Training Best Practices:
EVALUATION

Introduction

A training program involves a considerable investment of time and resources, so it's important to know whether the training program has met its objectives. The only way to do that is with a strong evaluation. Evaluations tell you whether your training is leading to real change—in your learners and in your organization. They can also reveal areas that need work, so you can continue to improve your training. Evaluation is sometimes performed by an outside group. But this can be expensive and as a result lead to less frequent evaluations. To ensure that EPI program leaders have the data needed to make strategic decisions concerning capacity building, it is often necessary for them to conduct evaluations themselves or oversee internal staff in doing so.

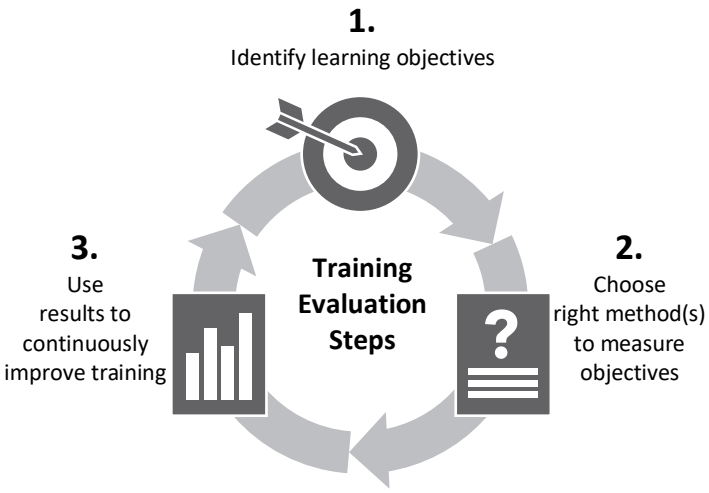
An evaluation can be used to measure different aspects of training, including both the process and the outcomes, including:

- **Experience:** Reactions to the overall training experience
- **Learning:** Skills and knowledge that participants gained
- **Behavior:** Changes in performance back in the workplace
- **Results/Impact:** Short- or long-term changes in your program and any applicable returns on the training investment

The further down this list you go, the more difficult and costly it is to measure the results—but the more valuable the results are for determining whether your training is effective.

How do I evaluate training outcomes?

A truly valuable evaluation is more than a pen-and-paper survey or quiz. To really have an impact, an evaluation should be thoughtfully designed with clearly defined objectives. Planning an effective outcome evaluation is a long process that should begin as you design your training. As you develop your evaluation, consider these three key steps:



1. Identify learning objectives of the completed training:
The first step is to define your evaluation objectives. Start by considering the overall goals of your program (refer to training plan). For example, your goal may be to reduce vaccine waste or to improve vaccination demand. When designing the training identify the specific knowledge, skills, and behaviors your learners need to accomplish those goals. This is most helpful and effective when a thorough needs analysis has been conducted during the early stages of the initiative (refer to Best Practices #1 – Performance Management, #2 – Needs Analysis, and #3 – Strategic Training Action Planning).

EXAMPLE:

Learning Objectives from training plan

- Program Goal: Reduce vaccine waste
- Necessary Knowledge: Know what vaccine waste is
- Necessary Skills: Be able to calculate vaccine waste
- Necessary Behavior: Respond appropriately in situations where vaccine is being wasted

When designing the training make sure your learning objectives are observable, specific, measurable, and reflect on-the-job application of the material (SMART).

Weak objective	Stronger objective	What makes it stronger?
Learners will understand the process for safe sharps disposal.	*Learners will be able to correctly assemble a sharps disposal box and demonstrate the process of safely disposing a used needle and syringe.*	"Understanding" is difficult to measure, but demonstration can be evaluated with a simple observation or checklist.
Learners will know the importance of adhering to the routine vaccination schedule.	*Learners will be able to explain to a caregiver the importance of adhering to the routine vaccination schedule.*	By putting this learning objective in terms of the actual real-world application, it will be easier to create practice and evaluation activities.

TIP: Program needs change over time, so be prepared to adapt your overall objectives and evaluations. Evaluation activities should be flexible to reflect the most critical and relevant skills and knowledge for improving performance.

