

case *in* point

Documenting Case Management Outcomes:

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ADVANCING
THE SCIENCE
WHILE
PRESERVING
THE ART

The primary goal of case management, indeed of all the healing arts, is healing itself. But how do we know when healing has occurred? And how cost-effective was the intervention that effected the healing?

All front-line case managers know in their gut that they are impacting most of their patients' health status in a positive way; and in some cases, case managers know that they are literally saving lives. However, because of the dynamic nature of the medical-management process and other external factors, it is often hard to quantify the results through a return on investment (ROI) calculation, or to clearly document that a particular intervention is the primary factor in improving the patient's clinical outcome.

So, how do we then determine the "success" of a case or disease management program in terms of clinical and financial outcomes? The answer to this question becomes all the more important in light of the observation made by Dr. William Osler nearly a century ago when he stated: "Medicine is the science of probability, and the art of possibility."

We need to keep in mind three observations that can provide key snapshots to help answer this fundamental question:

1. Success must be based upon science to every extent possible. We all want evidence-based case management.
2. Sometimes (often, even) science fails to give a clear and complete answer about success, so the "art" of case management is employed, and success must be assessed the same way an art critic evaluates a painting.
3. However, we should never be 100-percent satisfied with the judgment of the art critic. We must try to measure the success of our "art" by designing a study to measure its success scientifically.

This article sheds light on how best to quantify medical-management outcomes through this hybrid approach of scientific observation and artistically enlightened interpretation, which in turn is evaluated on objective and transparent principles.

Measuring change

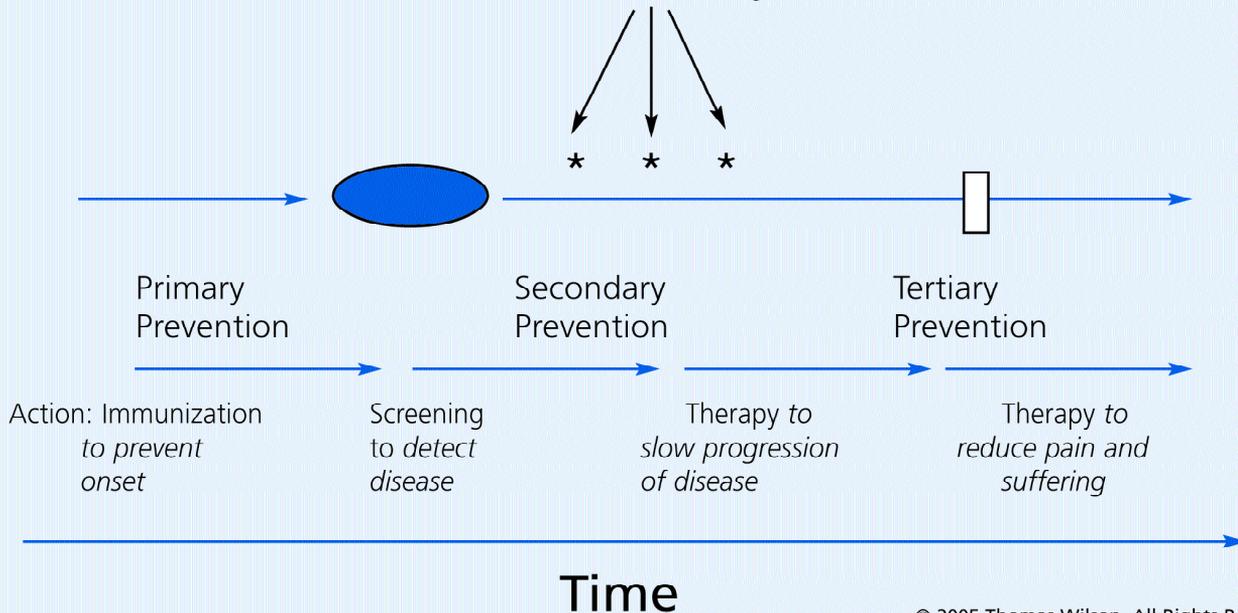
One useful framework that sheds light on how to measure the "cause and effect" of a medical-management intervention is the prevention model.

This familiar model, long used in public health, has three phases — primary, secondary and tertiary:

Natural History of Health/Disease & Case Manager Response

Official Diagnosis/Incidence

(this can vary)



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- Primary prevention is about preventing the onset, or *incidence*, of disease (e.g., through vaccinations).
- Secondary prevention is about preventing further complications of disease — including curing the disease — among *prevalent* cases of the disease (e.g., through diagnosis and treatment).
- Tertiary prevention is about the prevention of further suffering among end-stage prevalent cases (e.g., amelioration of pain and psychosocial comfort).

