



False Choices, Policy Framing, and the Promise of “Big Data”

Paul Decker

Thank you, Angela.

I’m delighted to be here today and to have had the opportunity to serve APPAM as president for the past year. APPAM has been an important force for me throughout my career—I have learned a lot from participating in the association and I look forward to working with all of you in the future to keep it strong.

I want to congratulate president-elect Angela Evans, the Program Committee, and our executive director, Tara Sheehan, for a great conference.

Thanks for all your hard work and terrific results.

I have a pretty ambitious agenda for our time together today. Over the next 45 minutes, I’m going to share my perspective on:

- Why research and evidence aren’t realizing their full potential in the policy world,
- Our collective role in either perpetuating this trend or altering it, and
- The big trend in Big Data that we ignore at our own peril.

More specifically, my lecture will address the use of evidence in policymaking and public management—which are sometimes seen as separate. I view them as strongly connected from the perspective of APPAM, and see them as critical elements of the path forward for the association.

So let’s get started on my attempt to assess the present, generate controversy, predict the future, and describe a path forward for the association. I also hope to set the record for most pop culture references in an APPAM presidential address.

My talk, like most of our work, starts with data.

“In God we trust; all others bring data.”
– W.E. Deming, Statistician

This quote is one of my favorites and I believe speaks to a large part of what APPAM stands for. While judgment and other factors inevitably play a role in policy and program decisions, effective policymaking and public management should be driven

largely by evidence—the kind based on rigorous assessment of quantitative and qualitative data.

As APPAM president and a longtime member, this is the perspective that I have seen threaded throughout the APPAM discussions that I have witnessed or participated in over the past 25 years. And it's consistent with our mission to improve public policy and management by fostering excellence in research, analysis, and education.

“Not everything of value can be measured.”
– *Wall Street Journal*, May 17, 2013

The second quote I will admit is a bit of a straw man. At first blush, this statement seems obviously true. And admittedly, I could spend the next 45 minutes, and then some, supporting or disputing it. But the reason I've shared this with you is because too often when someone asserts, “not everything of value can be measured,” what they *mean* is that they prefer not to measure it.

Why? A critical reason—one not often admitted to openly—is the *fear* of how evidence may be used to drive decisions. This fear arises frequently in the area of program evaluation, which I know well.

Often the potential outcomes of an evaluation are framed as either (1) the program is found to be effective and funding is maintained or (2) the program is found to be ineffective and is defunded.

In this framing, to quote David Brooks in a 2012 *New York Times* op-ed column, “Politicians are not inclined to set up rigorous testing methods showing that their favorite ideas don't work.”

But rigid framing of the role of program evaluation poses a set of false choices that I believe ultimately undermines the use and creation of evidence.

Jim Manzi, in his book *Uncontrolled*, highlights this false choice with a business-based example.

A company tested out new window displays designed to attract more customers and increase sales, as conventional wisdom suggested they would. The company spent significant resources conducting randomized tests of design after design, and multiple tests over several years kept showing no causal effect of each new display on sales, overturning the conventional wisdom.

The senior marketing executives met with the CEO to review the findings and recommended, given the lack of significant impacts, that the company reduce costs and effort in window displays. They were looking at the issue like this slide.

But the CEO disagreed—he decided there were more dimensions to the issue and the choice was more nuanced. He decided the problem was with the *designers* who were

tested, and his solution was to increase effort in window display design, and to get new people to do it.

