6 and 12 months preferred).	To compare the number of youth who attempted to quit with the number who successfully quit.
Are individuals using other types of tobacco besides cigarettes (e.g., chew, dip, bidies, cigars, pipes)?	Entrance or pre-entrance surveys and post-intervention client surveys.	To document all tobacco use and to determine whether smokers are switching to other tobacco products instead of quitting.
<p>What was each individual's longest period of abstinence</p> <ul style="list-style-type: none"> • At the end of the intervention? • 6 months post-intervention? • 12 months post-intervention? 	Exit and post-intervention client surveys conducted at end of intervention and regularly thereafter (6 and 12 months preferred).	To provide another outcome measure for youth who did not quit for good (i.e., did not meet the primary goal of the intervention).
<p>How motivated, prepared, and/or confident were participants to quit</p> <ul style="list-style-type: none"> • At the beginning of the intervention? • At the end of the intervention? • 6 months post-intervention? • 12 months post-intervention? 	Entrance or pre-entrance surveys. Exit and post-intervention client surveys conducted at end of intervention and regularly thereafter (6 and 12 months preferred).	To determine how motivation was influenced by the intervention and how motivation influenced quitting.
<p>If participants are smokers, how many cigarettes do they smoke (e.g., each day, each week, each month)?</p> <p>How much of a cigarette do they smoke?</p> <p>What quantity of tobacco in other forms do participants use?</p>	Entrance and post-intervention client surveys.	To track changes in consumption for youth who did not quit or remain abstinent.

- **Implementation Compliance.** The implementation compliance rate indicates how many participants attended all or most of the sessions. This measure provides a sense of the dose or amount of treatment that participants actually received. This information also will help you determine how many participants received the intervention according to protocol.
- **Follow-up Period.** The follow-up period is the point in time after the intervention has ended at which tobacco use is measured again. A longer follow-up period (e.g., 6 months) gives you more confidence that participants will maintain their cessation. For the follow-up survey, you should ask whether participants used any other interventions, services, or pharmacotherapy outside of the intervention being evaluated that might have influenced treatment success.
- **Quit Rate.** The ideal outcome for your intervention is complete abstinence from tobacco use for a defined period after the intervention. This outcome might not be easy to achieve, because relapse is common with tobacco use. To determine quit rates, measure participants' tobacco use at the beginning of the intervention (i.e., the baseline), at the end of the intervention, and at a defined period after the intervention. Data collected at 6 months or longer after the intervention has ended are most reliable. The quit rate also should be based on the number of youth who attended the first session, not the number who attended the last session.

Using Evaluation Data

As discussed in Chapter 2, evaluation can be used to demonstrate accountability to program stakeholders (e.g., partner organizations, project administrators and managers, participants). Sound evaluation data also will allow you to improve your intervention over time and help others do the same. Understanding basic evaluation methods will help you to determine if a previously evaluated intervention will meet your program's needs. If you are considering a prepackaged cessation intervention, you should request the same type of data that we have suggested you collect for your own evaluation, particularly long-term quit rates.

References

1. MacDonald G, Starr G, Schooley M, et al. *Introduction to Program Evaluation for Comprehensive Tobacco Control Programs*. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2001.
2. Nutbeam D, Smith C, Catford J. Evaluation in health education: a review of progress, possibilities, and problems. *Journal of Epidemiology and Community Health* 1990;44(2):83–89.



EXAMPLE A-5**How One State Developed a Tobacco Quitline for Youth**

As part of its Tobacco Prevention and Control Program (TPCP), a health department in a western state decided to implement a statewide telephone quitline for youth. Once officials had chosen an intervention method, they developed plans to evaluate its effectiveness. Using previous experience with other tobacco-use cessation services and data from other quitlines, the staff overseeing the intervention established outcome expectations by which to measure the intervention's success.

TPCP staff members worked with the contractor operating the quitline to develop an extensive evaluation protocol. This protocol included assessing tobacco use for each caller, conducting a small satisfaction survey at 3 months post-intervention, and conducting a quit-rate survey 6 months after the intervention.

Staff members also tracked demographic information, changes in readiness to quit among youth who participated in multiple calls, and changes in attitude and confidence in quitting or staying quit. To evaluate how well the intervention was implemented and operated, they also conducted a process evaluation. Process measures, including telephone protocol issues (e.g., response rates, length of time required to return calls left on voice mail), were tracked through monthly and quarterly progress reports.

Examples A and B show how one state health department and one rural county school system chose and implemented a youth tobacco-use cessation intervention.



EXAMPLE B-5

A Rural County High School's Cessation Intervention

Responding to concerns from students, a school system in a county with a largely rural population decided to expand its tobacco-use prevention intervention to include a cessation component for local high school students. The cessation work group established to oversee this project understood the importance of determining the intervention's level of success, and they planned evaluation activities early in the process. To cover the range of activities involved in the intervention, they divided their objectives into those related to process and those related to outcome.

Process objectives included the following:

- By October of the upcoming school year, implement a tobacco-use cessation intervention for youth at the county high school.
- Serve at least 90 students with this intervention, called Teens In Control, by the end of the same school year.

Outcome objectives included the following:

- By the end of the school year, decrease the number of detentions and suspensions related to tobacco use by one-third.
- By the end of the school year, increase the number of quit attempts reported by youth who currently use tobacco.
- By the end of the school year, increase the number of youth who report quitting tobacco use.

Student volunteers from a local community college helped conduct surveys and collect data to evaluate the intervention. Because the intervention was not fully implemented until November, services lapsed during the holiday break. As a result, some students did not complete the intervention (60 students completed the intervention the first year). Intervention facilitators were confident that they could solve this problem by starting earlier in the school year. Work group members determined that additional marketing efforts were needed to let students (and their parents) know about the cessation resources available to them.