



Developing Effective Logic Models to Define a Program

Presented on April 15, 2014

Episode 2 in the Program Evaluation and Improvement Training Series

Presenters

CAPT Armen Thoumaian, Ph.D.

Health Science Officer

Office of Policy, Programs and Integration

Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE)

Silver Spring, Md.

Debra Stark, M.B.A.

Research Scientist

Contract support for DCoE

Arlington, Va.

Moderator

Aaron Sawyer, Ph.D.

Research Scientist

Contract support for DCoE

Arlington, Va.

[Slide 1]

CAPT Thoumaian: Hello. My name is Captain Armen Thoumaian. Thank you for joining us today for the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, or DCoE's, Program Evaluation and Improvement webinar. Today's topic, episode two in our webinar series, is "Developing Effective Logic Models to Define a Program."

[Slide 2]

DCoE's Mission is to improve the lives of our nation's service members, families and veterans by advancing excellence in psychological health and traumatic brain injury prevention and care.

This is the second installment in a series of web-based program evaluation and improvement trainings designed to increase the capacity of program managers and staff to engage in program evaluation activities.

The series is directed primarily toward program administrators and service leadership who are currently involved with or plan to conduct program evaluation activities, or others who are interested in the conduct of or the results from evaluation studies.

The series offers training on key activities and tools that may be used to advance program evaluation and improvement efforts to enhance quality and effectiveness of psychological health and traumatic brain injury programs as part of DCoE's larger mission.

[Slide 3]

DCoE and its Centers – the Defense and Veterans Brain Injury Center (or DVVIC), the Deployment Health Clinical Center (or DHCC), and the National Center Telehealth and Technology (or T2) – work closely with one another to promote high-quality prevention and care across the Defense Department. Together, we produce a variety of monthly webinars on subjects ranging from program evaluation to clinical care and prevention to up-to-date summaries of research on psychological health and TRAUMATIC BRAIN INJURY.

[Slide 4]

Dr. Sawyer: My name is Dr. Aaron Sawyer. I provide contract support to DCoE. I will be your moderator for today's webinar.

Before we begin, let's review some details. Today's webinar is hosted using the Adobe Connect platform, and the technical features are being handled by DCoE's webinar support team in Washington, D.C.

This presentation has been pre-recorded; however, there will be a live Question and Answer session at the end of the presentation.

Throughout the webinar, we encourage you to submit technical or content-related questions using the Question box located on the screen. Our presenters will respond to as many questions as possible in the order they are received. If you would like an individualized response, please provide contact information with your submitted questions or comments, or contact Captain Thoumaian directly using the contact information provided at the end of the presentation on slide 60.

Also, please feel free to identify yourself to other attendees and to communicate with one another using the chat box at the bottom of the screen. Any time left over at the end of the presentation may be used for networking.

Closed captioning is not available for this event, and all audio will be provided through the Adobe Connect platform; there is no separate audio dial-in line. Please note there may be delays as the connection catches up with the audio at times. Depending on your network security settings, there may also be some noticeable buffering delays.

[Slide 5]

Continuing education credit is not available for this event but may be available for future webinars. Webinar materials from this series and information about other DCoE webinars and trainings are available in the Training section of the DCoE website, which you can visit by following the link on slide 5. You should have received materials for this presentation in an e-mail, although they are also available in the FILE DOWNLOAD box during the webinar.

[Slide 6]

Our first presenter is Captain Armen Thoumaian. Captain Thoumaian is a Health Science Officer with DCoE. He is a Scientist Director in the Commissioned Corps of the U.S. Public

Health Service with more than 30 years' experience in health and mental health program design and evaluation. In January 2012, Captain Thoumaian joined DCoE to help design and implement program evaluation and improvement efforts in the Defense Department. He holds a B.A. in Psychology and Sociology, an M.A. in General Experimental Psychology, and a Ph.D. in Social Welfare and Social Work. Captain Thoumaian completed a National Institute of Mental Health fellowship in Community Mental Health.

[Slide 7]

Our next presenter is Ms. Debra Stark, a Research Scientist providing contract support to DCoE. She is a survey methodologist and analyst with more than 15 years of research experience. Ms. Stark's work includes program evaluation and monitoring, qualitative data analysis, and survey instrument design. She has worked on health services evaluation projects with several Federal agencies, including the Department of Veterans Affairs and Tricare Management Activity. Ms. Stark received her MBA from Vanderbilt University.

