Calculating and Leveraging ROIs in Tobacco Control

Andrea Mowery

Hello, everyone. And thank you for tuning in to the fourth podcast in the 2016-2017 TCN podcast series. This is Andrea Mowery, Vice President of ClearWay Minnesota, and current TCN Executive Committee chair. I'm joined by Dr. Jeffrey Fellows from the Kaiser Permanente Center for Health Research, Barry Sharp from the Texas Department of State Health Services, and Meg Riordan from the Campaign for Tobacco-Free kids.

We are excited to bring you this fourth podcast Calculating and Leveraging ROIs in Tobacco Control. I would like to start us off by introducing Dr. Jeffrey Fellows, who will provide us an expert overview on returns on investment or ROIs in a tobacco-control context. Jeff is a health economist and investigator for the Kaiser Permanente Center for Health Research in Portland, Oregon. He has over 18 years of experience conducting and evaluating clinical and community interventions to reduce tobacco use, including return-on-investment modeling using health system data. Jeff, thank you for joining us on this TCN podcast.

Jeff Fellows

Thank you. Thank you for having me. I'd like to start by just setting – laying the groundwork about what we mean by "return on investment," ROI for tobacco cessation. ROI estimates is a financial measure of the net savings or cost from an investment in a revenue-generating activity. Just long sentence essentially meaning that we're trying to include both intervention cost and cost of outcomes from those interventions in the same measure.

Typically, in the business world, the ROI is presented as a percentage. So you'd have the net revenue minus – net revenue, which includes revenues and cost, divided by the cost of the intervention or the investment, multiplied by 100, and that gives you a percentage of the return on investment from some spending. And in health care, that's a challenge to use as a concept, and it's used a little bit differently. And it really is about adding future spending or future outcomes to program evaluations of interventions that have to be spent today, costs that have to be spent today, and you're waiting for some future event to occur.

And the issue that we have, really, for ROI in terms of using it as a percentage is it doesn't relate well with health outcomes. For one, you can have different program sizes. You can have a large program that costs a lot of money and produces a lot of benefit or change in outcome, and it can look worse or better than a small program with small effects and small costs. And the ROI as a percent really can't deal with that.

So what we do in looking at ROI and how it's been used in health care and public health is really about making a business case. So you're trying to speak the language of business in terms of

investing in programs, and so you're trying to make a business case for program investment. The question is, then, "Why do we need that?" And if we need that – and we look at tobacco and smoking cessation as a case in point – the economics of treatment, what we know about it, is that pretty much everything that we could imagine that would work in the favor of promoting cessation is in place for tobacco.

The costs of smoking are really high. Almost a half a million people are dying each year because they smoke, and there are about $170 billion a year in extra preventable health care costs associated with tobacco use and includes clinical services. Cessation services are very effective and very cost effective. There's a lot of evidence showing that effectiveness, and indeed even since 1992 when David Eddy called, "Smoking cessation the gold standard for preventive services," it really has continued to be such.

And overall, if you think about it in terms of what those costs are just for the intervention itself is that they roughly average about $1,000.00 to $3,500.00 per life years saved. And when you think about the cost of doing different interventions, on a per-quit level, that's somewhere between $500.00 and $2,000.00 per quit, which is very inexpensive. It's kind of like someone giving you a Mercedes-Benz and asking you only to ensure it – pay for the insurance. So it's very good value.

And the other things that we do know is that the more you get, the more services you get, the more you're likely to quit. But then, that just doesn't seem to be enough, and that's where the business case comes in. And so the business case for smoking cessation, essentially, as you're trying to develop and demonstrate the value of smoking cessation and within the context of this favorable cost-effectiveness analysis data, is that we need to have a – show some near-term results. So policymakers, health plan providers, they want to know what's going to happen three to five years at the most off into the future for any money that they spend today, and that's where the net financial savings from interventions come into play.

The challenge that we have is that there's really limited longitudinal data for smokers and quitters. And then, when we look at actuarial data, current smokers seem cheap. Their average costs are pretty low. And then, when you look at former smokers, the average cost – health-care cost for former smokers, they're very, very high. And so when you look at that, it looks like, from a policymaker standpoint, that you're asking them to spend money to turn cheap, less-expensive smokers into more expensive quitters. And so we need to get over that, and part of that is understanding the role of disease incidence on quitting. And I'll get into that a little bit.

Quitters, also, from a health-plan standpoint – and my own included – quitters can leave the plan before the actual savings occur. So health insurers can be hesitant to provide services for smoking cessation – at least in pre-ACA – because they're worried that a smoker will – they'll help a smoker quit, and then, they'll take their savings elsewhere.

