DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

Overview of the DCoE Program Evaluation Guide

Defense Center of Excellence for Psychological Health and Traumatic Brain Injury

July 2012

DVBIC
Defense and Veterans Brain Injury Center

DHCC
Deployment Health Clinical Center

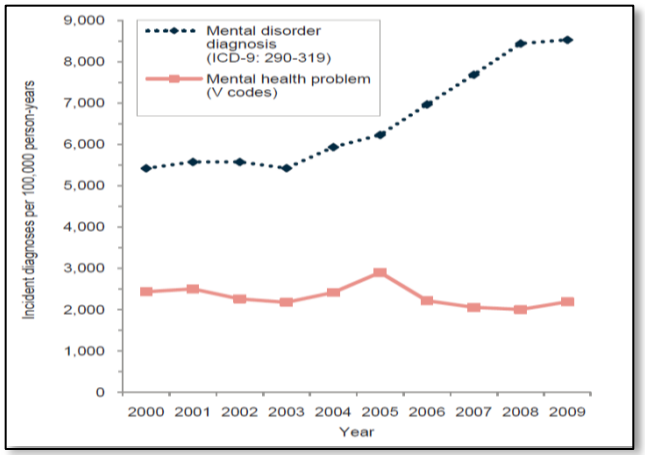
National Center for Telehealth & Technology

Outline

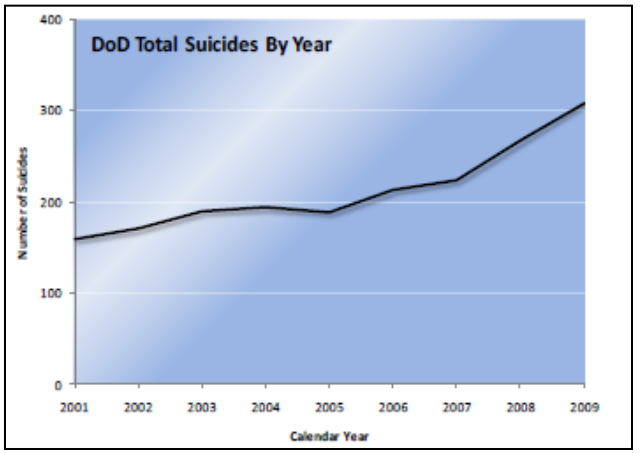
- **The Need for Program Evaluation in the Department of Defense (DoD)**
- **The DCoE Program Evaluation Guide**
- **Program Evaluation**
  - Definition, Benefits and Overview
- **8-Step Program Evaluation Framework Methodology**
  - Review of Program
  - Develop Evaluation Questions
  - Develop Evaluation Design
  - Develop Data Plan
  - Gather Data
  - Analyze Data
  - Develop Report
  - Act on Findings
- **Conclusion and Further Resources**

