What can I do to avoid getting computer viruses?

Give your power cord a spinal adjustment once a week to prevent disease.

I was skeptical until he said there's anecdotal evidence that it works!
Performance Management Academy

Day 2:
The Basics of Evidence
Today’s Agenda

Agenda Items

Theory of Change

Where to Find Strong Evidence

Evaluating Evidence
Today’s Speakers

Rachel Stallings
State Budget Management Analyst
Office of State Budget & Management

Erin Dickmeyer
State Budget Management Analyst
Office of State Budget & Management
What is Evidence?

What resources would you like a physician to draw upon in deciding how to treat you?

• Professional judgement and past experience
• Results from a high-quality clinical trial
• What they have heard from colleagues
• Cultural considerations
• Critical review of all available literature

This content was developed in consultation with the Pew Charitable Trusts' Results First initiative.
Theory of Change
A theory of change is a comprehensive description of how and why desired change is expected to happen in a particular context.

Simply put, it is a road-map for your program.

- **Needs**: The needs of the population an intervention is designed to serve.
- **Inputs**: What activities and/or inputs are done as part of the intervention.
- **Outputs**: Tangible products or services produced as result of intervention.
- **Intermediate Outcomes**: Changes in behavior, belief, or knowledge, that result from the delivered intervention.
- **Impact**: The desired change or outcome(s).

Underlying Assumptions

This content was developed in consultation with J-PAL North America.
• Answers the question: How do I expect results to be achieved?

• **If** [inputs] and [activities] **produce** [outputs], this should lead to [outcomes] which will ultimately **contribute to** [goal].

• Maps the expected causal pathway between the Inputs with desired outcomes, assumptions, and implementation risks.
This content was developed in consultation with J-PAL North America.
## Components/Stages of Evaluation

<table>
<thead>
<tr>
<th>Component</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs Assessment</td>
<td>What is the problem?</td>
</tr>
<tr>
<td>Program Theory Assessment</td>
<td>How, in theory, does the intervention or program fix the problem?</td>
</tr>
<tr>
<td>Process Evaluation</td>
<td>Does the program work as planned?</td>
</tr>
<tr>
<td>Impact Evaluation</td>
<td>Were its goals achieved? The magnitude?</td>
</tr>
<tr>
<td>Cost Effectiveness</td>
<td>Given the magnitude and cost, how does it compare to alternatives?</td>
</tr>
</tbody>
</table>

Build a Theory of Change

This content was developed in consultation with J-PAL North America.
# How can Theory of Change be Used?

<table>
<thead>
<tr>
<th>Step/Component</th>
<th>Theory of Change Use/Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Goals</td>
<td>• Help establish consensus around well-defined goal</td>
</tr>
</tbody>
</table>
| Planning/Design                        | • Helps build a conceptually tight, detailed explanation for what changes need to occur and their relationship to each other.  
• Allows for appropriate measures to be developed. |
| Action Planning                        | • Use identified interventions and expected amount of change to help guide the decisions about what specific actions are needed to obtain the expected results |
| Implementation                         | • Provides a framework for checking that the initiative stays on track.  
• Serves as a basis for adjusting expectations as you learn from your experiences.                                                                 |
| Evaluation – Planning, Methodology and Execution | • Blueprint for evaluation that identifies indicators of success and details of what is expected to change and by how much.  
• Serves as framework by which to evaluate the performance and outcomes of your initiative or program. |
| Communication                          | • Provides clear, concise narrative to communicate results to wider audience, policymakers, stakeholders  
• Can be specific about what made initiative succeed, how much change is expected, and the conditions/actions needed for applying to future programs. |
Theory of Change Components

- **Needs**: The needs of the population an intervention is designed to serve
- **Inputs**: What activities, resources and/or inputs are done as part of the intervention
- **Outputs**: Tangible products or services produced as result of intervention
- **Intermediate Outcomes**: Changes in behavior, belief, or knowledge, that result from the delivered intervention
- **Goal**: The desired change or outcome(s)

**Underlying Assumptions**

This content was developed in consultation with J-PAL North America.
If a school implements a free textbook program with the aim of improving learning outcomes, the number of textbooks successfully delivered is ...

