

# Using a Cost and Utilization Lens to Evaluate Programs Serving Complex Populations: Benefits and Limitations

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## IN BRIEF

Across the country, more and more states, health plans, and provider organizations are focusing on improving care management for low-income individuals with complex medical and social needs. As complex care programs grow, it is imperative to establish which models are most effective. While funding decisions for complex care programs often center on cost and utilization, these measures may provide an overly simplified definition of success or failure. This brief acknowledges the merits of using a cost and utilization framework to evaluate complex care programs, but takes a close look at the limitations in relying solely on this narrow lens. It reviews alternative, non-traditional metrics for assessing the value of complex care models, including whether programs: (1) produce reduced costs or positive impacts elsewhere in the community (e.g., housing stability); (2) improve patient experience of care, health status and associated satisfaction; and/or (3) offer the potential to demonstrate more robust cost and utilization results over a longer term.

As health care systems across the United States shift to reward value-based outcomes over volume, states, payers, and delivery systems are increasingly focused on providing specialized, comprehensive care for low-income individuals with complex medical and social needs. These individuals, sometimes referred to as high-need, high-cost patients, account for a disproportionate share of health care services and spending and typically require more supportive services than what is offered by the traditional health care system.<sup>1</sup> In the last decade or so, an increasing number of programs have emerged across the country that provide intensive care coordination to address the medical, behavioral health, and social needs of these individuals. While evidence is beginning to emerge around care management programs serving Medicare beneficiaries,<sup>2</sup> there is still a dearth of evidence around what interventions are most effective at improving health and reducing costs for the Medicaid population, and few large-scale replication efforts of promising models exist. As these programs grow, it is imperative to establish which models and interventions are most effective, both for improving health and reducing costs. Although the evidence base for this field is still emerging, policymakers, payers, providers and other health care stakeholders routinely have to make decisions about which programs to fund, expand, or discontinue. The current framework for making these decisions often rests on just two impact measures: cost and utilization.

This brief, a product of the *Complex Care Innovation Lab* made possible by Kaiser Permanente Community Benefit, is one in a series exploring opportunities to improve evaluation of complex care programs.

**complex care**  
INNOVATION LAB

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Given the imperative to make health care in the United States more efficient and cost effective, and the potential high-impact opportunity to improve care for patients with complex needs, it is understandable that stakeholders are keen to understand the influence of complex care programs on these drivers. This brief examines the inherent benefits of using a cost and utilization framework to evaluate complex care programs, but also explores how this limited lens can be problematic, in particular by ignoring broader health, social and economic factors such as functionality, health status, and overall quality of life. Reflecting a need to go beyond cost and utilization as indicators of success, this brief highlights considerations for stakeholders in assessing the impact of complex care models and identifying alternatives for measuring the value of these models.

## Benefits of Evaluating Cost and Utilization Impact

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For programs serving patients with complex medical and social needs, there are clear reasons for tracking cost and utilization metrics. Routine utilization measurement is an important step to ensure that programs are reducing avoidable health care use and that patients are accessing the necessary preventive, supportive, and chronic care management services.

Utilization is typically tracked by measuring emergency department (ED) and inpatient (IP) visits, number and type of prescriptions, and appointments with providers such as primary care and specialists. Program return on investment (ROI) is determined by examining the total expenditures (ideally based on paid claims) of enrolled individuals in a given time period, inclusive of program costs. These expenditures may be contrasted with a comparison group of individuals who did not receive the intervention, or by looking at patients' pre-enrollment costs and comparing them to costs after enrolling in the program.

Given that inpatient admissions are key drivers of costs in the health care system, care management programs typically focus on reducing avoidable hospital stays to pare overall costs. Similarly, frequent ED visits can often signal that an individual is inadequately linked to primary care, or has some underlying challenge that is making it difficult for the patient to proactively manage his or her care. Utilization data can also reveal information about other services that individuals are connected to, and can confirm whether patients are accessing needed care in accordance with care plans, such as behavioral health and substance use services. Consistently monitoring how high-need, high-cost individuals use the health care system provides important clues about patients' needs, as well as strong indicators of where they may be experiencing gaps in care. Evaluating cost and utilization can also support continuous quality improvement. Sharing data can help empower care team staff to help address patients' identified needs and support these staff in prioritizing clinical actions, such as ensuring that patients are connected to primary care providers.