Increasing rates of Psychological Health Conditions, Suicide, TBI

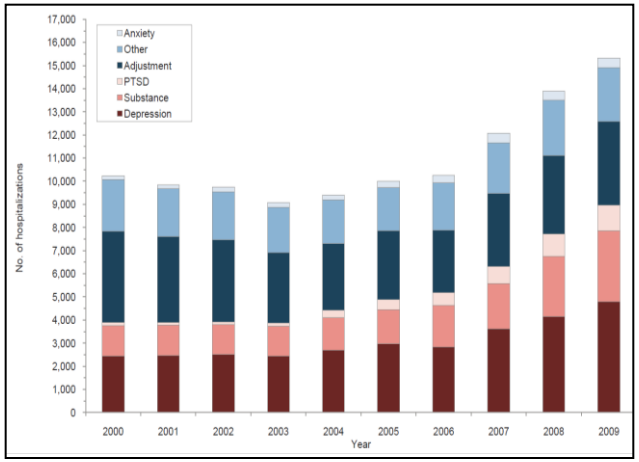
Psychological Health Diagnoses



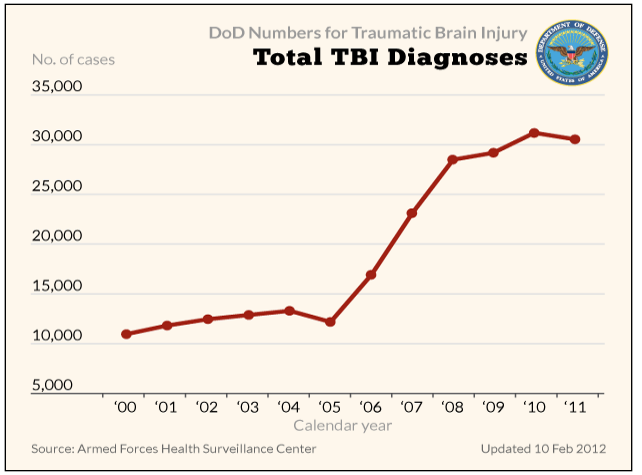
Suicides



Mental Health Hospitalizations

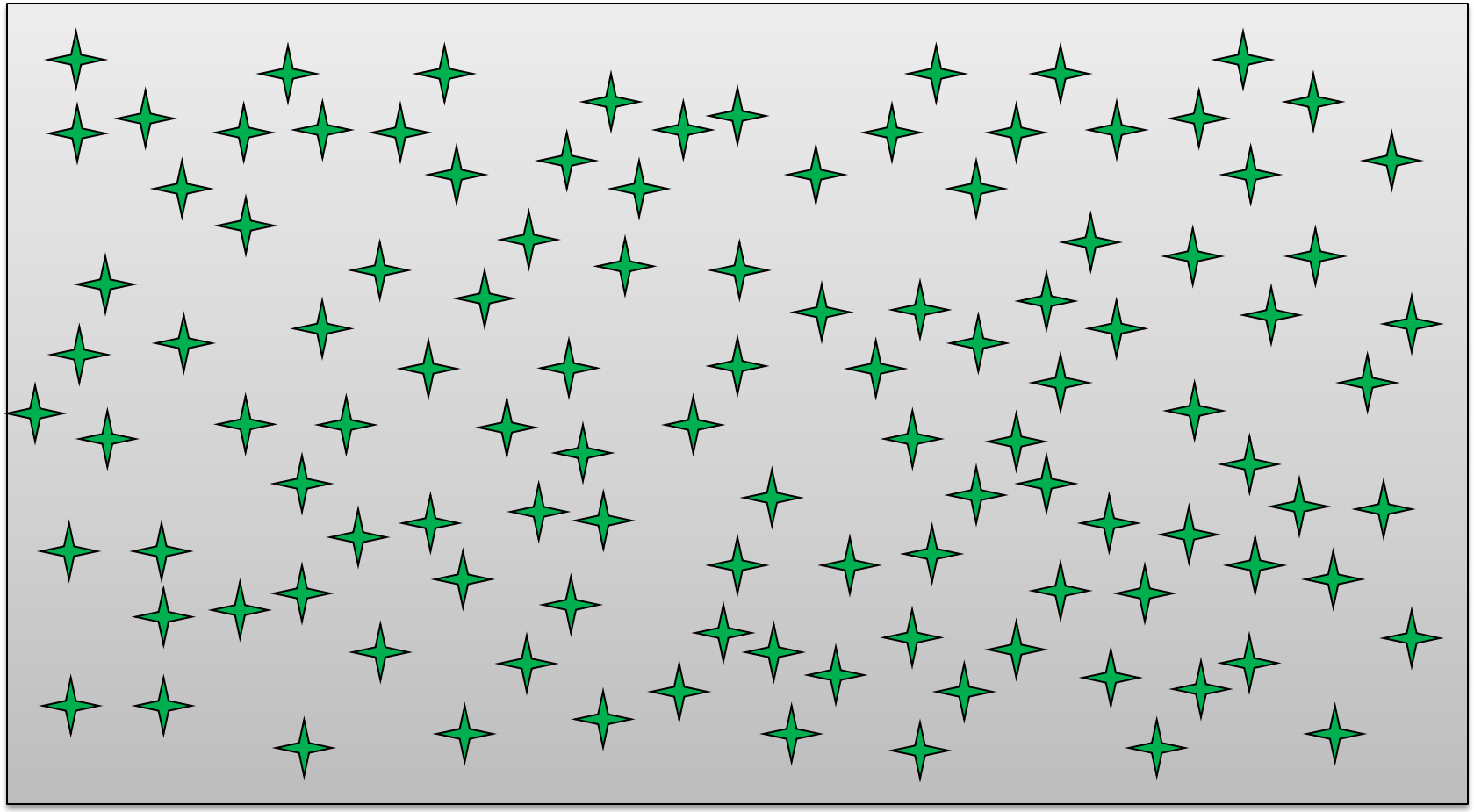


Traumatic Brain Injury Diagnoses

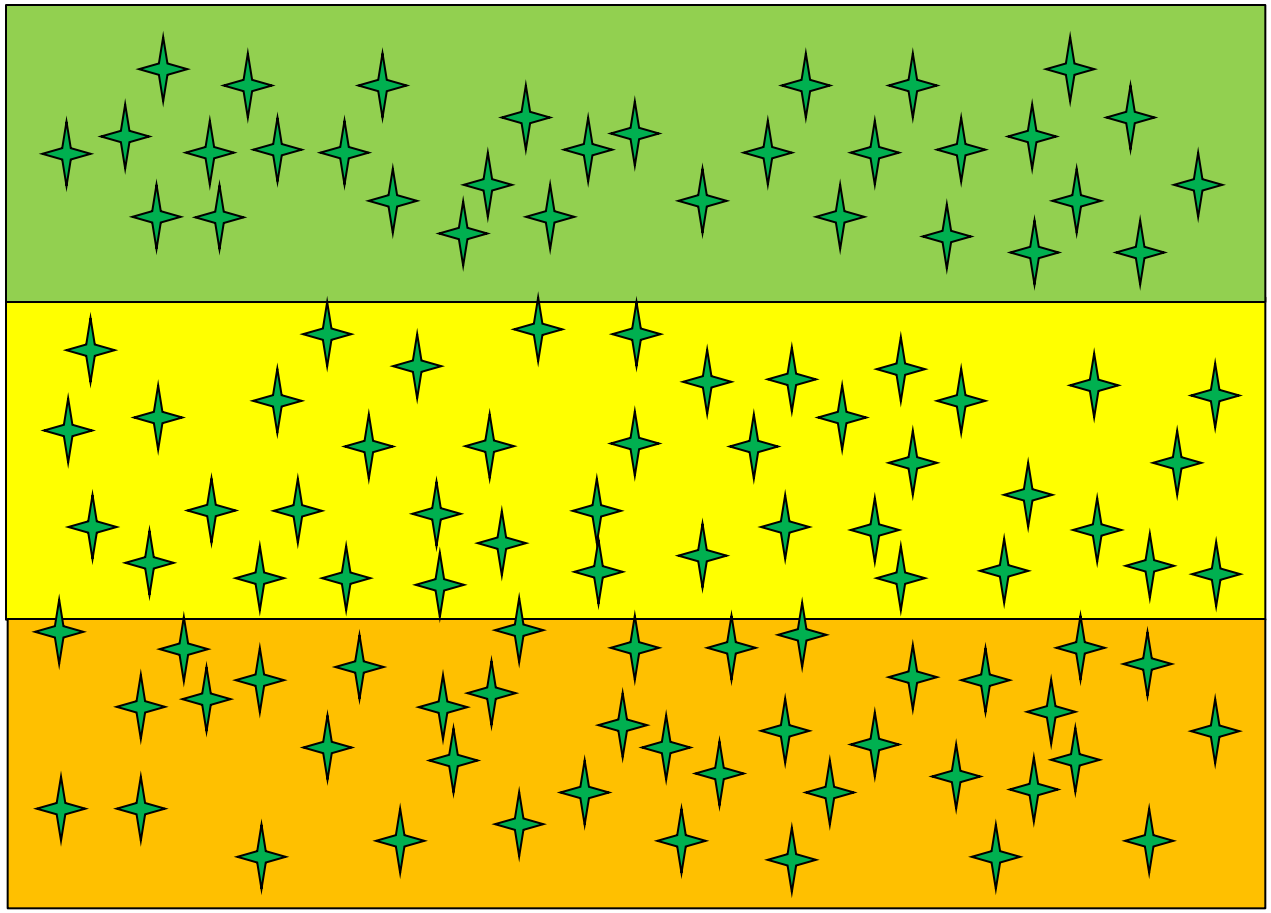


Hundreds of Psychological Health-TBI related program exist across DoD

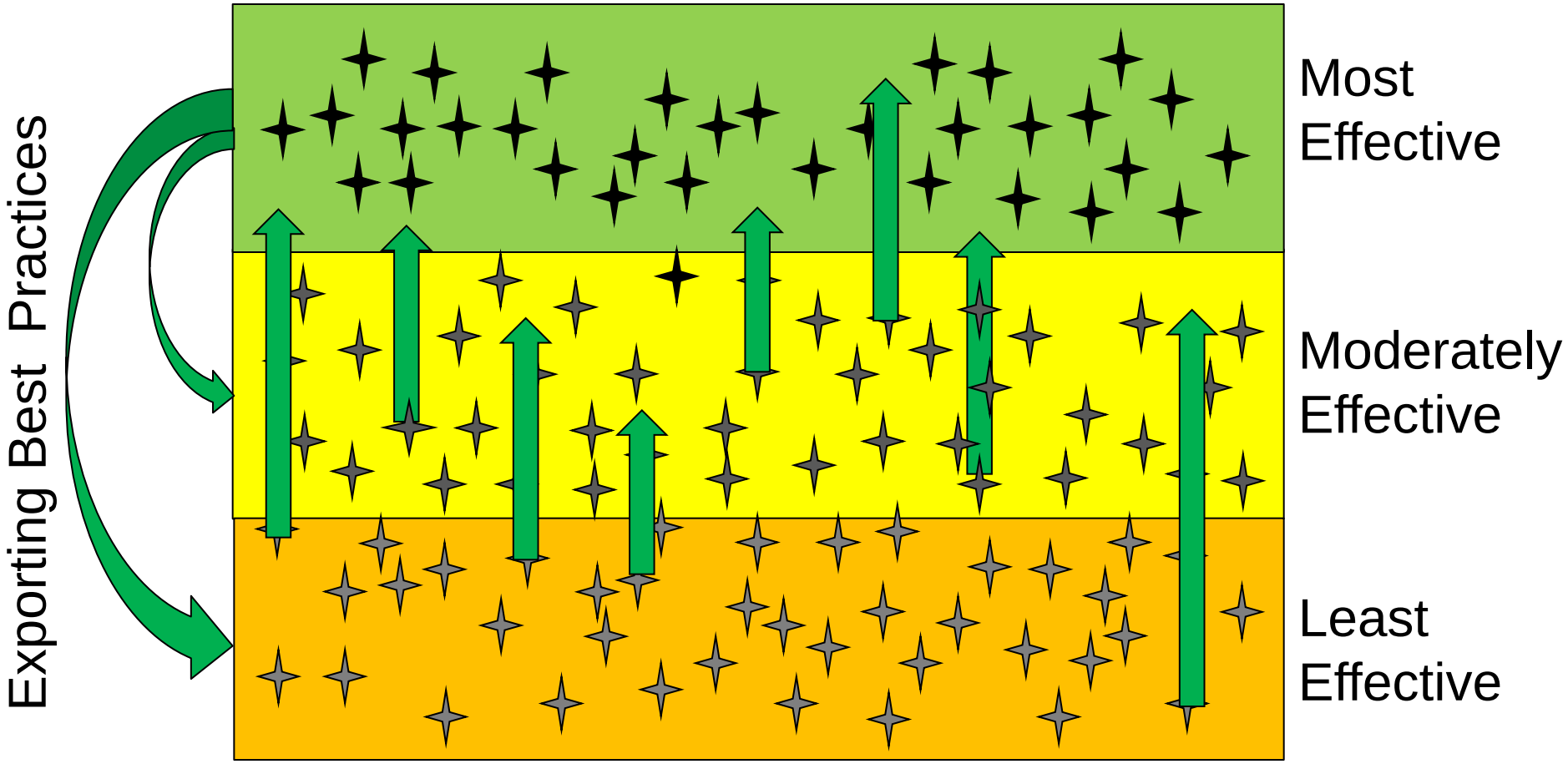
Psychological Health and Traumatic Brain Injury Programs in DoD:



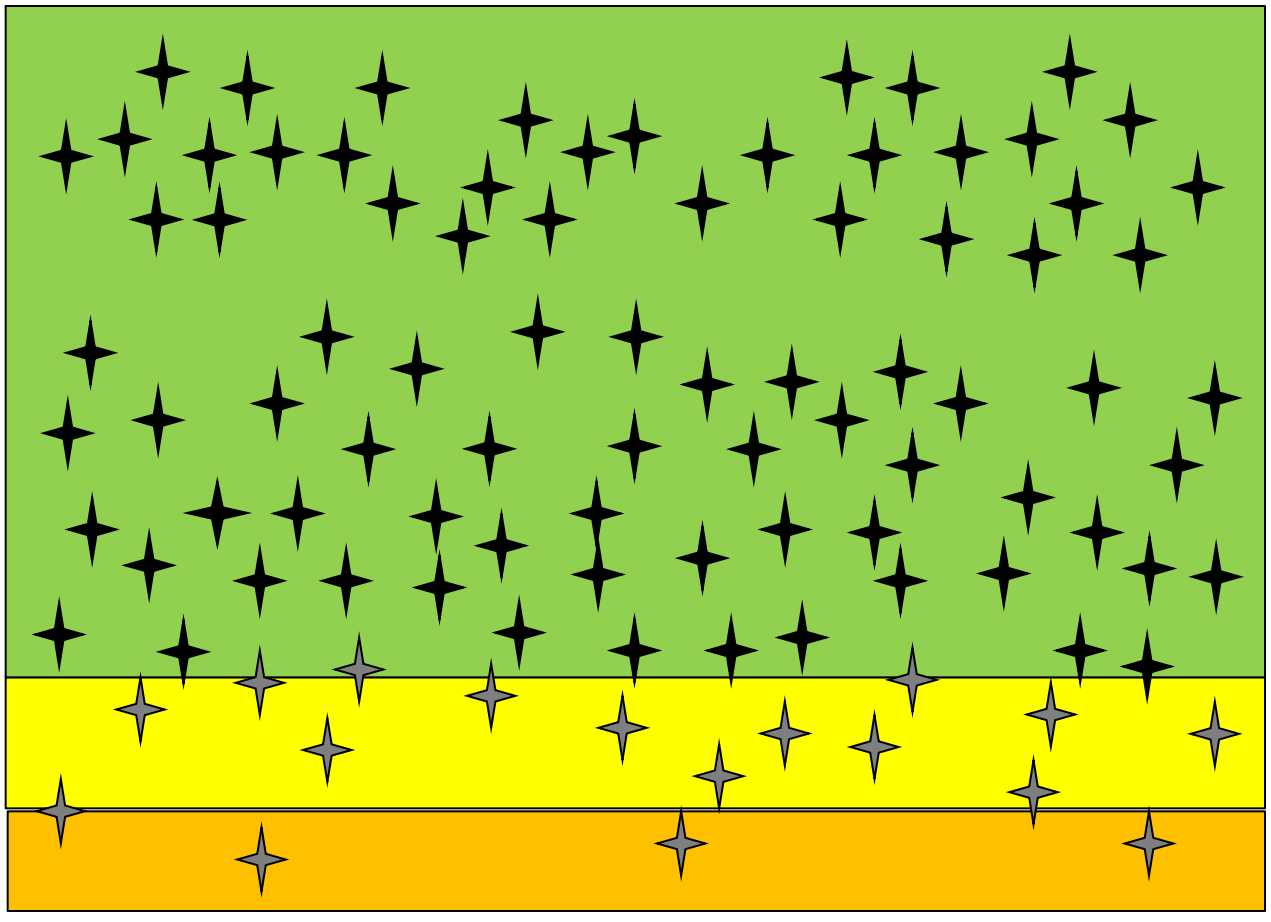
Psychological Health and TBI Program Effectiveness



Exporting Best Practices



Widespread Adoption of Best Practices



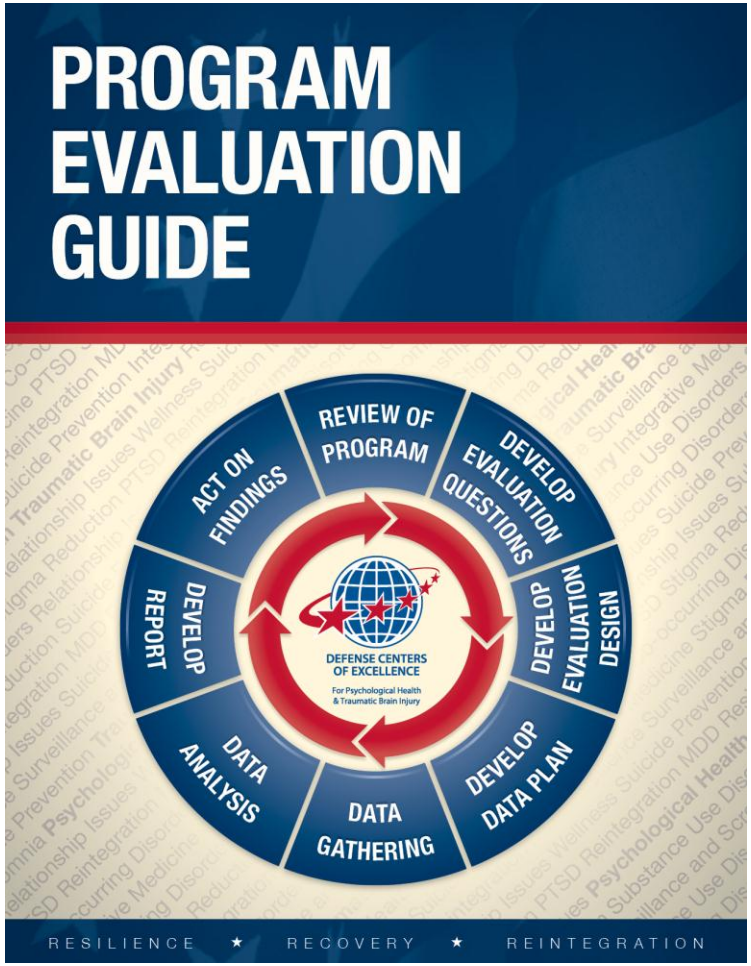
DoD Wide Impact on Important Negative Indicators

Outline

- **The Need for Program Evaluation in the DoD**
- **The DCoE Program Evaluation Guide**
- **Program Evaluation**
  - Definition, Benefits and Overview
- **8-Step Program Evaluation Framework Methodology**
  - Review of Program
  - Develop Evaluation Questions
  - Develop Evaluation Design
  - Develop Data Plan
  - Gather Data
  - Analyze Data
  - Develop Report
  - Act on Findings
- **Conclusion and Further Resources**

The Program Evaluation Guide

- The DCoE “Program Evaluation Guide” was developed for Psychological Health and TBI program managers within DoD
- The guide addresses the critical need for a standardized approach to program evaluation
- The guide is a step-by-step “how-to” manual for conducting program evaluations



Resilience ★ Recovery ★ Reintegration

Primary Objectives

To provide easy-to-use, step-by-step instructions by which program managers can conduct program evaluations

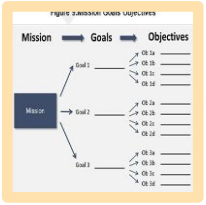
To serve as a tool for promoting systematic, standardized evaluations allowing the Defense Department to make data-driven decisions regarding program expansion, replication and funding

Program Evaluation Guide Features

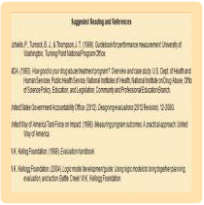
Step-by-step guidance on conducting program evaluation

Psychological health-TBI tailored examples throughout the guide

Templates for all major tasks within the guide



Figures and diagrams provide quick overviews of key information



Suggested readings and references at the end of each section

Program Evaluation Guide Appendices

- Examples of Program Evaluations
- Introduction to Cost Analysis for Program Managers
- Official Instructions, Policies, Regulations and Guidance Related to Program Evaluation
- Guide to Conducting Interviews and Focus Groups
- Sources of Effectiveness Measures
- Information on Recommended Measures for Psychological Health and TBI
- Conducting a Follow-Up Evaluation
- Guide to Coding Qualitative Data
- Overview of Basic Statistical Analyses
- Templates
- Frequently Asked Questions
- Glossary of Terms

Outline

- **The Need for Program Evaluation in the DoD**
- **The DCoE Program Evaluation Guide**
- **Program Evaluation**
  - Definition, Benefits and Overview
- **8-Step Program Evaluation Framework Methodology**
  - Review of Program
  - Develop Evaluation Questions
  - Develop Evaluation Design
  - Develop Data Plan
  - Gather Data
  - Analyze Data
  - Develop Report
  - Act on Findings
- **Conclusion and Further Resources**

What is a Program Evaluation?

"Program evaluations are individual systematic studies conducted periodically or on an ad hoc basis to assess how well a program is working."