2. Choose the right method(s) to measure those objectives:

Your evaluation tool will depend on what you're trying to measure. You may be assessing knowledge, skills, attitudes, or how these ultimately affect behavior. Once you identify what you're evaluating, consider these different assessment methods:

- **Knowledge:** Tests with multiple-choice questions to evaluate retention/basic understanding of facts or open-ended questions to demonstrate analysis/decision-making (Note that grading open-ended questions can be challenging for large training groups; if multiple facilitators are grading, consider developing a rubric to standardize the evaluation.)
- **Skills:** Problem-solving exercises, role plays, case studies, and group work (Facilitators may observe and evaluate during the exercise, using checklists and rubrics for consistent feedback.)
- **Attitudes:** Surveys, questionnaires, in-depth interviews and focus groups, role plays (You may include opportunities for self-assessment.)

- **Behaviors:** Role-plays, supervisory visits, performance reviews, interviews with colleagues/supervisors, 360° reviews (from various levels of coworkers), self-assessments, and even patient surveys or exit interviews

  See "Evaluation tools" in Annex 1 for descriptions of each method.

EXAMPLE:

Learning objectives	Evaluation Tools
• Program Goal: Reduce vaccine waste • Necessary Knowledge: Know what vaccine waste is • Necessary Skills: Be able to calculate vaccine waste rate • Necessary Behavior/attitude: Respond appropriately in situations where vaccine is being wasted	• Knowledge: Online test using realistic scenario-based multiple-choice questions • Skills: Individual, Group work and role-play scenarios • Attitude: Online questionnaire • Behavior: Role-play scenarios and supervisory visit

Use scenario-based questions or activities that assess learners' ability to apply the information they've learned.

Poor assessment question	Stronger assessment question	What makes it stronger?
Describe how to give an intramuscular injection.	*You are administering a HepB vaccine to a 12-month old. Describe how and where on the infant's body you will administer this injection.*	This question requires the learner to demonstrate real-life application of their knowledge of injection for a specific vaccine and patient, as well as the correct steps for injection. It also demonstrates decision-making competence.
Explain what a vaccine vial monitor (VVM) measures and how it is used to apply the multi-dose vial policy.	*You are packing for an immunization session. How can you use VVMs to determine if each vaccine vial is safe to use?*	This question requires the learner to apply what they know about VVMs in real-world situations. The question reflects actual on-the-job uses of VVMs.
Define a tally sheet.	*You are holding an immunization session for about 200 infants and children. Come up with a scenario describing how you use the tally sheet during the session and after the session.*	This question requires the learner to demonstrate their understanding of tally sheets and how they're used in actual situations.

TIP: When choosing evaluation tools, consider the downstream effects of your decisions and whether you have sufficient manpower to grade the evaluations and to analyze the results. Whenever possible, collect data electronically (e.g., Google forms or Survey Monkey) to reduce data entry time and errors

3. Use your results to continuously improve your training:

Outcome evaluation may be a required component of a training program, but remember that a strong evaluation can provide invaluable insight into the content, design, and delivery of your training. Results should be collected, analyzed, and integrated back into the program. Plan for to periodically share and address evaluation results and any issues they reveal. Quarterly review meetings, newsletters, and supportive supervision visits are good forums to share evaluation results. In some cases, like live training, daily feedback from learners can even help shape training from one day to the next.

EXAMPLE:

Learning objectives	Evaluation Tools	Results
• Program Goal: Reduce vaccine waste • Necessary Knowledge: Know what vaccine waste is • Necessary Skills: Be able to identify vaccine waste • Necessary Behavior: Respond appropriately in situations where vaccine is being wasted	• Knowledge: Test using realistic scenario-based multiple-choice questions • Skills: Group work and role-play scenarios • Attitude: Questionnaire • Behavior: Role-play scenarios and supervisory visit	• Analyze results from multiple-choice test at least quarterly; for any questions where fewer than 80% of learners selected the correct answer, review and revise applicable training as needed to more clearly present the information • Analyze questionnaire about attitudes at least annually; for any content that fewer than 80% of learners found helpful/meaningful, review and revise • Analyze correlation between role-play scenarios and behavior seen at supervisory visits; if desirable behaviors persist in fewer than 95% of learners at supervisory visit, develop follow-up touchpoints to better reinforce training

