



PROGRAM EVALUATION

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1. The Importance of Program Evaluation

Effective program evaluation does more than collect, analyze and provide data. It makes it possible for program managers to gather and use information in order to learn continuously about the surveillance system and to improve its functions and outcomes. Routine evaluation offers learning opportunities, improved documentation, and shared understanding about what works within the system and why. Program evaluation is critical for program managers to ensure that resources dedicated to surveillance functions have been allocated in the most efficient and effective manner. (1) Obtaining feedback about the overall operation of the surveillance system and sharing these analyses with other system partners is the most effective means of ensuring targeted surveillance efforts as well as improving ongoing communication among the system's members.

2. Overview of Program Evaluation

In general, there are two "types" of program evaluation models: *formative evaluation* and *summative evaluation*. In practice, most evaluations contain both types and there is no clear dividing line between the two.

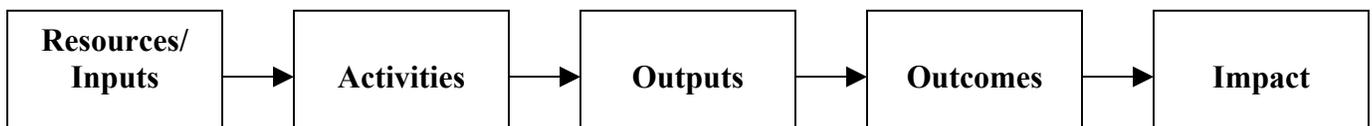
Formative evaluation produces information that helps form and refine your program. For instance, a program may have a detailed plan for how surveillance officers should communicate with laboratory personnel regarding the identification of a vancomycin-resistant *S. pneumoniae* isolate, but in practice program officers may find that surveillance officers do not follow the plan exactly as designed. Since the course isn't being implemented as intended, the outcome (or lack of outcome) will not be a fair test of the *plan* that was designed. Reviewing the actual practices and interpretation of the surveillance protocol by surveillance network participants is one important aspect of formative evaluation. Without this consideration, it may never be understood why the plan, as originally designed, was not being delivered.

A more thorough formative evaluation of this situation may provide reasons why the design wasn't being implemented properly - perhaps inadequate training, unclear materials, inappropriate staffing, or unexpected structural barriers were preventing the program from taking root as intended. Specific research on the training, materials, staffing, or context may generate specific information about how to make the necessary improvements. This type of feedback, if provided early enough, can assist in making adjustments and corrections that re-focus the program's track.

Summative evaluation is generally aimed at delineating clearly the benefits generated by a program as well as the costs and essential conditions necessary to gain those benefits. In order for this process to work effectively, program directors and program evaluators work as a team throughout the process, ideally beginning during planning and development and *before* the implementation of a program or program modification.

For both formative and summative evaluation, measurement and data collection tools and data management systems must be part of the basic planning of the project. Moreover, proper selection or creation of these systems requires detailed, thoughtful conceptual mapping of the program's intended outcomes, the way that these outcomes will be reached by program inputs and processes, the milestones or benchmarks that must be reached along the way, and the timeline along which these elements will unfold. Building and implementing a strong *evaluation plan* starts with outlining a *logic model* or *causal map* of your project, and professional evaluators can work with you to facilitate this process provides clear and measureable understanding of your program.

LOGIC MODELS: Following the Chain of Reasoning with Program Evaluation



Time invested initially spent mapping out and developing these evaluation plans and measurement strategies will later produce formative feedback, increasing the chances of program success. Beginning with a well-developed plan and measurement model will

also allow the production of thorough, convincing evidence of how program successes were achieved and how these successes might be continued or replicated.

3. Key Phases of Program Evaluation

Initial program evaluation considers whether the health event should be under surveillance. Secondary program evaluation includes considering if the system is meeting stated objectives in an efficient manner and if the goal is achieved via the simplest and most cost effective means. (2)

Evaluation begins with an assessment of the connection between the program's planned goals compared to the intended results. Core questions addressed by evaluation include:

- What is the connection between the system's planned work and the intended results?
- What resources are required to implement the program and to achieve intended outcomes?
- What is the relationship between the system's intended outcomes and the program's achieved outcomes?