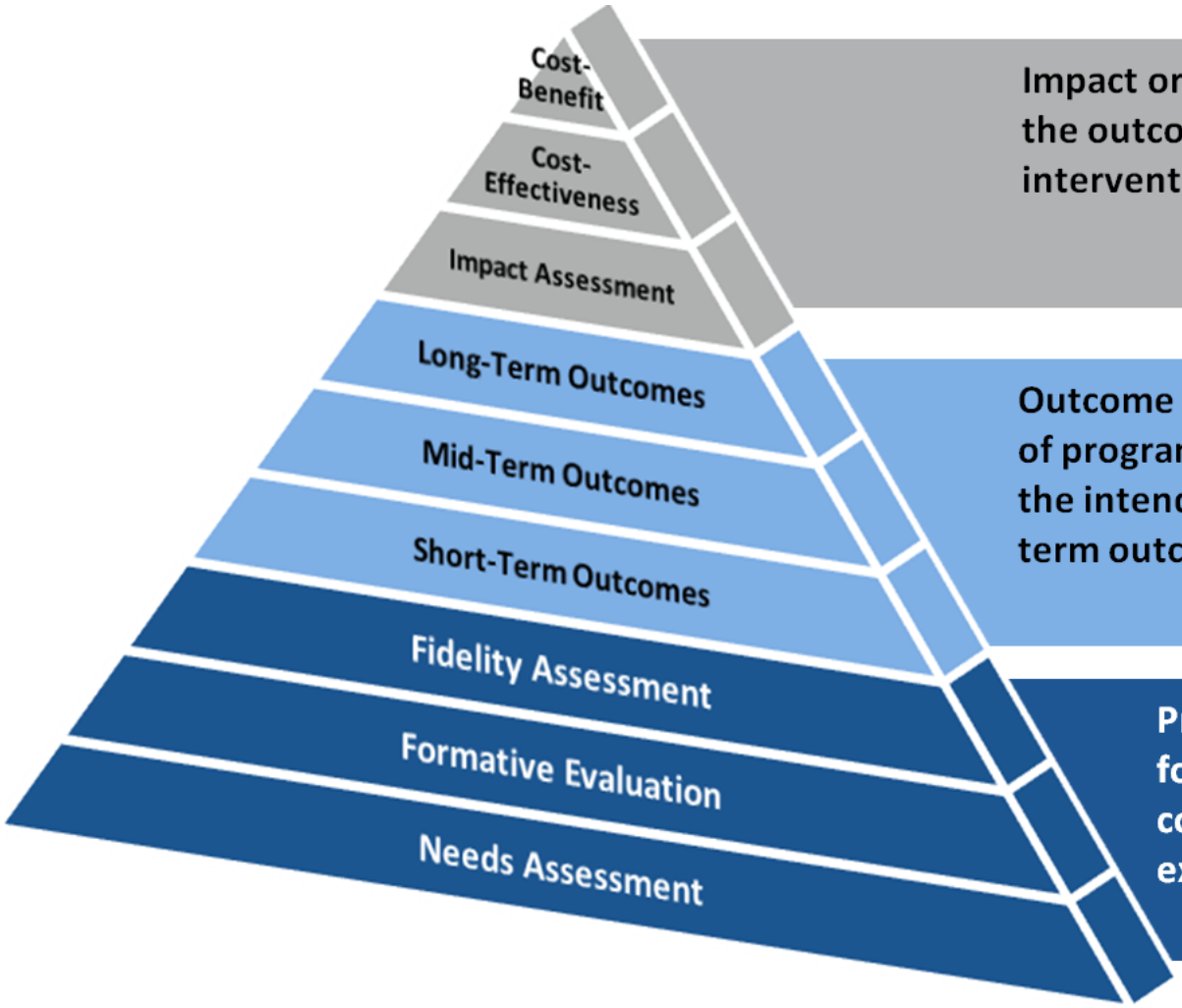
Source: GAO, 2011 – Performance Measurement and Evaluation: Definitions and Relationships

Why Conduct Program Evaluations?

Program Evaluation Conveys Several Potential Benefits:

- Improves quality of services provided to participants – ensuring service members and families are receiving the best care possible
- Showcases the effectiveness of a program – helping to establish it as a best practice
- Ensures the sustainability of a program – programs which demonstrate that they are effective are more likely to receive funding and other forms of support

Types of Program Evaluations



Impact or cost analysis determine whether the outcome can be attributed to a particular intervention

Outcome evaluations assess the effectiveness of program implementation with respect to the intended short-term, mid-term, and long-term outcomes

Process evaluations identify the need for the program, its target audience, core components, requirements for execution, and metrics for success.

Program Evaluation Distinction

- Program evaluation, performance improvement and formal research all overlap in certain respects

- All of these efforts are similar in that they all can be used to understand and improve the functioning of a program

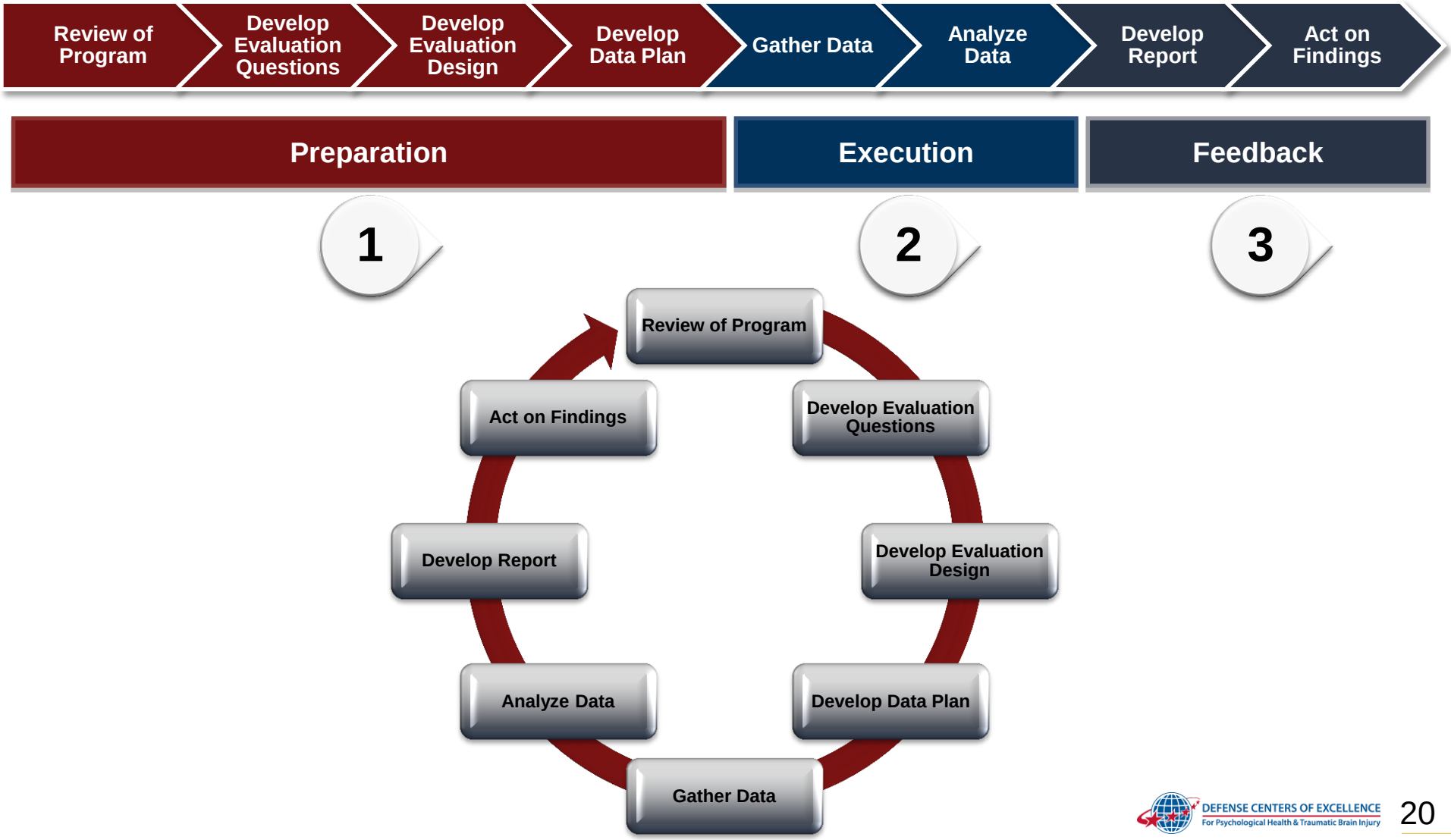
- Although it may use some of the same methods as formal research, a program evaluation is usually not considered research, and as such program evaluations are often granted an exemption from Institutional review boards

Outline

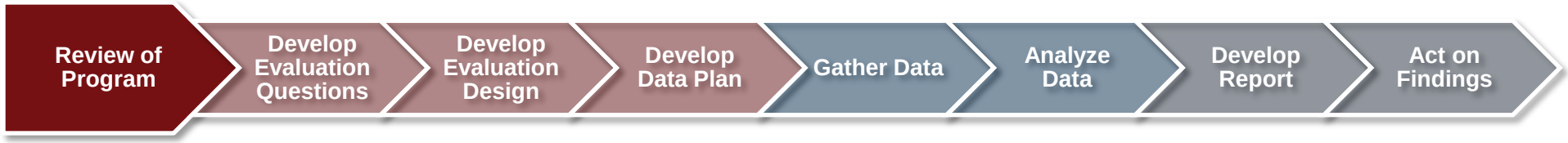
- **The Need for Program Evaluation in the DoD**
- **The DCoE Program Evaluation Guide**
- **Program Evaluation**
  - Definition, Benefits and Overview
- **8-Step Program Evaluation Framework**
  - Review of Program
  - Develop Evaluation Questions
  - Develop Evaluation Design
  - Develop Data Plan
  - Gather Data
  - Analyze Data
  - Develop Report
  - Act on Findings
- **Conclusion and Further Resources**

DCoE Program Evaluation Framework

3 Phases of 8-Step Evaluation Process



Step 1: Review of Program



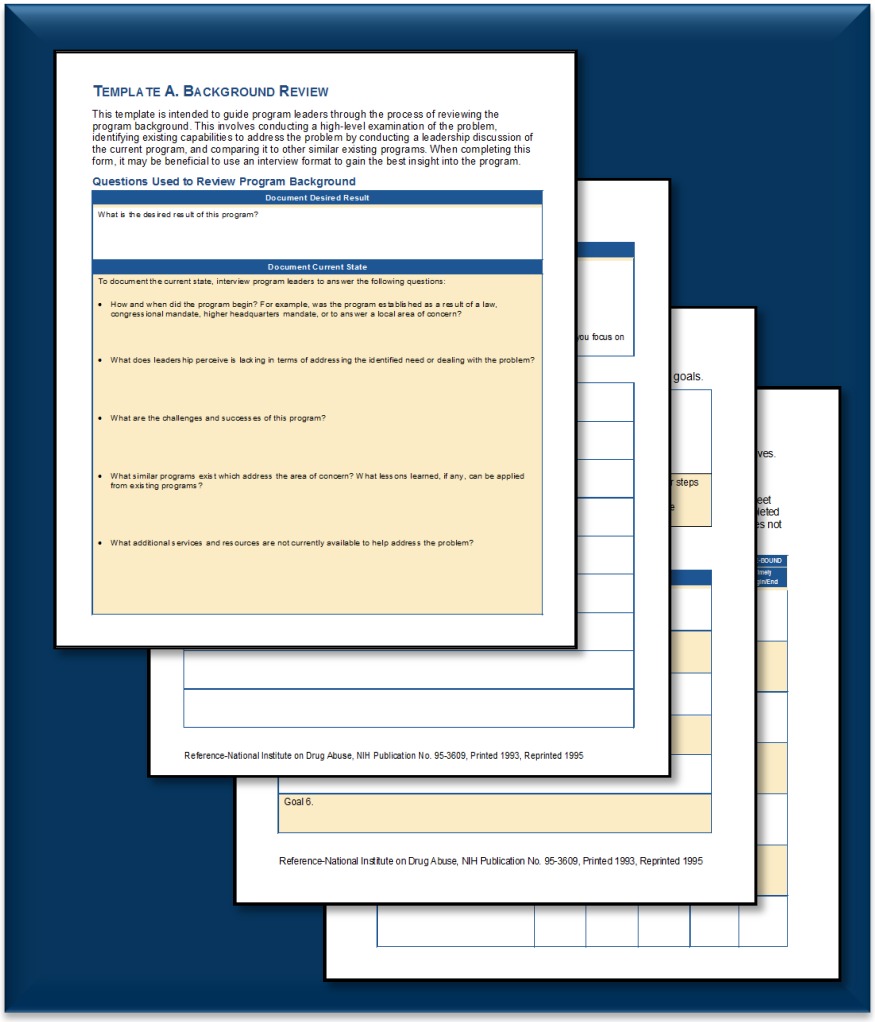
Three tasks are involved in Step 1:

- Gathering detailed information about the program, such as the program's background, including its mission, objectives, goals, challenges and successes
- Conducting a stakeholder analysis to understand the individual perspectives and concerns of the various groups that have an interest in the program
- Creating a logic model of the program detailing the inputs, outputs and anticipated outcomes for the program

1.1 Gather Information on Program Background

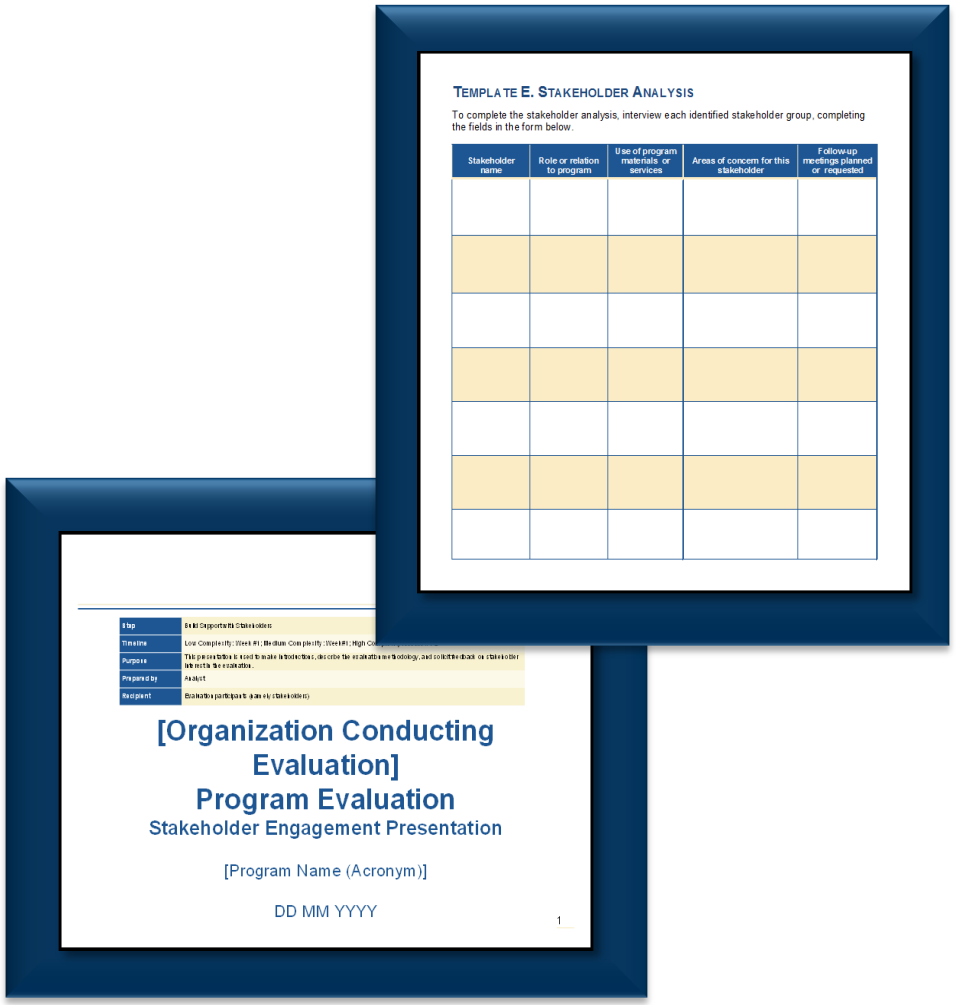
- During this step, it is important to gather detailed information on the program
  - How the program originated
  - How the program currently operates
  - Who participates in the program
  - Perceptions of participants
  - Any data the program is already collecting
- At this stage, you'll want to clearly record the program's mission, goals and objectives. Templates A-D will assist you in gathering this information

Templates A-D



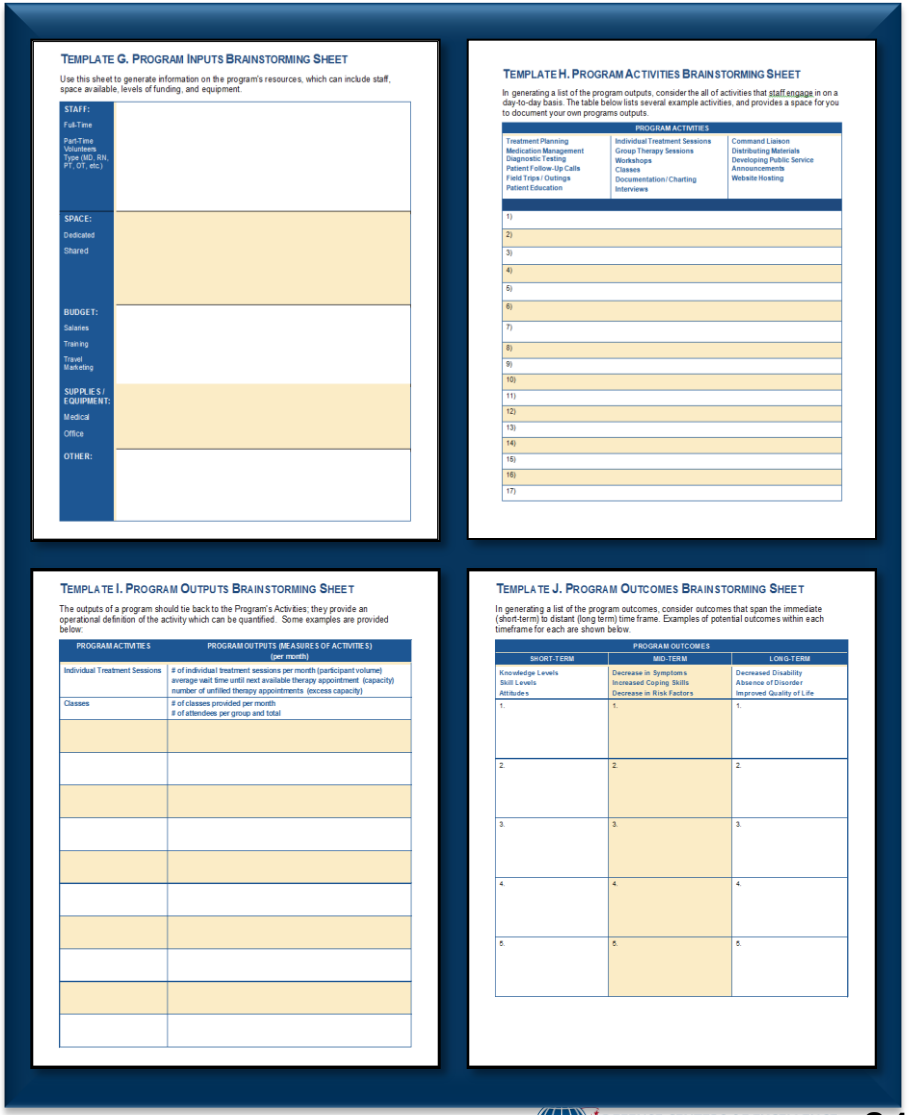
1.2 Conduct Stakeholder Analysis, Identify Corresponding Engagement Strategies

- After reviewing program background, it is important to conduct a stakeholder analysis
  - *Template E provides a format for gathering this information*
- A stakeholder engagement presentation can be used to communicate with stakeholder groups and inform them about the purpose of the evaluation and the process
  - *Template F provides a sample briefing*



1.3 Create Logic Model for the Program

- The final task in the review of program is to create a logic model of the program
- A logic model graphically details how a program is structured to achieve results
- Four key components make a linear sequence:
  - Inputs/resources; activities (planned work); outputs; and outcomes (intended results)
  - Templates G-J are used to collect the information to populate the logic model



TEMPLATE G. PROGRAM INPUTS BRAINSTORMING SHEET

Use this sheet to generate information on the program's resources, which can include staff, space available, levels of funding, and equipment.

STAFF: Full-Time; Part-Time Volunteers Type (MD, RN, PT, OT, etc.)	
SPACE: Dedicated; Shared	
BUDGET: Salaries; Training; Travel; Marketing	
SUPPLIES / EQUIPMENT: Medical; Office	
OTHER:	

TEMPLATE H. PROGRAM ACTIVITIES BRAINSTORMING SHEET

In generating a list of the program outputs, consider the all of activities that staff engage in on a day-to-day basis. The table below lists several example activities, and provides a space for you to document your own programs outputs.

PROGRAM ACTIVITIES		
Treatment Planning Medication Management Diagnostic Testing Patient Follow-Up Calls Field Trips / Outings Patient Education	Individual Treatment Sessions Group Therapy Sessions Workshops Classes Documentation / Charting Interviews	Command Liaison Distributing Materials Developing Public Service Announcements Website Hosting
1)		
2)		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		
17)		

TEMPLATE I. PROGRAM OUTPUTS BRAINSTORMING SHEET

The outputs of a program should tie back to the Program's Activities; they provide an operational definition of the activity which can be quantified. Some examples are provided below.

PROGRAM ACTIVITIES	PROGRAM OUTPUTS (MEASURES OF ACTIVITIES) (per month)
Individual Treatment Sessions	# of individual treatment sessions per month (participant volume) average wait time until next available therapy appointment (capacity) number of unfilled therapy appointments (excess capacity)
Classes	# of classes provided per month # of attendees per group and total

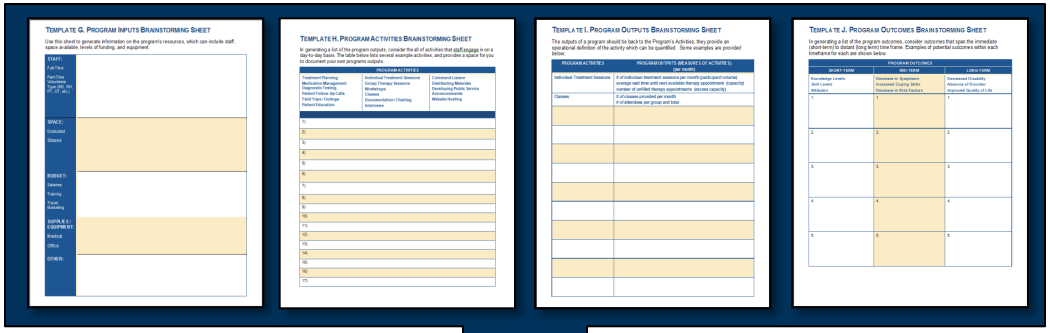
TEMPLATE J. PROGRAM OUTCOMES BRAINSTORMING SHEET

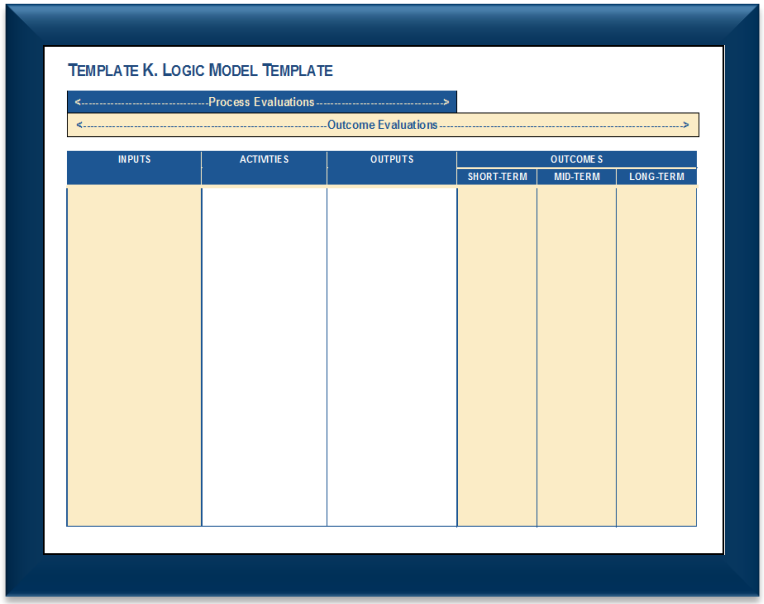
In generating a list of the program outcomes, consider outcomes that span the immediate (short-term) to distant (long term) time frame. Examples of potential outcomes within each timeframe for each are shown below.