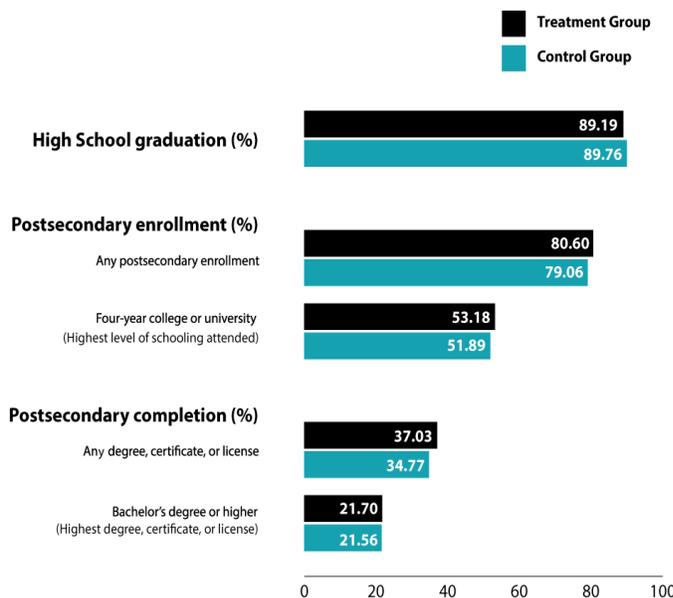
In this nuanced choice example, the same test result was used rationally to justify opposite actions.

We encounter similar situations in the policy world, but too often the discussion of research and policy is driven, either explicitly or implicitly, by an assumed stark choice between maintaining a program or defunding it. Too often, this framing of policy evaluation leads to trench warfare between advocates who automatically reject research that is not clearly program-affirming and program opponents who look at research findings as an opportunity to shrink government. Unfortunately, the end result is often a stalemate in which the program is maintained despite evidence that it fails to achieve its stated objectives, and in some cases barriers are even erected to prevent further research.

Daniel Patrick Moynihan addressed this phenomenon more than 40 years ago—to mostly deaf ears. He wrote that one can believe strongly in a policy—for example, early childhood education—and yet be dubious about the ability of a specific program meant to advance it.

A more recent example of Moynihan’s point came into play with the National Evaluation of the Upward Bound Program, sponsored by the U.S. Department of Education and conducted by Mathematica.

Upward Bound is one of the largest and longest-running federal pre-college programs for economically disadvantaged students. It’s an intensive program, in which during the academic year participants engage in activities on a weekly basis, and during the summer they attend a full-day academic program that generally lasts for about six weeks.



In 1991, the Department of Education initiated a national, random-assignment evaluation of Upward Bound to determine whether the program enables students to perform better in high school and subsequently to enter and complete college at higher rates than students who don’t attend the program.

The chart shows the treatment and control group means for the main outcomes that correspond to the *stated* objectives of the program. As shown in the slide, there were, at most, small estimated differences in any of the mean outcomes, and *none of them* was statistically significant. These findings imply that the program did not have detectable effects *on the main outcomes of interest*.

Not surprisingly, the lack of positive program impacts received the bulk of attention when these findings were released. But it's also worth considering just the control group means for these outcomes—shown in light blue which seem surprisingly high for a disadvantaged group targeted for an intervention to increase high school graduation, postsecondary enrollment, and postsecondary success. For example, the high school graduation rate of 90 percent for the control group was higher than that for the general population and well above the rates for most disadvantaged populations. These findings could have generated some useful discussion about changing how the program was targeted and the potential effects of such a change. As in the window display example, perhaps what was needed was a new set of program designers.

But the political debate focused mostly on the lack of positive impact estimates, and the Bush administration proposed to defund Upward Bound, raising the possibility that funds would be diverted away from the disadvantaged youth population.

So how do you think the youth advocacy community responded to the Upward Bound findings? They (1) attempted to cast doubt on the findings presented in the slide, and (2) worked to prohibit any further rigorous research on Upward Bound.

The first approach is not surprising and follows a familiar pattern.

In fact, Dylan Mathews recently provided a detailed guide of this pattern in the *Washington Post*. If you want to read it, visit *Wonkblog*. Dylan's basic message—and you can see this in the chart's flow—is that one can always find some basis for disputing a set of research findings.