## Limitations Evaluating Cost and Utilization Impact

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While cost and utilization are important metrics for a broad range of stakeholders to consider, relying solely on these lenses to judge a complex care programs' success has numerous drawbacks. These include:

1. Difficulties differentiating between “good” and “bad” increases in expenditures;
2. Masking the role of unit prices as a critical cost driver;
3. Underestimating how long it may take to address the needs of complex populations;
4. Not accounting for savings generated for systems outside of health care such as housing or the criminal justice system;
5. Relying on incomplete data;
6. Difficulties constructing strong evaluation models;
7. Insufficiently adjusting for changes in individuals' health care utilization and spending patterns that would happen naturally;
8. Failing to account for selection bias due to enrollment structures;
9. Inadequately taking into account regional variations in resource availability, health status, and utilization trends; and
10. Overlooking opportunities to iteratively design new approaches and consequently prematurely pulling the rug out from what otherwise might be successful programs.

Below, these limitations are considered in more detail.

### 1. Good Increases vs. Bad Increases

Using a cost and utilization framework for evaluating complex care programs may provide an overly simplified definition of success: Increases in utilization and costs are bad, and decreases are good. However, it is important that stakeholders reviewing program evaluations understand that this is not always the case. In certain instances, increased utilization and costs may actually indicate the program's efficacy, particularly in areas such as pharmacy, primary care visits, or mental health and substance use treatment engagement. For example, if a woman who is HIV-positive began taking anti-retroviral medications after enrolling in a complex care program, her pharmacy costs would increase significantly. If looking purely at ROI, this individual may appear to be more expensive after enrolling in the program than she was previously, but the costs driving this increase actually reflect a positive outcome.

### 2. Price as a Driver of Cost

Cost is not only influenced by utilization, but also by price, which can be impacted by a number of factors, including delivery system environments (i.e., managed care vs. fee-for-service), negotiated payment rates, and, in the case of pharmaceuticals, manufacturer-set price points.<sup>3</sup> Failing to acknowledge the effects of pricing on outcomes may provide an incomplete or inaccurate picture of complex care programs' effects. For example, Sovaldi, a Hepatitis C drug that cures the disease for

many patients after a full course of treatment, cost Medicaid programs upwards of \$80,000 per individual in 2015.<sup>4</sup> Given the elevated risk for Hepatitis C among high-need, high-cost Medicaid enrollees, the introduction of Sovaldi to the market had the potential to mask the benefits of other complex care program efforts to reduce cost and utilization during that timeframe. Likewise, the variation in prices charged by specific providers or health systems can also complicate payer-level efforts to interpret program impacts. If a patient decreased avoidable utilization, but saw a more expensive mix of providers, a purely cost-focused evaluation could be misleading.

### 3. Appropriate Evaluation Timeframe

One of the most significant concerns for using a cost and utilization framework is that the timeframe for anticipated reductions is often insufficient. Whether at the federal, state, or local level, or at the payer or delivery system level, decision makers often want to see program impacts within a few years or less. Understandably, they are hesitant to fund programs that are not demonstrating positive results. However, many of the individuals enrolled in complex care programs have such multifaceted needs that it may take upwards of four to five years (if not more) before utilization patterns stabilize and outcomes begin to improve.<sup>5</sup> With this population, social and behavioral health needs, such as housing, access to food and transportation, as well as mental health and substance use disorders, must often be addressed before individuals can proactively manage their physical health care. Linking individuals to services to meet these social and behavioral health needs can take a significant amount of time and effort, particularly in geographic areas where these resources are limited. Program evaluations that look at cost and utilization in only a one- or two-year period may not adequately reflect the groundwork that is being laid to produce improved health and utilization outcomes in the years to come.