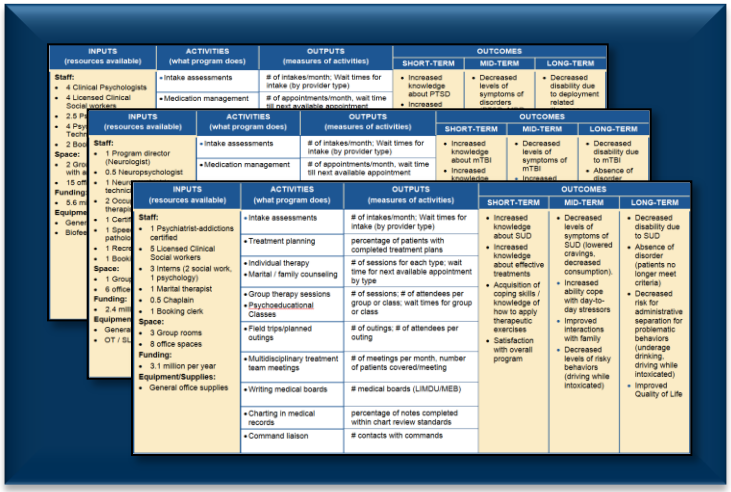
PROGRAM OUTCOMES		
SHORT-TERM	MID-TERM	LONG-TERM
Knowledge Levels Skill Levels Attitudes	Decrease in Symptoms Increased Coping Skills Decrease in Risk Factors	Decreased Disability Absence of Disorder Improved Quality of Life
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.

1.3 Create Logic Model for the Program

- Information from Templates G-J is used to create a logic model of your program -- Template K
- The guide also provides examples of logic models for PTSD, TBI and substance abuse programs





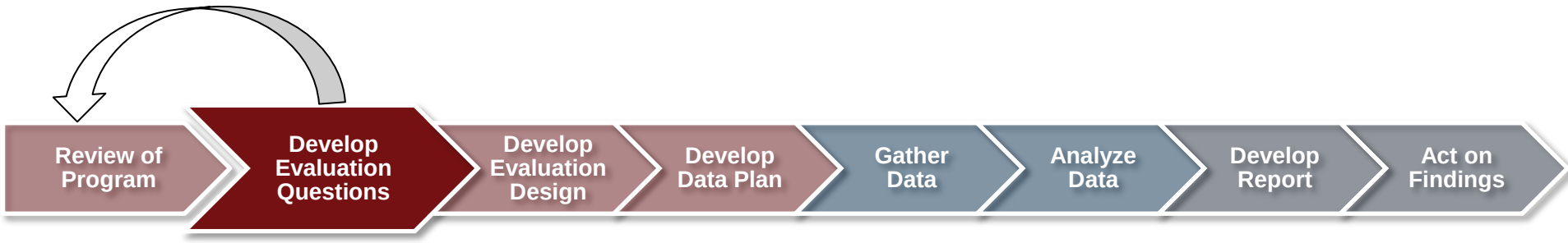


Step 2: Develop Evaluation Questions

- **This step will aid the program evaluation team in determining the evaluation design and data plan**
- **Developing evaluation questions includes several tasks**
  1. Review all information gathered in Step 1
  2. Determine evaluation type
  3. Generate evaluation questions
  4. Operationalize all evaluation questions to SMART criteria
  5. Select measure or metric for each question

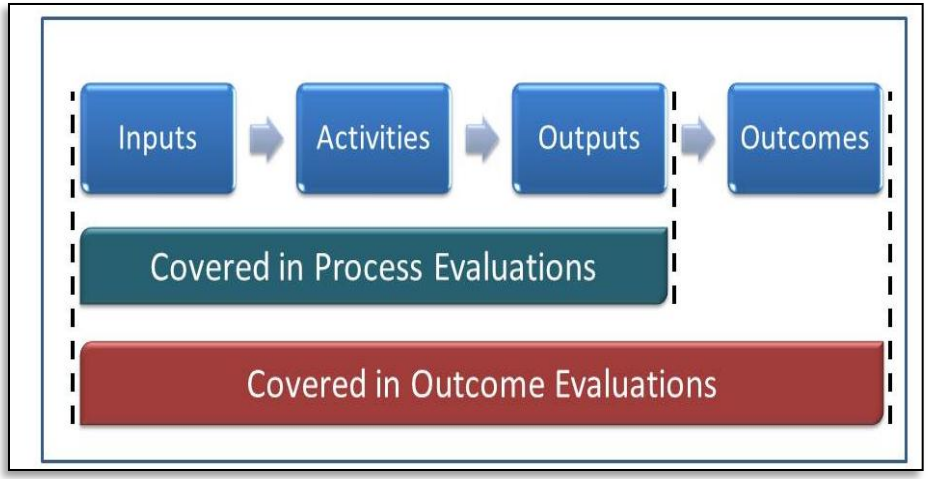
2.1 Review Information From Step 1

- A firm understanding of the mission, goals and objectives of a program, stakeholder engagement and current resources is critical, as this information is foundational for developing sound evaluation questions
- Ensuring a strong understanding for the foundational components of a program is an activity that cannot be over-emphasized



2.2 Determine Evaluation Type

- Evaluation questions will correspond with the three general types of evaluations (process, outcome and impact/cost)



- Program evaluations, and therefore evaluation questions, may focus on some or all components of a program, from program inputs to the long-term intended results

- The program evaluation guide covers how to conduct process evaluations (which examine inputs, activities and outputs) and outcomes evaluations, which examine all of these, as well as program outcomes)

2.3 Generate Evaluation Questions

- A key source of potential questions for a program evaluation is the program's own objectives from Step 1. (This is especially true in cases where a program is conducting a self-evaluation.)
- Additional possible questions come from stakeholder analysis and the program's logic model.
- There are also occasions when the evaluator may be directed to answer specific evaluation questions by the chain of command, program staff or other entities.

Example of Evaluation Questions by Evaluation Type

Evaluation Type	Sample Evaluation Questions
Process Evaluation	• How similar are the participants to those anticipated when the program was designed (e.g., age, gender, severity of need)? • Are services being delivered as planned? • How many service hours did each participant receive? • Is the program being implemented as scheduled? • What was the level of participant satisfaction with program services?
Outcome Evaluation	• To what extent did the program activities achieve the desired outcomes? • Are there any unexpected effects seen from the program activities? • Were there any unintended (negative) outcomes? • What should be improved or changed in the program? • Did the program impact vary by sub-population?
Impact/Cost Evaluation	• What outcomes are attributable to the program as opposed to other internal and external influences? • Which components of the program are responsible for specific outcomes? • Does the benefit of the program to its participants warrant its costs?

2.4 Operationalize All Evaluation Questions to SMART Criteria

- Like program objectives, evaluation questions must also be operationalized as SMART questions
- The *SMART Evaluation Questions* figure provides examples of evaluation questions for a sample program offering alcohol treatment to service members

SMART Sample Evaluation Questions

Evaluation Questions	SMART?	Explanation
What is the percentage of service members screened for alcohol use and referred for counseling?	No	This evaluation question is not specific and could be measured in multiple ways, each with different interpretations.
What is the percentage of service members screened with AUDIT-C and referred for brief alcohol counseling?	No	This evaluation question requires a specific screening measure and type of counseling. However, it does not define criteria or a time frame for referral.
What is the percentage of service members (not seen in an alcohol treatment program in past 90 days) screened with AUDIT-C and achieving score of five or greater AND received brief alcohol counseling (feedback linking drinking alcohol to health and advice to abstain or drink within recommended levels)? Counseling must occur within 14 days of the positive screen.	Yes	This evaluation question provides operational definitions and scores for including or excluding veterans. It also provides a precise window of time for the referral in order to ensure that the referral is linked to the screening behavior.

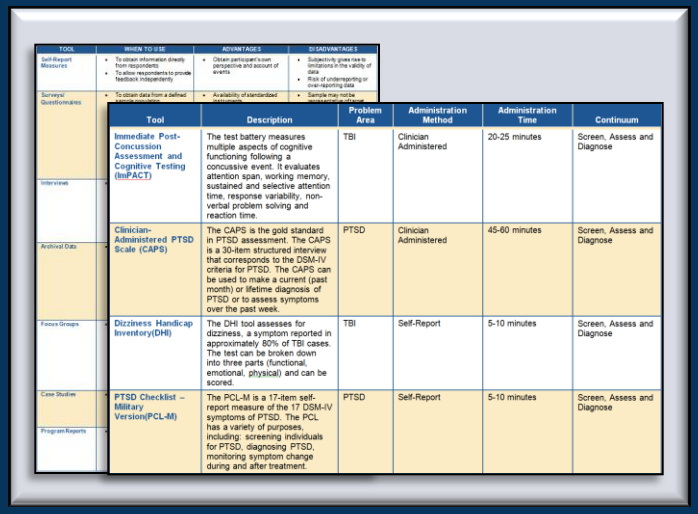
Develop Evaluation Questions

2.5 Select Measure or Metric for Each Question

- **In order to select the most appropriate data collection tool or instrument, decision-makers should consider the following factors:**
  - Cost
  - Time to administer
  - Specialized training needs
  - Reliability and validity
  - Requirements/guidance from higher headquarters or governing agencies

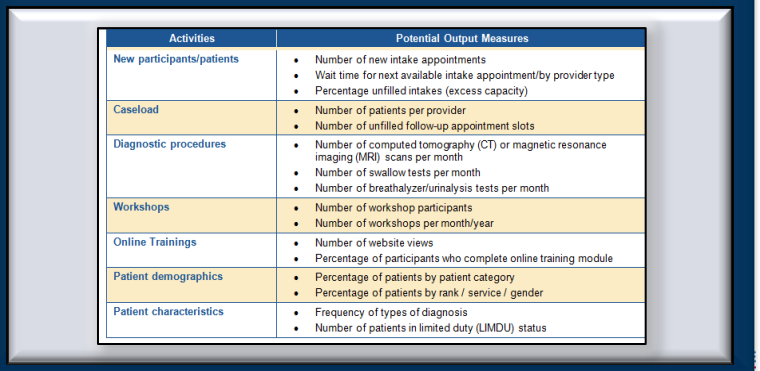
- **The guide provides sample measures from both process and outcome evaluations**

The figures, *Common Data Collection Tools* and *Psychological Health/TBI Instruments*, may be helpful during this step.



Tool	Description	Problem Area	Administration Method	Administration Time	Continuum
Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT)	The test battery measures multiple aspects of cognitive functioning following a concussive event. It evaluates attention span, working memory, sustained and selective attention time, response variability, non-verbal problem solving and reaction time.	TBI	Clinician Administered	20-25 minutes	Screen, Assess and Diagnose
Clinician-Administered PTSD Scale (CAPS)	The CAPS is the gold standard in PTSD assessment. The CAPS is a 30-item structured interview that corresponds to the DSM-IV criteria for PTSD. The CAPS can be used to make a current (past month) or lifetime diagnosis of PTSD or to assess symptoms over the past week.	PTSD	Clinician Administered	45-60 minutes	Screen, Assess and Diagnose
Dizziness Handicap Inventory(DHI)	The DHI tool assesses for dizziness, a symptom reported in approximately 80% of TBI cases. The test can be broken down into three parts (functional, emotional, physical) and can be scored.	TBI	Self-Report	5-10 minutes	Screen, Assess and Diagnose
PTSD Checklist – Military Version(PCL-M)	The PCL-M is a 17-item self-report measure of the 17 DSM-IV symptoms of PTSD. The PCL has a variety of purposes, including: screening individuals for PTSD, diagnosing PTSD, monitoring symptom change during and after treatment.	PTSD	Self-Report	5-10 minutes	Screen, Assess and Diagnose

Sample Process and Outcome Evaluation Measures



Activities	Potential Output Measures
New participants/patients	• Number of new intake appointments • Wait time for next available intake appointment/by provider type • Percentage unfilled intakes (excess capacity)
Caseload	• Number of patients per provider • Number of unfilled follow-up appointment slots
Diagnostic procedures	• Number of computed tomography (CT) or magnetic resonance imaging (MRI) scans per month • Number of swallow tests per month • Number of breathalyzer/urinalysis tests per month
Workshops	• Number of workshop participants • Number of workshops per month/year
Online Trainings	• Number of website views • Percentage of participants who complete online training module
Patient demographics	• Percentage of patients by patient category • Percentage of patients by rank / service / gender
Patient characteristics	• Frequency of types of diagnosis • Number of patients in limited duty (LIMDU) status

Step 3: Develop Evaluation Design

- This step requires critical inquiry about what aspects of the program will be assessed, when and from whom data will be collected, and how program performance will be measured. The outcome of this process is identification of the most appropriate and sound evaluation method(s) for the program.

- **Step 3 covers two main topics:**
  1. Develop the Evaluation Design
  2. Understanding Internal Validity

3.1 Develop the Evaluation Design

- There are three main categories of evaluation designs: descriptive, experimental and quasi-experimental.
- Each type of design has its own strengths and limitations and the selection of the type of evaluation depends on the nature of one's program and factors such as cost, level of expertise needed, and whether the evaluation will be classified as research and require institutional review board review and approvals.

The designs are represented using diagrams with the following notations:

R = Random assignment into a group
O = Observation of the program result
X = Intervention

3.1 Cont.

Experimental

- Experimental designs use random assignment to compare the outcome of an intervention on one or more groups with an equivalent group or groups that did not receive the intervention.