So what we did to address some of those issues and with some funding from Robert Wood Johnson Foundation a few years ago is we used Kaiser data for about 200,000 members to do an analysis of what was happening for smokers and quitters over a five-year period. Just their natural history and relationship they had with disease and quitting and response to diseases and

how long they stayed in a plan and whatnot. And so evaluated that, and then we used those data to test some "what-ifs."

What if we intervene at the system level and created some new quitters, and we followed those quitters for five years? And what would happen to them? And what would the cost be? And how would that differ from what usual care was? And so we took this approach, and we, with this data that we had, this large data set – and we had smoking history; we had smoking-related disease diagnosis history. We had their disenrollment membership and by age and by sex, and we even had light and heavy smokers' data for light and heavy smokers.

And so we looked at their medical costs over time. With this data, we could compare when people were quitting and when they were not, if they were sick at the time that they quit and to see what role that was having, and then, we could compare that. And what we came up with, and I have a slide here that you can't see, but you can look at it if you want to – gain access to it. And what we did is calculated the annual expenditures for Kaiser Northwest adults by their smoking status over a five-year period.

And what that slide will show is that "never smokers" had the lowest annual cost. "Continuing smokers" have the second-lowest annual cost, and they're a little bit higher than "never smokers." And this is an interesting thing because what we're doing in terms of looking at annual cost based upon a smoking status is we're really asking ourselves, "Among people who are – continue to smoke now, what was their cost – what were their health care costs in the following past year?"

And what you're really measuring is for smokers who didn't have a disease incident that helped them quit, what were their costs? So these are relatively healthy continuing smokers. Former smokers have about twice the costs – annual cost as "continuing smokers" and "never smokers." And the people who quit in any particular year – and we looked – in this table, we show the people who quit in 1998, and they had the highest costs of all, which didn't surprise us.

But we thought that this would be a function of their disease incident, so we looked at smokers who quit in 1999 and 2000, and we presented the data. So we lined up the quitters, and we looked two years before and two years after they quit, and we wanted to look at what their average quarterly costs were based upon whether or not they were – quit with a – because they had a smoking-related disease diagnosis or if they had had a – or they quit with no disease diagnosis. Essentially, were they a healthy quitter? Or if they maybe they had a pre-existing smoking-related disease diagnosis and essentially needed a second incidence of – disease incidence and to have their "Come to Jesus" moment.

So what we did is we presented this data in this table. And if you could imagine looking off into the horizon, and there's a valley floor. And here I'm out in the West Coast, and so we look at – we see a valley floor. And we see a cascade range, the foothills of the range, and then, we have volcanoes, mountain peaks.

And if you considered that the valley floor represented the trend line for smokers, the quarterly

costs for smokers who quit without being prompted by a disease incidence, so they were healthy quitters, when you looked at people who were – quit at the time that they had a smoking-related disease diagnosis, they looked like a mountain peak. In our graph, it looked like Mount Everest.

And then, there's another peak about halfway, and this group had about a $9,000.00 average quarterly cost in 2002 dollars at that point, and so it's very, very high cost. And so you had a trend line where it went up, it spiked, and then it came back down after the disease incident, but it stayed elevated. It now was tracked along the, what you would think, on the horizon or the foothills.

And then, there was another one was K2. We called it "K2," which was the people who had had a smoking-related disease diagnosis before but needed – essentially needed another one to quit again. And again, they had a cost trend line after their quit that continued to be elevated, something similar to what the foothills and the horizon would be. And so that helped us confirm that the total costs were being driven in quitting essentially by disease incidence, and that was what the source of our high cost for former smokers were.

And we also look at medical care – or medications – drug costs. And essentially, every one of our smokers who quit who had had some experience with a smoking-related diagnosis, their costs, medication costs were about double of what the healthy quitters were and that doubling continued on. So we used this data to say, "Well, what happens if we could prevent that, and we could engineer, essentially, some new quitting?"

And so we created a model, and it's what we call the "ROI calculator." And we, essentially, simulated patients through a smoking-related disease diagnoses – yes or no, quitting – yes or no, dis-enrolling – yes or no, and totaled up their cost and did that every year. And what we found when we said, "Okay, now, we're going to engineer and say, 'What if we test different types of system-level interventions, including just the "5 A's" that are delivered by a primary care provider, all the way up to a referral out to a combination of a multi-session quitline and with 12 weeks of NRT?'"