These three stages can be thought of as a continuum as highlighted in the figure above, but that does not necessarily mean even movement along the pathway. Indeed, leaps often occur in a discontinuous fashion — it may be useful to think of them as similar to “phase transitions” in states of matter (e.g., ice–water–steam).

Based upon this model, success can be conceptually understood in one of two ways: 1) slowing, halting, or reversing movement within the *same* phase; and 2) slowing, halting, or reversing transition to the *next* phase. Conceptually, this is easy to understand. But in reality, how do you assess whether meaningful prevention has been accomplished or not?

Defining success through expectations

The answer in all cases is that you compare it to an “expectation.” You need — indeed, you should always have — an expectation of what would have happened without your intervention or care management program. By comparing that observation to what actually did happen, you can then begin to assess the relative success or failure of your interventions. If your expectation is met or exceeded, you have success; if your expectation is not met, you have failure.

For this model to be valid, of course, the expectation needs to be accurate.

This model obviously works at an individual or case level. An illustration of secondary prevention at this level would be the halting of bleeding in an accident victim by tourniquet. (Preventing the accident in the first place, e.g., the installation of a guard rail, would have been an example of primary prevention; but this is rarely or ever the job of the case manager.) The expectation is based on standard physiological and clinical knowledge about the specific kinds of wounds that continue to bleed unless a tourniquet is applied. In most, if not all, cases, there is no need for rigorous scientific study to assess the value of a tourniquet (perhaps akin to the value of a parachute when jumping from an airplane). It is patently obvious.

The model works equally well in a defined population program, for example, in patients with diabetes in a case management program where improvement is expected in the percentage of individuals in a defined population with controlled Hemoglobin A1c (HbA1c) levels, a marker for diabetic control. However, at the population level, the change seen is not often as clear-cut an attribution as the tourniquet example. This is due to a myriad of confounding or external variables that might influence the ultimate outcome besides the case management intervention². As a result, the choice of a methodology to accurately measure the success of the interventions — apart from these other factors — is often not as obvious as one might think.

Certainly, rigorously controlled studies have established that diabetics with their HbA1c under control do better than diabetics with their HbA1c above recommended levels, but just because there is a focus on the problem does not mean that HbA1c levels were improved by the case manager alone. To assess the value of a case management intervention that is designed to improve HbA1c levels is not necessarily an easy task.

Determining the change score

One common method used to determine success over time is to calculate a “change score,” such as

comparing and contrasting the HbA1c levels in patients before and after a case management intervention. If the percentage of individuals that have their HbA1c under control increases, program success is often claimed. This methodology is based on an assumption — often unstated and untested — that the projection of the pre-intervention rate of HbA1c levels to the post-intervention period was a correct expectation. But there are many reasons to believe that this assumption is often incorrect in defined population studies.

With the tourniquet example, there is only one likely reason that the blood flow was stopped — the person applying the tourniquet. But in the HbA1c example, there are multiple factors outside of the case management intervention that may have influenced the pre-intervention/post-intervention improvement in the percent of patients with controlled HbA1c. These factors could include patient-level characteristics (genetics, diet, medication adherence), other providers treating the patient, the influence of local health plans trying to get their HEDIS scores improved, influence of a diabetic disease-management program, payment for performance programs, environmental factors, etc.

Thus, if the case management organization or health plan is interested in a more accurate assessment of its value, somehow these external influences need to be considered. The simple way to more accurately assess the impact of the care management program is to generate a more precise expectation. This explanation must take into account as many external influences as possible to accurately attribute the case management intervention to the outcome desired.

Defining attribution

There is no perfect way to establish that x caused y in population health sciences, because we can never know for sure that without x (e.g., a case management intervention), y (e.g., HbA1c level improvement) would or would not have happened. Science can rarely tell us with 100-percent certainty that our action will be, or was, successful. Realistically, our scientific confidence level in most cases is way below 100 percent — how far below is not known; it depends, upon other things, on the level of rigorous scrutiny an intervention has received. In fact, most of what is practiced in medicine today is not backed with unequivocal evidence of success. For example, researchers have estimated that only 11 to 65 percent of the clinical procedures that are being done by healthcare professionals have a strong evidence-base behind them³, meaning 35 to 89 percent do not have such unequivocal evidence.

Given this methodological challenge, there are three things we must do: 1) Get a better handle on the science already done; 2) do more science (or

hope others will do it) to help advance the evidence-base of medicine; and 3) while you do more science (or wait for others to do it), don't forget to factor in the "art" of medicine.

As referenced above, the challenge of assigning attribution (e.g., identifying cause and effect) is further highlighted by all the confounding variables that impact the patient. When working with a patient with diabetes, for example, a multitude of factors can influence the patient's health status and future costs. External or overlapping factors that impact the efficacy of the case management process include:

- The patient's genetic make-up;
- Psychosocial, family, cultural and environmental factors;
- Scope of health plan coverage and benefit plan design;
- Level of care/engagement by the treating provider;
- Quality and accuracy of evidence-based guidelines;
- Ability to control and manage co-morbidities; and
- Medication adherence.