Ms. Stark: Our final presenter is Dr. Aaron Sawyer, also a Research Scientist providing contract support to DCoE. Today, Dr. Sawyer is both moderator and presenter. Dr. Sawyer is a clinical psychologist with extensive expertise in intervention outcome research and program evaluation. He has delivered child, family, and adult interventions for more than a decade, including specialization in trauma and experience working with military families. Dr. Sawyer holds an M.S. in Experimental Psychology and a Ph.D. in Clinical Psychology. He completed postdoctoral training at The Kennedy Krieger Institute/Johns Hopkins University and is a Licensed Psychologist.

[Slide 8]

Dr. Sawyer: Today's webinar topic is "Developing Effective Logic Models to Define a Program." This webinar will provide training to support the DCoE plan to improve the system of prevention and care for psychological health and traumatic brain injury. The presentation will provide an introduction to the development and use of logic models in program planning and program evaluation processes.

At the conclusion of this webinar, participants will be able to:

- Explain the major parts of a logic model,
- Use suggested guidance to build a logic model, and
- Identify common challenges that programs face when creating logic models.

[Slide 9]

As seen on slide 9, the first topic is an introduction to logic models, followed by an examination of logic model elements, including: Mission, Goals and SMART Objectives (which refer to objectives that are specific, measurable, achievable, relevant, and time-bound); Inputs, Outputs, and Outcomes; and Assumptions and External Factors. Next, we provide writing tips to help you create logic models and conclude by considering some of the challenges involved in building logic models.

I will begin the presentation, followed by Ms. Stark with concluding comments from Captain Thoumaian.

[Slide 10]

I am proud to be here today as a researcher and psychologist supporting DCoE's and the military's efforts to provide high quality prevention and care for service members and their families.

Webinars on logic models and other program evaluation topics support a culture of effectiveness in which programs are well-defined and provide accurate data to inform program evaluation and improvement efforts.

[Slide 11]

Among Yogi Berra's many wise words, he said, "If you don't know where you're going, how are you gonna know when you get there?"

Of course, Yogi Berra had no idea that his off-the-cuff remarks would be quoted decades later in a webinar about logic models, but these remarks speak to the general idea that a program, or rather a program's leaders and staff, must know why the program exists, what it does, and what should happen as a result of its practices. If not, there is no way to know if the program is actually working. Logic models are an important tool in clarifying the nature of a program and can be used to examine its results.

[Slide 12]

In the simplest terms, a logic model is an action-oriented tool for program planning and evaluation. A logic model can visually connect a program's outcomes with its practices and products as well as the assumptions that underlie the program.

Many programs neglect to start with a clear description of the program and what it intends to achieve, which undermines both program planning and evaluation efforts. The logic model, as a map of what a program is and what it intends to do, is a useful tool for clarifying objectives, drawing connections between activities and outcomes, and for developing evaluation plans and strategies for improvement.

[Slide 13]

On slide 13, you will see a very simplistic logic model. It shows what goes into a program--that is its resources, or what is invested in the program--produces its outputs, which consist of activities, services, and products. Those outputs drive outcomes among program participants.

This simple diagram depicts relationships between different parts of a program. This is an approach to integrate program planning, accountability, evaluation, and so on by providing a theory of change for a program, or a theory of how the program produces intended outcomes.

[Slide 14]

There are three parts that form the core of a logic model:

Inputs are what a program needs to operate. These include resources such as money, space, equipment, staff, skillsets, and training, among other things.

Outputs are what the program does with its inputs. These include any activities conducted by program staff as well as those including program participants. Outputs would also include tools or products such as presentations, reports, web pages, mobile phone applications, services delivered, and events held.

Outcomes include the changes that result in program participants or a broader target population as a result of their participation. In the short-term, outcomes might include skills or knowledge acquired, improved symptoms, or awareness of a campaign. In the longer term, outcomes might include changes in rates, or prevalence, of a condition in the target population, or perhaps improved force readiness, in addition to sustained short-term outcomes.

[Slide 15]

Confusion often arises when distinguishing between outputs and outcomes. There are a couple of ways to think about this. First, conducting an activity, or perhaps making a product, is not the same thing as the results that are achieved through that activity or product. In the most basic terms, program staff can do stuff and create things that may or may not lead to a desired outcome in program participants.

In clinical settings, for instance, we don't really think of note-taking as being related to outcomes; likewise, delivering therapy or assessment may or may not result in improvements.

In program evaluation terms, Outputs are the activities and products created by a program. Outputs are reflected in data about the number of people who attend training events, the number of sessions or service units delivered, materials distributed, web content developed and so forth.

