



# Health Workforce Training Program Evaluation Toolkit



SCHOOL OF PUBLIC HEALTH  
BEHAVIORAL HEALTH WORKFORCE RESEARCH CENTER  
UNIVERSITY OF MICHIGAN

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## SECTION 1

# Why Evaluate Training Programs?

This section provides an overview of what program evaluation entails and why it is important for the continued success of health workforce training programs.

# Program Evaluation: An Overview

Training program evaluation is the systematic and continual process of using measurable criteria to assess a program's progress toward fulfilling established competencies and goals.

## Why Evaluate Training Programs

Program evaluations help program officials understand how the activities, resources consumed, goals, and outcomes are linked. Evaluation provides valuable information about the quality of a training program, its effectiveness in training and growing the health workforce, and how current activities fit within the larger mission, vision, and values of an institution. It also helps ensure that training activities serve the purpose for which they were intended and make the best use of available financial and staffing resources.<sup>1</sup>

Evaluation results are useful for guiding decision-making, program maintenance efforts, and program growth. The evaluation process creates opportunities for gathering and utilizing data prior to, during, and after new models of workforce training are implemented. The information provided by evaluation provides useful information for stakeholders, those persons or organizations who have an interest in the program, or are affected by its outcomes.<sup>1</sup>

**Other reasons for evaluating training programs include:**

1. **Identification of new and different perspectives on the training.**
2. **Gaining insight into gaps and future needs to address through training.**
3. **Developing strategies for improvement and optimization of training activities.**
4. **Selection of alternative methods to improve performance.**

**E**valuation provides valuable information about the quality of a program, its effectiveness in training and growing the health workforce, and how its activities fit within the institution's larger mission, vision, and values.

Evaluation also creates opportunities for data collection. Health workforce programs maintain accountability to their funders and legislators through reporting on performance measures. These performance measures provide the basis for performance reports that indicate the extent to which a program is achieving its set goals and objectives, as well as detailed information on trainee performance and achievements.

Program evaluation is also often a necessary component for securing future grant funding. Thorough evaluation of a well-run health workforce training program demonstrates how the program is making a difference as well as the value the program brings to the surrounding community. Evaluation results help funders assess the quality and impact of a funded program and make future grant decisions based on demonstrated accountability.

## Aspects of Evaluation to be Covered

This toolkit provides a roadmap for comprehensively evaluating health workforce training programs. Evaluation strategies detailed in this Toolkit generally fall into **four categories**:

1



**COURSE/CURRICULUM  
EVALUATION BY  
PROGRAM**

2



**TRAINER EVALUATION  
BY STUDENTS**  
(also self-evaluation)

3



**EVALUATION OF  
STUDENTS / TRAINEES  
BY SUPERVISORS**

4



**COURSE / CURRICULUM  
EVALUATION  
BY PRECEPTORS**







This section provides definitions of terms that will be used throughout this toolkit and provides an overview of different types of evaluation that may be useful for your program.

## SECTION 2

# Types of Evaluation

TABLE A Useful Definitions

Reviewing the following program evaluation terms may be helpful when planning, reviewing, and revising a program evaluation. Many of these terms are used throughout the toolkit to describe various components of the evaluation process.

	<b>GOAL</b>	A broad, simple, and concise statement of intent that conveys a long-term expectation of what will be accomplished as a result of the program. Goals serve as the foundation for developing program objectives. <sup>2, 3</sup>
	<b>OBJECTIVE</b>	A brief, specific, and measurable statement that describes program activities and how they will achieve desired results. Multiple objectives are typically needed to address a single goal. <sup>2</sup>
	<b>LOGIC MODELS</b>	Graphic depictions of the relationship between program activities and the program's intended effects.
	<b>INDICATORS</b>	Observable, specific, and measurable program components that demonstrate progress toward a specific outcome or activity. They are used to monitor progress in achieving impact and outcomes.
	<b>OUTCOMES</b>	The desired changes in someone or something that will ideally result from a program's activities.
	<b>MONITORING</b>	Refers to the tracking of changes in program outcomes over time.
	<b>EVALUATION PLANS</b>	Communicate intended strategies for measuring all aspects of a program. They comprise all boxes and arrows in a program's logic model.
	<b>FORMATIVE EVALUATION</b>	The process of testing various aspects of a program during program development and implementation. This type of evaluation provides feedback on what is working in a program and direction on how to best achieve program goals and/or make program improvements. <sup>4</sup>
	<b>SUMMATIVE EVALUATION</b>	The process of measuring changes that occur in impacts, output, and outcomes associated with program activities.
	<b>SURVEILLANCE</b>	The continuous process of routine data collection on various components over regular intervals of time. Surveillance systems are a source of program evaluation data, especially regarding long-term and population-focused outcomes, as well as a resource for formative (pre-implementation) evaluation.

# Formative Evaluation

The purpose of this type of program evaluation is to “test” various aspects of the program. This process occurs during program development or early in the implementation process.

## Process (Implementation) Evaluation

Process evaluations assess whether a program has been implemented with fidelity. This type of evaluation involves contrasting actual and planned program performance. Process evaluations often necessitate examining whether the planned activities are taking place, who is conducting the activities, who the activities reach, and whether the necessary inputs have been allocated.

Measurements for which contrasting actual and planned performance may be helpful include:

- Location where program is provided (e.g., rural, suburban, urban)
- Staffing for program
- Number of students/trainees enrolled in the program
- Number of classroom/training meetings delivered
- Number of clinical training sessions delivered
- Number of populations represented or served
- Number of practice sites represented
- Number of professions trained
- Number of practice settings targeted

FIGURE 1

## PROCESS EVALUATION TIPS

The following steps and associated strategies can help ensure a more successful program implementation.



STEP		STRATEGIES
1	Determine if trainees participated in each component of the training program.	Collect and assess number(s) of trainees reached; professional roles; experience levels of trainees and trainers; diversity of trainees and trainers.
2	Determine if all elements of the training program were delivered as intended (fidelity).	Establish a protocol for trainers; provide a manual or guide for trainers; observe trainers; require trainers to keep a log of feedback learned and instruments used during training delivery.
3	Determine the costs of developing and delivering training.	Assess staff salaries and fringe; faculty, supply, and materials cost.

# Summative Evaluation

Summative evaluations are typically completed after program implementation or once the program is well-established.

## Impact Evaluation

Impact evaluations assess a program's effectiveness in achieving its set goals.<sup>4</sup> It measures intermediary outcomes such as changes in attitudes, behaviors, and knowledge that connect to intended and unintended long-term program outcomes. Items assessed through impact evaluation are best measured before and after the start of the evaluation data collection process, such as at the beginning of an academic semester and at the conclusion.<sup>4</sup>

Some items that impact evaluation may consider include:

- Trainee mastery of learning course subject matter
- Trainee knowledge of integrated behavioral health competencies
- Changes in trainees' clinical training skills
- Changes in trainee competency in working within an integrated care team

## Outcome Evaluation

The purpose of this type of evaluation is to assess how the program actually performs and the effect that training had on learners and their organizations. Outcome evaluation seeks to answer the questions, "was the program effective?" and "Did this program meet the objective(s)?"