Advancing the science

Therefore, advancing the science of case management is a matter of anticipating an event or outcome, and then applying the knowledge (the science or "the art") of what we know works. In the identification and case-selection phase of the case management process, we anticipate characteristics of the individuals in a given population that are most likely to benefit from our case management services. Using available data-based resources, we conduct careful analysis to identify the desired subset to target for our case management services. This targeted approach of identification is often used as a means of secondary prevention.

Another example of advancing the science of case management is what case managers do every day during the assessment and planning phases of the case management process. The case manager anticipates what interventions are most likely to benefit an individual in terms of optimal (desired) health behaviors, i.e., by preventing suboptimal outcomes. We turn to valid clinical practice guidelines to guide our assessment, planning, monitoring and evaluation efforts. We anticipate how likely a member is to change behaviors by looking at barriers and motivators for the person, and then incorporate principles of human behavior-change into our assessment and interventions.

The need for critical thinking

What is the bridge between the science and the art of case management? What's the common denomi-

nator in these scenarios? The answer is critical thinking. Advancing the science of case management takes a high degree of critical thinking, which in turn is dependent upon the more artful aspects of case management.

To think critically, a case manager must answer three key questions. The first two⁴ are suggested by Rosalinda Alfaro-LeFevre, RN, MSN, and the third is an additional essential factor to consider:

1. What exactly are the results I'm looking for in this case?
 - This is the critical-thinking skill that leads to realistic expectation that, without my action, something bad may occur.
2. What are the problems, issues or risks that need to be addressed to get these results?
 - This is the critical-thinking skill that leads to action to prevent that adverse event.
3. How does the case manager or the case management team know that their intervention worked both on an individual case or population level?
 - This is the critical-thinking skill that leads to measurable results.

Clearly, the critical-thinking process starts with a focus on outcomes or what we expect the end-results should be with our intervention (and conversely, what they would have been without our intervention). Case managers who don't give enough thought to exactly what end-results are needed are not thinking critically, and are likely to lose sight of both the probability and the possibility of success.

An effective case manager or case management team is one who is flexible, creative, caring and open-minded, has good active listening skills, is outcomes-focused, and is able to see the "big picture" of each case and the even bigger picture for the totality of cases to enable critical thinking at the defined population health level. Interestingly enough, these are the usual characteristics of critical thinkers.

The art of interpretation

The art of case management is really all about seeing the "big picture" of the individual patient's personal universe. We take into account the person's current situation, past capabilities, and personal motivation to change in order to anticipate their future needs and abilities.

The big picture includes the strength or lack of psychosocial support, financial support, environmental issues, family dynamics, and many other factors. These, of course, will be different for every individual, and thus we can't rely only on scientific evidence to present a 100-percent accurate "big picture" for us. This is where the art of critical

thinking — active listening, thinking out of the box, and “connecting the dots” — comes into play.

Case managers might not believe that “thinking,” per se, is a skill, but it is. Like any other skill, thinking skills can be improved by developing self awareness and insight into a case manager’s personal style of learning. Front-line workers need to seek out feedback from colleagues and consciously work to improve communication and problem-solving skills. From the perspective of the prevention model, three critical thinking skills are central to the 21st-century case manager.

- **Realistic expectation:** What adverse things could happen to this case with out the professional help of a case manager?
- **Appropriate action:** What should be done to prevent that from happening?
- **Measurable result:** Was it prevented and was the case manager 100-percent responsible for the outcome?

By developing and applying critical thinking skills, case managers advance both the science and the art of their discipline.

The Quality Evaluation Process (QEP)

One methodology that is used to benchmark the efficacy of care management interventions (or the changes generated by other programs such as pay-for-performance or wellness interventions) is the Quality Evaluation Process (QEP) developed by the Population Health Impact Institute (PHII).

(Discloser: Co-author Thomas Wilson is founder and board chair of the Population Health Impact Institute.)

The QEP assessment methodology looks to both objective observation and artistically enlightened interpretation by promoting evaluation principles of transparency and scientific validity. These principles include the transparency of metrics, equivalence of populations, statistical significance of measures, plausibility of hypotheses, and disclosures of potential conflicts of interest. (To find out more about the QEP process visit www.phiinstitute.org.)

Final thought

This article has provided a brief overview of how to better attribute and validate these claims through scientific observation and some artistic interpretation via critical thinking. This approach is embedded in and can be documented through

the QEP assessment process. Through these efforts, the case manager can now answer with more assurance questions addressing whether healing has occurred for the individual patient or for a given population, and the cost-effectiveness of the interventions. ☺

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