The advocates didn't quite follow Dylan's chart in the case of Upward Bound, conducting what I consider to be a typical research misdemeanor ... to the extent that critics often willfully ignored how the evaluation was actually designed and conducted.

As the discussion of the Upward Bound findings continued, eventually the administration turned its attention away from eradicating the program and focused on assessing potential program reforms and further study of the options.

But that didn't satisfy the advocates.

Their continued efforts to cast doubt on the evaluation, and Upward Bound research in general, culminated in Congress canceling a subsequent evaluation of Upward Bound and prohibiting any future evaluations that use random assignment and deny services to a control group.

That's when the misdemeanor turned into a felony.

One advocate for the program asserted, “You can’t tell a kid, ‘You’re going to be in this life-changing program,’ and then say, ‘No, you’re only going to be in a control group.’” The irony of calling a program life-changing without any evidence to back up the claim was apparently lost on the speaker.

At the same time, advocates contended that “random assignment is the wrong way to study their efforts because program operators typically require students to undergo an elaborate application process as a way to show commitment and winnow out candidates unlikely to succeed.”

Well, maybe, but of course we can test that statement the same way we can test the assertion that a program is life-changing. I believe the fear is not so much about random assignment as it is about the truth.

The end result of these fear-driven responses tends to be anti-research and therefore anti-evidence, and works against the well-being of the population being served.

One way to minimize the trench warfare and these extreme outcomes is to frame the translation of research to policy differently. For example, an approach could be to maintain an ongoing commitment of resources to the population targeted by the original legislation, but continue to study the problem and search for programs that serve the population effectively.

This approach gets us out of the binary mode of maintain or defund. But it’s predicated on spending more time thinking about how we approach the problem, and less on narrowly targeting a solution.

I’m certainly not the first (or the smartest) person to propose this ...

Now, one might consider this type of re-framing and thought leadership to be in the political domain and outside the bailiwick of most APPAM members. But an example of this kind of framing for thinking about Upward Bound and related programs is provided in a recent policy brief, written by Cecilia Rouse and Ron Haskins, a regular participant at APPAM.

They propose a five-step reform that is based on maintaining a \$1 billion federal commitment to college preparation programs that would be consolidated into a single grant program. The proposal includes:

- Introducing the use of evidence into the distribution of awarding grants to program providers;
- Encouraging a variety of approaches so as to promote learning; and
- Committing funding to an ongoing program of research and demonstration to determine whether well-defined interventions or specific activities actually increase college enrollment and completion.

This is not a completely new idea—it is consistent with recent initiatives to reform Head Start and federally supported teen pregnancy prevention initiatives.

I'm not necessarily advocating the specific details of the proposal set forth by Haskins and Rouse, but I appreciate that they place their proposal in a framework of a *stable commitment of resources* to disadvantaged youth in an environment of ongoing program assessment and improvement. *Evidence is generated on a continual basis* and the programs evolve, but the findings *don't jeopardize the dollar commitment* to the population of interest. Proponents of serving disadvantaged youth, therefore, should be less inclined to characterize the proposal (or research in general) as a potential threat to the target population. On the contrary, the proposal would drive the system to *continually evolve programs in the best interests of the population*.

Another program for which rigorous evidence can inform a policy stance is Job Corps. Efforts to eliminate the Job Corps program are not new.

The September 21, 1967, edition of the *Ann Arbor News* predicted the elimination of the Job Corps program by an “economy minded Congress.” Fast forward to 2009—David Muhlhausen at the Heritage Foundation called for the elimination of Job Corps based on evidence from the recent National Job Corps Evaluation, arguing that the extra benefits of the program beyond other available services were too small to justify the high costs.

That's true—the evaluation clearly found that the measured benefits of Job Corps are less than the resources spent on it for all Job Corps participants.

So we have the *right* answer. But did we ask the *right* question?

Even though the costs of Job Corps exceeded the benefits, the benefits were substantial. The evaluation found that Job Corps provided assignees with the equivalent of an additional year of schooling and boosted earnings by 12 percent in the third and fourth years after random assignment, while also reducing criminal activity and the receipt of other public assistance.