This type of evaluation may include any or all outcomes, such as:

- Trainee completion of required courses
- Trainee passing of examinations required for program completion/graduation
- Trainee mastery of measurable skills as part of competency achievement
- Trainee placement in related employment fields

FIGURE 2

## STRATEGIES AND METHODS FOR OUTCOME EVALUATION

Primary data collections for health workforce training program evaluations fall into several broad categories.<sup>5</sup>

Among the most common are:

- Survey instruments completed by respondent via email, in-person, or mail; telephone interviews
- Group discussions: Including focus groups
- Observation: Including clinical training site- and classroom level settings
- Document review: Including reports, program logs, funding proposals, and meeting minutes

TABLE B **Types of Evaluation**

The stage and scope of the program determines the methods and effort level to be used. The type of evaluation selected should appropriately match the level of program development. **Table B** provides an overview of the program evaluation types and when to use them.

EVALUATION TYPE	WHEN TO USE	WHAT IT DEMONSTRATES	WHY IT IS USEFUL
<b>FORMATIVE EVALUATION</b> <b>EVALUABILITY ASSESSMENT</b> <b>NEEDS ASSESSMENT</b>	<ul style="list-style-type: none"> <li>• Development stage of a new program</li> <li>• When an existing program is undergoing modifications or being implemented with a new population or within a new setting</li> </ul>	<ul style="list-style-type: none"> <li>• If the target population is likely to accept, understand, and need program components</li> </ul>	<ul style="list-style-type: none"> <li>• Allows for evaluation plan modifications prior to program implementation</li> <li>• Maximizes likelihood of program success</li> </ul>
<b>PROCESS EVALUATION</b> <b>PROGRAM MONITORING</b>	<ul style="list-style-type: none"> <li>• At the onset of program implementation</li> <li>• After program is in operation</li> </ul>	<ul style="list-style-type: none"> <li>• How well the program is “working”</li> <li>• Program implementation fidelity</li> <li>• If target population finds program to be accessible and acceptable</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity for early identification of problems</li> <li>• Allows for monitoring of program activities</li> </ul>
<b>OUTCOME EVALUATION</b> <b>OBJECTIVES-BASED EVALUATION</b>	<ul style="list-style-type: none"> <li>• After one target population member or group has been reached through program</li> </ul>	<ul style="list-style-type: none"> <li>• Degree to which program components are having an affect on target population behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• Indicates whether program is effective in meeting set objectives</li> </ul>
<b>ECONOMIC EVALUATION:</b> Cost Analysis, Cost-Effectiveness Evaluation, Cost-Benefit Analysis, Cost-Utility Analysis	<ul style="list-style-type: none"> <li>• At program onset</li> <li>• After program is in operation</li> </ul>	<ul style="list-style-type: none"> <li>• Cost of program resources relative to their outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• Allows funders and program managers to assess cost relative to effects</li> </ul>
<b>IMPACT EVALUATION / SUMMATIVE EVALUATION</b>	<ul style="list-style-type: none"> <li>• At appropriate intervals after program is in operation</li> <li>• At program conclusion</li> </ul>	<ul style="list-style-type: none"> <li>• Degree to which program meets ultimate goal</li> </ul>	<ul style="list-style-type: none"> <li>• Offers evidence for program use in making policy and funding decisions</li> </ul>



**SECTION 3**

# Engaging Stakeholders

This section discusses why involving stakeholders in the evaluation process is important and strategies for engaging stakeholders.



# Why is Engaging Stakeholders Important?

Stakeholders are individuals and organizations that have an interest in or are affected by program evaluation results. Engaging stakeholders in the evaluation process has many benefits for the evaluation. Stakeholders can help generate support for a health workforce training program and advocate for its continued funding. Additionally, involving stakeholders can help streamline policy and program development, as well as increase the efficiency and effectiveness of training delivery.<sup>6</sup>

Stakeholders are more likely to act on evaluation results and recommendations if they have opportunities to contribute directly to the evaluation process. For example, engaging stakeholders during the evaluation data collection and analysis process allows them opportunities to provide insights or preferences into the most effective and appropriate ways to collect data from target respondents. Seeking stakeholder input during identification of data indicators also increases the likelihood of their engagement with evaluation findings.

The scope and level of stakeholder involvement will vary for each program being evaluated. Potential goals for stakeholder involvement in evaluation and potential outcomes of their involvement are provided in **Table C**.

TABLE C

**Opportunities for Stakeholder Engagement**

EXAMPLE GOALS FOR STAKEHOLDER INPUT	BENEFIT TO TRAINING PROGRAM
Achieve more transparent and open lines of communication	Increased accountability of training program
Improve access to decision-making processes	Delivery of training that is more efficient and responsive to stakeholder feedback
Create greater opportunities to contribute directly to training program development	Greater innovation and efficiency within program curricula

Engaging stakeholders ensures their perspectives are heard and understood. When stakeholders are not engaged with the evaluation process, the evaluation may not address all important elements of a program's objectives, activities, and outcomes. Involving stakeholders in program evaluation reduces the likelihood that evaluation findings will be ignored, criticized, or resisted as a result of not addressing stakeholder concerns.

There are many ways to involve stakeholders in the evaluation process. Inviting stakeholders to attend program progress meetings creates opportunities to learn of their interests, perceptions, and concerns related to program activities and evaluation efforts. Including stakeholders in program meetings or briefings also provides opportunities to identify and clarify their role in the evaluation process before it begins. Stakeholders are more likely to be engaged and contribute effectively to program decision-making when they are well-informed.

## Identifying Stakeholders

Stakeholders can come in many forms: individuals, organizations, community members, and larger institutions. Stakeholders should be representative of the program, the larger institution in which it resides, and community members affected by the program to ensure that all voices are heard.

FIGURE 3

### Stakeholder Types

#### RECIPIENTS

Those served or affected by the health workforce training program(s)



**STUDENTS**

**HEALTHCARE RECIPIENTS**

#### DECISION-MAKERS

Those who make decisions based on evaluation findings to sustain, enhance, or approve the health workforce training program



**FACULTY & STAFF**  
**COMMUNITY PROVIDERS**  
**ELECTED OFFICIALS**  
**FUNDERS**  
**POLICYMAKERS**



The purpose of this section is to help people developing health workforce training programs to create goals, objectives, and logic models.

#### SECTION 4

## Describing Your Health Workforce Training Program

# Describing the Program

Program descriptions communicate the goals and objectives of the program being evaluated as well as the program's capacity to affect change, its current stage of development, and how it fits into the larger organization and community.<sup>6</sup> Program descriptions also facilitate the connecting of program components and subsequent effects and enable comparisons across similar programs.

Having a thorough program description provides opportunities for clarifying and focusing all program components. Comprehensive program descriptions help set the stage for ensuring strategic planning and performance measurement.