On the other hand, Outcomes are the measurable changes that occur among program participants as a result of the program. This may include intended changes as well as unintended changes. Outcomes are reflected in data about symptoms, increased knowledge and awareness, et cetera.

Outcomes and outputs both result from inputs, but you must have outputs of some sort to get to outcomes. We hope this distinction becomes increasingly clear as we continue.

[Slide 16]

So, why build a logic model in the first place? It may initially seem like a lot of work, but there is no better way that program managers can make clear to stakeholders and program staff how the program works and what can reasonably be expected from it. This type of clarity is an essential part of having a well-planned program that is transparent in its aims, and it ensures there is a shared understanding of the program among all of the people involved with it.

[Slide 17]

Program managers and other key parties should strongly consider developing a logic model for their program, not only because it is useful in defining a program, but also because logic models may be required in reports to senior-level stakeholders.

Specifically, a logic model provides a roadmap for progress and results. In Yogi Berra-terms, a logic model ensures that a program knows where it's going. A good logic model will specify the sequence of activities that are thought to produce results.

In addition, a logic model forms the core for a highly-focused management plan that helps identify and collect data to monitor performance and improve programming. With a roadmap of specific activities and products, it is easier to identify gaps or redundancies. For instance, a logic model might show a program manager that multiple individuals or teams are working on the same task, or that no one is really working to produce an output linked with a key outcome. Moreover, logic models guide program evaluation and improvement efforts as described in the next two slides.

[Slide 18]

Program evaluators, whether internal or external, use logic models to assess the relationship between a program's stated objectives, its inputs and outputs, and the actual outcomes of the program.

For example, if you say you're going to drive from Washington, D.C. to Seattle in 48 hours on 4 tanks of gas and visit the Spam Museum in Austin, Minnesota along the way, but instead you find yourself 96 hours later in San Diego after having used 9 tanks of gas and visiting only the Corn Palace in Mitchell, South Dakota, you had better figure out where you got off track.

A logic model is like GPS for a program, and evaluators use it to assess whether programs are on track to reach their goals, or if a program is off track, to re-route the program toward its destination.

So, improvement efforts, based on the results of evaluations, will target specific parts of a logic model to improve quality, outcomes, and efficiency. In the input domain, this may mean increasing staff training, getting better equipment, or cutting costs. In the output domain, this may mean delivering more web-based training sessions, or adding booster sessions or eliminating unnecessary reporting.

[Slide 19]

To provide another perspective, a detailed - key emphasis on the word detailed - logic model provides a description of a program's resources, processes and results that programs can use to demonstrate effectiveness and maintain accountability. Ricardo Millet of the Kellogg Foundation, the organization that produced the excellent resource referenced on slide 59, stated that "The bane of evaluation is a poorly designed program."

Many program administrators believe their programs are well designed and effective. Although that view may be correct, in a modern, data-driven, highly accountable environment, it is essential that administrators be able to demonstrate in clear, concrete terms what their program does and what it achieves. Without a clear program design, and measurements, that task is next to impossible.

[Slide 20]

Slide 20 shows a detailed program logic model that goes beyond just inputs, outputs, and outcomes.

In green on the left, you see a situation that drives the development of a program, such as an identified need or problem, a gap in a service system, or a directive from an agency leader.

That situation leads program developers, administrators, leadership, and program staff to get together and make a detailed plan for the program, including a program mission, specific goals that fall within that mission, and very specific, measurable objectives.

Then, in the first blue box, an inventory of inputs (consisting of available or needed resources) may be developed based on the plan, followed by outputs, and outcomes, as we have discussed.

Underlying all of these elements are sets of assumptions that influence how a program understands its operations, as well as external factors, such as political, economic, social, and technological features of the environment in which the program operates and in which the program's target population lives and works.

Program evaluation activities, in pink, may influence any aspect of a program, and may assess any part of a logic model, or the relationships between its elements.

This is just one example of what a detailed logic model looks like.

[Slide 21]

On slide 21, we provide a few additional examples of logic models: one from the Centers for Disease Control and Prevention and another from the North Carolina Department of Health and Human Services. These are not intended for detailed review at this time, but you will notice right away there are lots of boxes and lots of arrows. The format of each model is specific to the program on which it is based. You will also notice that activities form a separate element in these models, which is not uncommon, although we have chosen to include activities as part of outputs.

The key takeaway from these models is that they each draw very specific linkages between a program's resources, its activities, its products, and its outcomes for participants or the population at large. In the resources provided on slide 59, including DCoE's Program Evaluation Guide, there are numerous examples of logic models. We invite those who will develop logic models to review examples to identify the best-fitting, most accurate representation of your program and its goals. You are likely to find at least some examples of programs similar to your own that can serve as templates.