And what we found when we did that is that for the most intensive program, the "5 A's," plus both the NRT and the quitline, that we spent about 80 cents per member per month on that program cost. And then, over 5 years, we ended up with a savings, a net savings – return on investment, if you will – but about $1.77. And not only that, is we ended up showing that the return on investment turned positive after the second year – or by the second year, which was interesting. And we were surprised at that, and we did some modeling and some best-case/worst-case scenarios.

And essentially, the worst we ever was able to make the data look in terms of the return on investment was that the program didn't become – turn positive ROI until the third year. And so what we thought about that, and as we were looking at what was that meant, and there's some things that we came from – conclusions we had from that. And one, that certainly the cost of doing nothing is high. And then, but also that smoking cessation saves money, even in the near

term.

And then, with our sensitivity modeling, we found that the results were stable across a wide range of inputs and the functions. And then, we also found that disenrollment was really key, but not in the expected way. So sick quitters, they were – if we waited for people to get sick, they were costly, and they stayed in the plan. And healthy quitters, we also found that healthy quitters were more likely to stay even vs. continuing smokers.

So we found out about disenrollment, and ultimately, from the health plan's perspective, we felt that they had more to fear from sick quitters who stayed than the healthy quitters who left. So that was a big, important takeaway. And of course, it looked like, from our standpoint, that helping patients quit was good business, and that's about it.

Andrea Mowery

Thank you, Jeff, for your insights. Next, I would like to turn the floor over to Barry Sharp. Barry is the manager of the Tobacco Prevention and Control branch at the Texas Department of State Health Services. Texas recently released their third return-on-investment report showing the potential payback from the investment of state and federal dollars in local and state-level investments in tobacco prevention and control activities. Barry, please take it away.

Barry Sharp

Thank you. Yeah, this is our third report. We did one, initially, in 2006, repeated in 2012, and then, this last year, 2016, we're very thankful for the expertise that Jeff and his team have brought to us. For us, it's been a really good investment of money to have these reports simply because one they're one of the few programs within chronic disease that actually can show that type of return on investment.

For us, it's been almost invaluable to help sell the program not only to our external partners and potential funders, but also internally, it helps them to be able to prioritize and understand just how valuable these initiatives can be. For us, when we try to sell it down to the legislature, sometimes, they were very interested. Sometimes, they weren't, but you just have to sort of take that with any information you pass on. Sometimes, they're interested. Sometimes, they're not.

But I know when we started talking to our folks in Title V, and we look at the amount of funds they bring to us, and then, we look at the amount of return on investment in the first five years for each person that quits – and our expenses may be – we may spend, roughly, $1,000.00 or so per quit through our quitline. But when the returns coming back is somewhere $6,000.00 to $8,000.00 per quit, that really shows that that little bit of investment has a big payoff on there, as it looks at the cost of health plans and lost productivity. And that was information we never had before.

Likewise, for our comprehensive programs, we're showing in some of the work that Jeff's done will show that for an investment of – I think it was the 2016 report showed that an investment of $1.19 per capita, we were returning a return on investment of around $28.00 per capita. That

data is just very, very helpful and useful, again, to our leadership and particularly to our stakeholders – American Heart, American Cancer, those folks who are able to go and advocate for us with elected officials and same thing for – we did it with other funders.

When you can show them that not only is it a good thing and it creates – has an impact on health, but then, it also creates an impact on the bottom – on the financial bottom line there, you start getting everybody's attention. And for us, like I said, we're looking at that. Well, even on our last one, we started looking at what would be a potential impact of Tobacco 21 legislation if it were to pass because one of the arguments we've been hearing against it – because we've been trying to do this, now, for about the last 2 years – is the loss of tax revenue. Well, our report gives us the data we're look forward to help show that, yes, you have a lost tax revenue, but you're going to have a huge savings on your health care side of it, where it really balances that argument of the initial shock of loss there.

So really and truly, for us, it helps us out for sales folks selling the program to the funders. And then, just as a manager, I can look at some of these initiatives, particularly new ones that we've looked at. We have a college initiative we just started up a few years back. I'm looking to see, "Okay, is this a good investment or not? Am I seeing a return on this that can help me to justify putting resources into it?"

And part of that comes from looking at what change of prevalence are we having in areas with interventions? Without interventions? And then, what's the monetary change – return off of that? And we just found this to be just extremely, extremely useful.

So I really would encourage every state, if they haven't done it already, to really look at trying to getting a ROI study done to be able to help you justify and be able to take those wonderful percentages of prevalence and look at warm bodies. And then, we can turn them into financial savings for what we bring back to our funders and back to our state legislators, our CDCs, or our foundations. That way, it kind of brings into a new light to help sell the program.