Experimental Design

Experimental:	R	O_1	→	X	→	O_2
Control:	R	O_1				O_2

Quasi-Experimental

- Quasi-experimental designs are similar to experimental designs, but do not use randomization to create the treatment and control groups.

One Group, Post-Test Only Design

X → O

One Group, Pre-Test/Post-Test Design

O_1 → X → O_2

Non-Equivalent Comparison Group Design

Experimental	O_1	→	X	→	O_2
Comparison	O_1	→		→	O_2

Descriptive

- Descriptive evaluations describe how the program functions and what the program intends to accomplish. They help to identify similarities across programs as well as key differences.

3.2 Understanding Internal Validity

In a program evaluation, internal validity addresses whether there is a causal relationship between a given intervention and some measured outcome. Evaluators can take several steps to minimize the potential threats to internal validity:

1. Minimize threats from history and instrumentation by standardizing the conditions under which the evaluation study is conducted.
2. Reduce threats from mortality and selection bias by gathering detailed information about evaluation participants.
3. Minimize threats from history and instrumentation by collecting detailed information about the procedural details of the research study, for example, where and when the study occurs.
4. Using an appropriate research design will help control most other threats to internal validity.

Summary Table of Threats to Validity

	Threat Type	Description	Affect on Validity	How to Minimize
Threats Related to Equivalence of Groups	Statistical Regression	Patient subgroups with extreme scores may show movement towards the population mean, since their scores were extreme to begin with.	Scores become less extreme due to normalization, and not because of the intervention.	Avoid using extreme scores.
	Attrition	Uneven drop-outs in different subgroups within the study, leading to non-random distribution of participants between groups.	Leads to a biased post-test score.	Use large groups sizes when possible.
	Selection Bias	Bias introduced into the evaluation during the group assignment process.	Evaluation findings are incorrectly attributed to the program because the intervention group showed a change.	Use random selection if possible; Use statistical control procedures if groups are not randomized.
Threats Related to Controlling of Extraneous Factors	Maturation	This occurs when patients change across time, sometimes due to physical development, or improvement over time without any intervention.	Change is attributed to time, and not to the intervention.	Use a control group if possible; Minimize length of study if possible.
	History	Unforeseen environmental factors that occur between the pre- and post-test, especially if this occurs to only one group, which influence participants' outcome measures.	Unable to conclude that only the program activities impacted the evaluation findings.	Use a control group if possible; Minimize length of study if possible.
	Testing	Repeated testing using the same types of tools or questions can affect the results of the measure.	Difficult to determine if patients' answers were influenced by their familiarity with the instrument.	Use parallel forms for measures if possible.
	Instrumentation	The data collection tool is not employed consistently during repeated measures, such as when data collection personnel change their rating criteria.	Outcomes measures are gauged inconsistently.	Standardize administration of measures.
	Hawthorne Effect	Effect of knowing that one is being observed changes behaviors	Participants change their behaviors simply due to being observed, rather than a real effect of the intervention	Minimize the degree of overt attention by using unobtrusive measures when possible.

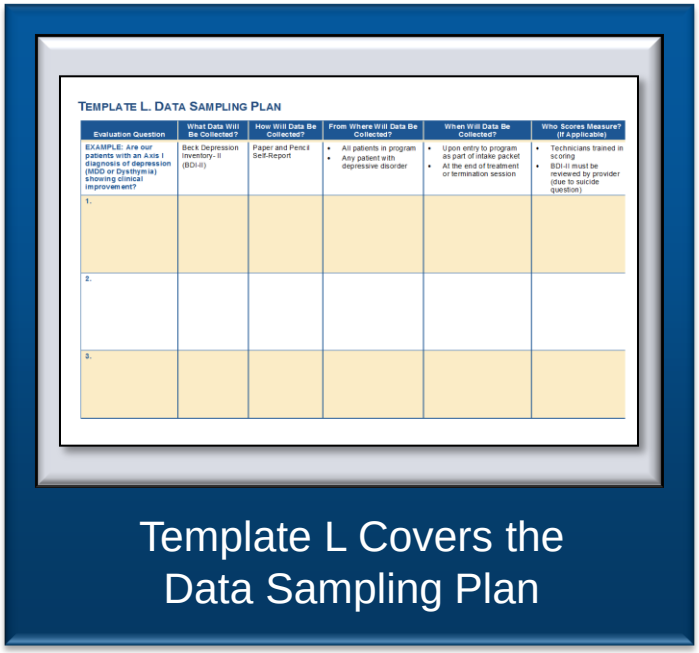
Step 4: Develop Data Plan

- **The purpose of this step is to codify the procedures that will be used to gather, store and analyze the data collected for your program evaluation**
- **There are several key steps involved in developing a data plan:**
  1. Develop Data Sampling Plan
  2. Develop Protocols for Securing Data
  3. Determine Data Analysis Plan
  4. Develop Standard Operating Procedures
  5. Obtain Appropriate Approvals
  6. Develop Database
  7. Conduct Staff Training and Piloting

4.1 Develop Data Sampling Plan

Developing the data sampling plan will provide a detailed protocol for all aspects of data collection. Steps to consider when developing the plan include:

- Identify the sample to be studied
- Identify data already being gathered
- Identify the type of data to be collected
- Identify the procedures and instruments to use during data collection
- Identify who will collect, store and enter the data
- Identify the timeline for data collection



TEMPLATE L. DATA SAMPLING PLAN

Evaluation Question	What Data Will Be Collected?	How Will Data Be Collected?	From Where Will Data Be Collected?	When Will Data Be Collected?	Who Scores Measure? (If Applicable)
EXAMPLE: Are our patients with an Axis I diagnosis of depression (MDD or Dysthymia) showing clinical improvement?	Beck Depression Inventory- II (BDI-II)	Paper and Pencil Self-Report	• All patients in program • Any patient with depressive disorder	• Upon entry to program as part of intake packet • At the end of treatment or termination session	• Technicians trained in scoring • BDI-II must be reviewed by provider (due to suicide question)
1.					
2.					
3.					

Template L Covers the Data Sampling Plan

4.2 Develop Protocols for Securing Data

- Data protocols and standard operating procedures (SOPs) serve as a framework to guide data management through required processes, including security measures
- Approaches and guidelines enable evaluators to maintain secure data management systems at all times

This data security checklist can help with this step:

DATA SECURITY CHECKLIST

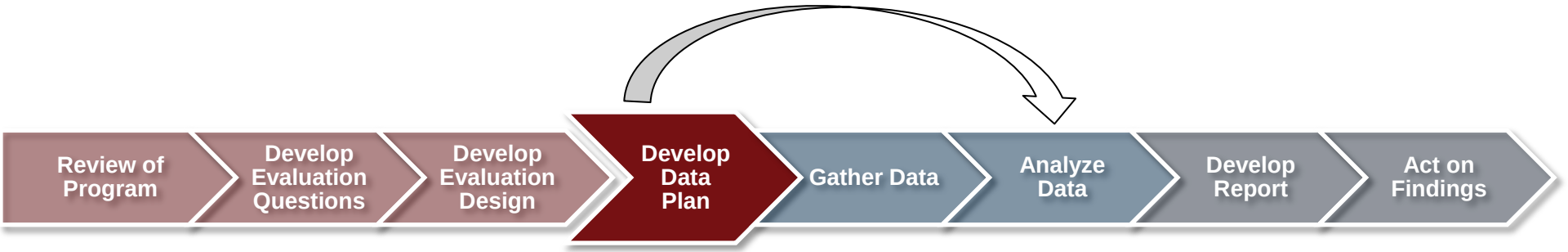
- ❑ Review data security requirements of the sponsoring institution
- ❑ Review HIPPA requirements if using identifiable patient or health data
- ❑ Establish procedures for de-identifying PII
- ❑ Develop SOPs describing data security measures, including:
  - ❑ Personnel qualifications and restrictions for handling data
  - ❑ Regulations on copying data
  - ❑ Procedures for transporting or transmitting data
  - ❑ Procedures for storing data, during and after the evaluation
  - ❑ Procedures for destruction of data (and copies)

Develop Data Plan

4.3 Determine Data Analysis Plan

- Having a data analysis plan in place before any data collection takes place will allow evaluators to plan appropriately and address issues such as sample size, requirements for statistical software and data format, whether the services of a statistician or analysis will be required, etc.

- More information on this data analysis is covered during Step 6: Analyze Data



Develop Data Plan

4.4 Develop Standard Operating Procedures

- The development of SOPs is strategically located at this point to allow for a well-informed plan as well as a plan that can provide guidance for the next several steps of the program evaluation process.
- These steps can be formalized in a document that will serve as the framework for the data moving forward.
- Protocols provide staff with a written guide to follow and consult when questions arise.

4.5 Obtain Appropriate Approvals

Organizational Approval

- The specific requirements for approvals generally differ based on the institution in charge of the program evaluation or the actual location of the evaluation. Information about required approvals and policies are often found in an organization's research or performance improvement office.

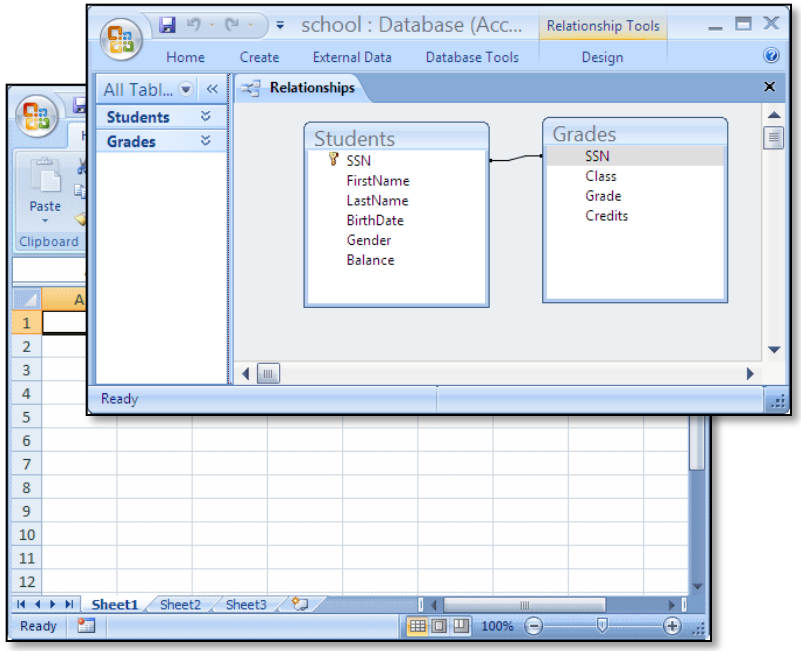
Institutional Review Boards (IRB) Approval

- IRBs are committees that were established by federal regulations to review and approve any research involving human subjects. Most program evaluation protocols are exempt from needing full IRB approval, but may need an IRB exemption.

4.6 Develop Database

- The development of a database to house evaluation data will be affected by many of the previous steps in the data plan.
- When choosing or developing a database, evaluators should consider:
  - The type and amount of data to be stored
  - How data will be entered or imported
  - Security options
  - Compatibility of the database with any statistical procedures to be completed or statistical software to be used

- There are many options to consider when choosing or designing a database. One of the largest distinctions between types of databases are flat-file versus relational.



4.7 Conduct Staff Training, Piloting

- Depending on the anticipated timeline for the evaluation, it may be necessary to renew training certifications so staff and evaluators should be aware of all such deadlines and requirements.

- If any of the procedures or instruments used for data collection require specific training, as identified when *Developing the Data Sampling Plan*, this is the point in the process to provide such training for staff.

- Evaluators may also want to pilot certain procedures or instruments at this point in the development of the data plan. Piloting allows for the early identification of potential problems or issues so that they can be addressed before the actual program evaluation commences.

Step 5: Gather Data

- Gathering data is the point in the process where the evaluation team will implement the data collection plan. Ensuring quality data gathering is essential to minimizing threats to validity and to produce valid, reliable and informative program data.