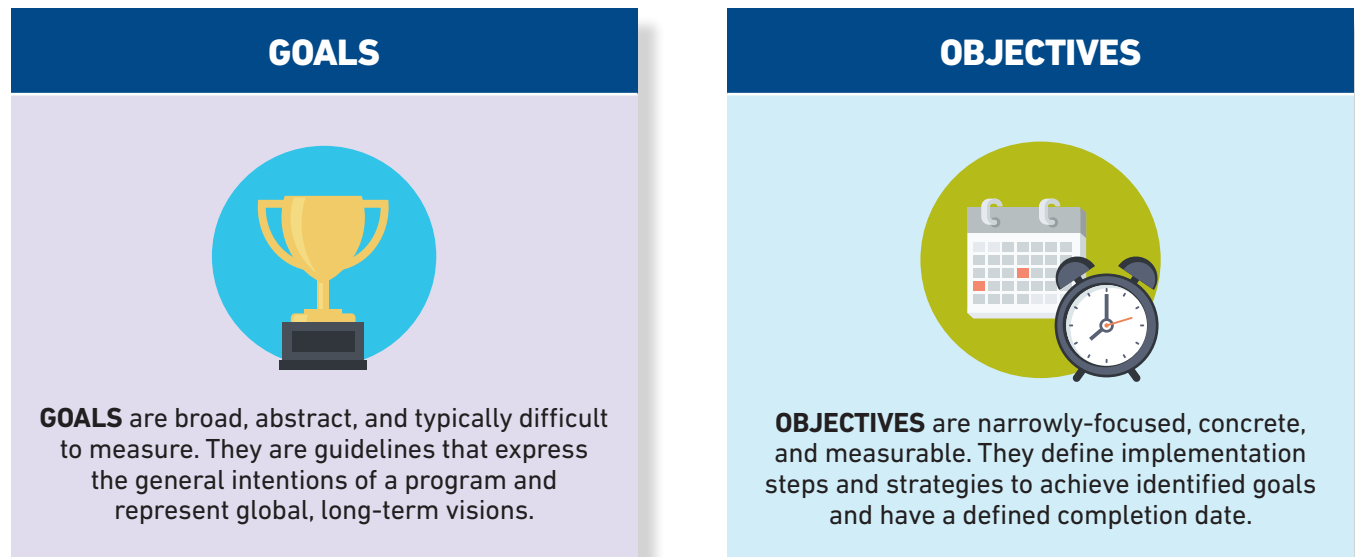
**Program descriptions should include the following key features:<sup>6</sup>**

- **The problem or opportunity the program addresses and how it will respond (NEED)**
- **The program audience (TARGETS)**
- **What the program has to accomplish in order to be considered successful (OUTCOMES)**
- **What the program will do to produce change (ACTIVITIES)**
- **The resources needed to conduct program activities (INPUTS)**
- **What the program will deliver if the planned activities are accomplished (OUTPUTS)**
- **The program's current stage of development (STAGES OF DEVELOPMENT)**
- **Environmental influences (CONTEXT)**
- **A logic model**



**FIGURE 4 Goals Versus Objectives**

Delineating between goals and objectives can be difficult. The following logic can be useful for differentiating between the two concepts:<sup>2,3</sup>

**Matching Planning and Evaluation Terms**

Program planning and program evaluation are companion processes that often share terms for similar concepts.<sup>7</sup> **Image A** summarizes where these processes align and where they differ.

**IMAGE A Matching Terms from Planning and Evaluation<sup>7</sup>**

## Developing Goals

A goal is a broad statement about the long-term expectations regarding the desired results of a program. Goals describe what your program aspires to achieve and serve as the foundation for developing program objectives.

**A good goal is presented as a broad, future-oriented declarative statement that specifies an expected effort.**

Goals should:

- Provide a framework for objectives
- Define the scope of what you are trying to achieve
- Establish direction
- Be concise and easily understood
- Use plain language rather than acronyms




### EXAMPLE OF A HEALTH WORKFORCE TRAINING PROGRAM GOAL:

**To prepare graduates to be competent for health workforce careers.**

## Developing Objectives

An objective is a specific step that helps achieve program goals. Objectives can be thought of as the steps that define how a goal will ultimately be reached. Successful completion of objectives produces specific, measurable outcomes that directly contribute to the realization of these goals.<sup>3,8</sup> Objectives can be process, impact, or outcome oriented.

**TABLE D Summary of Objective Types**

OBJECTIVE TYPE	DESCRIPTION	EXAMPLE
<b>PROCESS OBJECTIVES</b> 	Describe the activities, services, and strategies that will be delivered as part of implementing the program. They are typically short-term.	By the end of the fall 2019 academic term, Program X will deliver 15 substance use disorder training lectures to 85% of the 60 enrolled trainees.
<b>IMPACT OBJECTIVES</b> 	Tell how a program will change attitudes, behavior, and/or knowledge in the <b>short term</b> and describe the degree to which these changes are expected.	Within the first six months of the program, 80% (48) of the trainees enrolled in a substance use disorder training lecture in Program X will be able to identify at least three integrated behavioral health competencies.
<b>OUTCOME OBJECTIVES</b> 	Specify the <b>long-term</b> intended effect of a program within its target population or the end result of a program.	By the end of the program, 50% or more trainees enrolled in a substance disorder training course offered by Program Y will be able to identify and describe each step in the Screening, Brief Intervention, and Referral to Treatment (SBIRT) approach.



Outcome objectives can further be classified as either short-term, intermediate, or long-term:<sup>2</sup>

- **Short-term outcome objectives** are the initial expected changes that occur in target populations soon after program implementation.
- **Intermediate outcome objectives** are those interim results that result from and follow short-term outcomes, as well as provide a sense of progress toward reaching long-term objectives.
- **Long-term objectives** state the ultimate expected impact of a program and are achieved after the program has been in place for some time.

## SMART Objectives

Setting **Specific, Measurable, Achievable, Realistic, and Time-bound**, or **SMART**, objectives is a good strategy for mapping out each step toward meeting program goals. SMART objectives can help reinforce accountability, enhance timing, and move projects forward.<sup>3</sup>

FIGURE 5

### How to Understand the SMART Objectives Framework

				
<b>SPECIFIC</b>	<b>MEASURABLE</b>	<b>ACHIEVABLE</b>	<b>REALISTIC</b>	<b>TIME-BOUND</b>
Are clear, concrete, and well-defined	Can be measured quantitatively or qualitatively over time to show success or impact	Are realistic and feasible given the realities faced in the community	Consider potential constraints, such as resources and cost	Have a specific timeline for completion

#### EXAMPLE OF A SMART PROCESS OBJECTIVE:

By the end of the fall term in December 2019, 90% of trainees enrolled in a substance use disorder training course within health workforce training program Y will receive 15 total lectures focused on SUD.

#### EXAMPLE OF A SMART OUTCOME OBJECTIVE:

By the end of the spring term in May 2020, 85% of trainees enrolled in health workforce training program Y will be able to identify three CDC-adherent clinical strategies for appropriate treatment of major depressive disorder.

# Developing a Logic Model

Comprehensive program descriptions help set the stage for ensuring strategic planning and performance measurement. A comprehensive description of the program components is provided in **Image B**.