Planned work described key resources required to implement the program and the program's intended objectives (intent).

- **Resources** include human, financial organizational and community resources. Sometimes this is referred to as inputs
- **Program Activities** are what the program intends to accomplish with the resources

Surveillance systems' intended results may be measured in terms of *outputs*, *outcomes*, and *impact*.

- **Outputs** include the direct products of program activities
- **Outcomes** include the specific changes in program participants' knowledge, skills, behavior, and level of functioning. Short-term outcomes should be attainable within 1-3 years; longer-term outcomes should be attainable 4-6 years; and long-term outcomes should be reflected in impact occurring with 7-10 years.
- **Impact** is the intended or unintended change occurring in defined areas (i.e., systems, organizations, state) as a result of the program. (2)

4. Sensitivity and Predictive Value Positive (PVP)

Major considerations of evaluation processes explore the sensitivity and predictive value positive (PVP) of a system. The extent to which these attributes are explored through an evaluation process depends upon the system, available resources and evaluation goals.

From a practical standpoint, a primary emphasis should be placed on determining the system sensitivity and estimating what proportion of the total number of cases in the community is being detected by the system. PVP is defined as the proportion of individuals identified as case-patients who are actual "true-positives," having the condition being monitored. A surveillance system that does not have high sensitivity can still be useful in monitoring trends, as long as the sensitivity and predictive valued positive remain reasonably constant. (3)

5. Reporting and Making Recommendations

In addition to assessing sensitivity and predictive value positive (PVP), public health surveillance systems should be reviewed periodically and the evaluation process should ensure that various data collection methods are compared for acceptability to participants, timeliness, representativeness, simplicity, and other characteristics of effective public health systems.

On the basis of the evaluation, an assessment of how well the surveillance system is meeting current objectives should be made. Modifications to the system to enhance usefulness and improve its attributes should be considered. A regular review of each surveillance system should assure that systems remain responsive to current and emerging detection needs.

6. Additional Resources

In 2001, CDC released *Updated Guidelines for Evaluating Public Health Surveillance Systems* with updated recommendations from the CDC Working Group (1). The report lists key tasks associated with program evaluation, adapted from the *Framework for Program Evaluation in Public Health* (4). This report may be found at

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm>

References

1. CDC. Updated Guidelines for Evaluating Public Health Surveillance Systems. MMWR 2001; 50 (RR-13). *MMWR Morb Mortal Wkly Rep.* 2001;50.
2. Using Logic Models to Bring Together Planning, Evaluation and Action: Logic Model Development Guide, (1209). W.K. Kellogg Foundation, 2003.
3. Teutsch, Steven M. and R. Elliott Churchill, Principles and Practice of Public Health Surveillance, 2000. Oxford University Press.
4. CDC. Framework for Program Evaluation in Public Health. MMWR 1999, 48(RR-11).

SUMMARY OF PROGRAM EVALUATION CONSIDERATIONS

SYSTEM USEFULNESS	OPERATION OF THE SYSTEM
<p>Does the system:</p> <ul style="list-style-type: none"> • Detect trends signaling changes in the occurrence of the health problem in question? • Detect outbreaks? • Provide estimates of the magnitude of morbidity and mortality? • Stimulate epidemiological research likely to lead to control or prevention? • Identify risk factors? • Permit assessment of the effects of control measures? • Lead to improved clinical practice? 	<ul style="list-style-type: none"> • Who is responsible for reporting a case? • To whom are cases reported? • What information is collected? • Who collects information? • How are data transferred among administrative levels? • How is information stored? • Who analyzes the data? • How are data analyzed? • How often are data analyzed? • What types of reports are prepared? • How often are reports disseminated? • To whom are reports disseminated? • Through what mechanisms are reports distributed? • Are there any automatic responses to case reports?

Teutsch and Churchill (3)