A) Input
B) Output
C) Intermediate Outcome
D) Goal
Building a Theory of Change
Six Steps to Building a Theory of Change

1. Needs Assessment/Situation Analysis
2. Clarify program goal
3. Design the intervention/program
4. Map the causal pathway
5. Clarify assumptions
6. Design indicators

This content was developed in consultation with J-PAL North America.
**Example: Summer Melt**

**Summer melt:** The phenomenon that students who have been accepted and intend to go to college do not enroll in the fall.

---

*This content was developed in consultation with J-PAL North America.*
Step 1: Needs Assessment/Situation Analysis

Mapping needs, opportunities, risks & broader context

• What to do:
  • Identify target population (beneficiaries)
  • Needs, opportunities, barriers to progress
  • Map relevant stakeholders
  • Analyze broader political and economic context

• Purpose:
  • Begin to design the right product and identify the markers for success

This content was developed in consultation with J-PAL North America.
Step 1: Needs Assessment/Situation Analysis

Summer Melt

- Background statistics:
  - Up to 20% of recent high school graduates that are accepted to college fail to matriculate

- Identified Problem:
  - Students are enrolled in college, but do not show up on campus in the fall

- Underlying Issues:
  - Barriers to matriculation – delays in financial aid due to income verification, costs of traveling to campus, additional fees on tuition bill.

- Begin Identifying Possible Solutions:

This content was developed in consultation with J-PAL North America.
Step 2: Setting Program Goals

Increased enrollment rates

- **Needs**: The needs of the population an intervention is designed to serve
- **Inputs**: What activities, resources and/or inputs are done as part of the intervention
- **Outputs**: Tangible products or services produced as result of intervention
- **Intermediate Outcomes**: Changes in behavior, belief, or knowledge, that result from the delivered intervention
- **Goal**: The desired change outcome(s)

Underlying Assumptions

This content was developed in consultation with J-PAL North America.
Step 3: Design the intervention/program

- **Needs**: The needs of the population an intervention is designed to serve.
- **Inputs**: What activities, resources and/or inputs are done as part of the intervention.
- **Outputs**: Tangible products or services produced as result of intervention.
- **Intermediate Outcomes**: Changes in behavior, belief, or knowledge, that result from the delivered intervention.
- **Goal**: The desired change outcome(s).

**Underlying Assumptions**
Step 3: Design the intervention/program

**Intervention**: Ten timely and actionable text messages to students and families to encourage students to complete specific required tasks for enrollment.

Automated text message reminders were designed to:
- Provide campus-specific info
- Arrive near deadlines
- Invite recipients to request follow-up assistance

This content was developed in consultation with J-PAL North America.
Step 4: Map the causal pathway

• Step-by-step laying out of the theory connection your intervention/program to the goal

• Series of if.../then... states forming your results chain
Needs
Students accepted and intend to go to college.
Yet they do not matriculate in the fall.

Inputs
Timely, salient text messages.
Guidance counselors

Outputs
10 texts are delivered on time.
If reply, guidance counselor supports.

Intermediate Outcomes
Students complete enrollment tasks on time.

Goal
Enrollment rates increase!


Underlying Assumptions
This content was developed in consultation with J-PAL North America.
Step 5: Clarify Assumptions

• At each stage of a theory of change, we are making logical assumptions for why a program works

• Assumptions are preconditions that underpin each step

• Next: identify assumptions at each step of a theory of change

This content was developed in consultation with J-PAL North America.
The problem we are working to solve is one that actually exists, and our understanding of its causes is accurate.

The inputs we provide are enough to successfully implement our intervention.

The intervention is successfully implemented as planned and produces the expected outputs.

The intervention outputs prompt the expected change in behavior, belief, or knowledge.

The change in behavior, belief, or knowledge creates the desired impact.

