Developing an Effective Logic Model

A Quick Guide

What is a logic model?

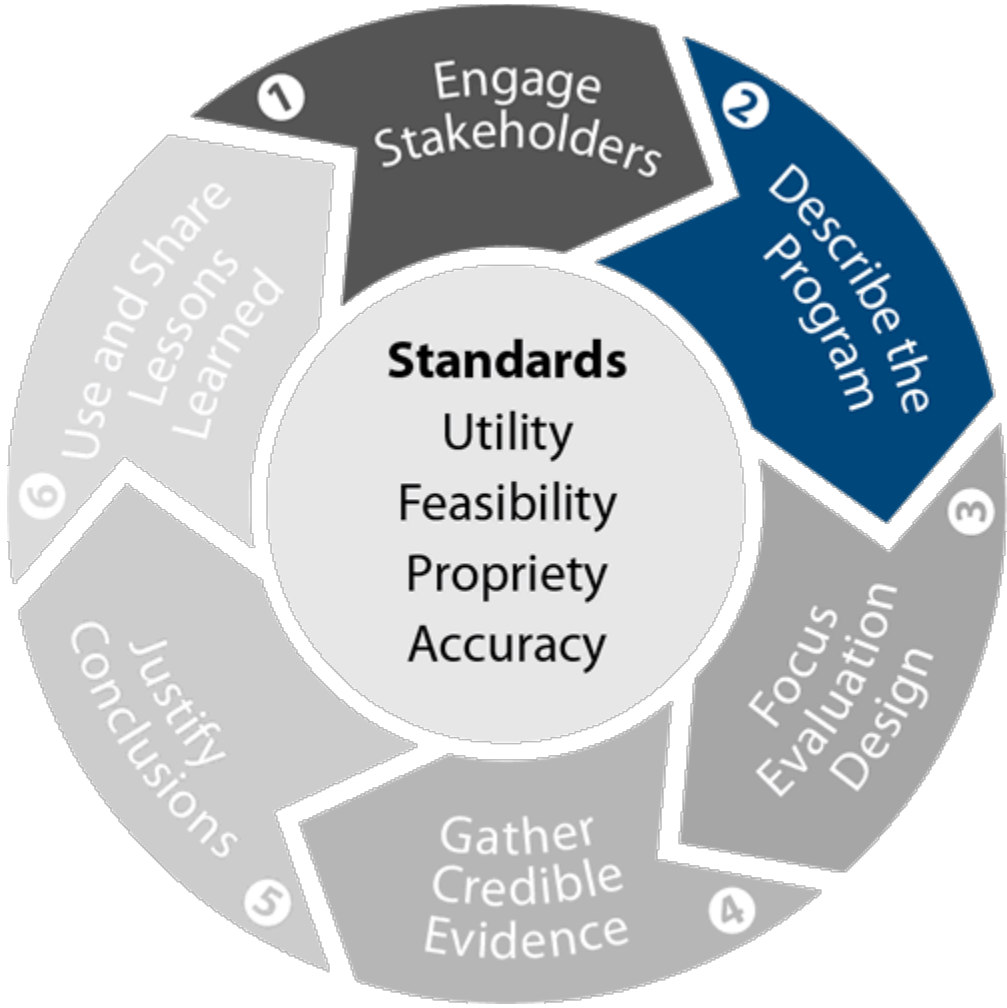
A **logic model** is a graphic depiction that presents the shared relationships among the resources, activities, outputs, and outcomes/impacts for your program. A logic model can be used to describe your program, Step 2 of CDC's Program Evaluation Framework.

It **depicts the relationship between your program's activities and its intended effects**, in an implicit **'if-then' relationship among the program el**ements — if I do this activity, then I expect this outcome.

Among other things, a logic model helps clarify the boundary between 'what' the program is doing and 'so what'—the changes that are intended to result from strong implementation of the "what."