IMAGE B

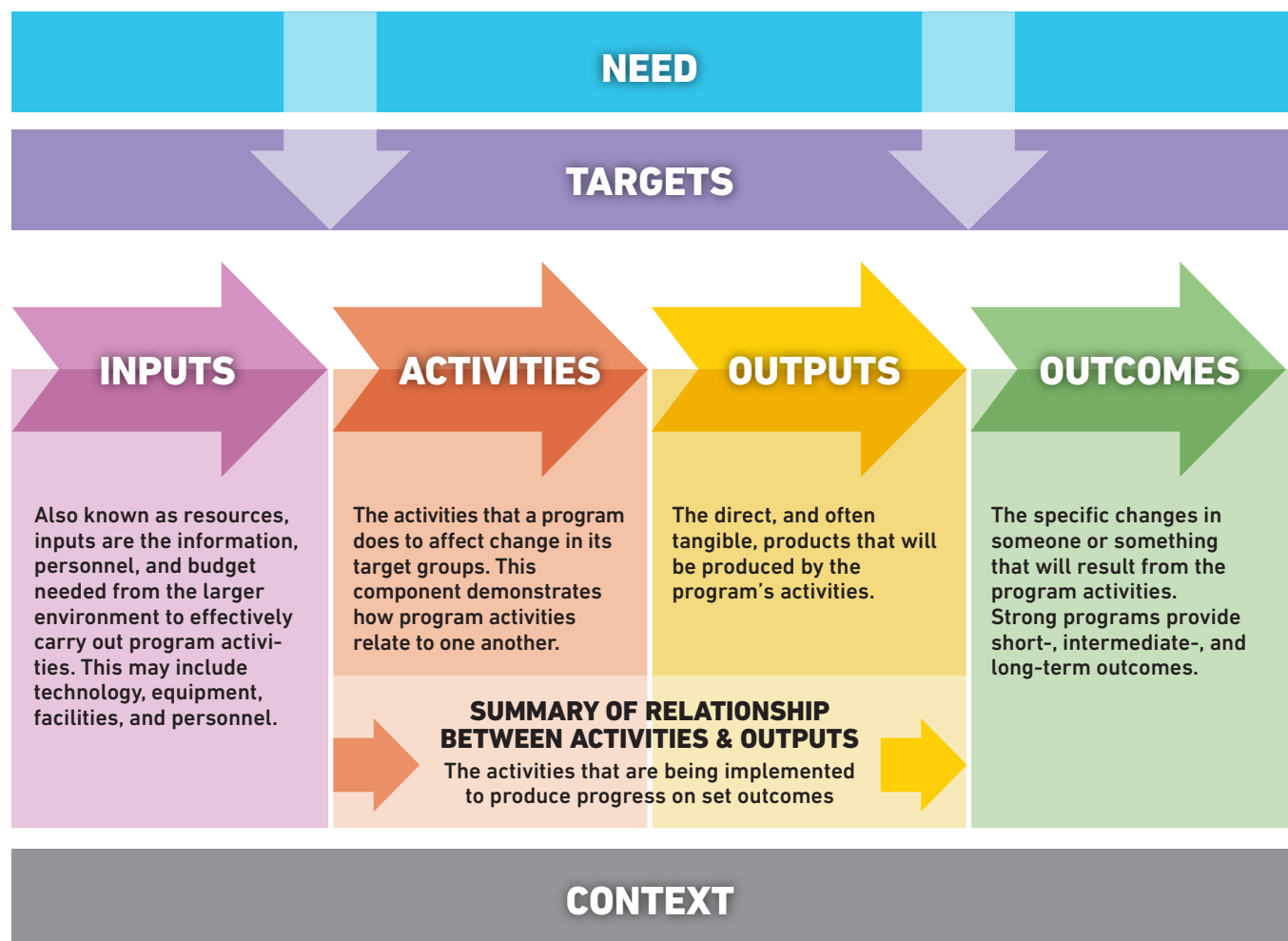
## Program Description Components

### NEED

The overarching public health problem the program aims to address. Need can be defined in terms of the size of the issue, the scope of the problem within population sub-groups, significant trends in prevalence or incidence of the problem, or its consequences for the community.

### TARGETS

The groups and organizations that make up the program's audience.



### CONTEXT

The factors and trends in the external environment that may influence program success, including funding, competing organizations and/or interests, politics, economic and social conditions, and program or agency history.

## Three Key Stages of Development

Identifying a program's stage of development is important for determining the focus and feasibility of an evaluation. Programs that are in the planning stage may benefit the most from a formative evaluation to help identify a target audience, how they can be reached, and how much it will cost. Conversely, programs in the maintenance stage will benefit from measurement of progress on outcomes, which can include measurement of implementation. Outcomes may include measures of program sustainability, fidelity, stability, reach, and dosage.<sup>7</sup>

IMAGE C

### Stages of Development



## The Logic Model Defined

A logic model is a visual depiction of the relationship between program activities and their intended outcomes. Also known as a program model, theory of action, or theory of change, the logic model is a tool for describing, planning, communicating, and evaluating a program.<sup>7</sup>

A logic model can serve as an “outcomes roadmap” for how activities, if implemented as intended, can lead to the desired outcomes.

### A good logic model:

- Identifies short-, intermediate-, and long-term outcomes of the program
- Identifies the pathways through which intervention activities produce the desired outcomes
- Shows the interrelationships among program components
- Recognizes the influence of external contextual factors on the program's ability to produce results
- Helps guide program refinement, modifications, and technical assistance endeavors for program developers, implementers, and evaluators

Logic models convert the sum of the program description components into a comprehensive graphic representation of the program (See **Image B**, previous page).

## Using and Updating Logic Models

A logic model is not a static tool. Instead, it provides a critical framework for evaluators and implementers to monitor a program over time. It can be helpful to gather and assess data on program components to learn what is working and what may need to be updated.<sup>9</sup>

Logic models should be regularly revisited and revised during a program's lifetime to reflect changes or the addition of new information. Sample strategies for obtaining mid-term feedback on program implementation actions are outlined below in **Table E**.

TABLE E

**Methods for Gathering Mid-Term Program Implementation Feedback**

INFORMATION GATHERING STRATEGY	EXAMPLE FEEDBACK ITEM FROM INFORMATION GATHERED
Conduct focus groups with students to learn of their experiences working with complex patients at clinical training sites	Students want more training in working with complex patients to feel more confident and comfortable in their skills
Survey students about their interprofessional experiences during clinical training and in-classroom settings	Trainees desire greater understanding of roles among their clinical training and in-classroom practice care teams
Collect clinical training site tracking data on number of patients seen by trainees enrolled in a health workforce training program	More supervisors may be needed to increase the number of patients seen by trainees and thus increase the amount of clinical training contact hours
Encourage communication between faculty and field supervisors/preceptors to learn of student/trainee learning progress in non-classroom settings.	Identifying students who demonstrate the greatest proficiency in their field placements provides opportunities for post-program recruitment, as graduates often seek employment and remain within their capstone, field work, and/or clinical training site specialty.



## SECTION 5

# How to Assess the Success of a Program

This section discusses evaluation methods and the strengths and challenges posed by each, as well as recommendations for self-evaluation by program administration.

# Recommended Guidelines for Program Evaluations

Program self-evaluations are those completed by individuals working within or in partnership with the health workforce training program being evaluated. Self-evaluations typically entail gathering information about the program's practice and environment to best answer evaluation questions such as:

- What do we want to know about the program, and what does this information say?
- How do we collect the information we want to know?
- What needs to change about the program, and how can changes be sustained?

**Table F** (below and on the next two pages) presents a range of recommended program components on which health workforce training programs can self-evaluate.

TABLE F

**Program Components for Self-Evaluation<sup>11</sup>**


AREA OF EVALUATION	EVALUATION ITEM
<b>GOALS AND OBJECTIVES</b> 	<ul style="list-style-type: none"> <li>• Ways in which program goals have changed over the past few years</li> <li>• Responsiveness to changes in direction within the program discipline</li> <li>• Responsiveness to changes in available resources</li> <li>• Responsiveness to changing needs dictated by society and current events</li> </ul>
<b>FACULTY/STAFF</b> 	<ul style="list-style-type: none"> <li>• Number of faculty/staff involved in program</li> <li>• Specific qualifications of faculty/staff within the program</li> <li>• Research productivity of the faculty/staff (publications, etc.)</li> <li>• External recognition of faculty/staff (exhibits, awards, etc.)</li> <li>• Faculty/staff turnover rates and reasons</li> <li>• Faculty/staff teaching load</li> <li>• Faculty/staff advising load</li> <li>• Faculty/staff involvement in program development and governance</li> </ul>



