Using Evidence in Program Inventories and Budgeting
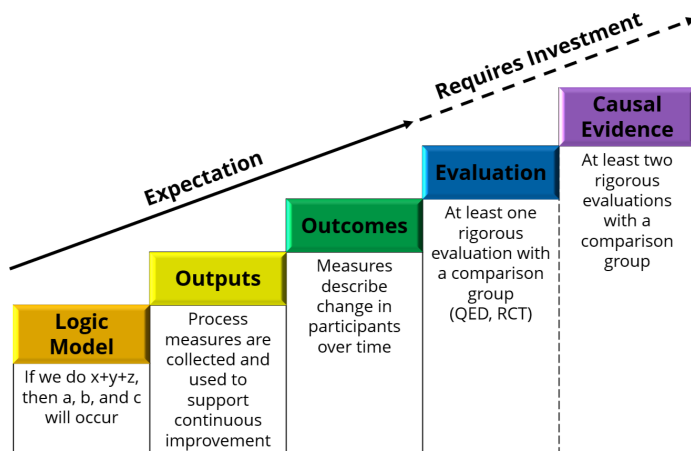
Document Quick Links

Evidence-Based Budgeting in Tennessee

What is evidence-based budgeting? Why is it important?

Evidence-based budgeting is a targeted focus to facilitate the use of research and evidence to inform programmatic funding decisions in a way that improves outcomes for Tennessee citizens. Influenced by the Pew-MacArthur Results First Initiative, Tennessee operates an **evidence framework** through which agencies can demonstrate the evidence of both proposed and existing **programs** during the program inventory process and the annual budget process.
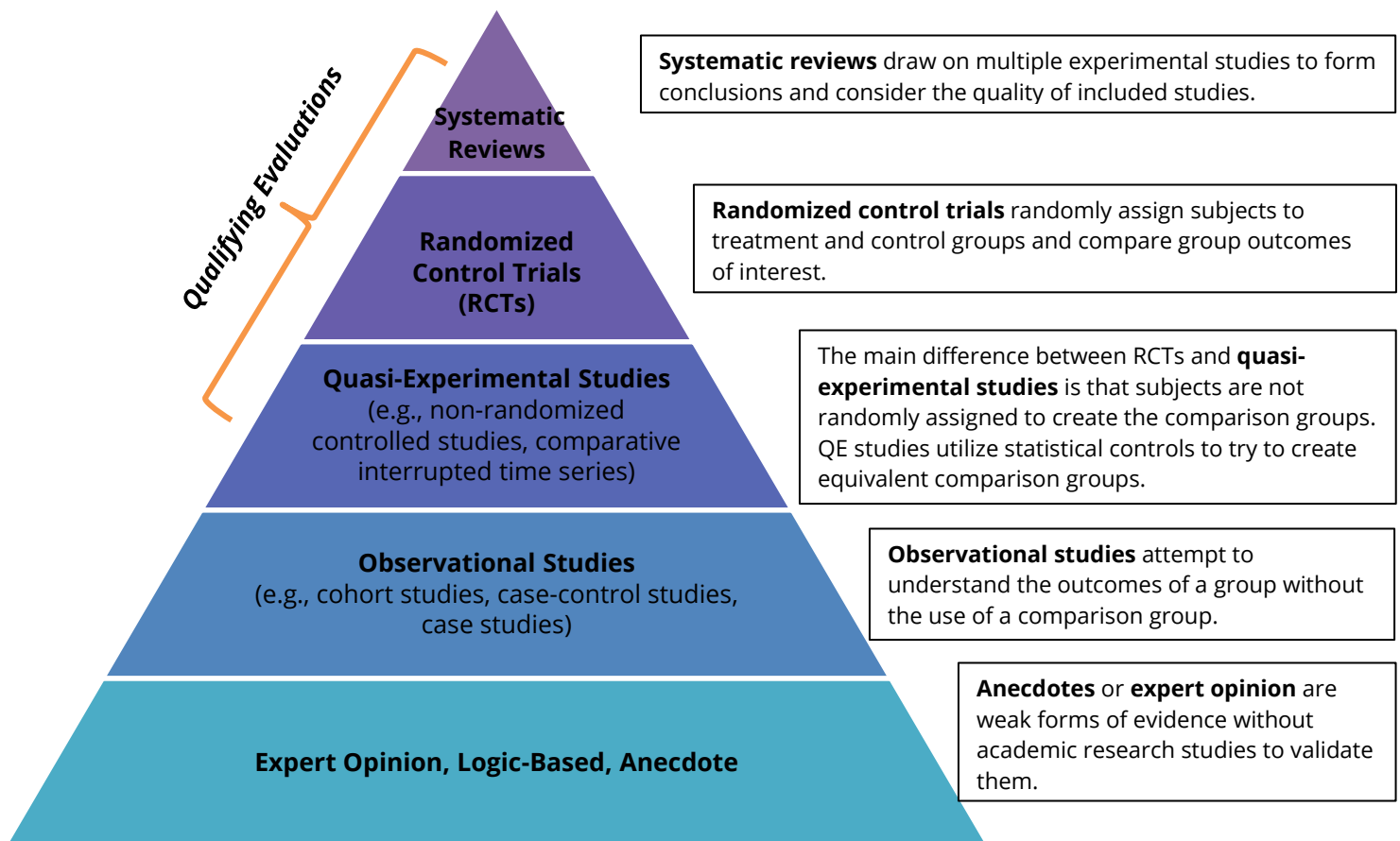
Tennessee Evidence Steps & Impact Ratings