[Slide 22]

Logic models are customizable to a program. There is no one best way to create a logic model, and although we do not advocate for a single template, please feel free to use the one provided on slide 22. The most important thing to remember is that your program's logic model should accurately represent the program and serve as a detailed program plan for measuring processes and results, as well as determining potential improvements.

[Slide 23]

Slides 23 and 24 provide detailed definitions of each logic model element. To highlight a few aspects of each element, the situation is the context or driver for a program, such as increasing rates of suicide or a directive to engage in program evaluation studies. The plan guides how the rest of the elements are organized in order to address the situation. At a minimum, a plan must

include a mission statement, goals, and specific objectives. Inputs, outputs, and outcomes were defined earlier in the presentation at a basic level. Inputs are resources, outputs are activities and products, and outcomes are the results or impact of a program.

[Slide 24]

Briefly, on slide 24, assumptions are ideas, or theories, that underlie a program, such as the theory that posttraumatic stress disorder is best addressed through exposure therapy, or that wearing helmets is the best way to prevent traumatic brain injuries in combat zones. The words “assumption” and “theory” are not used lightly; some assumptions or theories are backed by substantial evidence. A well-supported theory is, in fact, the highest level of scientific achievement. However, some assumptions are unsupported, perhaps because no one has looked at the evidence, or perhaps because new or contradictory evidence has not been taken into account.

External factors also underlie a program and represent the array of contextual factors that influence a program, including aspects of culture (like stigma against service-seeking), and aspects of organizations, such as a hierarchical command structure in which orders from higher levels are meant to be followed.

Program evaluation activities, as defined in our previous webinar, are individual systematic studies conducted periodically on a regular or ad hoc basis to assess how well a program is working. Evaluation focuses on relationships between the different elements in a logic model.

[Slide 25]

In this section, I will discuss the development of mission statements, goals, and SMART objectives. Please recall that a major goal of this webinar training series is to assist programs in developing program evaluation and improvement capabilities. Having specific statements about what a program intends to achieve is a critical part of program evaluation and improvement.

[Slide 26]

In program planning, a mission statement explains the purpose for a program’s existence. Goals and objectives are more specific and should support that mission. Mission statements encompass everything the program does and intends to achieve, and they align with the mission of the broader organization, such as the service branch in which the program is located.

Goal statements outline in more specific detail what a program intends to accomplish. Goal statements lay out the targets of a program within its mission.

Objectives are the most specific type of program planning statement. They describe goals, or even parts of goals, in terms of highly specific units that can be measured to determine whether a program is working.

[Slide 27]

As seen on slide 27, a program’s mission statement should align with the priorities of its larger organization. At Brooke Army Medical Center, for example, the mission statement for the Behavioral Medicine Department is, “to promote behavioral health and provide quality, compassionate, patient-centered care while developing healthcare professionals and optimizing readiness.” Thus, providing quality care is an aspect of the medical center’s mission as a whole, and optimizing readiness is a major goal of the Army’s training and health programs.

Likewise, the NavyTHRIVE program states its mission as encouraging “Sailors, commands, families, and civilians to empower themselves by taking personal responsibility for their health, wellness and growth – the next step in building resilience.” You see in this statement a mission consistent with the Navy’s prevention efforts.

[Slide 28]

Goal statements should be actionable, meaning they make statements about what a program does and what should result from those actions.

As two examples, consider a substance abuse treatment program and a psychological health screening program:

Program A’s goal statement says it will provide effective and safe treatment that is comprehensive and meets the unique needs of active-duty service members with substance abuse problems. The statement says what will be done, who the program serves, and the target problem.

Program B’s goal statement says it will screen all post-deployment service members for psychological health concerns and ensure referrals are made. So, it is specific in that it says what the program staff’s main activities will be, who will be screened, and what will happen as a result of those screenings. The statement is specific, but not yet specific enough to be measured.

[Slide 29]

In order to be detailed enough for accountability standards and program evaluation, objectives need to be SMART. That is, goals must be broken down into smaller parts that represent different elements of the logic model and the connections between those elements. So, objectives must be SMART: specific, measurable, achievable, realistic, and time-bound.

[Slide 30]

In this section, we borrow from DCoE’s Program Evaluation Guide and the Minnesota Department of Health’s Quality Improvement Toolbox, both excellent resources referenced on slide 59.