This is not a trivial impact. In fact, Job Corps stands out as one of the few employment and training approaches (perhaps the only approach) that has been demonstrated to increase earnings among disadvantaged, out-of-school youth.

Given this *relative* success, one could argue that Job Corps represents a reasonable ongoing investment in the targeted population, as we search for even more effective ways to serve the population, either through innovating the Job Corps program or through testing and developing alternative programs that generate larger effects compared with costs.

Furthermore, the findings from the evaluation could be used to assess changes in Job Corps targeting or service provision that have the potential to generate a more favorable benefit-cost ratio for the program. For example, the Job Corps final report emphasizes that impacts were larger, and the program was even cost-effective—total benefits were

about twice the size of total costs—for participants ages 20 to 24 at the time of program application.

This information could be useful in developing alternative strategies for program targeting that could improve the return on the Job Corps investment. In the meantime, funding for assistance to disadvantaged youth through Job Corps would be protected, but only because the search for better programs would continue.

This is the type of analysis that can't be done by an overtaxed junior staffer on the Hill. It requires the expertise and time needed to “connect the dots” to translate research into sound policy recommendations.

I believe that this is the kind of thoughtful analysis tying research findings to real-world policy context that *can* and *should* be coming from APPAM members.

So before I move to the second part of my talk, I want to highlight some key takeaways for APPAM members working to influencing policy and practice:

1. Continue to support and generate rigorous evidence—more information must be good for policy, despite the perceived risks to continued program funding.
2. Help to move the focus beyond the simple binary choice of whether a program should be eliminated or maintained. Emphasize not just findings that relate to aggregate net impacts of a program, but also findings related to effective targeting, service mix, implementation, and so on. When possible, support studies that strengthen the ability to address these questions with rigor. People are starting to do this more often. A great example is the Individual Training Account experiment, sponsored by the Department of Labor, which randomly assigned employee training recipients to programs with different levels of intensity, but there are other examples as well.
3. Don't be shy about drawing implications and making policy recommendations from the evidence. We're able to connect dots that others can't see clearly.

As government agencies at all levels are addressing the challenge of managing increasingly scarce resources, they are more often looking for evidence to guide their decisions.

More generally, this trend is consistent with the rising importance of data, its increasing availability, and the expanded capacity to process data throughout society, all of which are increasing the demand for our type of expertise.

Across a broad spectrum of fields, we are experiencing a data revolution, and I don't use that term lightly. This revolution facilitates analysis of large-scale data sets, often drawn from administrative records or linked records from multiple sources, which fall under a general umbrella often referred to as “Big Data.”

It's no secret that what we do with data and the technology we use are co-dependent.

Advances in computer technology about 50 years ago stimulated the beginning of our industry by making sophisticated data computation and analysis possible. We've seen gigantic leaps and changes since then, with desktop computers in the 80s and the internet in the 90s as examples. I think Big Data, and our capacity to mine and analyze it, have the potential to be another game changer for our field. At a minimum, it's safe to say that the data revolution is what Harvard Business School professor Clayton Christensen would call a classic disruptive innovation.

Christensen defines a disruptive innovation as “Technologies, processes or business models that bring to market products or services that are more affordable and simpler to use than what is currently available. It enables more consumers in that market to afford and/or have the skill to use the product or service. The change caused by such an innovation is so big that it eventually replaces, or disrupts, the established approach to providing that product or service.”

So what's causing this disruptive innovation? Most recently, advances in computer processing and storage have been important, but so has the development of software to identify and highlight patterns in the data, including tools taken from the evolving world of artificial intelligence.