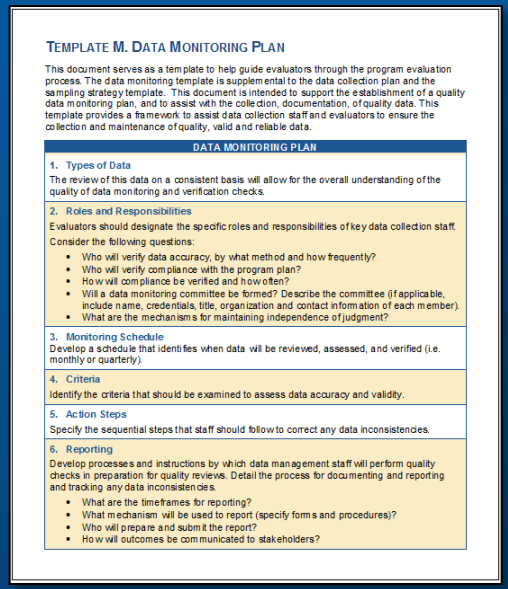
- Gathering data consists of the following steps:
  1. Develop and implement the data gathering plan
  2. Check data for validity and reliability
  3. Secure the data according to the data plan

Gather Data

5.1 Develop, Implement Data Monitoring Plan

- A data monitoring plan further identifies the process by which data is collected, entered, validated and stored by key personnel.
- Data monitoring plans should:
  - Outline specific, step-by-step procedures to gathering data
  - Collect only the data that is needed
  - Check data for validity and reliability
  - Continually monitor collection procedures and safeguard collected data

The *Data Gathering Plan*, Template M, guides this process



TEMPLATE M. DATA MONITORING PLAN

This document serves as a template to help guide evaluators through the program evaluation process. The data monitoring template is supplemental to the data collection plan and the sampling strategy template. This document is intended to support the establishment of a quality data monitoring plan, and to assist with the collection, documentation, of quality data. This template provides a framework to assist data collection staff and evaluators to ensure the collection and maintenance of quality, valid and reliable data.

DATA MONITORING PLAN

1. Types of Data

The review of this data on a consistent basis will allow for the overall understanding of the quality of data monitoring and verification checks.

2. Roles and Responsibilities

Evaluators should designate the specific roles and responsibilities of key data collection staff.

Consider the following questions:

- Who will verify data accuracy, by what method and how frequently?
- Who will verify compliance with the program plan?
- How will compliance be verified and how often?
- Will a data monitoring committee be formed? Describe the committee (if applicable, include name, credentials, title, organization and contact information of each member).
- What are the mechanisms for maintaining independence of judgment?

3. Monitoring Schedule

Develop a schedule that identifies when data will be reviewed, assessed, and verified (i.e. monthly or quarterly).

4. Criteria

Identify the criteria that should be examined to assess data accuracy and validity.

5. Action Steps

Specify the sequential steps that staff should follow to correct any data inconsistencies.

6. Reporting

Develop processes and instructions by which data management staff will perform quality checks in preparation for quality reviews. Detail the process for documenting and reporting and tracking any data inconsistencies.

- What are the timeframes for reporting?
- What mechanism will be used to report (specify forms and procedures)?
- Who will prepare and submit the report?
- How will outcomes be communicated to stakeholders?

Avoid These Data Gathering Pitfalls

- Data collectors not trained
- Inconsistent collection techniques
- Unnecessary data collection
- Not safeguarded to protect patient privacy

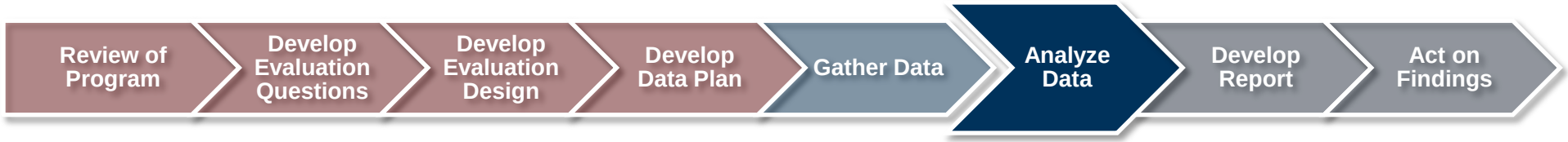
5.3 Secure Data According to Data Plan

- Data monitoring plan should specify where the data is stored. Data collected in both paper and electronic forms must be addressed.
- The term personally identifiable information (PII) is commonly used to refer to information about an individual that is maintained by an agency.
- Keeping data confidential is vital to any program involving patients.

Examples of PII:

- **Names**
- **Addresses**
- **Social security numbers**
- **Photographs**

Step 6: Analyze Data



- This step includes the process of organizing, classifying and interpreting collected data with the goal of uncovering useful information and drawing conclusions pertaining to the evaluation questions.
- Analyzing data consists of:
  1. Qualitative and quantitative analysis
  2. Inspecting and cleansing the data
  3. Data preparation using descriptive statistics
  4. Using inferential statistics to examine relationships
  5. Interpreting results and drawing conclusions

Step 6.1: Quantitative, Qualitative Analysis

- Program evaluation data will most likely fit into one of two categories: **quantitative** or **qualitative data**:

Quantitative	Qualitative
Numbers and statistics	Words, images or objects
Data is obtained from empirical measurements using structured, standardized and validated data-collection instruments	Data is obtained from open-ended responses, interviews, participant observations, field notes, reflections, etc.
Statistical analysis (e.g., frequencies, percentages, measure of central tendency and variability, correlation)	Content analysis (e.g., organizes data into coherent categories)
Identifies numerical values and statistical relationships	Identifies patterns, features, themes
Yields a statistical report with correlations, comparisons of means and statistical significance of findings	Yields a narrative report with contextual description; may include direct quotations from participants

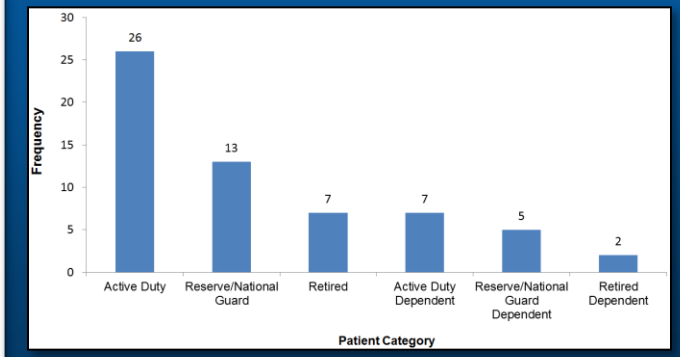
Step 6.2: Inspecting, Cleansing Data

- Inspect the data to ensure that nothing has been entered incorrectly.
- Errors can present significant problems during the statistical analysis if they are not identified early in the process.
- Review data for completeness and for:
  - Missing values
  - Errors in data entry
  - Unexpected trends (possible bias)

Step 6.3: Data Preparation Using Descriptive Statistics

- **Descriptive statistics** involves describing and summarizing the data to provide a summary or a "big picture" view of the data.
- Within descriptive statistics, there are three major categories of analyses:
  - Measures of frequency
  - Measures of central tendency
  - Measures of variability

Bar Chart for Patient Category Data



Frequency Table for Patient Category Data

Patient Category	Count
Active Duty	156
FAM MBR of Active Duty	68
Retired	23
FAM MBR of Retired	15
Other	5
TOTAL COUNT	**267**

EXAMPLE: Measures of Central Tendency

Dataset: The following data represent the number of appointments, by month, in a clinic over the course of the first five months of 2011:

JAN	FEB	MARCH	APR	MAY
35	45	35	30	20

MODE: The value 35 occurs twice, making it the mode of this dataset.

MEDIAN: When the data are ranked from low to high, 20, 30, **35**, 35, 45, the middle value is 35. The median for the dataset is 35.

MEAN: When the data are summed (20+30+35+35+45 = 165) and divided by the total number of scores (165/5 = 33), the calculated mean is 33.

6.3 *Cont.*

- Data from program analyses can also fall into one of two data categories: *categorical* or *continuous data*.
  - **Categorical data —** can be divided into discrete categories with finite responses.
  - **Continuous data —** refer to data that fall on a continuous spectrum with an infinite number of possible responses or data points.
- Data can be broken down further into one of four levels of measurement: **nominal**, **ordinal**, **interval** and **ratio**, as seen in the table below.

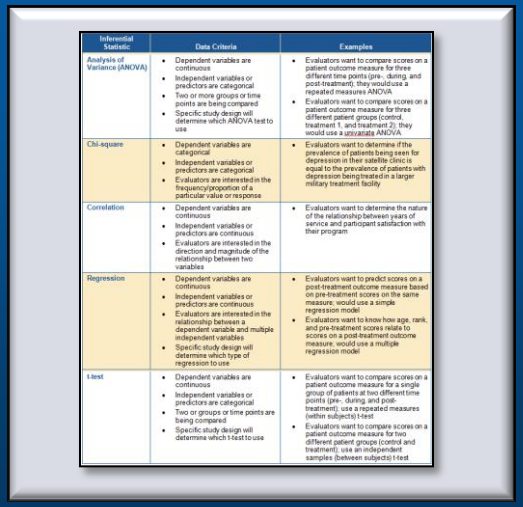
Levels of Data Measurement with Examples

Level of Measurement	Description of Data	Examples
Nominal	• Data are discrete and generally refer to categories • Data can be classified but not analyzed using mathematical operations	• Gender • Race or ethnicity • Patient category • Service Branch
Ordinal	• Data are discrete and generally refer to categories • Data can be classified and ranked or ordered • Generally data cannot be analyzed using mathematical operations • Often numerical	• Military rank • Level of education
Interval	• Data can be classified and ranked or ordered • Meaningful differences between values • Always numerical	• Blood pressure readings • Time of day • Date of assessment
Ratio	• Data can be classified and ranked or ordered • Meaningful differences between data with a zero value • Ratios can be calculated between data points • Always numerical	• Height • Weight

Step 6.4: Using Inferential Statistics to Examine Relationships

- **Inferential analysis** uses tests to compare and interpret data. It provides a means to interpret data and draw conclusions generalizable to larger populations.
- Evaluators must consider several factors or characteristics of the data to determine which is most appropriate for a particular data set. These include:
  - Study design
  - Number of groups to be compared or related in the analysis
  - Type or level of data being analyzed (nominal, ordinal, interval or ratio)

Inferential Statistics Criteria and Examples



Inferential Statistic	Data Criteria	Examples
Analysis of Variance (ANOVA)	• Dependent variables are continuous • Independent variables or predictors are categorical • Two or more groups or time points are being compared • Specific study design will determine which ANOVA test to use	• Evaluators want to compare scores on a patient outcome measure for three different time points (pre-, during, and post-treatment); they would use a repeated measures ANOVA • Evaluators want to compare scores on a patient outcome measure for three different patient groups (control, treatment 1, and treatment 2); they would use a univariate ANOVA
Chi-square	• Dependent variables are categorical • Independent variables or predictors are categorical • Evaluators are interested in the frequency/proportion of a particular value or response	• Evaluators want to determine if the prevalence of patients being seen for depression in their satellite clinic is equal to the prevalence of patients with depression being treated in a larger military treatment facility
Correlation	• Dependent variables are continuous • Independent variables or predictors are continuous • Evaluators are interested in the direction and magnitude of the relationship between two variables	• Evaluators want to determine the nature of the relationship between years of service and participant satisfaction with their program
Regression	• Dependent variables are continuous • Independent variables or predictors are continuous • Evaluators are interested in the relationship between a dependent variable and multiple independent variables • Specific study design will determine which type of regression to use	• Evaluators want to predict scores on a post-treatment outcome measure based on pre-treatment scores on the same measure; would use a simple regression model • Evaluators want to know how age, rank and pre-treatment scores relate to scores on a post-treatment outcome measure; would use a multiple regression model
t-test	• Dependent variables are continuous • Independent variables or predictors are categorical • Two or groups or time points are being compared • Specific study design will determine which t-test to use	• Evaluators want to compare scores on a patient outcome measure for a single group of patients at two different time points (pre-, during, and post-treatment); use a repeated measures (within subjects) t-test • Evaluators want to compare scores on a patient outcome measure for two different patient groups (control and treatment); use an independent samples (between subjects) t-test

This table depicts the types of inferential statistical tests, as well as criteria that must be met for each and relevant program evaluation examples. These tests include:

- Analysis of Variance (ANOVA)
- Chi-Square
- Correlation
- Regression
- T-test

Analyze Data

Step 6.5: Interpreting Results, Drawing Conclusions

- Once the appropriate statistical tests have been conducted, evaluators should have the output necessary to answer or evaluate their program evaluation questions.
- Evaluators should strive to take the overall context of the program into account when interpreting the results of data analysis. Several factors can limit the degree of certainty in the results, such as:
  - Baseline is not available
  - Control group is not available
  - Program operates alongside other interventions that might affect outcome

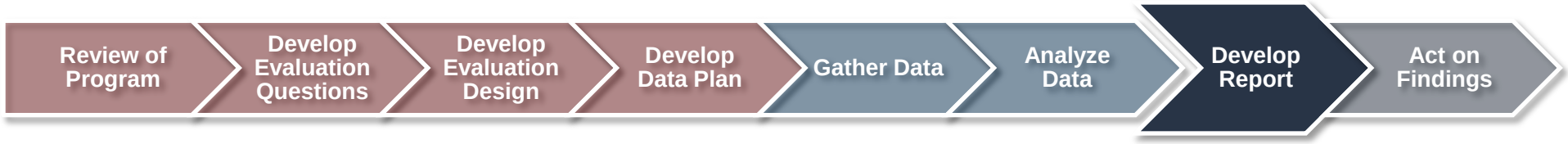
Participation, Outcome and Effectiveness