Symbol	Meaning	Associated Step(s)
	Additional effort needed to move to outcomes step	
	No expectation to move from outcomes step	
	Prioritized for rigorous agency-level evaluation	
	Impact rated **positive** according to rigorous evaluation	
	Impact rated **negative** according to rigorous evaluation	
	Impact rated **neutral** according to rigorous evaluation	

Determining whether a program is evidence-based involves examining both the quality of evidence and the demonstrated impact on outcomes (i.e., positive, negative, no impact). For purposes of evidence-based budgeting, evidence-based programs are those with one or more **rigorous evaluations** (in Tennessee or elsewhere). These programs fall on the Evaluation or Causal Evidence steps and receive an impact rating.

What is considered a rigorous evaluation?

For the purposes of evidence-based budgeting and program inventories, rigorous evaluations are those that use high-quality experimental or quasi-experimental designs. Evidence clearinghouses identify thousands of programs that have been rigorously evaluated; during the program inventory process, agencies may also submit Tennessee-specific evaluations which have not been vetted by clearinghouses for review by a panel. The graphic below provides further information. Note: It may not be possible or appropriate for some programs to undergo rigorous evaluation.

Qualifying Evaluations

Systematic Reviews

Randomized Control Trials (RCTs)

Quasi-Experimental Studies
(e.g., non-randomized controlled studies, comparative interrupted time series)

Observational Studies
(e.g., cohort studies, case-control studies, case studies)

Expert Opinion, Logic-Based, Anecdote

Systematic reviews draw on multiple experimental studies to form conclusions and consider the quality of included studies.

Randomized control trials randomly assign subjects to treatment and control groups and compare group outcomes of interest.

The main difference between RCTs and **quasi-experimental studies** is that subjects are not randomly assigned to create the comparison groups. QE studies utilize statistical controls to try to create equivalent comparison groups.

Observational studies attempt to understand the outcomes of a group without the use of a comparison group.

Anecdotes or **expert opinion** are weak forms of evidence without academic research studies to validate them.

How is evidence used in the program inventory process?

Research clearinghouses are the primary tool agencies use when engaging in evidence-based budgeting or a program inventory. Clearinghouses aggregate the findings of multiple program evaluations/studies, often organized by theme (e.g., education, health, criminal justice). They employ rigorous criteria for the studies included, and often limit studies to well-designed randomized control trials (RCTs) and quasi-experimental designs (QEDs). The Results First Clearinghouse Database combines information from nine clearinghouses into one searchable location and is the suggested starting place to search for rigorous evidence.

Agencies search for and compare each program in their inventory against clearinghouse entries, noting the program effectiveness rating(s). The clearinghouse rating(s), along with additional information about program outputs and outcomes, results in placement of the program on the Tennessee evidence steps. More details about the process are outlined in this document.