The harnessing of large amounts of data and their use to drive decision making comes under a variety of labels—not just Big Data, but also data analytics, predictive analytics, business intelligence, and so on. A recent cover from the *Harvard Business Review* highlights the trend. One of the products of this trend is exploding demand for what are called “data scientists,” a new-ish term for folks who wield the same sort of analytical skills as many of the people in this room. An accompanying headline, also from the *Harvard Business Review*, refers to data scientist as the sexiest job of the 21st century. I've been waiting a long time to see a headline like that.

The rising emphasis on data and analytics cuts across a variety of fields, making data scientists “cool”—think Nate Silver in politics, and Bill James, Bill Simmons, and the “moneyball” trend in sports. Closer to home, we are witnessing the application of data analytics to all sorts of decisions, including those in business and public management, in addition to an ongoing expansion of traditional research that can drive policy or program change.

The trend toward deploying data more actively in supporting public management—as opposed to policymaking—is worth noting. The perspective that a data scientist brings to data analytics to support program management can be very different than that brought to the typical policy research study.

As an example, the *Harvard Business Review* article cited in the slide describes the data scientist as operating in a changing environment where data never stop flowing, helping decision makers “shift from ad hoc analysis to an *ongoing conversation with data*.”

That's a fairly accurate description of how our perspective on the use of data to support management is changing at Mathematica, and it provides insight into where public

management in government agencies is headed as well. But the trend in the use of evidence to drive policymaking and public management is still in the infancy stage.

In their recent *Atlantic* article titled “Can Government Play Moneyball?” John Bridgeland and Peter Orzag calculate that “less than \$1 out of every \$100 of government spending is backed by even the most basic evidence that the money is being spent wisely.”

This will change. One indicator of that change is the recent memo from the Office of Management and Budget directing federal agencies to expand the use of evidence to support the President’s second-term priority to deliver a smarter, more innovative, and more accountable government.

While the effort to use data to drive public management is still emerging, it is doing so on a broad front—at all levels of government.

You could say we’re in the midst of a data tsunami in public management. The use of data to inform public management cuts across nearly all of our APPAM topic areas, including the use of health quality measures to identify more effective treatments and the use of student test scores to assess teacher performance.

One of the more visible examples of data-driven public management over the past few years is the growing use of crime statistics by municipal police departments. This past summer, the *New York Times* highlighted the use of crime data and algorithms by the Seattle Police Department, which is using these tools to predict “hot spots” of property crimes to better deploy scarce patrol resources—an approach referred to as “predictive policing.” A department sergeant commented that the approach “gives officers more direction instead of driving around like drone bees.”

Large companies such as IBM and Microsoft have developed predictive policing software packages to serve this market. But academic researchers are also players—Seattle uses a new software package, PredPol, which was developed by faculty at UCLA, Santa Clara, and UC-Irvine. Last year’s APPAM Kershaw Award winner, John MacDonald, has also contributed to police department efforts to rely more on data analytics, in his case co-developing a statistical method that helps police departments identify officers with a propensity toward racial profiling.

Now, the use of crime statistics in police departments also can have potential negative effects if not managed carefully.

Anyone who has watched season 3 of the television series *The Wire* has seen a vivid representation of this potential downside of using analytics.

In fact, David Simon, creator of *The Wire*, asserts that one of the key themes of the series is that “Statistics will always lie. Statistics can be made to say anything.” In his rendering, the police routinely “juke the numbers” to exaggerate progress in fighting crime or to enhance someone’s measured job performance. Further, once one of the

officers in the show quits the police department to become a school teacher, he encounters the same tendency to “juke the numbers” in the school system, in this case to make teachers or schools look better.

For those of you who may not be *Wire* fans, think of what Peter Rossi used to say, “If you torture data long enough, sooner or later they confess.”

While these are some stark examples, I’m sure it comes as no surprise to anyone in this room that data analytics can create undesirable incentives for managers.