TABLE F

**Program Components for Self-Evaluation<sup>11</sup> (continued)**








AREA OF EVALUATION	EVALUATION ITEM
<b>STUDENTS/ TRAINEES</b> 	<ul style="list-style-type: none"> <li>• Demographic characteristics of student/trainee population</li> <li>• Academic characteristics of student/trainee population</li> <li>• Financial assistance available to students/trainees</li> <li>• Status as underrepresented minority</li> <li>• Status as rural</li> <li>• Student/trainee veteran status</li> <li>• Student/trainee participation in program development and evaluation</li> <li>• Student/trainee attrition rate</li> <li>• Data on amount of time to complete degree</li> <li>• Graduation rate(s)</li> <li>• Post-graduation student status (1-year, 5-year follow-up)</li> </ul>
<b>PHYSICAL FACILITIES</b> 	<ul style="list-style-type: none"> <li>• Instructional rooms (classrooms; lecture halls; distance education facilities)</li> <li>• Offices and meeting rooms</li> <li>• Computer facilities and support</li> <li>• Equipment for research and instruction</li> <li>• Library and other information retrieval resources</li> <li>• Adequacy of space relative to the number of trainees</li> </ul>
<b>CLINICAL TRAINING SITES</b> 	<ul style="list-style-type: none"> <li>• Number of staff</li> <li>• Staff credentials</li> <li>• Instructional rooms (classrooms; lecture halls; patient examination rooms; telehealth or distance education facilities)</li> <li>• Equipment for research and instruction</li> <li>• Maintenance and cleanliness of facilities</li> <li>• Adequacy of space relative to the number of trainees</li> </ul>
<b>CURRICULA</b> 	<ul style="list-style-type: none"> <li>• Curriculum objectives</li> <li>• Methods for evaluating student performance</li> <li>• Fidelity of program content delivery</li> </ul>

TABLE F

**Program Components for Self-Evaluation<sup>11</sup> (continued)**

AREA OF EVALUATION	EVALUATION ITEM
<b>PROGRAM BUDGET</b> 	<ul style="list-style-type: none"> <li>• Summaries of financial support from externally funded grants</li> <li>• Adequacy of support relative to program objectives</li> </ul>
<b>RELATION TO OTHER ENTITIES</b> (e.g. Programs, Departments, Centers, Schools, and Institutions) 	<ul style="list-style-type: none"> <li>• Research endeavors</li> <li>• Dual or joint faculty appointments</li> <li>• Dual-degree or joint-degree student training programs/majors</li> </ul>
<b>KEY COMPONENTS TO INCLUDE IN SELF-EVALUATIONS</b> 	<ul style="list-style-type: none"> <li>• Assessment of both strengths and weaknesses of the program</li> <li>• Description of ways to strengthen the program</li> </ul>


## Evaluation Methodology

Choosing the best method for evaluation data collection requires consideration of the context and the content of the evaluation design. There are advantages and challenges that can accompany each method depending on the component of the program being evaluated. Using multiple methods in tandem may be helpful for obtaining both quantitative and qualitative data.

**Table G** (below and on the next two pages) is an overview of different methods that can be used for evaluation.<sup>7,12</sup> These strategies can be used to evaluate trainees/students, program faculty, program staff, and clinical training site coordinators and staff.

TABLE G

### Evaluation Methodology Pros and Cons

INSTRUMENTS TO BE COMPLETED BY RESPONDENT (E.G. COURSE EVALUATIONS)		
	PROS	CONS
 <p>Useful for gaining information quickly and easily in a non-threatening, non-coercive manner</p>	<ul style="list-style-type: none"> <li>• Provide the most anonymity</li> <li>• Inexpensive to administer</li> <li>• Easy to compare results across evaluation years</li> <li>• Quick analysis</li> <li>• Many pre-existing templates available</li> <li>• Fast administration across large samples</li> <li>• Can yield lots of data</li> </ul>	<ul style="list-style-type: none"> <li>• Least data quality control (may not get thorough feedback)</li> <li>• Wording can bias responses</li> <li>• Impersonal delivery</li> <li>• May require the use of multiple sampling strategies to reach target response numbers</li> <li>• Misses non-verbal feedback</li> </ul>



GROUP INTERVIEWS / FOCUS GROUPS		
	PROS	CONS
 <p>Useful for exploring topics in-depth</p>	<ul style="list-style-type: none"> <li>• Yields quick and reliable common impressions</li> <li>• Fast method of obtaining wide range and depth of information</li> <li>• Helps summarize key information about the program</li> </ul>	<ul style="list-style-type: none"> <li>• Can be difficult to analyze responses</li> <li>• Requires trained facilitator with strong interviewing and moderating skills</li> <li>• Can pose scheduling challenges if group is large</li> </ul>

TABLE G

**Evaluation Methodology Pros and Cons (continued)**

OBSERVATION		
	PROS	CONS
 <p>Good for gathering accurate information about how a program and its associated processes is actually operating</p>	<ul style="list-style-type: none"> <li>• Permits viewing program operations as they happen</li> <li>• Allows for adaptation to program events as they occur</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to interpret observed behaviors</li> <li>• Can influence program participants' behaviors</li> <li>• Difficult to categorize non-verbal observations</li> </ul>




CASE STUDIES		
	PROS	CONS
 <p>Useful for comprehensively depicting or understanding trainees' experiences in a program; opportunities for comprehensive cross-comparison and examination of cases</p>	<ul style="list-style-type: none"> <li>• Comprehensive depiction of the trainee experience in program input, process, and outcomes</li> <li>• Offers genuine and realistic portrayal of program to outsiders</li> </ul>	<ul style="list-style-type: none"> <li>• Collection, description, and organization of materials is time-consuming</li> <li>• Represents depth of information rather than breadth</li> </ul>

TABLE G

**Evaluation Methodology Pros and Cons (continued)**

<b>DOCUMENT REVIEW</b>		
	<b>PROS</b>	<b>CONS</b>
	<ul style="list-style-type: none"> <li>• Comprehensive and historical information</li> <li>• Does not interrupt program or trainee experience</li> <li>• Utilizes pre-existing information</li> <li>• Minimal amount of bias about information</li> </ul>	<ul style="list-style-type: none"> <li>• Time-consuming</li> <li>• Information may be incomplete</li> <li>• Must have clear objective for information the information being sought</li> <li>• Inflexible means of obtaining data (data restricted to what exists)</li> </ul>
<b>FACE-TO-FACE INTERVIEWS WITH TRAINEES / STUDENTS</b>		
 <p>Useful for fully understanding someone's impression</p>	<b>PROS</b>	<b>CONS</b>
	<ul style="list-style-type: none"> <li>• Interviewer can probe for explanations of responses</li> <li>• Can incorporate visual materials</li> <li>• Higher likelihood of response rate than phone interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Most costly method: requires training for interviewers, travel time/ costs</li> <li>• Provides the least anonymity; students/trainees more likely to provide responses toward what they believe is socially acceptable</li> </ul>



This section serves as an introductory guide to developing program evaluation questions and selecting program indicators.

## SECTION 6

# Choosing Training Program Evaluation Indicators



# Developing Training Program Evaluation Questions

Evaluation questions are used to guide the strategies and tools used in data collection to understand the aspects of programs being evaluated. Selecting questions that reflect the purpose of the evaluation and address stakeholder needs are two strategies that help establish boundaries for the evaluation process. Identifying who will use the evaluation results, how the results will be used, the stage of program development, and any relevant logistical considerations will also help provide a focus for the evaluation. Evaluation questions should also relate to portions of the program's logic model.<sup>7</sup> Specifically, program-level indicators reflected in program evaluation questions should always be tied to predetermined program goals and objectives.