Andrea Mowery

Thank you, Barry, for your insights from the State of Texas. I would now like to introduce the podcast's final speaker, Meg Riordan. Meg is the vice president for research at the Campaign for Tobacco-Free Kids based in Washington, D.C. The research analysis conducted at the Campaign for Tobacco-Free Kids focused on a range of tobacco control issues and is used to further the campaign's policy agenda at both the state and federal levels and to expose the tactics of the tobacco industry. Thank you so much, Meg, for joining the podcast.

Meg Riordan

Thanks, Andrea, and thanks for having me here today. I'm happy to speak with you about this important topic. It's a topic that's as important as ever as states continue to feel stretched, and we need to do all that we can to demonstrate the impact of state tobacco prevention and cessation programs, and particularly what they mean and what kinds of information we have on their return on

investment. So what I'm going to do this afternoon is provide you with a brief overview of materials and resources that the Campaign for Tobacco-Free Kids has that can help you promote and defend your programs.

Some of the materials are available on our website. Hopefully, you're familiar with a lot of them, but some are available only by request. And it could be that one set are really state specific, and I think could be the most beneficial to you, are those that are available by request. So we very much appreciate the opportunity to share those with you this afternoon.

And so I wanted to start with the set of materials that are available by request. First are some projections that we can do. We can do a couple of kinds of projections related to program funding that we can run for you to demonstrate the impact, the public health impact of programs, as well as future health-care cost savings. So first, we can run projections on the expected harms and cost from a specific cut to your state tobacco control program. Or conversely, we can estimate the benefits of increasing program funding by a certain amount or to CDC's recommended level.

On the PowerPoint slides, you'll see examples of what these projection sheets look like. The projections include estimates of impact on youth smoking rates, number of youth who grow up to become addicted adult smokers, or conversely, those who are prevented from doing so, kids expected to die prematurely from smoking or kids prevented from dying prematurely, and finally, reductions or increases in future health care costs related to smoking. So that's the first set of projections.

The second set of projections we can run are state-specific projections on the benefits and savings from actual smoking declines in your state, adult and youth smoking declines. So the estimates we can provide are similar to those noted above – fewer adult and youth smokers, fewer tobacco-caused deaths, and estimated long-term health-care cost savings as a result of these declines. Now, of course, all of the smoking declines in your state aren't attributable to the program, but the projections can help you demonstrate the significance of reductions in tobacco use and help you make the case for continued programmed funding to continue to have a similar level of impact.

And we also have a fact sheet that shows the benefits and savings that are obtained for each one-percentage-point decline in your state's adult and youth smoking rates. Now, the estimates are similar to those estimated above that I previously outlined, but we also have a few more data points for this projection sheet. We have estimates on fewer smoking-affected births, fewer smoking-affected heart attacks and strokes, and health-care cost savings associated with reductions in each of these.

Again, that one-percentage-point decline projection sheet is available by request. And like I mentioned, all of the estimates that we project for you could be switched around to show what harms and costs the state would suffer from one-percentage-point increase to its smoking rates. So you can do it either way – if you want to show progress or if you want to show a rollback or a setback in terms of smoking rates.

So the next set of materials available by request are PowerPoint slides, and I've included examples of these on my presentation slides posted on the website. We have several customizable slides that can help put your program spending in context, and you may be familiar with many of these.

We've really found that it helps to provide some context for what the states are spending on tobacco prevention because spending is often tiny. It's really just a fraction compared to some other important data points, and spending is really – you know, the low spending levels are really outrageous given the magnitude of the problem and the tobacco industry that we're up against.

So first, every state has plenty of tobacco-generated revenue to fund their program. And in the slides, I have an example from Maryland. And you can see that Maryland brings in $554 million in tobacco-generated revenue, but it's only spending $10.6 million on its tobacco prevention program. This is less than two percent of their total tobacco revenue, and that's revenue from the Master Settlement Agreement and from tobacco taxes. And the $10.6 million is far short of the roughly $48 million that CDC recommends.

Now, we create these slides as part of our annual state report release every year, so I'm sure you're familiar with those. But if you'd like us to create one for you specifically to use, we're happy to do that. Another PowerPoint slide we can create is one that looks at tobacco industry spending vs. what your state is spending because the amount any state is spending on tobacco prevention pales in comparison to what the industry is spending. States are being outspent nationally by the tobacco industry 20 to 1. And I've included a slide from Michigan in my slideshow, and it shows that in 2016, Michigan was outspent by nearly 200 to 1 by the tobacco industry.