Those of us who studied the use of outcome-based performance standards in the JTPA employment and training system in the 1980s and 1990s understand this all too well. At that time, various policy researchers, including some here with us today, tried to help the Department of Labor build a system of performance standards that encouraged better outcomes among participants without inducing program managers to serve only the most promising training candidates. Researchers were critical to the discussion because they understood clearly the difference between simple outcomes and net impacts, and the implications of the distinction for designing appropriate performance measures.

This example and others highlight a huge overlap between the Big Data and analytics trends in public management, and the mission of APPAM and the skills of our members.

I would assert that the nature of this data revolution—as the government moves toward a vision of improving policy and public management, the two elements at the foundation of our association, through greater reliance on data—makes this APPAM’s moment.

As the government increases its focus on data and analytics, the policy and management guidance provided by APPAM members has greater value than ever before.

But it’s worth noting that those outside of APPAM will not automatically recognize APPAM members as a critical part of this picture.

As just one example, consider the guidance provided by a certain vendor (who will remain nameless) in the federal data analytics market.

This vendor markets its analytics platform to federal agencies using a slide deck in which the key slide explicitly highlights that the platform provides ongoing data analysis without the need for a Ph.D.

According to this stance, somehow all of the methodological nuances associated with data analysis—the issues we struggle with every year at this conference—are overcome by the sophistication of the vendor’s software and data processing.

The result, according to the vendor, is a single platform that translates data and data exploration into critical decision support, without the need for deep research expertise.

This is flawed logic. The tools have and are changing, but the underlying principles behind research are not. Big Data and other analytics projects are more akin to scientific

research and clinical trials than to IT initiatives. These projects typically start with sensing problems or potential opportunities, which may initially just be somebody's hunch. They then often move on to developing theories about the existence of a particular outcome or effect, generating hypotheses, identifying relevant data, and conducting experiments. In short, they are opportunities for discovery.

To take advantage of the current opportunities to play a bigger role in influencing public management, we need to be wise and we need to be united—drawing on the strength of the diversity of our members.

Much of the use of data in the public sphere will focus on effective public management practices, addressing the same types of questions our members who are public management experts have grappled with for years. The expertise we bring to addressing issues in public management is irreplaceable, so to be most relevant in the evolving policy world it is essential to keep the public management side of APPAM engaged in the association. At the same time, the expertise possessed by those on the policy analysis and evaluation side is critical as well. Tricky research issues such as the distinction between causation and correlation, and the appropriate methods to identify causation, are not solved by the use of Big Data techniques. Our policy analysis and evaluation experts have struggled with these issues for decades, and their expertise is critical to steering the translation of data and research into appropriate practice.

A few years back, Doug Besharov, in his APPAM presidential address, lamented legitimately that too often the policy community tends to test only one program at a time, which can elongate the learning process from years to decades—as we test and fail, and test and fail again. He rightfully called for more testing of multiple ideas at once, increasing the likelihood of finding positive impacts more quickly.

The data revolution I have described has the potential to have a huge impact on the speed of learning as well, assuming we make sure that data are made available for both management support and research. Increased availability of data will support ongoing data analysis and more frequent research studies, thereby speeding up the learning process without necessitating re-organization of our approach to evaluation.

Call it the “democratization of data.” In the past, evaluation and primary data collection efforts acted as a gateway to addressing critical policy questions, but that’s no longer the case.

Instead, the proliferation of administrative data offers the potential to expand the opportunities for all researchers to bring their own analysis and perspectives to the table, as you can see in this data.gov screen shot, where any member of the public can access almost 100,000 publicly available data sets.

And I would be remiss if I didn’t mention the need to improve the quality of all this administrative data—another place where APPAM and its members can play a role.

I've spent much of this talk up at the 30,000-foot level sharing my vision of what's possible. Let's come back to earth for a minute.

Is the public policy glass half empty or half full?

The political gridlock in Washington combined with federal budget pressures can suggest that we no longer have the capability to improve policy and public management—resources are too scarce and ideology dominates.

Sobering? Yes, but far from disheartening. Two factors imply that data analysis will continue to play a critical role in the policy world.