Evaluation questions can generally be categorized into the following groups:<sup>7</sup>

- **Implementation:** Were the program activities deployed as intended?
- **Effectiveness:** Is the program achieving the goals and objectives set prior to implementation?
- **Efficiency:** Are the program's activities appropriately using available resources, including personnel and budget?
- **Cost-Effectiveness:** Do the benefits of reaching program goals and objectives outweigh the costs?
- **Attribution:** Can progress toward program goals and objectives be attributed to the program relative to other factors that are occurring simultaneously?

## Asking Evaluation Questions

Asking students and/or trainees questions about the program can be helpful for identifying key evaluation data indicators.

Some examples<sup>12,13</sup> of evaluation items that can be adapted to a Likert scale for use in trainee evaluation surveys, focus groups, and other assessments to narrow down indicator choices include:

- The program developed my ability to interact with diverse groups of people.
- The program increased my ability to collaborate and work in teams.
- The program provided guidance on how to become a competent professional.
- The course program improved my clinical problem-solving skills.
- The program provided the opportunity to practice the skills required in a health workforce job.
- The program helped me understand ethical issues involved in the health workforce field.
- The program provided an appropriate balance between instruction and practice.
- Program course assignments and lectures usefully complemented each other.
- Program content was presented in an organized manner.

## Using Evaluation Questions to Select Program Indicators

Asking similar questions of trainers (through self-evaluation) and those evaluating trainers can also provide useful information for selecting indicators. **Examples of these questions include:**<sup>12,13</sup>

- **Was training delivered to students as planned/on time?**
- **Which training methods worked with which topics and which audience groups?**
- **Which methods did not work with which topics or audiences?**
- **What specific problems occurred?**
- **How effective were faculty/staff/trainers at engaging students with the material and communicating information?**
- **Did the student training satisfy regulatory and legal requirements?**
- **Were all goals reached? If not, why not?**

## Overview of Indicators

Evaluation indicators are markers of accomplishment or progress. They are specific, measurable, and observable changes that demonstrate progress made toward achieving a specific outcome or output in a logic model.<sup>14</sup>

Indicators are used to determine if a program is being implemented as expected. They may be quantitative or qualitative in nature and provide a basis for collecting evidence that is valid and reliable for the evaluation's intended use.<sup>6</sup> The indicators a program selects should answer program evaluation questions and help determine if program objectives have been achieved.

## Selecting Indicators

Indicators can be developed using the following steps:<sup>14</sup>

1. **Involve program stakeholders in indicator development.**  
Doing so will help ensure evaluation findings buy-in by stakeholders. Consulting existing relevant literature and resources may also be useful.
2. **Review evaluation questions and utilize logic model as a template.**  
Link process indicators to the outputs detailed in your logic model, and outcome indicators to your logic model outcomes.
3. **Review indicators to ensure their measurability, observability, and specificity.**  
Indicators should align with SMART objective criteria.
4. **Determine whether the indicators meet the following criteria:**
  - Are feasible given timely data collection efforts and data availability
  - Provide relevant and useful information that will allow for measurement of processes and outcomes, as well as answer evaluation questions
  - Can capture the information you need

## Indicator Types: What's the Difference?

The type of indicators selected will inform the evaluation plan and data collection procedures associated with evaluation. Evaluation indicators, also known as measures, typically reflect inputs, outputs, processes, outcomes, and impacts.

**TABLE H** **Summary of Indicator Types**

INDICATOR TYPE	DESCRIPTION	EXAMPLE(S)
<b>INPUT INDICATORS</b>	Measure the contributions necessary to enable the program to be implemented. They are a measure of what the organization funding the program has available to carry out program activities so as to produce an output or outcome. <sup>15</sup>	Funding, staff, facilities, infrastructure, key partners.
<b>OUTPUT INDICATORS</b>	Provide information about program activities and are a measure of the service, product, or result of the program. <sup>15</sup>	The number and categories of health providers trained in case management
<b>PROCESS INDICATORS</b>	Focus on the program activities that are to be completed in a specific time period. They indicate what you are doing and how you will do it, and describe participants, interactions, and activities. <sup>8</sup>	To measure the indicator “simulated team-based care training,” the process indicator could be the number of trainings delivered to the target audience.
<b>IMPACT INDICATORS</b>	Measure the direct or indirect long-term effects of program outcomes that result from set goals and objectives.	Increase in the treatment rate of substance use disorder in a specific region in which graduates of workforce training program X practice.
<b>OUTCOME INDICATORS</b>	Express the intended results or accomplishments of program or intervention activities within a given time frame, with outcomes being short-, intermediate-, or long-term. They often focus on changes in a system, the environment, policy, attitudes, knowledge, or behavior. <sup>8</sup>	To measure simulated team-based care training, an outcome indicator could be increased trainee knowledge ascertained through semi-annual survey assessment.

## Health Workforce Training Program Indicators

Indicators can relate to any part of the program, its logic model, or the program description.<sup>14</sup> Examples of indicators that can be defined and tracked include: measures of program activities (e.g., the program's capacity to deliver effective training) and measures of program effects (e.g., changes in the surrounding environment around the program as a result of trainees practicing in the local workforce).

More examples of common indicators that may be useful for health workforce training program evaluation plans are listed in **Table J** (below and on the following page).

TABLE J

Examples of Health Workforce Training Program Indicators










EXAMPLE INDICATOR	DESCRIPTION
 <b>% OF PROGRAM GRADUATES</b>	Number of students graduating from the training program relative to total enrolled cohort
 <b>% OF COURSES ON PRIORITY TOPICS</b> (e.g., SUD)	Proportion of courses devoted to priority topics relative to all courses in the training program
 <b>STUDENT TO FACULTY/STAFF RATIO</b>	Number of students per full-time qualified instructor (per health education institution, e.g. a university department or college)
 <b>STUDENT ATTRITION RATE</b>	Attrition (drop-out) rate per student cohort (per health education institution)
 <b>TRAINING PLACE CAPACITY</b>	Number of education and training places (per health education institution)
 <b>TRAINEE SATISFACTION</b>	Trainees feel satisfied and well-treated within the health education program
 <b>STUDENT LEARNING</b>	Measure knowledge gained or skill application proficiency following program completion using a matched pre-test/post-test.

TABLE J

**Examples of Health Workforce Training Programs Indicators  
(continued)**

EXAMPLE INDICATOR	DESCRIPTION
 <b>FIELD PLACEMENT COMPETENCIES</b>	Measure trainee performance against field placement competencies using matched pre-tests and post-tests.
 <b>POST-GRADUATE FOLLOW-UP</b>	Number of trainees employed in the field at six months, one year, and three years post-program completion.

**NOTE:** The examples in **Table J** are not exhaustive.



## SECTION 7

## Strategies for Addressing Common Evaluation Challenges

This section discusses several challenges commonly faced by training programs and offers strategies for their resolution.



# Tracking Post-Graduation Trainee Success

Proactively tracking trainee outcomes and making these data available helps demonstrate the broad positive impact that health workforce training programs have on program completers' careers and the populations they serve. Obtaining follow-up data from recent graduates and alumni one to five years after program completion can be challenging due to low response rates and difficulty locating program completers' contact information. It may be helpful to request that trainees complete a consent form while still enrolled that permits program administrators to contact them in the future with follow-up questions about their employment.

Programs affiliated with a public university may be able to determine student graduates' placement rates in clinical training sites by linking individual records to records maintained by state agencies. Record databases may

be maintained by member organizations and institutions.<sup>16</sup> Private universities, non-profits, and other health workforce organizations may be reliant on surveys to measure student placements and successes following graduation or completion of a health workforce training program.