And the last slide I want to share with you is one that shows that spending – state spending is totally inadequate given the magnitude of the problem. Tobacco is the number one cause of preventable death, and it takes a huge financial toll on our health care system. Now, the slide I put together shows that in Ohio, annual tobacco-caused health care costs total about $5.6 billion every year, and more than a quarter of it is spent on the state's Medicaid program, but the state is only spending $13.5 million – only $13.5 million despite this huge financial burden.

So sometimes, we say this stuff. We have this written down. We include it in some of our background materials, but being able to show people these visuals, these PowerPoint slides that are in charts with compelling colors, it really helps drive the point across. So I urge you or encourage you to reach out to us if you think they can be helpful to your efforts.

Like I said, we're happy to make them. But if you prefer to make them on your own, all of the data that you need to create these slides are available on our website, either in the state-toll data section of the website or through materials and resources that we put together as part of our state report. So you can look either in the state toll section or in the state report section for all of the data that you would need to create these on your own.

So we have infographics we created this year to go along with the release of our annual state report, and they're pretty simple infographics. They're just other ways of showing visualizing some of the data I've already talked about, but we can create these for you upon request. One of the infographics just shows tobacco prevention spending vs. total tobacco revenue in a state, and the other one is tobacco spending vs. tobacco industry marketing. And it's just it's the same information in the PowerPoint slides. It's just presented and packaged in a slightly different way.

So another tool that is available by request is a document with key messages for tobacco prevention. These message points can be used in any background materials or earned media pieces that you prepare for your program. And they really are back-to-basics, bread-and-butter messaging that we've always used around tobacco prevention programs. But we've tested and know they're really still the best messages to use when it comes to talking about our programs.

The key themes focus on tobacco money for tobacco prevention. The evidence is clear that tobacco prevention programs work, that they're a smart investment, and that the toll from tobacco is still way too high. So again, much of the data and the messages in the talking points can be found in our state report. But we also have a data table that we would send you along with the talking points, along with the message points, that would just allow you to make it easier to just fill in your state-specific data right into the – any talking point you'd want to use.

So these are the customized materials that we make available by request, and so to request them, my e-mail is at the end of the slideshow. You can e-mail us, and we just ask that you clearly specify what document or resource you're requesting and the timeline that you're hoping to have the materials by. It always helps to be as specific and clear with your request upfront. That will help us get the materials to you more quickly.

So I also wanted to just remind you of all the resources we have on our website, and I've included a URL in my PowerPoint slides and the list of fact sheets that are available under tobacco prevention programs. And we know that tobacco prevention programs work. We know that they're a smart investment, and fortunately, we have more evidence of this than ever before. And the fact sheets on our website summarize the research on the effectiveness of these programs, broadly, the comprehensive nature of them.

We also have individual fact sheets for various elements of the programs, like public education campaigns, like quitlines, and so on. We also have a fact sheet that summarizes all of the data, all of the research that's been done that shows a return on investment from programs. And unfortunately, we haven't had one in a while on return on investment, but what does exist is summarized in this fact sheet. So hopefully, it can be helpful to you.

And the fact sheet not only – on return on investment – not only includes summaries of some of the larger studies that look at nationally. We also have state-specific examples, those examples from Washington, California, Massachusetts, and so on. Those are included in the fact sheet.

So kind of wrapping up now, I just have a couple of more pieces I wanted to point out to you, and one is our state report, which I mentioned earlier. And that's really a great resource for all of the data, all of the key messages on things related to tobacco prevention programs. So if you haven't looked at it in a while, I urge you to look through it, look at various charts and tables, and see if anything – and even the executive summary has some good messaging in there that you might find useful.

And lastly, I'll just close with letting you know if you have any questions about these materials or if you have ideas for things that you think would be helpful, but you don't see on our website, or you haven't heard me speak about, please feel free to reach out to me. We're happy to create things and be as

helpful to you as possible. Like I said, my contact information is on the last slide, but I'll give you my e-mail address, right now. It's mriordan@tobaccofreekids.org. And thanks very much, and good luck with your efforts.

Andrea Mowery

Thank you, Meg, for walking us through all of those helpful resources. That concludes this podcast, and so I'd like to take this final opportunity to thank Dr. Jeffrey Fellows, Barry Sharp, and Meg Riordan for joining me on this podcast. As a reminder, you'll be able to find all of the podcasts in the 2016-2017 podcast series and a host of other TCN resources by visiting the TCN – http://tobaccocontrolnetwork.org – and clicking on the Resources tab.

Questions about the podcast series or any other features of the TCN website can be directed to the TCN inbox at tcn@astho.org. Thank you for listening, and take care.