Logic models differ widely in format and level of detail. Here are some key terms used in logic models, although not all are employed in any given model:

- **Inputs**: The resources needed to implement the activities
- **Activities**: What the program and its staff do with those resources
- **Outputs**: Tangible products, capacities, or deliverables that result from the activities
- **Outcomes**: Changes that occur in other people or conditions because of the activities and outputs
- **Impacts**: [Sometimes] The most distal/long-term outcomes
- Moderators: Contextual factors that are out of control of the program but may help or hinder achievement of the outcomes

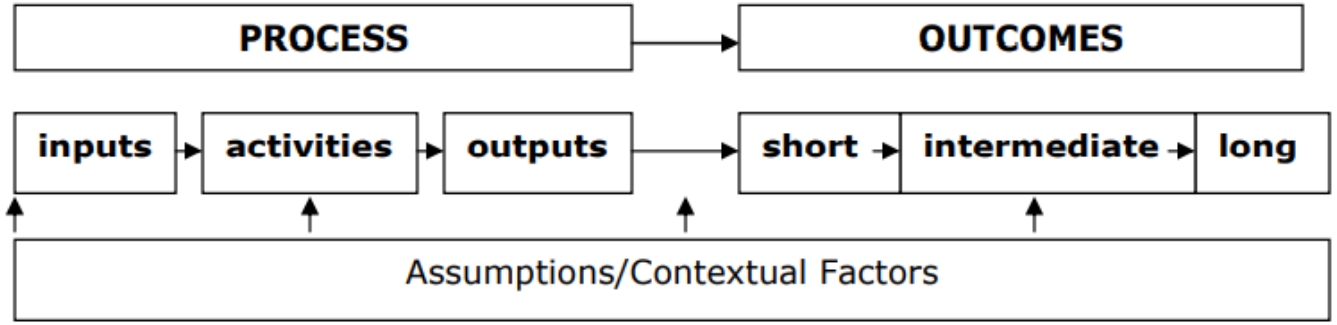


Why are logic models important?

The basic components of a good logic model are:

- Displayed on one page.
- Visually engaging.
- Audience specific.
- Appropriate in its level of detail.
- Useful in clarifying program activities and expected outcomes.
- Easy to relate to.
- Reflective of the context in which the program operates.

Figure 1. Layout of a General Logic Model



Logic models increase the likelihood that program efforts will be successful because they:

- Communicate the purpose of the program and expected results.
- Describe the actions expected to lead to the desired results.
- Become a reference point for everyone involved in the program.
- Improve program staff expertise in planning, implementation, and evaluation.
- Involve stakeholders, enhancing the likelihood of resource commitment.
- Incorporate findings from other research and demonstration projects.
- Identify potential obstacles to program operation so that staff can address them early on.

REQUIRED COMPONENTS OF LOGIC MODEL: TEMPLATE

INPUTS → ACTIVITES → OUTPUTS → SHORT-TERM OUTCOMES → INTERMEDIATE OUTCOMES → LONG TERM OUTCOMES

"What we invest"

The resources that go into a program or intervention. Can include financial, personnel, and in-kind resources from any source.

Examples:

- Various funding sources for your program.
- Your partners.
- Staff time and technical assistance.

"What we do"

Events undertaken by the program or partners to produce desired outcomes.

Examples:

- Create a state-level partnership.
- Train health care partners and staff in clinical guidelines.
- Develop a community health communication campaign on signs and symptoms of stroke, and to call 9-1-1.

"What we get"

Direct, tangible results of activities

Examples:

- State-level partnerships created.
- Health care professionals trained in clinical guidelines.
- Community health communication campaigns developed.

"What we achieve"

Desired results of the program. Describing outcomes as short, intermediate, or long term depends on the objective, the length of the program, and expectations of the program or intervention.

Immediate effects of the program or intervention activities. They often **focus on the knowledge and attitudes of the intended audience.**

Examples:

- Increase partner knowledge of HDSP priorities and strategies.
- Increase physician knowledge of clinical guidelines.
- Increase knowledge of signs and symptoms of stroke and of the need to call 9-1-1.

Behavior, normative, and policy changes.

Examples:

- HDSP State Plan has been developed and published with partner involvement.
- Health systems implement clinical guidelines.
- Decrease transport time to treatment for stroke victims.

Desired results of the program and can take years to accomplish.