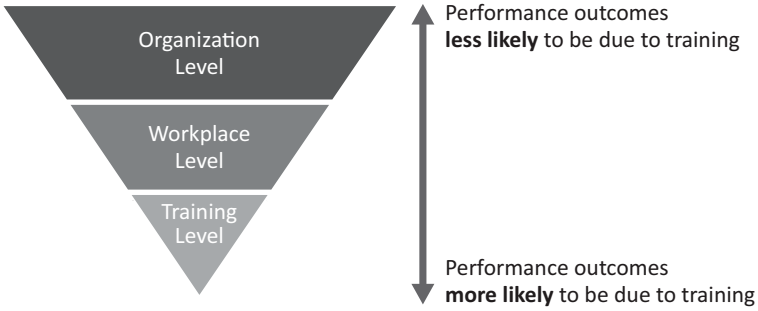
TIP: For some training, it may be possible to semi-automate the analysis by using statistical software like SPSS or Stata. For multiple choice questions, a good analysis option is an Excel template developed by WHO. Responses to questions are entered into the template, which then automatically runs the analysis and produces frequency tables and charts. With slight modifications, this concept could be adapted to other forms of questions, such as free-response questions or self-assessments of attitudes or knowledge gained.

Where should I evaluate training outcomes?

Evaluation can take place in multiple settings, not only in the classroom. The choice can have an impact on the methods you use and the data you collect.

- **In the training environment:** This setting is a good place to give pre-and post-training tests to measure immediate learning gains or gather immediate reactions to the event. Evaluations may also be used mid-training to monitor learners' performance and adjust the training if needed (e.g., provide additional practice until learners are able to successfully demonstrate a skill).
- **In the workplace:** Evaluating learners on the job can help you determine what learners already know (before training) or how they're applying what they learned (after training). These evaluations can vary, from online assessments to interviews to observations in the field.
- **From the organization:** Organizations can provide valuable information to measure training outcomes. To measure individual performance, you could refer to records that may reflect everyday job performance that should be impacted by the training, such as vaccine stock records or adverse events investigation forms. To measure long-term training impact, gather data from all appropriate learners (i.e., those who successfully completed the training and still serve in the same capacity) at multiple points in time to serve as key performance indicators. This data might include the number and quality of services performed or stockout frequency, for example.
- **From the end user:** Caretakers of children or adult recipients of routine immunization services could provide valuable information on the competency of the HCW who received training. A short survey or interview following a health facility visit could be conducted.

TIP: When analyzing key performance indicators, consider how improvements relate to where the assessment takes place. Remember that improvements at the program level could be due to factors besides training. For example, an increase in immunization coverage rates may be due to rising public demand for vaccination.



When should I evaluate training outcomes?

Consider evaluating learners at various times—not just immediately after training. A strong evaluation plan should also assess learners before, during, and for weeks or months after instruction.

- **Before training:** Provide pre-tests to measure learner's skills, knowledge, or attitudes before training. Or you might gather key indicators of an overall program, such as completion and accuracy of vaccination monitoring charts. Results can be used as baseline data and compared to post-training results to measure the training impact.
- **During training:** Build evaluation into the training experience as a learning tool. This gives the learner a chance to review what they know—and tells you whether the instruction is on track.
- **Immediately after training:** Providing post-training tests—and comparing to pre-training tests—can help you determine if participants gained essential skills and knowledge. Smile sheets are often used to evaluate participant experience, but simply asking learners how they felt about training does not yield very reliable—or useful—results. A more effective approach is to provide self-assessments that ask learners to describe how their performance or confidence changed as a result of the training. An effective self-assessment includes feedback questions that are concrete, focus on factors that matter, and add granularity between answer choices. (See *Improving Smile Sheets* in Annex 2.)
- **Delayed assessment:** The only way to evaluate consistent changes in behavior—whether learners are *applying* what they learned—is after the training, back on the job. Try evaluating learners at intervals to find out how well material was retained back in the workplace. Delayed assessment can also reinforce learning. These assessments can include supervisory visits, performance reviews, interviews with colleagues/supervisors, 360° reviews, or patient/caregiver satisfaction.

TIP: Professor Art Kohn suggests a "2-2-2" method to reinforce learning—asking learners to recall important information after 2 days, 2 weeks, and 2 months.