### 4. Capturing Savings Outside the Health Care System

High-need, high-cost populations often have significant needs that fall outside of the traditional health care realm. These far-reaching social needs often translate to involvement with multiple other public systems, such as housing, child welfare, corrections, etc. By focusing on the social needs of patients in addition to their health needs, complex care programs may positively impact how high-need, high cost populations are utilizing these other services. For example, the Center for Health Care Services in San Antonio, Texas, a nonprofit organization that provides physical and behavioral health services to low-income individuals, estimates that its efforts have saved the county more than \$10 million dollars annually through activities such as diverting individuals from jail into health care and detox services.<sup>6</sup> Such broader system-level savings are not captured in a typical health care cost utilization program evaluation, but may align with policymakers' interests, particularly at the state and local level, to decrease costs across a variety of systems.

## 5. Data Quality

Complex care programs often rely on multiple data sources to calculate their cost and utilization savings, including electronic health records (EHRs) and payer claims data. These data sources, however, come with their own challenges. It is common for high-need, high-cost individuals to receive their care from a variety of health care systems. Thus, programs relying on EHRs for utilization data may have an incomplete view of a patient's utilization. Insurance claims data can provide a more comprehensive view of utilization patterns, but the quality of claims data varies widely from state to state, particularly the completeness of managed care encounter data. Additionally, there is often a significant lag for when certain types of claims data are available. These data challenges mean that evaluations may not provide a complete picture of cost and utilization outcomes, a critical consideration for those reviewing these kinds of program evaluations.

## 6. Evaluation Design Difficulties

In order to accurately measure outcomes for a program or intervention, a strong evaluation design is needed. Unfortunately, programs serving populations with complex needs encounter a variety of challenges in designing a strong evaluation approach. One of these is difficulty in constructing a comparison group. The gold standard for evaluation, a randomized controlled trial (RCT), is often ethically unappealing to programs or impractical to implement. Small sample sizes pose another challenge, making it difficult to attribute the program's impact to a particular intervention, particularly given the high degree of variation in cost and utilization patterns among high-need, high-cost patients. Similarly, not all programs have evaluation staff or resources to support robust data collection and analyses. When reviewing evaluations to determine a program's efficacy, health care stakeholders should consider the evaluation design and robustness, and keep in mind that these challenges may influence the robustness of the results. Additional difficulties constructing strong evaluation models, including regression to the mean, enrollment selection bias, and regional differences, are discussed below.

## 7. Regression to the Mean

Another challenge in relying on cost and utilization to measure program success is the issue of "regression to the mean." Many programs serving complex populations use predictive modeling or utilization thresholds (for example, three ED visits or five IP admissions in the last 12 months) to determine who is eligible for services. However, evidence suggests that many individuals who have high rates of ED or IP utilization in one year may not have high rates the following year.<sup>7,8</sup> Predictive models and program evaluations that rely on several years of pre-enrollment period data can better address this issue, but programs that rely on short-term utilization thresholds and limited observation periods may be focusing on individuals whose utilization and costs would have declined over time regardless of their program involvement. This can skew evaluation results, and make programs look more successful in the short-term than they necessarily would be in the long-term. Implementing a RCT or a quasi-experimental design with a valid comparison group can help tease out what portion of the utilization reductions may be due to regression to the mean, but these evaluation designs are also more complex and costly for programs to implement.

## 8. Enrollment Sources and Selection Bias

There are two main ways in which complex care programs enroll individuals—the first is by referral, and the second is through some kind of mechanism that pre-identifies individuals who should be sought out for enrollment. Both can lead (often inadvertently) to “cherry picking,” the process by which certain patients are sought out over others for enrollment. Depending on the program structures and incentives, this might mean that the most complex patients are sought (because they are the most challenging to work with and so doctors are keen to refer them for additional support), or the least complex are sought (because they may be easier to engage and enroll than the more complex individuals). Though there are merits to both of these enrollment approaches, it is important that policymakers understand the ways in which selection bias may be at play, and that potential bias be adequately factored into evaluation designs.