While low response rates to follow-up surveys are common, they are not inevitable. Combining online and paper surveys, data collection employed over an extended period of time beginning prior to program completion and concluding less than one year later, and using personalized follow-up methods such as having faculty members contact students with whom they worked closely are strategies that can boost survey response rates.<sup>16</sup>

Longer-term follow-up endeavors may require additional strategies for generating high response rates, in particular the use of multiple follow-up methods. Leveraging faculty and alumni networks associated with universities, placing follow-up calls, using licensed directories, and sending messages through email and social media platforms like LinkedIn may boost trainee response rates when combined with email-distributed online surveys and paper surveys.<sup>16</sup> Requesting trainees complete a consent form permitting follow-up contact, asking students to designate a preferred follow-up communication channel, and notifying trainees to anticipate follow-up efforts after program completion will also increase the likelihood of their engagement with post-program data collection efforts.

FIGURE 6

## COLLECTING FOLLOW-UP DATA FROM RECENT GRADUATES

- 1** Use consent forms to request contact info from current trainees.
- 2** Boost survey response rates by using multiple mechanisms, such as paper and online surveys.
- 3** Tailor follow-up methods to specific trainee populations.
- 4** Leverage additional channels of communication, such as faculty and alumni networks and LinkedIn.



## Trainee Response Bias in Surveys

Students' and trainees' evaluations of trainers and postsecondary education teachers are widely used in personnel and curriculum decisions as a measure of instructional effectiveness. The validity of often anonymous trainee evaluations is contingent upon the assumption that trainees observe the ability and skill of their instructors and report on it truthfully. While plausible, this assumption may not always be accurate.

Trainees' learning and program completion objectives may differ significantly from those of the organizational or administrative body.<sup>17</sup> Within the context of academia, the outcomes of randomized experiments show that students tend to confuse grade expectations and grades with the long-term value of a course, with instructors who give higher grades or marks more likely to receive better evaluations.<sup>17</sup> Measuring the quality of instruction is complicated and not possible to fully adjust for due to the subjective factors that contribute to response bias, including trainees' expectations associated with trainer personal characteristics such as gender and age.<sup>17</sup>

Surveys are commonly used instruments for collecting program evaluation data on instructional quality and effectiveness. One strategy for minimizing data collection errors associated with response bias is to only include survey questions that trainees are fully equipped to answer based on their specific experience in a course.

Examples of this issue can be seen in response to questions regarding instructor availability, responsiveness, and mastery of subject material.<sup>18</sup> Respondents are likely to try to provide answers even when they lack adequate information from which to draw experiential knowledge, and it is impossible to determine what criteria is used to form these responses. The most reliable survey measures will focus on concrete practices and behaviors about which trainees have direct experience and knowledge.

## Trainee Attrition

Numerous factors can go into why a trainee chooses to leave a training program. Study results indicate that the most common reasons students leave graduate programs are changes in family status, job or military conflict, dissatisfaction with the program, having to balance school and employment, personal issues, and financial reasons.<sup>19</sup> To address issues of trainee retention, program administrators must gather data on trainee achievement, resource allocation, and program effectiveness. Surveying trainees regularly to learn about any struggles they are experiencing provides program administrators with feedback on issues that can be acted upon as they arise. This information can be used to identify at-risk students before they leave the program and develop an action-oriented plan to help them address the issue at hand.



Establishing community inside and outside of the classroom or training setting can help trainees build a supportive social and professional network that reinforces their desire to remain enrolled in a training program. Social ties to peers and mentor figures in the program can boost trainees' development of a healthy work-school-life balance, promote mental health, and prevent feelings of isolation. Additionally, networking events, internship fairs, and professional development opportunities can encourage connection-building that extends beyond the training environment.

Resources focused on trainee success and mental health practices may not be publicized following initial program orientation due to a lack of regular check-ins with program staff.<sup>20</sup> Regular communication from program administrators to trainees about available resources, additional funding information, and educational advancement opportunities can also promote trainee retention.







The purpose of this section is to demonstrate best practices in program evaluation.

## SECTION 8

# Case Studies

## CASE STUDY #1

## Serving the Vulnerable and the Underserved

One academic Health Workforce Training Program located in a New England U.S. state seeks to increase the number of Master's level social work practitioners trained in integrated care who work to meet the behavioral health needs of vulnerable and underserved populations. This program evaluates social work trainees on core competencies for integrated behavioral health care in primary care.



**We use self-efficacy tools to assess changes in students' level of confidence in knowledge and skills in interprofessional collaboration and team-based care, evidence-based assessment and interventions needed to work in an integrated behavioral health setting."**

The evaluation plan utilizes interactive strategies to learn of trainee progress, concerns, and feedback. An external evaluator holds focus groups/individual interviews with trainees and staff from the program. Assessment of trainee skills is also provided by field instructors/supervisors at the internships.

**As part of the PDSA cycle, trainees progress is monitored regularly (quarterly). Any barriers encountered by students are addressed with the goal to resolve issues. This strategy helps with not only retention of students, but also facilitates their success in obtaining their degree and passing their licensing exam."**

## CASE STUDY #2

## A Social Workforce

One Health Workforce Training Program, located in an urban southwestern city in the U.S., seeks to develop social work students with practice, advocacy, and research skills necessary to improve society. This program evaluates students using surveys and learning agreement contracts on both didactic training and a field placement component in which they receive clinical training.



**We use two self-report instruments: a cultural competence survey and a knowledge, skills, and abilities survey. Students who are accepted into the program do a pre-test of those two instruments and then in their final seminar right when they're getting ready to graduate, they'll do a post-test."**

Students in the program are also assessed in a clinical training setting where their performance is evaluated against predetermined learning objectives.

**When students are doing their final field placement, they design an educational contract with their field supervisor that lays out what kind of activities they'll do based on the program competencies. We do a mid-term evaluation of that document and then do final site visits where the student is evaluated on whether they learned the skills the contract stated they would learn while at their field placement."**

Additionally, following completion of learning modules, students fill out feedback surveys to help program evaluators learn what aspects of the modules contributed the most to their learning, whether they anticipate the content will be relevant in their future careers, and if they have any remaining questions they'd like answered by the module instructor. The program also hopes to offer post-program alumni focus groups to gain insight into the types of careers program graduates develop and to gather information on how the project is useful for those careers.





## SECTION 9

# Disseminating Program Evaluation Lessons

This section describes methods of communicating evaluation results for program improvement.

Program evaluation results demonstrate the effectiveness and accountability of your health workforce training program. These results can be used to identify ways to improve the program, modify program planning efforts, and justify funding.

Dissemination of evaluation processes, results, and lessons should be completed in a timely, unbiased, and consistent manner.<sup>8</sup> Presentation of evaluation results should be tailored in timing, tone, message source, format, and vehicle for the intended stakeholder audience.