Examples:

- Increase in statewide policy and environmental strategies for HDSP.
- Increase in blood pressure control in a health center population.
- Increase in early treatment for stroke.

Tips for Developing Effective Logic Models

- **Inputs**: Can include non-physical investments, such as staff time

- **Activities**: Each activity should begin with an action verb to demonstrate that it is something your health department or partner is doing.

- **Outputs**: Should be the direct, physical result of activities. Should be measurable and/or tangible:
  - Number of communications materials printed (posters, flyers)
  - Number of staff who attended trauma-informed care trainings
  - Educational materials developed for ACEs trainings for elementary school staff

- **Outcomes**: Usually related to changes in knowledge, attitudes, beliefs, behaviors, or health outcomes of the populations of focus for the program. Should be measurable.
  - Increased knowledge of the relationship between ACEs and trauma (short-term outcome)
  - Increased utilization of naloxone among jail-based/criminal justice populations (intermediate outcome)
  - 50% decrease in fatal overdoses (long-term outcome)

Tips for Developing Effective Logic Models (cont'd)

- You may choose to include directionality or include targets (number reached or percent changed) for outcomes.

- All inputs, activities, and outputs should lead to at least one short-term, intermediate, or long-term outcome.
  - Does the logic of the program as written make sense from inputs to long-term outcomes?
  - Are there any intermediary steps missing that should be included?
  - "If this happens, then that happens."

- You can demonstrate relationships between the various sections of the logic model by using arrows or lines to connect related boxes, or color-coding/shading associated activities, outputs, and outcomes.
  - Feel free to add, resize, recolor, and/or delete text boxes as needed for activities, outputs, or any of the outcome categories.
    - Use Insert → Textbox, and the functions under "Shape format" format text boxes.

  - Feel free to add and/or change connectors as you see fit to show associated activities, outputs, and outcomes.
    - Use the arrow or line under Insert → Shapes to add connectors.

  - Change colors for the STO/IO/LTO boxes based on which activities and outputs they are associated with.

Resources and References for Developing Effective Logic Models

CDC Program Evaluation Framework – Step 2 Checklist

CDC Introduction to Program Evaluation for Public Health Programs: A Self-Study Guide – Step 2: Describe the Program

CDC Division of Violence Prevention – EvaluACTION (toolkits and logic model builder)

CDC Division of Heart Disease and Stroke Prevention Evaluation Guide – Developing and Using a Logic Model

CDC Office on Smoking and Health and Division of Nutrition, Physical Activity, and Obesity: Developing an Effective Evaluation Plan: Setting the course for effective program evaluation – (Pages 12-17, 98-101)

CDC Coffee Break – Making Logic Models Work for You

CDC Climate and Health Evaluation Series Video 4 – Describing Your Program (Minutes 0:48 – 2.18)

Logic Model Example – Tuberculosis

Developing a Logic Model for IOPSLL

When developing the logic model for this funding announcement, we ask that you take the following into consideration:

1. **Key strategies** – Are evidence-based activities and strategies being proposed/implemented?
   - Surveillance and Data Sharing
   - Linkages to Care
   - Provider and Health Systems Support
   - Partnerships with Public Safety and First Responders
   - Communications Campaigns
   - Stigma Reduction
   - Harm Reduction Activities

2. **CDC/NACCHO funding** – If awarded, how will CDC/NACCHO funding be used to expand or enhance your existing programs? What additional inputs, activities, and outputs will be developed? What new potential outcomes will result from these activities? How will these new activities lead to existing outcomes?
   - For activities related to stigma: Do these activities address stigma at multiple levels of the social ecology?

You should also keep some considerations in mind as you develop the logic model:

1. Which population(s) of focus (e.g.; racial and ethnic minorities, disproportionately affected populations) are receivers of your activities?
2. What data sources do you have access to in order to measure your progress and outcome metrics?