First, the budget situation makes clear the need to prioritize government resources, and therefore places an even greater emphasis on effective policy analysis and management to drive resource allocation. Second, the greater availability of administrative data will continue to transform the management of public programs at all levels of government, even if federal policy remains relatively frozen for the foreseeable future due to political gridlock.

Recent and current presidential administrations have gradually amplified the focus on evidence in driving policy and public management, looking to create a culture whereby agencies identify and sustain effective programs or practices, fix or eliminate ineffective ones, and find lower-cost ways to achieve positive impacts. Federal agencies will continue these efforts regardless of actions taken by Congress.

So I definitely see this glass as half full.

As I wrap up this talk, I want to leave you with several points.

First, research and evidence are only going to become more important in a resource-constrained environment. As APPAM members looking to improve public policy and management, we must remain committed to the reliance on evidence, even when it points in directions that are inconsistent with our initial beliefs or our political views.

Which brings me to my second point: to be credible we need to be outside the fray.

Can government play moneyball? Government can and it must, in order to provide responsible stewardship of public resources, consistent with the basic data-based principles that are changing the face of all management, private as well as public.

My third point is: don't fear Big Data--embrace it! Remember, although some of the tools may be different, the fundamentals are the same and are familiar to us. The degree to which government is successful in using Big Data to drive effective public management will depend critically on the folks in this room—including those who have expertise in public management as well as those who have expertise in data analysis.

As members of APPAM, we should take on the challenge of contributing to this data revolution, bringing our diversity of expertise to address the key challenges we face as a nation.

Finally, frame the issues and connect the dots, as I talked about earlier in the presentation.

I want to close with a few historical touchstones to help bring my main points to life, and also to show that these are not new ideas.

The first touchstone goes back to Ancient Greece and Pythagoras, and my point about fear of the evidence and its implications. I imagine Pythagoras may have felt like many of us do when his discovery of a spherical earth didn't gain much traction beyond his colleagues. The implications of his findings on society at that time, and the fear of the implications, kept them in check for more than 2,000 years! Remember that perspective when you're waiting on a funding cycle!

Another story highlights both Big Data and the need to connect research with action. This one takes place in London in 1854 when a key work was published by Dr. John Snow, considered by many in the public health field to be the father of modern epidemiology. Snow analyzed his version of "Big Data"—pins on a map of London that connected contaminated drinking water from the Broad Street water pump with an outbreak of cholera. More importantly, he convinced public officials to remove the handle on the pump so people stopped getting sick.

What good would it have been for Dr. Snow to stop with the "publication" of his findings? Who would he have really helped? No one. What Snow did that was so important was to connect evidence with action.

He understood that his work was not just about *research*, it was about putting *research to work* to improve policy and public well-being—a call to action that's as relevant today as it was more than 150 years ago.

My last story brings us to modern history and something I came across that APPAM's first president, Joel Fleischman, wrote about the need to connect research and evidence with the policies and programs that aim to improve society. According to Fleischman, we should:

- Seed a problematic field with research and trials;
- Define clear and achievable goals;
- Devise evidence-based strategies to get us there; and
- Help guide society toward that sweet spot on the horizon.

Dr. Fleischman highlights the need to make the connection between research and policy. They are partners on the same path, and they should not be siloed.

It has been an honor and a privilege serving as APPAM's president. As I look across this room, I'm inspired by the faces I see and the promise of this moment, which I believe has us on the verge of a golden era both for policy analysis and for APPAM.

Harry Truman once said: "[People] make history—and not the other way around."

More recently, my favorite songwriter, Paul Westerberg, said:

“We may be the ones
To set this world on its ear
If not, then why are we here?”

If not, indeed. It's up to us. I look forward to working with you and with future members of the association to set this world on its ear and make history together as we pursue and promote the APPAM mission of improving public policy and management.

Thank you for your attention this evening and for your support of my presidency this past year.