



EVIDENCE TOOLKIT

Low-Cost Randomized Controlled Trials

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What you need to know about low-cost randomized controlled trials

- Well-conducted randomized controlled trials (RCTs) are generally the most accurate way to estimate the effectiveness of a program or intervention, but they can be expensive. Low-cost RCTs greatly reduce costs by using existing data and embedding evaluations into existing programs.
- Low-cost RCTs make this type of study affordable for government agencies looking to test new approaches to policy or practice, learn what works, and increase their return on investment.
- Low-cost RCTs can complement traditional RCTs by first identifying effective programs that are then studied using more expensive RCTs.

What are low-cost randomized controlled trials?

Studies that use a randomized controlled trial (RCT) design randomly assign individuals to a program group or control group. Well-conducted RCTs are generally the most accurate way to estimate the effectiveness of a program or intervention.¹ But traditional RCTs can be expensive, with large studies potentially costing millions of dollars. Low-cost RCTs significantly reduce costs by using one or both of two strategies:

- Using existing data, reducing the need for expensive data collection efforts.
- Embedding evaluations into existing programs, reducing the need to spend more money on the intervention program.

How do low-cost RCTs promote evidence?

Low-cost RCTs enable wider use of rigorous evaluations. Other evaluation methods, such as pre/post and quasi-experimental evaluations, are often less expensive than traditional RCTs but tend to produce less reliable findings. Lowering the cost of conducting RCTs allows researchers to rely less on these other evaluation designs. Moreover, low-cost RCTs can be a useful complement to traditional RCTs. These factors make low-cost RCTs an important tool for addressing the nation's social policy challenges.

¹ See, for example, Mary Ellen O'Connell, Thomas Boat, and Kenneth E. Warner, eds., *Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities* (Washington, DC: National Academies Press, 2009), 371.

Using existing data

Although RCTs are often perceived as expensive, the process of randomization actually has almost no cost as it is essentially flipping a coin. Instead, the high costs of some traditional RCTs come from the survey data collection used to track the outcomes of individuals in the program and control groups.² Using a job training program as an example, researchers conducting a traditional RCT would need to collect data from participants in the training program and in the control group at multiple points throughout the evaluation. This would require tracking down these individuals and collecting survey data such as their employment status. This type of survey data collection is often costly.

Low-cost RCTs can reduce these costs—potentially to near zero—by using the data already being collected by programs, jurisdictions, or existing surveys. In the example above, researchers might access employment data from an existing data set, such as state Unemployment Insurance records, rather than collect survey data from participants. Removing the need for evaluation-specific surveys would significantly lower the costs of the RCT.

An example of this strategy in action comes from New York City. Education leaders wanted to test whether offering bonuses to schools, which would distributed them to teachers, would improve student test scores.³ The city randomly assigned almost 400 schools to the program or control group and used student test scores already being collected to determine the effect of the bonuses. The decision to use existing data enabled the city to conduct the RCT for only about \$50,000.⁴ The research showed that bonuses did not improve student achievement, and city officials chose to allocate funds to more effective programs. The low-cost RCT allowed the city to affordably determine if the policy would be effective before implementing it across the board.

Low-cost RCTs can make use of “administrative data,” data produced by programs or systems (such as a school system) that can be repurposed as outcome measures—assuming the data are sufficiently complete and accurate. Some of the many sources of administrative data include

- **employment and income data** that can be used to evaluate welfare and employment programs;
- **crime and arrest records** from local, state, or federal corrections data systems that can be used to evaluate corrections programs; and
- **child neglect and abuse data** from local and state records maintained by social services agencies that can be used to evaluate child protection services.⁵

When RCTs are able to link to data sets with large sample sizes or even universal coverage of certain groups, such as Social Security Administration data, Internal Revenue Service data, or the National Directory of New Hires dataset operated by the US Department of Health and Human Services, they

² Those costs exist for any study that requires survey data collection and are not unique to RCTs.

³ For more information, see Coalition for Evidence-Based Policy, “[K-12 Education Example: New York City Teacher Incentive Program](#)” (Washington, DC: Coalition for Evidence-Based Policy, 2014).

⁴ This was the cost of conducting the study and does not include the cost of the intervention itself.

⁵ Administrative data can also be used to define subgroups for subgroup analyses and to define covariates to increase the precision of data analyses about outcomes.

can save money and increase the accuracy of their evaluations, as these data are often more complete than the data researchers could collect on their own.⁶

Embedding evaluation into existing programs

Another reason RCTs are sometimes perceived as expensive is that people conflate the evaluation cost with the broader cost of running the program being tested. A demonstration program is a stand-alone, time-limited test of a certain approach. When a demonstration program uses an RCT, the total costs will include the cost of the evaluation as well as the cost of running the program. An example is the New Hope Project in Milwaukee, a three-year demonstration program that tested strategies to boost employment and reduce poverty in the city. Program leaders needed to obtain funds for both the evaluation and for costs such as staff salaries and program benefits.

Demonstrations like the New Hope Project can be valuable because they provide rigorous tests of new and innovative approaches. But people too often associate RCTs only with demonstration programs. In doing so, they overlook the important opportunity to embed RCTs into *existing* programs. This approach involves research costs but little or no additional program expenses because the programs are already operating with or without the RCT. The New York City study discussed above did require some additional funds to pay for the school bonuses, but many of the costs, notably teachers' salaries, were already funded as part of normal school operations.⁷ The study actually used both strategies highlighted here—using existing data and embedding the evaluation into existing programs—to lower costs.