Overdose Prevention: Reference Resources

CDC's Evidence-Based Strategies for Preventing Opioid Overdose: What's Working in the United States

CDC's Stop Overdose Mini-campaigns

CDC's Rx Awareness Campaign

March of Dimes' Beyond Labels Campaign

Public Health Public Safety Toolkit (PHAST Toolkit)

Overdose Fatality Review (OFR) Practitioner's Guide for Implementation

Medication-Assisted Treatment (MAT) for Opioid Use Disorder in Jails and prisons: A Planning and Implementation Toolkit

Expanding Access to Medications for Opioid Use Disorder in Corrections and Community Settings: A Roadmap for Status to Reduce Opioid Use Disorder for People in the Justice System

CDC Trainings for Providers:

- Interactive Training Series for Healthcare Providers
- Webinar Series for Healthcare Providers

The Social-Ecological Model: A Framework for Prevention

IOPSLL: LOGIC MODEL SAMPLE

INPUTS	ACTIVITES	OUTPUTS	SHORT-TERM OUTCOMES	INTERMEDIATE OUTCOMES	LONG TERM OUTCOMES

• CDC/NACCHO funding
• HD staff (e.g., program manager, SMEs)
• MOUs/data sharing agreements
• Programmatic support/technical assistance through IOPSLL
  • Program implementation
  • Evaluation
  • Communications
  • Peer-to-peer networking
  • Monthly check-in calls
• Partnerships and cross-sectoral collaborations
  • Community-based organizations
  • Hospitals or health systems
  • Public safety and first responders
  • Medical examiners' office
  • Federal-level organizations
  • State-level organizations
  • Private sector
• Naloxone purchases using external funding sources
	Implement a post overdose outreach program for individuals who experienced a non-fatal overdose	Post overdose outreach program protocol developed
		# of first responders participating in post overdose outreach program
		# of peer supporters in recovery participating in post overdose outreach program
		# of individuals reached through post overdose outreach
			Increased knowledge of harm reduction, treatment, and recovery services among individuals who experienced a non-fatal overdose	Increase in number of individuals entering treatment/recovery services due to post overdose outreach program
				Decrease in number of emergency responses needed for drug overdoses.
					Decreases in rates of fatal overdoses

	Implement Rx Awareness Campaign to increase general public awareness of prescription opioid misuse, provide management and treatment options, and reduce stigma	Campaign materials distributed among general public through channels with highest reach	Increased awareness among general public on prescription opioid misuse, and management and treatment options for SUD	Improved understanding of SUD, and SUD management, treatment, and recovery options among general public	Decreased stigma among general public surrounding SUD, management, treatment, and recovery
	Provide anti-stigma trainings and resources for healthcare workers and peer support specialists	Anti-stigma resources adapted for local context # of health care workers who attended trainings # of peer support specialists who attended trainings	Increased knowledge of healthcare-related stigma faced by individuals with SUD	Decreased stigma towards individuals with SUD	Improved delivery of medical care for individuals with SUD in medical setting
	Utilize a harm reduction mobile unit to distribute harm reduction information and supplies in areas of high overdose burden	# of harm reduction kits distributed # of individuals reached through harm reduction mobile unit	Increased knowledge of harm reduction strategies among individuals in high overdose burden areas	Increased utilization of harm reduction supplies (e.g. fentanyl test strips) among areas with high overdose burden	Decreased rates of opioid and fentanyl-related fatal overdoses in areas with high burden
	Surveil evolving overdose trends through data sharing agreements with first responders, hospitals, and medical examiners' office	Overdose data obtained from multiple sources	Increased understanding of evolving overdose and substance use trends	Increased ability to adapt programs to respond to changes in SU/OD trends	Increased capacity of LHD to respond/mitigate/prevent SU/OD

IOPSLL: LOGIC MODEL SAMPLE (cont'd)

- SUD Prevention Strategies represented:
  - Communications Campaigns (Stigma – Individual and Community levels of the social ecology)
  - Harm Reduction
  - Partnerships with Public Safety and First Responders
  - Enhanced Surveillance and Data Sharing

- Populations of focus represented:
  - People who use drugs
  - People with SUD
  - First responders (e.g., EMS, Fire, Police)
  - People who have experienced a non-fatal overdose
  - Healthcare workers (e.g., clinicians, physician assistants, nurse practitioners, nurses)
  - Peer support specialists
  - General public