In cases where a program does not have a clearinghouse entry, an agency may submit internal/external program evaluations within the state that meet the rigor bar to be evaluated by an expert panel for inclusion in an inventory.

Before Getting Started…

This document is meant to serve as a basic guide. There will likely be situations into which programs fall that have not been outlined below, or questions that arise at various points during the inventory work. Do not hesitate to reach out at any time during the process – the OEI team is eager to work alongside your team and support where we can in this process. Send questions to OEI.Questions@tn.gov, or reach out to your agency's OEI evidence coordinator directly.

Using an Evidence Clearinghouse

Getting Started

Agencies are encouraged to begin with clearinghouse databases, like the Results First Clearinghouse Database (referred to going forward as Results First), as they combine evidence from multiple clearinghouses into one location for easy search and comparison.

Searching with Keywords

Begin by entering a key term associated with the program in the search bar. Consider starting with the name of the program, or a key word or phrase in the program's name. Sometimes it's easier to begin with a broad term and narrow from there. Try searching a variety of synonyms or related terms. Consider:

- Other common or scientific terms for the **program**, an **intervention** within the program, or a condition/scenario the program seeks to address
- Similar programs run by other organizations or states in your network that might have different names

Narrowing the Results

Most clearinghouses and databases will have filters to immediately narrow the search scope. In Results First, searches can be narrowed by selecting categories, settings, ratings, and clearinghouses where the research is housed. Check any combination of boxes to narrow the search, focusing it more closely to the program you have in mind.

Matching the Research with the Current Program

With a narrowed list of research, it's now time to dig deeper into each available research item to see how closely it aligns with the program being evaluated. It is important to find the closest match possible. Here, you are looking for similarities in the following aspects of the program:

- **Who** the program is designed for (age, special characteristics of a population)
- **What** the program is designed to address (outcome)
- **Setting** in which the program is delivered
- **Other program specifics** (program duration, additional interventions, other study details)

In Results First, research is organized into tiles by topic, like the one to the right. In this example, TF-CBT appears in three clearinghouses; toggle between each entry with the colored circles at the top of the entry (see inset: 1).

Each research article has a summary of the program (2) and lists the clearinghouse where the related research is housed, and the article's clearinghouse rating, outcomes, settings, ages, and target populations (3) for which the program is designed. To look at the clearinghouse entry itself, click *learn more* (4), which opens the original clearinghouse entry for more information. This would be required to find any additional information not included in the summary, including any additional areas of interest and how the outcomes were measured, the specific studies included in the rating, etc.

Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT) ✕

1 *Clearinghouse:* ○ ○ ●

2 TF-CBT is a conjoint child and parent psychotherapy model for children who are experiencing significant emotional and behavioral difficulties related to traumatic life events. It is a components-based hybrid treatment model that incorporates trauma-sensitive interventions with cognitive behavioral, family, and humanistic principles. Read less

3 **Clearinghouse:**
CEBC

Settings:
Birth Family Home
Community Daily Living Setting
Outpatient Clinic
Community-based Agency / Organization / Provider
Group or Residential Care

Clearinghouse rating:
1: Well-Supported by Research Evidence

Ages:
For children/adolescents ages: 3 – 18
For parents/caregivers of children ages: 3 – 18

Outcomes:
Child/Family Well-Being

Target populations:
Children with a known trauma history who are experiencing significant Post-Traumatic Stress Disorder (PTSD) symptoms, whether or not they meet full diagnostic criteria. In addition, children with depression, anxiety, and/or shame related to their traumatic exposure. Children experiencing Childhood Traumatic Grief can also benefit from the treatment.

4 Learn more 🗗

5 **Results First Rating Color:**
● Highest rated

Results First Category:
Mental health

Interpreting Ratings

In the example above, Results First has rated this program *highest rated* (5). *Highest rated* and *second-highest rated* are Results First's indications that evidence meets the rigor requirement and has a positive impact. Other Results First ratings indicate the evidence may not strongly support the program. Other clearinghouses and evidence sources rate on similar scales.