## 9. Regional Differences

Differences in geography (i.e., urban vs. rural), regional government structures and services, demographics, and relative availability of community resources can strongly affect what complex care programs can and should look like, and what their impact might be. Geographic factors such as the availability of community and medical resources, public transportation, healthy foods, and cell and broadband service can play a profound role in a program’s effectiveness. Similarly, different regions may have varying health profiles and norms around particular health care interventions. For example, a 2014 Dartmouth Atlas of Health report examined both the prevalence of and approaches to treat end-stage renal disease (ESRD).<sup>9</sup> The National Kidney Foundation considers the use of fistulas to provide dialysis as the gold standard in treatment. However, for a variety of reasons, including regional availability and practitioner expertise, there is large geographic variation in the use of this technique, with the Northwest and New England using it most and parts of the South and Midwest (areas where the condition is more common) using it less. This example highlights how the health profile of an area’s population, as well as the typical kinds of care offered to treat conditions, can influence cost and utilization. As policymakers assess the success of programs in their areas, it is important that their expectations are “right-sized” to accommodate for geographic and regional realities, and to be sure that comparison groups draw from regions with similar characteristics.

## 10. Understanding What is Working (and What is Not)

While cost and utilization measures can provide programs with some insight into their program’s efficacy, they do not inherently shed light on which program elements are leading to positive health outcomes, and which are not. Gaining insight into these outcome drivers allows programs to adapt their models and become more effective over time. Reviewers who only look at cost and utilization measures may fail to understand that certain pieces of a program are working well, and that with some adaptation, the program could produce more positive outcomes. Some complex care programs such as ThedaCare in Appleton, Wisconsin, and the Center for Integrative Medicine in Grand Rapids, Michigan, have implemented LEAN methodology to support iterative quality improvement efforts. Programs may want to consider approaches such as this, including cost and utilization evaluations with implementation and rapid-cycle quality improvement analyses, to provide a more robust understanding of what aspects of their efforts are most effective.

## Proving Value beyond Cost and Utilization

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The value of programs serving complex populations can be defined in a variety of different ways. Cost and utilization are important indicators of value, but complex care programs often produce other positive results that health care systems, communities, and payers value. For example, if programs generate positive patient experiences or lead to improved health outcomes, they may influence health plans' Medicare star ratings, performance on Healthcare Effectiveness Data and Information Set scores, or Consumer Assessment of Healthcare Providers and Systems scores, thus contributing to increased reimbursement rates or additional member enrollment.

In addition, as alternative payment models gain traction across health care payers, programs that address both the health and social needs of complex patients will likely be seen as supporting critical components of care. Models such as accountable care organizations (ACOs) and state Delivery System Reform Incentive Payment program efforts recognize the need for systems be accountable for the full range of health and social needs of their complex populations in order to truly get at the "root causes" that often drive utilization. Programs such as the Camden Coalition of Health Care Providers, Hennepin Health, and Commonwealth Care Alliance have built ACOs or managed care health plans around complex care efforts, and see this built-in accountability as essential to achieving success.

## Lessons for Interpreting Evaluations of Complex Care Programs

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To address the challenges related to using only a cost and utilization lens to evaluate complex care programs, individuals and organizations that are designing and interpreting evaluations of these programs may want to consider the following:

### 1. Establish Realistic Expectations

Given the complexity of high-need, high-cost populations and the prevalence of social instability, including homelessness, extreme poverty, and criminal justice involvement, policymakers and other stakeholders should set realistic goals for incremental improvement, and celebrate small successes at both the individual patient level and across populations. Expecting these individuals and the programs that serve them to have the same success trajectories as those in the general population underestimates the challenges they must overcome, and may lay the groundwork for prematurely deeming these programs as failures.

