

 **VIGNETTE: Using Direct Measures for Outcomes**

Purpose: This fictitious conversation between a magnet director and his evaluator highlights the risk of using indirect measures in an evaluation, and how doing so might impact the findings. When you evaluate program outcomes, it is important to use an instrument that directly measures a desired outcome, rather than an instrument that measures the outcome indirectly. Even when budget or other circumstances make it difficult to use a direct measure, it is still important to carefully examine the logic of your assumptions about how an indirect measure correlates with a desired outcome. If there is no pre-existing evidence of such a correlation, you should test this connection before using the indirect measure in your evaluation.

Questions for Reflection

1. Why is the cholesterol count considered an indirect measure for risk of heart attack? Plaque build-up?
2. Why was an indirect measure more convenient for monitoring the director's risk for heart attack? For the evaluation in this vignette, why might free and reduced-price lunch data be used as a measure instead of race? Why might math scores be used as a measure for science achievement?
3. Consider your evaluation questions and your measures or instruments; are your measures direct or indirect?
4. For those that are indirect, what evidence do you have that there is a correlation between the indirect measure and the variable you actually want or need to measure?

Using Direct Measures for Outcomes

***Background:** Direct and indirect measures are used in evaluation in a variety of fields. This fictitious conversation between a magnet director and the external evaluator highlights how the indirect measures don't always generate accurate data in response to the evaluation question.*

Evaluator: So, how was your visit to the doctor today?

Magnet Director: Well, it was good and bad. To make a long story short, there is no evidence that the cholesterol drug that I've been taking is in any way reducing my risk of heart attack. The real problem is that an MRI last fall showed I had all this plaque in my arteries so the doctor prescribed the cholesterol drug that I've been taking faithfully ever since. The good news is my cholesterol levels are down. But the plaque is still there.

Evaluator: Why did she prescribe that in the first place?

Magnet Director: That's what is interesting. High levels of "bad" cholesterol are associated with plaque build-up in the arteries, the problem I have. So, I started taking this cholesterol medicine a year ago. The assumption is if my "bad" cholesterol level went down, then this would be a good indicator that my plaque build-up has decreased. But it didn't work that way in my case. In fact, when they did another MRI this year, the plaque has slightly increased.

Evaluator: Hmmm, if I understand correctly, because measuring cholesterol is a lot cheaper and easier to do than an MRI, they used the cholesterol test as an indirect measure for whether arterial plaque was decreasing. But it didn't give you an accurate reading on the real question you were asking: "Am I decreasing my risk of a heart attack?" Only a direct measure, like the plaque build-up shown from an MRI scan, would give you that information.

Magnet Director: That's right, and now we're going to try a different method to reduce the plaque. What's been interesting to me is how this issue of indirect measures relates to the magnet evaluation we're doing.

Evaluator: What do you mean?

Magnet Director: In our district, we are using free and reduced-price lunch data as a proxy for race in our student assignment process, but this may not ultimately help us with our objective of reducing minority group isolation. The assumption is that if a school succeeds in matching the free and reduced lunch demographics of the district as a whole, it will also match the district's numbers in terms of race and ethnicity. But in reality, the percentage of students qualifying for free and reduced-price lunch might change without a significant change in the percentage of minority students. In our district, free and reduced-price lunch data is not a good proxy, or indirect measure, for race, just like my cholesterol levels were not a good indirect measure for my plaque build-up.

Evaluator: I understand what you're saying. I guess we better look again at how we'll respond to that evaluation question. Another indirect measure we should probably rethink is the math assessment that we use to measure students' progress in our science-themed magnet schools. There is a reasonable expectation at the high school level that science is very dependent on solid math skills so that a math assessment might be a good proxy for measuring science achievement. But your science magnet is an elementary school. The same correlation might not exist.

Magnet Director: I hadn't thought of that. It is certainly easier to use a math assessment since every kid in the state takes one starting in grade 2. We don't have a science assessment like that. But you are right. If we use the math assessment as an indirect measure for science achievement, we may never know if our magnet program is having the intended impact. I'm glad we're figuring this out before we actually begin the evaluation. That doctor visit really did provide some important information...about a lot of things!