Cross-Checking with Other Sources

It is important to consult multiple sources, where possible, when determining a program rating using the search tips above. The [Washington State Institute for Public Policy](#) (WSIPP) compiles research in various social and human service areas and contains added **benefit-cost** analyses and **meta-analyses** that may qualify as rigorous evidence in support of programs.

Because many states offer similar services, consulting other states' inventories like [Minnesota's](#) can be useful. Use keywords to search, and narrow by rating, area of interest, population, outcome, and setting; click an entry to access the associated research. When using another state's inventory, remember to check for alignment to the program implemented in Tennessee.

Determining an Evidence Step and Impact Rating

The **evidence step** is determined by the presence of one or more rigorous evaluations. To determine the current evidence step for a program or intervention located in the Results First database, review the entry rating (5):

- Green (highest rated) indicates multiple rigorous evaluations and corresponds to the purple step (causal evidence)
- Other colors (yellow, blue, gray, red) correspond to the blue step (evaluation)
- Black (insufficient evidence), or absence from the database, may correspond to one of the first three steps (logic model, outputs, outcomes), particularly if the program cannot be found in another resource

Highest rated
The program had a positive impact based on the most rigorous evidence.

Second-highest rated
The program had a positive impact based on high-quality evidence.

Mixed effects
The program had inconsistent impacts based on high-quality evidence. That is, study findings showed a mix of positive impact, no impact, and/or negative impact.

No effects
The program had no impact based on high-quality evidence. That is, there was no difference in outcomes between program participants and those in the comparison group.

Negative effects
The program had a negative impact based on high-quality evidence.

▲ **Insufficient evidence**
The program's current research base does not have adequate methodological rigor to determine impact.

The **impact rating** for programs on the blue or purple evidence steps is based on the directionality of the **effect size** of the study or studies.

- Green and yellow (highest and second-highest rated) results in a **positive impact** rating
- Gray (no effects) results in a neutral impact rating
- Red (negative effects) results in a **negative impact** rating
- Blue (mixed effects) will be evaluated on an individual basis – be sure to discuss with the OEI team

The following table contains all possible outcomes for a program. See the sample program inventory report for more information.

Possible Evidence and Impact Ratings

Results First Ratings	Tennessee Evidence Steps				
	Logic Model	Outputs	Outcomes	Evaluation	Causal Evidence
Highest Rated					➕
Second-highest Rated				➕	
Mixed Effects					❓
No Effects				⇆	⇆
Negative Effects				➖	➖
Insufficient Evidence	🚧	🚧	✔ 🔄		
No Existing Entry	🚧	🚧	✔ 🔄		

Situations that Might Arise

Research Familiarity

Perhaps your agency team is familiar with an existing article or body of research that supports your program. Still go through the process outlined above and see if that research is cited in the database or other clearinghouses or resources.

If your agency works closely with a research institution in Tennessee or another state to evaluate a program, or has conducted an evaluation with internal resources and that evidence has not entered a clearinghouse, provide a citation and any additional information you can (a link, a copy of the paper, etc.) for OEI review.

Programs Within Programs

Your agency may budget for "umbrella programs" that combine multiple programs or **interventions** in one delivery or budget mechanism. In a case like this, begin with researching the umbrella, providing all required program information in the final inventory or budget documentation. Then, search for each intervention to determine clearinghouse ratings; in some cases, both the umbrella and the individual interventions have their own unique evaluations and evidence that can be captured and communicated.

Multiple Entries/Clearinghouses

Some search results in Results First will contain very similar items from multiple clearinghouses. Just under the title, Results First notes with colored circles how many clearinghouses contain evidence behind this program and the database rating. Toggle between summaries of each of those items by clicking the colored circles.

Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT) ✕
Clearinghouse ○ ○ ●

TF-CBT is a conjoint child and parent psychotherapy model for children who are experiencing significant emotional and behavioral difficulties related to traumatic life events. It is a components-based hybrid treatment model that incorporates trauma-

No Qualifying Evaluations

In this case, here are a few things to try:

- Check the keyword search – is there another name for the program, or an element of it? If it's an umbrella program, try starting your search at the **intervention** level.
- Search other clearinghouses and registers. See the appendix of this document for a list.