Annex 1: Evaluation Tools

	What it may be useful to measure	Advantages	Disadvantages	Considerations
Multiple-choice, matching, true/false	Ability to recognize factual knowledge or procedural steps	Relatively easy to administer and grade, and can be a consistent method for large groups of learners.	Not a good way to measure actual skill or ability	Could be helpful if used as pre- and post-test to measure impact of training; also, it will set the knowledge/skills level before training and whether the training is at the right level or needs to be adjusted
Open-ended questions (written assessment)	Ability to recall essential information and procedural steps, respond to a challenge, post-training learner feedback or suggestions	Allows for more personal, thoughtful response and demonstrates critical thinking	Requires substantial skill and time to develop, compile, analyze, and provide feedback to learner	Consider providing a grading rubric to standardize the grading, especially if multiple assessors will evaluate the responses
Scenario-based questions	Application of information or procedures	Allows learners to respond to more complex situations and demonstrate decision-making	Requires substantial time to develop	May be in a multiple-choice format for easier grading or open-ended for more thorough assessment
Rubrics or checklists	Performance of job-related tasks, either in class or on the job	Useful for evaluating actual performance—either in the classroom as a practice activity or in the workplace after the training; provides consistent and comparable evaluation	Not a good way to measure actual skill or ability	
360-degree feedback (from various levels of coworkers)	Behavior in the workplace	Evaluates more subtle behaviors such as leadership or teamwork; provides feedback on actual performance in the workplace	Requires substantial time and effort to collect unbiased feedback; does not measure job-specific skills	
Job observations / shadowing	Behavior in the workplace	Allows collection of accurate and detailed feedback	Requires substantial time, effort, and logistical resources	Can be combined with rubrics and checklists to make job observation data more consistent and comparable; can also be combined with coaching or supportive supervision

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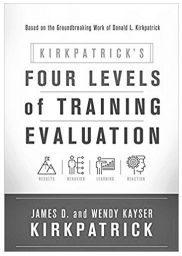
	What it may be useful to measure	Advantages	Disadvantages	Considerations
Surveys or questionnaires	Learner preferences or reactions; learner levels of confidence, motivation, attitudes; self-reported behavior	Allows for self-assessment and provides insights into learners and their training experiences; relatively easy to administer after some time has elapsed to get longer-term data	Are often limited in how informative they can be, but can reveal potential problems; learners may not provide accurate or open feedback	
Follow up interviews (e.g., qualitative interviews – talking to users about their experiences)	Learner preferences or reactions; learner levels of confidence, motivation, attitudes; self-reported behavior	Can be effective way to collect information, both immediately after a training class, or after a time delay	Learners may not provide accurate or open feedback	
Performance data (key performance indicators)	Learner's application of new skills and knowledge in the workplace	This is the gold standard for measuring training impact	Evaluators may assume improvement is due only to training	Are key performance indicators changing based on training efforts?

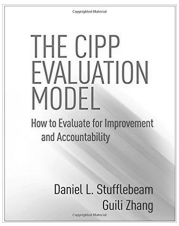
Annex 2: Resources

Explore these resources for more information about evaluation models and methods.

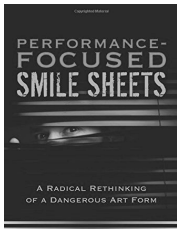


Kirkpatrick Model of Training Evaluation
Kirkpatrick's four levels of training evaluation, by James D. and Wendy K. Kirkpatrick

The Kirkpatrick Model:
http://www.kirkpatrickpartners.com/Our-Philosophy/The-Kirkpatrick-Model



Context, Input, Process and Product (CIPP) Model for Program Evaluation
The CIPP evaluation model: how to evaluate for improvement and accountability, by Daniel L Stufflebeam and Guili Zhang



Improving Smile Sheets
Performance-Focused Smile Sheets: A Radical Rethinking of a Dangerous Art Form, by Will Thalheimer

Evaluation Planning Tool
W.K. Kellogg Foundation Evaluation Handbook
http://www.wkkf.org/resource-directory/resource/2010/w-k-kellogg-foundation-evaluation-handbook

Introduction to Evaluation
Research Methods Knowledge Base: Introduction to Evaluation (online textbook)
http://www.socialresearchmethods.net/kb/intreval.php

Evaluation in Public Health Programs
Center for Disease Control: Program Evaluation website
https://www.cdc.gov/eval/