This content was developed in consultation with J-PAL North America.
Underlying Assumptions for Summer Melt

**Needs**
- Students lack advising support in the summer before college.
- Students do not complete all tasks required for matriculation.

**Inputs**
- Ten text messages is a sufficient reminder to complete all necessary matriculation steps.
- Guidance counselors can provide appropriate assistance.

**Outputs**
- The correct number of text messages are delivered at the correct times.
- Counselors are responsive.

**Intermediate Outcomes**
- Delivery of text messages means students are reminded to fill out forms and have access to assistance.

**Goal**
- Filling out forms/obtaining assistance means enrollment happens.

This content was developed in consultation with J-PAL North America.
**Definition:** A way to measure and monitor a given milestone or outcome, and help us determine if our assumptions are correct

*Example: Using student test scores to understand student learning*

- Also sometimes used interchangeably with measure or metric
- Can design indicators for each component (goal, outcome, output, input)
Best Practices for Indicators

• Quantitative and qualitative
• Standard of comparison (i.e. baseline v. endline, defining “high-quality,” etc.)

• SMART
  • Specific: Ask (answer) one question at a time
  • Measurable: Quantifiable, accurate, unbiased, sensitive
  • Achievable: Is the indicator realistic?
  • Relevant: Is this the most relevant program indicator given the needs
  • Time-bound: Measured over a defined period of time

This content was developed in consultation with J-PAL North America.
Guiding Questions when Choosing Indicators

**Needs**

The needs of the population an intervention is designed to serve

**Inputs**

What activities and/or inputs are done as part of the intervention

**Outputs**

Tangible products or services produced as result of intervention

**Intermediate Outcomes**

Changes in behavior, belief, or knowledge, that result from the delivered intervention

**Goal**

The desired change outcome(s)

---

**Theory of Change**

The problem we are working to solve is one that actually exists, and our understanding of its causes is accurate

**Underlying Assumptions**

The inputs we provide are enough to successfully implement our intervention

The intervention is successfully implemented as planned and produces the expected outputs

The intervention outputs prompt the expected change in behavior, belief, or knowledge

The change in behavior, belief, or knowledge creates the desired impact

**Indicators**

What are outcomes at baseline, and why?

What inputs are provided?

How is the intervention delivered to recipients?

How do recipients change behavior?

What are long-term outcomes?
Indicators for Summer Melt

Needs
- % of accepted students who matriculate.
- % of forms completed by accepted students.

Inputs
- Text message system is set up.
- Phone numbers of students are identified.
- # of hours of dedicated counseling made available.

Outputs
- # of text messages sent.
- Records of times text messages were sent.
- # of counseling hours spent on hours text requests.

Intermediate Outcomes
- % of expected forms filled out at each deadline.

Goal
- % of accepted students who matriculate.
- % of forms completed by accepted students.

This content was developed in consultation with J-PAL North America.
Why is Theory of Change Important?

• Lays out a clear conceptual framework for program design, evaluation and communicating results

• Encourages results-oriented implementation
Solves the “Black Box” Problem

**Identified Problem:** Students who enroll in college don’t always show up in the fall

↓

**Intervention**

↓

**Black Box**

↓

**No change in student enrollment despite intervention**

**Needs Assessment**

**Intervention design & inputs**

**Final Outcome**

This content was developed in consultation with J-PAL North America.
Can Identify Theory Failure vs. Implementation Failure

**Successful intervention**

- Inputs → Outputs → Intermediate Outcomes → Goal Achieved Impact!

**Implementation failure**

- Inputs → Outputs → Intermediate Outcomes → Goal
- Outputs → Intermediate Outcomes → Goal

**Theory failure**

- Inputs → Outputs → Intermediate Outcomes → Goal
- Outputs → Intermediate Outcomes → Goal

This content was developed in consultation with J-PAL North America.
Results

• Text messages increased enrollment in two-year colleges by 15%.