After searching multiple key terms, trying various narrowing techniques, diving deeper into the articles that appear, and trying the troubleshooting tips listed above, you still may not find evidence that closely matches your program or intervention. When this occurs, *and* a research partnership or an internal evaluation does not exist, the program will fall on the appropriate evidence step from orange to green.

Completing the Program Inventory Document

During the program inventory process, agency teams will complete a spreadsheet to record program context, details, outputs, outcomes, and clearinghouse entries. The spreadsheet is set up to collect all this information in one place, support faster clearinghouse searching, and determining evidence steps and impact ratings. The document contains detailed completion instructions and agency staff receive training during the process.

Completing Evidence-Based Budgeting Forms

During the annual budget process, agencies complete evidence-based budgeting forms for each cost increase request and budget reduction submitted for consideration. The form has two parts: Part I captures general information and responses are required for every request submitted; Part II captures information regarding evidence and is only required when the request impacts a program. The evidence captured in the form mirrors what is utilized in the inventory process. Agencies can add context regarding long-term program planning and requests to fund program evaluation when appropriate. This information is reviewed by OEI and compiled into a report for the budget director and the governor's team.

Form Completion Tips

Part I

Part I asks for information about funding timelines, amounts, statutory impacts, etc. Ensure every response completely answers the question. Effective completion of the form helps your agency team prepare for budget hearings and prompts fewer follow-up questions from your budget coordinator and analyst.

Part II

Ensure that research or evidence are provided along with a citation (include link if available). If available, utilize work completed during a program inventory to complete this section; be sure to describe clearly and concisely how the program design and implementation is similar to/different from the cited research.

Annual training opportunities for agency budget and program staff are available ahead of each budget cycle, and the OEI team is available for questions and assistance.

Appendix

Evidence/Evaluation Glossary: Terms & Concepts

Benefit-Cost

A calculation of the most tangible financial gains or benefits that can be expected from a project versus the cost of implementing the suggested program or solution. The [Washington State Institute of Public Policy (WSIPP)](#) does benefit-cost analysis on high-quality studies across the US, and can be an important resource.

Causal Relationship

The relationship established that shows that an independent variable, and nothing else, causes a change in a dependent variable. It also establishes how much of a change is shown in the dependent variable.[1]

Mill's 3 critical conditions for establishing cause:[2]
1. Cause must precede its anticipated effect in time
2. If the levels of cause differ in some systematic way, there must be corresponding variation in the effect (**correlation**)
3. Must be able to discount all other plausible explanations for the link observed between the cause and effect (**nonspurious**); randomized experiments are preferred because they satisfy this requirement

Effect Size

A standard metric that summarizes the degree to which a program or policy affects a measured outcome.[3] If the effect size is positive (0 to 1), the outcome increases. If the effect size is negative (0 to -1), the outcome decreases. An effect size closer to zero indicates a more neutral impact, or that the impact could not be separated from other variables.[4]

Evidence Framework

The context through which state executive agencies can demonstrate the evidence of both proposed and existing programs during the program inventory or budget processes. The framework includes the five evidence steps and various impact ratings (including positive or negative impact).

Impact Rating

A rating that categorizes the impact of a program. This typically includes positive, negative, and neutral ratings.

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[1] https://libguides.usc.edu/writingguide/researchglossary
[2] Richard J. Murnane and John B. Willett, *Methods Matter: Improving Causal Inference in Educational and Social Science Research* (New York: Oxford University Press, 2011), 29.
[3] https://www.wsipp.wa.gov/BenefitCost
[4] Murnane and Willett, *Methods Matter*, 91.

Impact ratings are found in clearinghouses, and these are used to determine impact ratings for Tennessee programs during a program inventory.

Intervention

An individual component of a program that may or may not be research-based. Where an "umbrella" program exists, both the program and all associated interventions should each be included in a program inventory.

Meta-analysis

A meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome.[5]

Program

A systematic activity that engages participants in order to achieve desired outcomes. Terms often used in its place can include service, intervention, or practice. If a systematic activity has participants and has its own name, it is likely a program. For the purposes of the program inventory, a program may contain one or more interventions.