One of the best ways to examine whether your objectives are SMART is to see if you can use them to answer these questions. To be clear, it is not recommended that a single objective statement be able to answer every question – doing so will only result in extremely long objective statements. Rather, objective statements should be SMART enough to be useful but not so SMART that no one can understand them.

To be specific, an objective statement should ideally include information about who will deliver a program, the nature of the target population, and where and how the program will be implemented. Likewise, a specific objective statement may include information about outputs, activities or products, and should definitely include information about the intended outcomes of a program.

To be measurable means that an objective specifies how much, what direction, and what kind of change are expected. In addition, it should specify how data will be collected, from whom, by whom, and so forth. Keep in mind there may be multiple measurement sources.

[Slide 31]

To be achievable, an objective statement may specify how it will be accomplished, perhaps including information about inputs and even how those inputs relate to outputs and outcomes. One must also consider the scope of an objective – is it too big or too small, and can it be accomplished in light of the external factors mentioned earlier?

To be relevant, an objective statement should be about something that matters; in other words, it should relate to the program or organization's mission and goals. Most importantly, an objective should be related to the situation or need that was the basis for creating the program. Objectives should also have support from stakeholders, staff, and program participants, without whose blessing no objective is likely to be accomplished. Finally, an objective statement may take into account the relative importance of an objective in the scope of that program's broader mission.

[Slide 32]

The T in SMART is about whether an objective statement is specific on how long it will take to accomplish an objective. Will it be achieved in stages? Is the time-frame realistic? Is the objective achievable within deadlines set internally or externally?

Some program administrators may wish to shy away from developing such specific objectives. After all, if a program administrator makes very specific statements about what will be achieved by the program and doesn't fully realize those achievements, it could be considered a failure. However, failure itself provides a great deal of useful information, and it is unlikely that a program with realistic, achievable goals will fail to meet its objectives. Moreover, it is unlikely that programs can adequately determine their needs for improvement if they are not measuring their progress in meeting objectives and continually raising standards over time.

In the words of Teddy Roosevelt, "It is hard to fail, but it is worse never to have tried to succeed."

[Slide 33]

To provide a few examples of SMART Objectives, consider the samples on slides 33 and 34. In the top statement on slide 33, for fiscal year 2014, Program X will provide up to 12 sessions of therapy to each of 500 active-duty service members who have been diagnosed with posttraumatic stress disorder or referred by a medical or behavioral health professional for trauma-related concerns.

This is a SMART statement. It could be SMART-er, or it could be a little less SMART, but it's SMART enough for our purposes. You will notice that the statement specifies a year, how many sessions will be provided (which is an output), what kind of services will be provided, how many and what type of participants will be included, and the mechanism for referral and acceptance into the program. So, this is mostly an objective statement about outputs.

Below that statement, Program Y will deliver two half-day live web-based trainings per week to unit commanders, who will demonstrate increased awareness of TRAUMATIC BRAIN INJURY symptoms from pre- to post-training assessment.

This statement is SMART in that it specifies what will be delivered, how it will be delivered, and to whom it will be delivered (which are again outputs). In addition, the statement specifies the outcome – that is, increased awareness as measured by comparing pre- to post- assessments.

[Slide 34]

On slide 34, this statement is very SMART. Program Z will administer screening questionnaires to 100 percent of service members following their return from deployment using a depression screening checklist, and program staff will refer individuals scoring 20 and above to behavioral health services at their service station or appropriate emergency care for individuals at imminent risk of harm to self or others.

This statement specifies what will be administered, the target of screening procedures, the proportion to be screened, and what will happen in very specific detail for those who are screened. This is mostly a statement about outputs but includes some information about inputs, and for this type of program the number of referrals generated could perhaps be considered an outcome.

Now, I'd like to turn over the presentation to Ms. Stark, who will discuss other elements within the logic model and provide tips for developing your own logic model.

[Slide 35]

Ms. Stark: Thank you, Dr. Sawyer. This next portion of the webinar will provide some practical writing tips and guidance to help you construct your own logic model.

[Slide 36]

Inputs, outputs, and outcomes form the core of a program logic model. You may wonder where to obtain these. Definitions of these elements may already be written down, and you can simply extract them by examining program descriptions, procedural manuals, vision statements, and plans.

Inputs, outputs, and outcomes are often documented in a variety of locations. Review the program's Policy and Procedures Manual, training manual, or handbook; each of these may contain descriptions of important elements in the logic model. One cautionary note: different documents may have been developed at different times and might contain different descriptions of inputs, outputs, and outcomes. Be sure to build in time to allow for clarifying discussions with stakeholders, staff, and program leadership to reach consensus.