• Did not have a significant impact on enrollment in four-year colleges

• The intervention was most beneficial for students who did not receive college application assistance from teachers, parents, or other sources.
Summary

• Theory of Change lays out explicitly how an intervention or program is expected to achieve impact
• Consist of the causal chain, underlying assumptions and indicators.
• Many uses – from program design, evaluation design, to enhancing communication

This content was developed in consultation with J-PAL North America.
QUESTIONS?
Take a Break

It’s Time For A Break

This Photo by Unknown Author is licensed under CC BY
What Types of Evidence are Available?
Recap – Theory of Change Causal Hypothesis

• Answers the question: How do I expect results to be achieved?

• **If** [inputs] and [activities] **produce** [outputs], this should lead to [outcomes] which will ultimately **contribute to** [goal].

• Maps the expected causal pathway between the Inputs with desired outcomes, assumptions, and implementation risks.

This content was developed in consultation with J-PAL North America.
How Do We Assess Evidence?

Bottom Line Questions:

• Does it work? Is the program proven to improve outcomes?
• How confident can we be in what the evidence says?

Image source: https://marksmanhealthcare.com/category/social-media/
Identify Evidence of Program Effectiveness

Bottom Line Questions:
Does it work? Is the program proven to improve outcomes?

• Rigorously designed research studies attempt to identify the change in outcomes that is attributable to the program

• Research evidence may show that the effect of the program is positive, mixed/neutral, or negative
Evaluating the Strength of Evidence

Bottom Line Questions: How confident can we be?
## Terms

**Treatment:** The group that receives the intervention

**Control/Comparison:** A group that is as similar as possible to the treatment group but is not intended to receive the intervention. Also called the control group or counterfactual.

<table>
<thead>
<tr>
<th>Quasi-Experimental Studies</th>
<th>Randomized Control Trials</th>
<th>Systematic Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Treatment and comparison are not randomly assigned</td>
<td>• Treatment and comparison are randomly assigned</td>
<td>• Research on available research</td>
</tr>
<tr>
<td>• Utilization of statistical methods decrease differences and account for bias</td>
<td>• Both groups have identical characteristics, reducing bias</td>
<td>• Need high numbers of rigorous study in the area of interest</td>
</tr>
<tr>
<td></td>
<td>• Difficult to complete in the real world</td>
<td>• Qualitative summary</td>
</tr>
</tbody>
</table>

This content was developed in consultation with the Pew Charitable Trusts’ Results First initiative.
Evidence Doesn’t Always Prove Program Effectiveness

Evidence $\neq$ Effective

This content was developed in consultation with the Pew Charitable Trusts’ Results First Initiative.
OSBM defined tiered levels of evidence that consider the program’s demonstrated effect on targeted outcomes and the strength of the evidence to support those conclusions.

**Uses**

- Report the research findings for existing or proposed programs in a policy area.
- Determine what proportion of expenditures devoted to proven programs.
- Evaluate and inform certain budget proposals.
- Identify priorities for future evaluation.
“The Drug Abuse Resistance Education (D.A.R.E.) program is the most comprehensive drug prevention curricula in the world.” – DARE Website

D.A.R.E.’s original curriculum was not shaped by prevention specialists but by police officers and teachers in Los Angeles. Fueled by word of mouth, the program quickly spread to 75 percent of U.S. schools. – Scientific American
Evidence-Based Justice: DARE proves ineffective

The Sentinel

“The program receives over $200 million in annual funding, despite little or no research evidence that D.A.R.E. has been successful in reducing adolescent drug or alcohol use.” – Rosenbaum, The Center for Evidence Based Crime Policy

“DARE’s limited influence on adolescent drug use behavior contrasts with the program’s popularity and prevalence” – Research Triangle Institute, 1994
Using Evidence to Improve D.A.R.E (2008-Present)

What did D.A.R.E do to incorporate evidence?
• Identified & evaluated 9 potential programs
• Outsourced curriculum development to research scientists for elementary
• Modified training style to evidence based interactive learning