More broadly, federal, state, and local public-sector organizations, including schools and human services agencies, are constantly implementing new programs or curricula. By incorporating an RCT into the implementation of these new approaches, the costs of the program are absorbed by the organization, and additional funding is needed only for the evaluation. Much can be learned by embedding evaluations into both new and existing programs, whether they are focused on K–12 education, teen pregnancy prevention, youth development, preschool, child protection, or other social issues.

Potential limitations

Low-cost RCTs that use existing data are constrained by data availability. In some cases, such as the examples above, policymakers may have enough administrative data to answer important policy questions. But a lack of outcome data in administrative data sets may make low-cost RCTs less useful or infeasible. Although traditional RCTs can be relatively expensive, they allow researchers to tailor data collection efforts so they can obtain the data they need.

⁶ David Card, Raj Chetty, Martin Feldstein, and Emmanuel Saez, “[Expanding Access to Administrative Data for Research in the United States](#)” (working paper, n.d.).

⁷ The costs of the bonuses were not directly related to the RCT but rather to the intervention and would have been incurred regardless of the evaluation method.

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A low-cost RCT in Illinois tested the use of “recovery coaches” for substance-abusing parents who had lost custody of their children to the state. The program provided case management services to parents and aimed to engage them in treatment. The program was evaluated using a well-conducted RCT with a sample of 60 child welfare agencies working with more than 2,700 parents. The study found that over a five-year period, the program produced a 14 percent increase in family reunification, a 15 percent increase in foster care case closures, and net savings to the state of \$2,400 per parent. The RCT cost only \$100,000 to conduct because it tracked outcomes using state administrative data.

Evaluators in South Carolina used a low-cost RCT of the Positive Planning Program to inform early childhood development efforts. The Positive Planning Program provides parenting interventions for families with children ages 8 and under that focus on strengthening parenting skills and preventing child maltreatment. A well-conducted RCT evaluated the program in a sample of 18 South Carolina counties and found that it reduced rates of child maltreatment, hospital visits for maltreatment injuries, and foster care placements by 25–35 percent over two years. The RCT also used existing state data, such as child maltreatment records, to reduce costs to only about \$300,000.

As an example, many teen pregnancy reduction initiatives aim to improve “intermediate outcomes,” such as age at first sexual contact, number of partners, use of birth control, and others. Data on these outcomes are collected only when researchers interview young men and women and ask specifically about each behavior. Agency data sets are unlikely to have these types of data.

Another example is the evaluation of Career Academies, one of the most established high school reforms in the United States. Short-term evaluation findings using existing data from school records, the same data that a typical low-cost RCT might use, showed the program had no effect on student outcomes. But longer-term follow-up based on survey data collected by researchers showed the program had positive effects on labor market outcomes and marriage rates.⁸ The study would have missed those positive findings had it relied only on existing data.

One type of RCT is not inherently better than the other, and both should be in every public leader’s analytical toolkit. The usefulness of each approach depends on the questions decisionmakers want answered, the availability of administrative data, and the funding available for evaluation. In some cases, low-cost RCTs can complement a traditional evaluation. Because their low cost allows many approaches to be tested, low-cost RCTs can identify effective interventions more quickly. Traditional RCTs can then generate additional evidence about whether and how to scale up those interventions and under what conditions so that they are most effective.⁹

⁸ See James J. Kemple and Jason C. Snipes, *Career Academies: Impacts on Students’ Engagement and Performance in High School* (New York: Manpower Demonstration Research Corporation, 2000).

⁹ See Laura and John Arnold Foundation, “[Request for Proposals: Low-Cost Randomized Controlled Trials to Drive Effective Social Spending](#)” (Houston: Laura and John Arnold Foundation, 2015).

Getting started using low-cost RCTs

Where should public leaders—agency heads, program managers, and others—who want to explore the use of low-cost RCTs begin? A useful first step is to consult evaluation experts within your organization. Some agencies have evaluation staff with experience designing and running traditional and low-cost RCTs. If internal expertise does not exist, agencies may find research partners at nearby research universities that have experience running low-cost RCTs and are willing to help design and conduct randomized experiments addressing the policy or programmatic questions most relevant to the agency. Researcher-practitioner partnerships can be a valuable way for public agencies to leverage external research and data experts.

Newly developed, free software can help agencies analyze their data after conducting a low-cost RCT. “RCT-YES,” developed with funding from the Institute of Education Sciences at the US Department of Education, helps users in all policy areas analyze data from experimental or quasi-experimental evaluations and present their findings.

Where can I learn more?

- The Coalition for Evidence-Based Policy’s report, [Rigorous Program Evaluations on a Budget: How Low-Cost Randomized Controlled Trials Are Possible in Many Areas of Social Policy](#).
- President of the Coalition for Evidence-Based Policy Jon Baron’s [testimony](#) before the House Committee on Ways and Means Subcommittee on Human Resources.
- An overview video on low-cost RCTs is available through Andy Feldman’s [Gov Innovator podcast](#).
- The [concept paper](#) for the Laura and John Arnold Foundation’s low-cost RCT competition provides examples of low-cost RCTs.
- Two White House blog posts on low-cost RCTs:
 - o [“How Low-cost Randomized Controlled Trials Can Drive Effective Social Spending”](#)
 - o [“Funding What Works: The Importance of Low-cost Randomized Controlled Trials”](#)



With support from the Laura and John Arnold Foundation, researchers from the Urban Institute, Brookings Institution, American Enterprise Institute, and The Pew-MacArthur Results First Initiative have formed the Evidence-Based Policymaking Collaborative. The Collaborative brings together researchers from organizations across the ideological spectrum to create tools to support evidence-based policymaking at the federal level. The Collaborative's work is assisted by an Advisory Group consisting of stakeholders throughout the evidence-based policymaking field. The opinions expressed in this brief do not necessarily reflect the views of all members of the Evidence-Based Policymaking Collaborative.