### 2. Focus on Lessons, Not Just Results

Cost and utilization evaluations largely focus on the question of whether or not an intervention met its goals. In evaluation in general, and in particular in complex care programs, stakeholders should consider adopting a more iterative approach to interpreting and applying evaluation findings. Cost and utilization evaluations that are accompanied by implementation analyses or other mechanisms for determining which elements of programs were impactful may reveal critical lessons about how to

build or modify future successful interventions. Expanding the goal of complex care programs to include providing insights about impactful model elements, in addition to improving health and cost outcomes, provides another lens by which to determine program success.<sup>10</sup>

### 3. Be Confident Enough

The limitations of complex care evaluations are numerous, and it is impossible to control for and design around every factor that may influence a program's impact and outcomes. Pressing social and health care policy challenges require prompt action by policymakers and other decision-makers. It is incumbent upon both evaluators and those who interpret and apply those evaluations to scrutinize limitations and to design follow-on programs that are sensitive to lessons learned. However, they should not be daunted by the unanswerable questions that evaluations may identify, but not address.

### 4. Cost is Not the Only Meaningful End Point

While understanding that overall return on investment is critical to making the business case for sustainability of any program, cost is not the only outcome that matters for populations with complex needs. Adopting a framework that integrates cost with quality and functional status outcomes may be a more optimal framework for contemplating the value of programs for those with complex needs.

### 5. Data Is Not the Only Way to Tell the Story

Many of the successes that occur within complex care programs are difficult to capture on a spreadsheet, such as a client reuniting with her estranged family, or an individual attending his first behavioral health appointment after building trust with his case manager over the course of several interactions. Narratives such as these can powerfully convey the human impact of these programs, and aid policymakers in gaining a more complete understanding of the work being done through them.

## Conclusion

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Understanding whether programs serving complex populations are effective is essential to good policymaking. Currently, these programs are often measured by their cost effectiveness and their ability to impact health care utilization. While these measures are important to consider, they are not the only ones that policymakers, payers, and delivery systems should base their judgments on. There are important caveats that may need to be considered in interpreting these results based on timeframe and evaluation design. Those who are evaluating whether or not to support (or continue supporting) these programs should consider expanding their perspective on what constitutes program "success" to include whether programs: (1) result in reduced costs or positive impacts elsewhere in the community (e.g., housing stability); (2) improve patient experience of care, health status and associated satisfaction; and/or (3) may be able to demonstrate more robust cost and utilization results over a longer timeframe. Evaluating complex care programs through a more nuanced and informed lens will help the field better understand what elements of the models are



most effective, help successful programs flourish, and advance the field's understanding of how best to serve high-need, high-cost individuals.

### ABOUT THE CENTER FOR HEALTH CARE STRATEGIES

The Center for Health Care Strategies (CHCS) is a nonprofit policy center dedicated to improving the health of low-income Americans. It works with state and federal agencies, health plans, providers, and consumer groups to develop innovative programs that better serve people with complex and high-cost health care needs. For more information, visit [www.chcs.org](http://www.chcs.org).

This brief is a product of the **Complex Care Innovation Lab**, a national initiative made possible by Kaiser Permanente Community Benefit that brings together leading innovators in improving care for low-income individuals with complex medical and social needs. For more information, visit [www.chcs.org/innovation-lab/](http://www.chcs.org/innovation-lab/).



### ENDNOTES

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- <sup>6</sup> J. Gold. "Wrestling with a Texas County's Mental Health System." *Kaiser Health News*, August 20, 2014. Available at: <http://khn.org/news/san-antonio-model-mental-health-system/>.
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- <sup>9</sup> D. Zarkowsky, R. Freeman, D. Axelrod, M. Malas, P.R. Goodney, N. Dzebisashvili, et al. *Variation in the Care of Surgical Conditions: End-Stage Renal Disease*. The Dartmouth Atlas of Health Care. 2014. Available at: [http://www.dartmouthatlas.org/downloads/reports/ESRD\\_report\\_11\\_11\\_14.pdf](http://www.dartmouthatlas.org/downloads/reports/ESRD_report_11_11_14.pdf).
- <sup>10</sup> For further exploration of this topic, see D. Labby, *Complex Care Program Development: A New Framework for Design and Evaluation*, Center for Health Care Strategies, forthcoming Spring 2017.