[Slide 37]

Slides 37 and 38 present two techniques to help you extract and organize logic model elements gathered from existing documentation or to assist you when documentation is sparse.

"Forward mapping" begins by examining *existing* program activities or resources and asking, "So what?" to describe the outcomes that are expected to result. "So what" if a particular activity occurs or if a certain resource is applied? It may be helpful to operationalize "So what" questions and answers as a series of "if/then" statements. Starting with program resources or activities, think about what happens next in the programmatic chain of events.

- Consider a hypothetical domestic abuse prevention class that may be running at your facility.
- If staff provide the intervention, then military spouses will have a forum to express their concerns. When program staff provide an intervention, the resources used to conduct that intervention are the inputs. The activity is the output.

- If training for communication and coping skills is provided, then military spouses can achieve healthier relationships and a more positive emotional state. When program sessions are held, they count as outputs. The changes in relationships and emotional states are outcomes.
- If participants continue to attend this program, then they will incorporate communication and coping skills into their lives and the relationships between military couples will improve. These are desired outcomes, which will perhaps be measured using a Quality of Life survey or skills checklist.

[Slide 38]

Another approach to identify logic model elements is to identify the desired results of your program and ask, “How? How do we get those results?” This is “reverse mapping.”

Here’s an example of reverse mapping. Consider the end result, which we will call, “improved memory functioning.” With that outcome in mind, what are the logic model elements that will bring about improved memory function?

- In order to attain improved memory functioning, the program participant will need to incorporate new “sleep practices” or take prescribed medication. Those changes – new sleep practices and taking prescribed medication – are the desired outcomes.
- In order for changes in sleep patterns to occur, a program provider will provide education about sleep or deliver self-management training. Information pamphlets provided and training sessions held are outputs.
- Likewise, if medication is prescribed, a provider must either write a prescription or provide a referral—prescriptions written or referrals made are also outputs.
- In order to provide informational pamphlets, self-management trainings, or prescriptions, the program will need resources, such as staff with appropriate training, space in which to conduct activities, funding, computers, and printed materials. Those resources are your inputs.

[Slide 39]

In order to determine intended outcomes, consider what evidence is needed to assert that program participants achieved changes. As stated earlier, the measured outcome should align with the stated objective. In the example on slide 39, unit commanders are taking a suicide awareness class. Under “Measured Outcome,” we can see that an assessment is planned to determine whether commanders increase their knowledge of suicide warning signs. Changes in awareness or knowledge from pre-test to post-test will provide evidence that the outcome objective was achieved.

[Slide 40]

Now we will look a bit more closely at the elements that underlie inputs, outputs, and outcomes. These elements are often hidden but are impactful nevertheless.

[Slide 41]

All logic models, whether or not explicitly spelled out, are associated with an underlying theory that provides the rationale for why anyone believes the program will work – how a set of

activities directed toward a target population, using specific resources and strategies within an environmental context, can lead to desired outcomes.

These assumptions form the basis for the “logic” in the logic model.

Some assumptions are based on social theories of behavior change, and there are many of them: The Set Point Theory, the Adaption Theory, the Self-Determination Theory and so forth. Assumptions may be based on a review of existing programs or best practices literature.

As an example, the theory underlying cognitive behavioral therapy, or CBT, assumes that if negative thought patterns and unhelpful behaviors are identified and altered, then a person can improve their emotional and psychological functioning.

While you do not have to know all the details of these theories, it is important to be aware that such theories may influence your program.

[Slide 42]

Assumptions underlie the relationships between different elements of your logic model, which are represented by arrows. These assumptions are often expressed as *causal* relationships—the “If/then” statements we looked at earlier. At a basic level, if inputs are available, then outputs can be produced. If outputs are produced, then outcomes will arise.

Assumptions explain how and why the desired change is expected to come about.

- For an on-base community program that provides service members and veterans with recreational and occupational activities, the underlying assumption might be: participating in confidence-building activities helps service members and veterans with physical and psychological conditions.
- For a program that offers mindfulness meditation and breathing exercises alongside traditional posttraumatic stress disorder and traumatic brain injury care, the underlying assumption might be: complementary and alternative therapies can enhance traditional therapies.

[Slide 43]

A benefit to being explicit about your assumptions is that if a program does not work as intended, you can likely refer to one of the underlying assumptions to understand the issue and modify the program. Here is an example of a program and its primary assumptions.

A program is developed to work with families on base to address substance abuse and child abuse simultaneously. The program includes interventions to provide parenting training classes and to refer parents to specialized substance abuse treatment.