## Ensuring the Use of Evaluation Results

Evaluation data can be used to inform health workforce training program quality improvement in a variety of ways. Evaluation findings are useful for identifying training and technical assistance needs and for providing continuous, real-time feedback. The style of communicating evaluation results should consider the evaluation purpose, target audience, stakeholder needs, and how information might be received and used.<sup>21</sup>

**The following strategies can be used to ensure the use of evaluation results:<sup>21</sup>**

- **Provide continuous feedback to the program throughout the evaluation process**
- **Use evaluation findings to support annual and long-range planning.**
- **Use evaluation findings to promote your program**
- **Use evaluation findings to enhance your program's public image**
- **Consider producing interim reports for key audiences to maintain their engagement**
- **Revisit the purpose(s) of the evaluation when preparing recommendations to ensure alignment**
- **Include graphical representations of information where appropriate in evaluation summaries**
- **Present findings in a clear, succinct, and timely manner**
- **Avoid jargon when preparing or presenting information to stakeholders**
- **Disseminate evaluation findings in multiple ways**
- **Produce action-oriented, active-voice reports**
- **Create different summaries of program evaluation results tailored for different audiences**
- **Demonstrate effectiveness of program to stakeholders through using visual aids that convey evaluation findings, such as charts and infographics**

FIGURE 7

## METHODS FOR SHARING EVALUATION RESULTS

**HRSA-recommended channels for communicating evaluation results include:**

- **Mailings**
- **Websites**
- **Community forums**
- **Organizational newsletters**
- **Meetings and conferences**
- **Scholarly and professional publications**



# References

- <sup>1</sup> World Health Organization (WHO). Evaluating Training in WHO. 2010.  
[https://apps.who.int/iris/bitstream/handle/10665/70552/WHO\\_HSE\\_GIP\\_ITP\\_2011.2\\_eng.%20pdf;jsessionid=56A100E325EDCE47399BB382BFA4083B?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/70552/WHO_HSE_GIP_ITP_2011.2_eng.%20pdf;jsessionid=56A100E325EDCE47399BB382BFA4083B?sequence=1). Accessed April 19, 2019.
- <sup>2</sup> Centers for Disease Control and Prevention. Developing Program Goals and Measurable Objectives. National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. 2015. Retrieved from <https://www.cdc.gov/std/Program/pupestd/Developing%20Program%20Goals%20and%20Objectives.pdf>. Accessed August 15, 2019.
- <sup>3</sup> Substance Abuse and Mental Health Services Administration (SAMHSA). Setting goals and developing specific, measurable, achievable, relevant, and time-bound objectives. SAMHSA Native Connections. Retrieved from: <https://www.samhsa.gov/sites/default/files/nc-smart-goals-fact-sheet.pdf>. Accessed July 18, 2019.
- <sup>4</sup> Centers for Disease Control and Prevention. Types of evaluation.  
<https://www.cdc.gov/std/Program/pupestd/Types%20of%20Evaluation.pdf>.  
Published 2007. Accessed August 15, 2019.
- <sup>5</sup> Centers for Disease Control and Prevention. Data collection methods for evaluation: Document review. Evaluation Briefs. 2018;18. Retrieved from <https://cdc.gov/healthyyouth/evaluation/pdf/brief18.pdf>.  
Published 2018. Accessed August 15, 2019.
- <sup>6</sup> Centers for Disease Control and Prevention. Framework for program evaluation in public health. Morbidity and Mortality Weekly Report. 1999;48(RR-11). <https://www.cdc.gov/mmwr/PDF/rr/rr4811.pdf>.  
Accessed July 18, 2019.
- <sup>7</sup> Centers for Disease Control and Prevention. Introduction to Program Evaluation for Public Health Programs: A Self-Study Guide. Program Performance and Evaluation Office. 2011.  
Retrieved from <https://www.cdc.gov/eval/guide/CDCEvalManual.pdf>. Accessed July 18, 2019.
- <sup>8</sup> Health Resources & Services Administration. Health workforce training program evaluation toolkit. 2016. Retrieved from <https://bhw.hrsa.gov/sites/default/files/bhw/grants/pcte/hrsa-pcte-toolkit-full.pdf>.  
Accessed July 18, 2019.
- <sup>9</sup> Centers for Disease Control and Prevention Division for Heart Disease and Stroke Prevention. State heart disease and stroke prevention program evaluation evaluation: Developing and using a logic model. Department of Health and Human Services. 2017. Retrieved from [https://www.cdc.gov/dhdsp/docs/logic\\_model.pdf](https://www.cdc.gov/dhdsp/docs/logic_model.pdf).  
Accessed July 18, 2019.
- <sup>10</sup> University of Pittsburgh Office of the Provost. Guidelines for conducting evaluations of academic programs. 2002. Retrieved from <https://www.provost.pitt.edu/documents/guidelines.pdf>. Accessed July 18, 2019.
- <sup>11</sup> McNamara C. Field guide to nonprofit program design, marketing, and evaluation. 5th ed. Minneapolis, MN: Authenticity Consulting, LLC; 2017.
- <sup>12</sup> Centers for Disease Control and Prevention. Building our understanding: Key concepts of evaluation: What is it and how do you do it? CDC's Healthy Communities Program. 2014.  
[https://cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/tools/pdf/eval\\_planning.pdf](https://cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/tools/pdf/eval_planning.pdf).  
Accessed August 15, 2019.

- <sup>13</sup> University of California, Berkeley Center for Teaching & Learning. Course evaluations question bank. 2009. <https://teaching.berkeley.edu/course-evaluations-question-bank>. Accessed November 21, 2019.
- <sup>14</sup> Centers for Disease Control and Prevention. Developing evaluation indicators. National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. 2015. Retrieved from <https://www.cdc.gov/std/Program/pupestd/Developing%20Evaluation%20Indicators.pdf>. Accessed July 18, 2019.
- <sup>15</sup> United States Department of Health and Human Services, Office of Minority Health. Evaluation planning guidelines for grant applicants. 2010. Retrieved from <https://minorityhealth.hhs.gov/Assets/pdf/Checked/1/Evaluation%20Planning%20Guidelines%20for%20Grant%20Applicants.pdf>. Accessed August 6, 2019.
- <sup>16</sup> Durkin J, Kircher A. Tracking post-graduation student success. The Advisory Board Company Washington, D.C. 2010. Retrieved from <https://www.uky.edu/ie/sites/www.uky.edu.ie/files/uploads/Tracking%20Post%20Graduate%20Student%20Success.pdf>. Published April 12, 2010. Accessed July 18, 2019.
- <sup>17</sup> Braga M, Paccagnella M, Pellizzari M. Evaluating students' evaluations of professors. Econ Educ Rev. 2014;41:71–88. <https://doi.org/10.1016/j.econedurev.2014.04.002>
- <sup>18</sup> MacNell L, Driscoll A, Hunt AN. What's in a Name: Exposing Gender Bias in Student Ratings of Teaching. Innovative Higher Education. 2015;40(4):291–303. <https://doi.org/10.1007/s10755-014-9313-4>. Accessed August 5, 2019.
- <sup>19</sup> Nevill SC, Chen X. The Path Through Graduate School: A Longitudinal Examination 10 Years After Bachelor's Degree. Washington, DC: National Center for Education Statistics. 2007. Retrieved from <https://nces.ed.gov/pubs2007/2007162.pdf>. Accessed August 5, 2019.
- <sup>20</sup> Chrzanowski SM, Poudyal R. Attrition in graduate school versus other health professional programs: Etiologies and solutions. Med Sci Educ. 2019;29:329–331. doi:10.1007/s40670-018-00673-2. Accessed December 15, 2019.
- <sup>21</sup> Centers for Disease Control and Prevention. Evaluation Reporting: A Guide to Help Ensure Use of Evaluation Findings. Atlanta, GA: US Dept of Health and Human Services; 2013. Retrieved from: [https://www.cdc.gov/dhdsp/docs/Evaluation\\_Reporting\\_Guide.pdf](https://www.cdc.gov/dhdsp/docs/Evaluation_Reporting_Guide.pdf). Accessed August 15, 2019.