Did it work?
Students who completed keepin’ it REAL indicated that they were less likely to try drugs and alcohol compared to the control group and utilized a variety of tools to stay sober. Students antidrug attitudes were also more likely to stick over time following the completion of the curriculum. – Hecht et al.
QUESTIONS?
Tools for Finding Evidence
Approaches to Finding Evidence

- Issue Investigation
- Program Evaluations or Implementation Design Experiments
- Cost-Benefit Analysis
- Performance Monitoring
- Strategic Planning
- Data and Analytics
- Process Improvement
Policy Questions of the Day

Examples:

• How do we reduce the infant mortality rate in NC?
  - Early Childhood Action Plan / DHHS Strategic Plan

• How can we better promote diversity and cultural inclusion in departmental programs, recruitment, administration, and community engagement?
  - DNCR Strategic Plan

• How effective are our current programs for preventing wildfires?
  - NCDA&CS Strategic Plan

• Should we invest more money in program “x”?

• How can we improve customer wait time?
What is it?

Background research that expands or clarifies a problem or issue and summarizes what others have done or learned about the problem or issue. Other methods include systematic reviews and evidence/gap maps.

<table>
<thead>
<tr>
<th>Appropriate Uses</th>
<th>Issues to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deepening understanding of the issue or problem.</td>
<td>Need to distinguish solid evidence of program effectiveness from self-serving or poorly-supported claims of effectiveness.</td>
</tr>
<tr>
<td>Developing options for addressing the problem by learning from what others have done.</td>
<td>Need to identify research that applies to the relevant program context (i.e. findings about effective distance learning programs won’t work well in areas where broadband is lacking)</td>
</tr>
<tr>
<td>Gathering evidence about programs that are effective (and those that are not).</td>
<td>Research on the topic may not exist.</td>
</tr>
<tr>
<td>Can also help identify sources of advice and assistance.</td>
<td>Could overlook “gray literature.”</td>
</tr>
</tbody>
</table>
**What is it?**

Comparison of program or activity goals, design, and outcomes, often to states either thought of as to be the best or to states with similar characteristics (such as neighboring states). The review may include looking at practices that are widely accepted as promising or best-in-class due to their superior results.

<table>
<thead>
<tr>
<th>Appropriate Uses</th>
<th>Issues to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding alternate methods of service delivery and program design.</td>
<td>Important to evaluate the evidence base for “best” or “promising practices,” which may gain prominence and become discredited later.</td>
</tr>
<tr>
<td>Understanding the context and where you sit relative to those in your comparative analysis.</td>
<td>Good practices often depend on the situation and context.</td>
</tr>
<tr>
<td>Developing performance targets.</td>
<td>Requires careful review of research and policy literature and appropriate selection of comparison jurisdictions.</td>
</tr>
<tr>
<td>Generating policy, program, and budget options.</td>
<td>Important to think about the criteria you use to select your comparison group.</td>
</tr>
</tbody>
</table>
## What is it?

A clearinghouse is a “one-stop” resource to find information on the effectiveness of interventions/services. Clearinghouses conduct literature reviews and rate the interventions in a range of policy issues. An example of one is the U.S. Department of Education’s What Works Clearinghouse.

<table>
<thead>
<tr>
<th>Appropriate Uses</th>
<th>Issues to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning about the effectiveness of currently funded programs.</td>
<td>Clearinghouses do not exist for all policy areas.</td>
</tr>
<tr>
<td>Understanding the level of research and/or gaps in research in a given area.</td>
<td>Research may be limited within a clearinghouse or may exist outside of the clearinghouse.</td>
</tr>
<tr>
<td>Generating policy, program, and budget options for new or existing programs.</td>
<td>Each clearinghouse operates independently and uses somewhat different terminology when reporting results.</td>
</tr>
<tr>
<td>Identifying where to prioritize funding for future research.</td>
<td>While the clearinghouses follow similar approaches, each clearinghouse may have slightly different criteria and procedures for rating their programs.</td>
</tr>
</tbody>
</table>
# Using the Clearinghouse to Inform Policy