If the participation was:	And the outcome was:	One might interpret this as:
Low attendance and or participation	Good outcomes	The intervention has very strong effect size OR some other factor is responsible
Low attendance and or participation	Poor outcomes	The program MAY be effective-if participants can get enough treatment
High attendance and or participation	Poor outcomes	The program not likely effective for this target group

Step 6.5 *Cont.*

- **Interpretation** is the process of attaching meaning to the data. It can:
  - Aid stakeholder understanding
  - Guide program development
- If a program evaluation fails to demonstrate anticipated levels of beneficial effects following the analysis, several interpretations should be considered. For example:
  - Lack of adherence to best practices
  - Population is heterogeneous
  - Differences in treatment
  - Difference in patients seen

Step 7: Develop Report



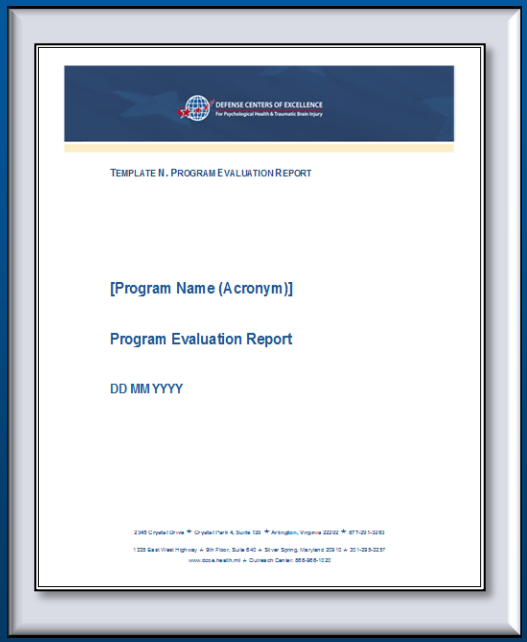
- After the evaluation team has finished analyzing and synthesizing the results of the evaluation, the next step is to refine the results and develop a report to present your findings
- This will require:
  1. Drafting a report of the evaluation findings
  2. Disseminating the report for comments
  3. Finalizing and submitting the report for approval

Develop Report

Step 7.1: Drafting a Report of Evaluation Findings

- The program evaluation report is a 10-15 page document that provides stakeholders a detailed analysis of the program's need, effectiveness and scalability.
- The report includes six sections:
  - *Executive Summary*
  - *Program Evaluation Approach*
  - *Program Summary*
  - *Program Evaluation Results*
  - *Summary*
  - *References*

Template N: *Program Evaluation Report*

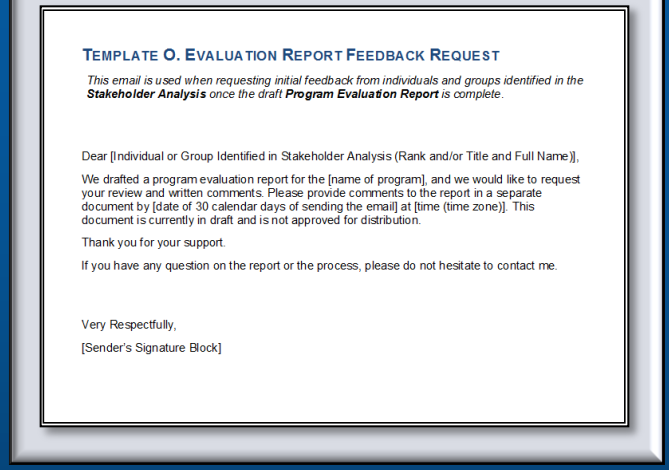


Template N may be used as a guide to develop the report. It can be adjusted to meet the needs of the group to whom the report is given.

Develop Report

Step 7.2: Disseminating Report for Comments

- Team lead sends the report draft along with a cover letter to the individuals and groups identified in the stakeholder analysis [Template E], developed during Step 1
- DCoE subject matter experts recommend allowing 30 days for stakeholders to review and provide written comments
- Team reviews submitted comments and discusses whether it is necessary to make any changes to the report



TEMPLATE O. EVALUATION REPORT FEEDBACK REQUEST

*This email is used when requesting initial feedback from individuals and groups identified in the **Stakeholder Analysis** once the draft **Program Evaluation Report** is complete.*

Dear [Individual or Group Identified in Stakeholder Analysis (Rank and/or Title and Full Name)],

We drafted a program evaluation report for the [name of program], and we would like to request your review and written comments. Please provide comments to the report in a separate document by [date of 30 calendar days of sending the email] at [time (time zone)]. This document is currently in draft and is not approved for distribution.

Thank you for your support.

If you have any question on the report or the process, please do not hesitate to contact me.

Very Respectfully,

[Sender's Signature Block]

Template O: *Evaluation Report Feedback Request*
This template can be used as a sample cover letter for disseminating the report for comments

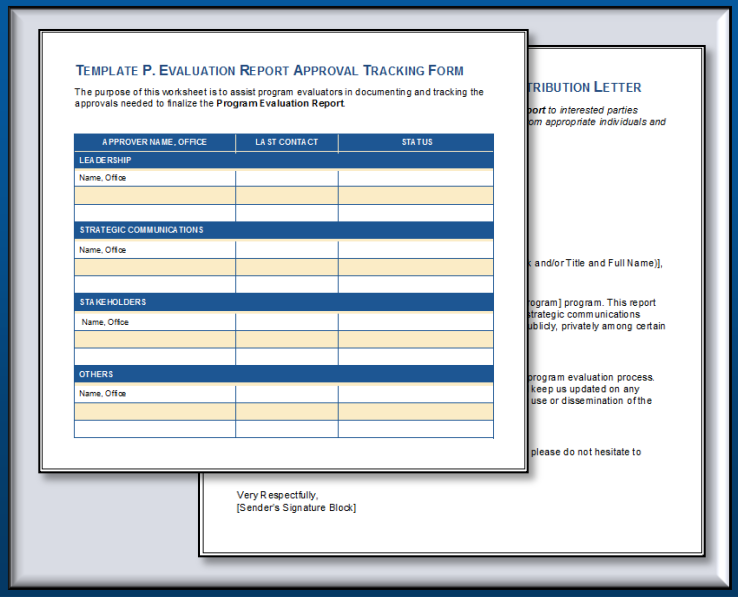
Develop Report

Step 7.3: Finalizing, Submitting Report for Approval

- To finalize the program evaluation report for dissemination, the team must obtain approval from appropriate stakeholders
- Once approval process is complete, the program evaluation report is officially final and ready for dissemination.
- Final report may be sent to interested parties identified in the stakeholder analysis [Template E] accompanied by a cover letter, see Template Q

Template P: *Evaluation Report Approval Tracking Form*
Template P has been developed for programs that are not under the Defense Department or do not have local document approval routing procedures

Template Q: *Final Evaluation Report Distribution Letter*
Template Q may be used as a template cover letter for final dissemination of the report



TEMPLATE P. EVALUATION REPORT APPROVAL TRACKING FORM

The purpose of this worksheet is to assist program evaluators in documenting and tracking the approvals needed to finalize the **Program Evaluation Report**.

APPROVER NAME, OFFICE	LAST CONTACT	STATUS
LEADERSHIP		
Name, Office		
STRATEGIC COMMUNICATIONS		
Name, Office		
STAKEHOLDERS		
Name, Office		
OTHERS		
Name, Office		

TRIBUTION LETTER

port to interested parties
om appropriate individuals and

and/or Title and Full Name)],

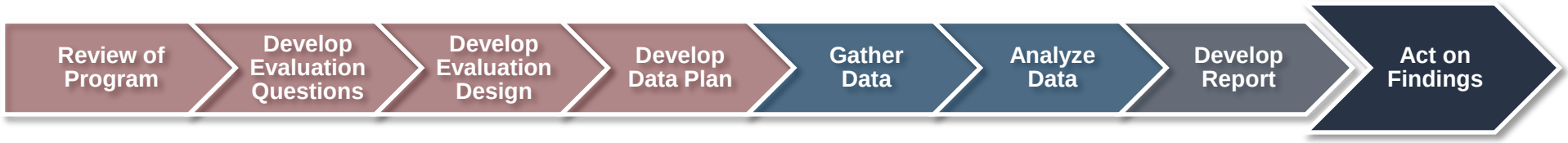
rogram] program. This report
trategic communications
ublicly, privately among certain

program evaluation process.
keep us updated on any
use or dissemination of the

please do not hesitate to

Very Respectfully,
[Sender's Signature Block]

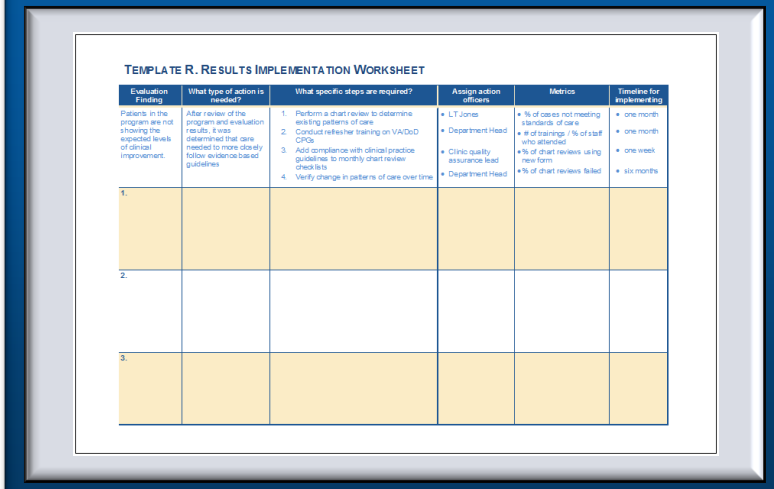
Step 8: Act on Findings



- Using the results from your Program Evaluation Report, it is important to consider how you will act on your findings.
- This final step of conducting an evaluation is among the most important and may be used to:
  1. Make actionable decisions about the program
  2. Improve the program and identifying options for moving forward
  3. Evaluate the effectiveness of the program
  4. Generate new knowledge

Step 8.1: Make Actionable Decisions About the Program

- Making the connection between the evaluation findings and actionable improvement plans is a critical part of the evaluation process.
- The report of the evaluation findings includes final recommendations which should be used to provide program staff and stakeholders the direct impetus to make actionable decisions about the program.
- Begin discussion with project leaders and stakeholders.



TEMPLATE R. RESULTS IMPLEMENTATION WORKSHEET

Evaluation Finding	What type of action is needed?	What specific steps are required?	Assign action officers	Metrics	Timeline for implementing
Patients in the program are not showing the expected levels of clinical improvement.	After review of the program and evaluation results, it was determined that care needed to more closely follow evidence based guidelines	1. Perform a chart review to determine existing patterns of care 2. Conduct refresher training on VA/DoD CPGs 3. Add compliance with clinical practice guidelines to monthly chart review checklists 4. Verify change in patterns of care over time	• LT Jones • Department Head • Clinic quality assurance lead • Department Head	• % of cases not meeting standards of care • # of trainings / % of staff who attended • % of chart reviews using new form • % of chart reviews failed	• one month • one month • one week • six months
1.					
2.					
3.					

Template R, *Results Implementation Worksheet*

Template R will help organize the brainstorming and follow-up actions developed following the program evaluation report

Outline

- **The Need for Program Evaluation in the DoD**
- **The DCoE Program Evaluation Guide**
- **Program Evaluation**
  - Definition, Benefits and Overview
- **8-Step Program Evaluation Framework Methodology**
  - Review of Program
  - Develop Evaluation Questions
  - Develop Evaluation Design
  - Develop Data Plan
  - Gather Data
  - Analyze Data
  - Develop Report
  - Act on Findings
- **Conclusion and Resources**

Conclusion

- The Defense Department has invested significant resources into the creation and expansion of multiple programs across the MHS in an effort to improve psychological health and TBI care for service members and their families.

Why do a Program Evaluation?

- The ability to demonstrate the effectiveness of these programs serves as a useful feedback mechanism when programs are competing for support and funding in a resource-constrained environment.
- Additionally, when clinical and statistical significance has been demonstrated, a program may become a model for the military health enterprise, reducing redundancy, increasing cost effectiveness and providing the best care available.

How will the Program Evaluation Guide help?

The Program Evaluation Guide assists program leaders with developing or refining goals, establishing effectiveness measures and synthesizing data all in a progressive feedback loop, which provides checks and balances to determine whether a program is meeting its stated objectives.

Resources

DCoE will create and release a suite of products related to program evaluation. Products are available on the DCoE website at: **http://www.dcoe.health.mil/**

You may also contact DCoE for additional information on program evaluation:

800-510-7897

301-295-3257

Resources@DCoEOutreach.Org