Rigorous Evaluations

Evaluations that use high-quality experimental or quasi-experimental designs. For the purposes of the Tennessee evidence framework, this includes **quasi-experimental studies** (QEDs, where subjects are not randomly assigned, but use statistical controls to create equivalent comparison groups), **randomized control trials** (RCTs, where subjects are randomly assigned to treatment with control groups), and **systematic reviews** (studies that draw conclusions based on multiple experimental studies).

Sample

The population researched in a particular study. Usually, attempts are made to select a "sample population" that is considered representative of groups of people to whom results will be generalized or transferred. In studies that use inferential statistics to analyze results or which are designed to be generalizable, **sample size** is critical, generally the larger the number in the sample, the higher the likelihood of a representative distribution of the population.[6]

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[5] https://www.wsipp.wa.gov/BenefitCost
[6] https://libguides.usc.edu/writingguide/researchglossary

List of Clearinghouses & Registers

When completing the evidence-based budgeting documents and during a program inventory, agencies should include any evidence-based practice registers they may have visited in the past or that they may use actively. The following are the registers in which OEI will be primarily interested, although agencies may also provide information about additional resources they have consulted.

Clearinghouse Databases

- Results First Clearinghouse Database | http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/results-first-clearinghouse-database | Database includes:
    - Blueprints for Healthy Youth Development
    - California Evidence-Based Clearinghouse for Child Welfare (CEBC)
    - The Laura and John Arnold Foundation's Social Programs that Work
    - The U.S. Department of Education's What Works Clearinghouse (WWC)
    - The U.S. Department of Health and Human Services' Research-Tested Intervention Programs (RTIPs)
    - The U.S. Department of Health and Human Services' Teen Pregnancy Prevention Evidence Review
    - The U.S. Department of Justice's Crime Solutions
    - The U.S. Substance Abuse and Mental Health Services Administration's National Registry of Evidence-based Programs and Practices (NREPP)
    - The University of Wisconsin Population Health Institute and Robert Wood Johnson Foundation's County Health Rankings and Roadmaps What Works for Health

Benefit-Cost Registers

- Washington State Institute for Public Policy | https://www.wsipp.wa.gov/BenefitCost

Federal Registers

- Compendium of Evidence Based Interventions and Best Practices for HIV Prevention | https://www.cdc.gov/hiv/research/interventionresearch/compendium/index.html
- Effective Interventions HIV Prevention that Works | https://effectiveinterventions.cdc.gov/
- Evidence-based Practices (EBP) Resource Center (SAMHSA) | https://www.samhsa.gov/ebp-resource-center
- Home Visiting Evidence of Effectiveness (HomVEE) | https://homvee.acf.hhs.gov/
- OJJDP Model Programs Guide | https://www.ojjdp.gov/mpg
- Pathways to Work | https://pathwaystowork.acf.hhs.gov/
- Youth.gov | https://youth.gov/

Non-Federal Registers

- Centre for Reviews and Dissemination (York University) | https://www.york.ac.uk/crd/
- Child Trends/What Works | http://www.childtrends.org/what-works/
- Clearinghouse for Military Family Readiness | https://militaryfamilies.psu.edu/
- Cochrane Database of Systematic Reviews | http://www.cochrane.org/
- Collaborative for Academic, Social and Emotional Learning (CASEL) Program Guides | https://www.casel.org/guide/
- Connecticut Clearinghouse | https://www.ctclearinghouse.org/
- Effective Child Therapy: Evidence-based Mental Health Treatment for Children and Adolescents | https://effectivechildtherapy.org/
- Evidence-Based Practices for Substance Use Disorders | http://adai.uw.edu/ebp/
- PracticeWise | https://www.practicewise.com/
- Resource Center for Adolescent Pregnancy Prevention (ReCAPP) | http://recapp.etr.org/recapp/
- Suicide Prevention Resource Center (SPRC) | https://www.sprc.org/
- The Campbell Collaboration | https://www.campbellcollaboration.org/
- Society of Clinical Psychology | https://www.div12.org/treatments/
- What Works in Reentry Clearinghouse | https://whatworks.csgjusticecenter.org/