So, why is the program designed this way? Based on research evidence, it is apparent that children of parents who abuse alcohol or other drugs are at high risk for parental neglect or abuse. That is one assumption underlying the program.

Other assumptions that relate program inputs, outputs, and outcomes are listed as 2 through 4: that parenting is a source of stress, that parenting skills can be improved through skills training, and that referrals to specialized substance abuse treatment will reduce drug and alcohol abuse.

In this example, perhaps program assumptions 1 through 3 are well-supported but assumption 4 is not. So, more favorable outcomes could be realized if direct substance abuse treatment is provided as part of the same workshop as the parenting skills class, so that the service member is not stigmatized by having to attend drug treatment, and the service member is more likely to adhere to a recommendation that involves attending one class instead of two.

The general point here is that if you are aware of your program's assumptions, you can better examine them and alter them based on evidence, experience, and the results of program evaluation.

[Slide 44]

External factors refer to situations in the environment that may affect how a program operates or the results it achieves.

Given the same set of inputs, outputs, and anticipated outcomes, why would program results vary across different populations, or by location or service branch? Answering these questions involves examining the external forces that influence a program: political, economic, social, and technological factors which can be remembered using the acronym "PEST," P-E-S-T.

A political factor might be the responsiveness of service leadership to changes in needs. An economic factor might be the assets a post has available, such as an empty lot that could be used as a community garden. A social factor might be the relationship between commanders and their unit. Finally, a technological factor might be the ability to carry a phone at the worksite.

[Slide 45]

Slide 45 shows some examples of how external factors influence programs: For instance, in region A, free internet access is available to Reservists; in region B, internet coverage is variable. If there is an intervention effort that relies on accessing a website, this might be more problematic or costly in region B than in A.

In the second example, social norms in one service branch may differ from norms in another service branch, with stigma against seeking psychological health services being greater in Service A. As a consequence, implementing a psychological health program might require a different approach in terms of the way the program is marketed, its name, or the way it is conducted in order to reduce stigmatization.

[Slide 46]

The next four slides are intended to be practical and to provide useful tips and guidance that you can use to create logic models, including word choices for the boxes or columns within the logic model.

[Slide 47]

Logic models should be easy to understand, even for those who do not know anything about your program or its intent, such as stakeholders in leadership positions who may not have service delivery experience or a background in prevention. A person can get so immersed in their clinic or facility activities, or in health-provider –speak or military terminology, that it is hard to remember others don't speak the same language.

Perhaps you are familiar with plain language directives—use clear statements with strong subjects and active verbs. Rather than, “as a result of participation, knowledge is increased 50 percent,” say, “as a result of participation, *participants* will increase *their* knowledge by 50 percent.”

Also make sure that your subjects are capable of engaging in the activity denoted by the verb. A program cannot actually do anything. Rather, program staff deliver or provide interventions.

[Slide 48]

Word choices for program outcomes will vary depending on the type of program and the scope of the changes one is considering, whether short-, medium-, or long-term, prevention or treatment, or psychological health or traumatic brain injury.

For example, for a clinical intervention program targeting combat-related posttraumatic stress disorder, short-term outcomes might include: increased knowledge about posttraumatic stress disorder, improved coping skills, and knowledge of how to perform therapeutic exercises like deep breathing or thought stopping.

Medium-term outcomes could include: decreased levels of symptoms, increased ability to manage day-to-day stressors, and decreased levels of risky behaviors such as binge drinking or driving under the influence.

Long-term outcomes could be phrased as decreased disability due to deployment-related illnesses, absence of the disorder due to the service member no longer meeting criteria, decreased rates of administrative separation for problematic behaviors, or improved quality of life.

For another type of program – a public awareness campaign – short-term **outcomes** would be awareness of the campaign or understanding of the message. Longer-term outcomes might be increased positive health practices and improved rates of unit readiness.

[Slide 49]

Slide 49 shows a schematic to help create your SMART objectives. While some initial effort may be required to establish each of the elements listed here, once that is done, it will be much easier to produce statements that connect the elements in your logic model and demonstrate program effectiveness.

For example, by following the schematic box, one could produce an objective such as, “By twelve weeks/80 percent/of service members in our program /will develop/the ability to perform calming breathing exercises/ as indicated by instructor observation.”

A word about the measurement tool: the measurement tool could be “peer observation,” “self-report on a survey,” or results from blood pressure readings.

For the “verb” or “doing” part of the sentence, remember that both increases of something and decreases of something can be used to describe what happens as the result of a program or intervention. Service members and family members can increase their knowledge about available services in the community and the number of services they are linked to, or they may experience a decrease in scores on an inventory measuring family stress.