## Program Information - Agency to Complete (Required)

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Program Description</th>
<th>Average Duration of Program</th>
<th>Frequency/Intensity of Program</th>
<th>Delivery Setting</th>
<th>Target Population</th>
<th>Oversight Agency/Department (e.g., Division of Mental Health)</th>
<th>Service Provider(s)</th>
<th>Provider Credentials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Evidence Matching - OSBM to Complete

<table>
<thead>
<tr>
<th>Clearinghouse</th>
<th>Clearinghouse Program Name</th>
<th>Link to Program Page</th>
<th>Rating</th>
<th>In RF Model (Y/N)</th>
<th>Program Matched to in RF Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This content was developed in consultation with the Pew Charitable Trusts' Results First initiative.
Clearinghouse Policy Areas

- Aging & Disability
- Behavioral Health & Healthcare
- Criminal & Juvenile Justice
- Economy
- Environment
- Transportation
- Education

This content was developed in consultation with the Pew Charitable Trusts' Results First initiative.
Activity: Understanding Clearinghouses

An interactive from The Pew Charitable Trusts

Results First Clearinghouse Database

DARE

Results: 1 program found
Clear results
Categories
- Crime & delinquency
- Child & family well-being
- Education
- Employment & job training
- Mental health
- Public health
- Sexual behavior & teen pregnancy
- Substance use
Settings
- Community
- Correctional facility
- Court
- Home

Overview | Clearinghouses | Rating Colors & Systems | FAQ


Clearinghouse: CrimeSolutions.gov

Clearinghouse rating: No Effects

Outcomes:
- Drug Use
- Attitudes Toward Drug Use
- Attitudes Toward Drug Use/Refusal Skills

Settings:
- School

Ages:
- 11 - 18

Target populations:
- Not specified

The primary goal of Drug Abuse Resistance Education (DARE) was to teach effective peer resistance and refusal skills so that adolescents can say "no" to drugs and their friends who may want them to use drugs. The secondary goals of the program were to build students' social skills and enhance their self-esteem, as these are believed to be linked to adolescent drug use.

Read less

This content was developed in consultation with the Pew Charitable Trusts' Results First initiative.
Take a Break
Evaluating Evidence
Today’s Speakers

Spencer Crawford
Senior Policy Associate
J-PAL North America

Jessica Sashihara
State Research and Training Associate
J-PAL North America

Toby Chaiken
Senior Policy and Training Manager
J-PAL North America
Quick Recap & Action Planning

Recap:

• Theory of Change – Roadmap for your program
• Assessing evidence means answering these questions: Does it work? Is the program proven to improve outcomes? How confident can we be in what the evidence says?
• Many tools to assess what evidence applies to your program, including literature reviews, comparative analysis and clearinghouses.
• Generalizability framework help you think how evidence-based programs can fit in your context.

Homework: Activity in Worksheet

Action Planning: Brainstorm ideas of how you can apply evidence or any of the tools covered today. Then, add these ideas to your “Brainstormed Ideas” section in action planning. Refer to the “Uses” section of the tool slides if you need help thinking!
<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
<th>Key Topics Addressed</th>
</tr>
</thead>
</table>
| Performance Management & Assessing Your Agency’s Performance Management Landscape | Oct 15 | • Academy introduction/overview  
• Defining performance management, how its implemented, and its benefits  
• Assessing your agency’s performance management landscape and overcoming barriers |
| Evidence, How to Evaluate It & Bridging the Gap between Evidence and Policy | Oct 22 & 29 | • Theory of change, Identifying types of evidence and how/where to find strong evidence  
• Bridging the gap between evidence and policy |
| Using Strategic Planning for Performance Measurement  | Nov 5  | • Understanding the links between strategic planning, performance management, and customer satisfaction |
| Becoming a Performance Management Champion           | Nov 12 | • Best practices and examples in implementing change  
• Action planning  
• Success stories from NC state government |
References