[Slide 50]

Slide 50 shows how once a program has been described in detail in a logic model, critical areas to measure for evaluation can be identified. DCoE's first program evaluation and improvement webinar on working toward a culture of effectiveness, outlined three major program evaluation designs: process evaluation, outcome evaluation, and impact and cost analysis. Each of these evaluation types answers specific questions and focuses on specific areas of the logic model.

The focus of a process evaluation is generally on the situation or need for a program, its inputs, and its outputs. Outcome evaluation designs focus on the overall results of the program or whether its outcomes match stated objectives. Impact evaluations and cost analysis designs focus on whether the program is actually making a difference in the broader population and whether program benefits justify program costs.

[Slide 51]

[Slide 52]

By now you may have questions about creating a logic model, such as:

- How should my logic model be organized and how detailed does it need to be?
- Who should be involved in developing the logic model?
- How many and what type of outcomes are appropriate?

These questions are common challenges or concerns of those who develop logic models but should not deter program administrators from getting started on the process.

[Slide 53]

Many of these questions will get answered as you begin to create your logic model, which should be customized to ensure it accurately represents your program and its processes. There is no single best way to create a logic model, but the intended causal relationships between different elements should be clear. Start with input, output, and outcome boxes, place them in sequential order, and then add the causal arrows.

These arrows may be drawn within boxes, as between an activity and a product or from one outcome to another outcome, or they may be drawn between boxes, such as from inputs to outputs or outputs to outcomes.

Sometimes, when reviewing the boxes as drawn, you may notice that a certain box has only very few arrows pointing to it. This may indicate that a particular activity requires additional input supports.

Consult with the people who work directly with the program or those who oversee the program to determine if all of the fine details are indeed captured by the logic model.

[Slide 54]

When drawing causal arrows, note that simplicity and clarity are often best. Focus on the most essential relationships between elements, rather than trying to connect each element with every other element.

Differentiate which inputs lead to which outputs, and which outputs lead to which outcomes, and who does what to whom. Strike a balance on detail. Do not include so much detail that critical and important paths are hard to understand. You should be able to hand your logic model to someone unfamiliar with your program and provide an accurate basic description of how the program works and what it intends to accomplish.

[Slide 55]

While the initial creation of a logic model may start as a solo activity with one person poring over documents, a team approach is best. This can be an engaging activity as you connect with program developers, providers, and service delivery teams and ask them to tell you about their program. Ask them to describe the problem, the activities they conduct, and what they hope will result from those activities. This will help with sequencing your model.

This team-oriented approach can benefit your program staff as you identify and refine the mission, develop consensus on the purpose of program activities and the intended outcomes, define strategies and actions, establish who will collect data, and attain cohesion across what are likely to be a complex set of tasks.

[Slide 56]

Whatever you select should be appropriate for your program, neither too much nor too little. Two or three outcomes per objective will usually suffice. Do not establish more data requirements than can reasonably be collected and analyzed.

Outcome measures should be directly related to your objectives and aligned with strategic interests. Ensure the measures to be collected truly reflect the project or program. Strategies to determine outcome measures and to collect reliable and valid data will be the focus of our next webinar, episode 3 in the series.

[Slide 57]

CAPT Thoumaian: Thank you Ms. Stark, Dr. Sawyer.

You've heard a great deal today about logic models.

[Slide 58]

A key takeaway from this presentation is the message that logic models are an essential part of program planning and evaluation. Program evaluation, based on clear program definitions and expectations, will allow us to improve and positively impact the entire system of prevention and care for psychological health and traumatic brain injury.

Logic models illustrate the structured approach that is the hallmark of a successful program. Successful programs start with a clear description of the relationships between inputs, outputs and outcomes, and a logic model ensures this work is done. To summarize, building a logic model aids clarity and understanding. A logic model maps out program intentions, identifies appropriate activity sequencing, specifies the resources needed to carry out those activities, and will help to identify gaps in program planning. It will also help to guide and develop evaluation plans.

Diagramming your intervention is a way to consolidate planning, implementation, evaluation, reporting and systematic program improvement efforts in one place. This is part of creating a

culture of effectiveness in the system of prevention and care for psychological health and traumatic brain injury.

I hope you will continue to attend these webinar training presentations and also consult the Program Evaluation Guide and other materials on the DCoE website.

[Slide 59]

Dr. Sawyer: Thank you Captain Thoumaian. There is a great deal of useful information available to programs on creating logic models. On slide 59, we provide a brief list of key references that we have found useful.