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Alternate payment models for children with complex medical conditions: Key actuarial lessons from the CARE Award

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Alternate payment models present substantive potential risks and rewards for hospitals, physicians, and other healthcare providers. Actuarial analysis can illuminate the risks and rewards.

Background

The authors provide actuarial support for the Children's Hospital Association (CHA) on behalf of 10 of its CARE Award hospitals as part of the Coordinating All Resources Effectively (CARE) Award. The CARE Award is a Health Care Innovation Award from the Center for Medicare and Medicaid Innovation (CMMI) to test the coordination of care for children with complex medical conditions[2] One of the goals of the CARE Award is to assist CARE Award hospitals with the implementation of new payment models for the care of these children.

Children with complex medical conditions are defined as children with significant chronic conditions in two or more body systems or those with a single dominant chronic condition[3] According to CHA, approximately two-thirds of children with complex medical conditions are covered by Medicaid[4] CHA estimates that while children with complex medical conditions make up only 6% of Medicaid beneficiaries, they represent 40% of total Medicaid and Children's Health Insurance Program (CHIP) expenditure for children.

Our actuarial analyses for CARE Award hospitals illuminate the potential for risks and rewards in alternate payment models. We define an alternate payment model as any mechanism for reimbursing a provider other than traditional fee-for-service (FFS) payments. While our analyses includes only children with complex medical conditions, the lessons presented in this paper apply to most payment model analysis.

In this paper, we present five key lessons for the implementation of a new payment model:

1. Look before you leap.
2. Population size matters.
3. The devil is in the details.
4. Don't reinvent the wheel.
5. It takes two to tango.

Look before you leap

A careful review of the risks and rewards involved in an alternate payment model can take time, but is well worth the time invested because most payment models can introduce material financial risk for a healthcare provider.

An analysis of historical claims and enrollment data for the population in question can be revealing. Historical data can show

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[2] For more information on the CARE Award, see https://www.childrenshospitals.org/careaward.

[3] CHA (October 11, 2013). Defining Children With Medical Complexities. Issue Brief. Retrieved December 7, 2016, from https://www.childrenshospitals.org/Issues-and-Advocacy/Children-With-Medical-Complexity/Fact-Sheets/Defining-Children-With-Medical-Complexities. For the purposes of the CARE Award, children with complex medical conditions are defined using 3M's Clinical Risk Groups (CRG) algorithm, as those with 3M CRGs 5b-9. Other pediatric CMMI awardees have defined this term differently.

[4] CHA (2016). CARE Award. Programs and Services. Retrieved December 7, 2016, from https://www.childrenshospitals.org/careaward.

the geographic and demographic makeup of a population, the number of members enrolled in each Medicaid subprogram or managed care organization (MCO), as well as the healthcare providers the members have been visiting. Statistics can be analyzed by diagnosis cohort and stratified, for example, by decile of historical healthcare expenditures per member. CARE Award hospitals have observed important and unexpected features of their populations using our historical data analyses. As we shall see in the next section, the potential for large claims can be estimated from historical data, which is a crucial consideration in many alternate payment models.

A financial projection can also be constructed based on the historical data. A baseline financial projection can estimate the financial impact of a new program for each of the stakeholders. The assumptions of the model can then be sensitivity-tested. In other words, we vary one or more of the assumptions and measure the potential financial impact on each of the stakeholders, thus estimating the potential financial impact of key risks.

We show an example in Figures 1 and 2. These examples show two illustrative scenarios for a two-sided shared risk arrangement (one example of an alternate payment model). In a two-sided shared risk arrangement, generally two parties agree to share the financial impact of claim cost decreases or increases relative to an agreed-upon benchmark claim cost during a period of time referred to as the performance period. The benchmark cost is usually developed from the historical healthcare expenditures of the attributed population,[5] with adjustments including risk adjustment and trend.

Figure 1 shows an illustrative simplified financial projection using a 5% savings assumption. In this illustrative projection, the provider shares in 50% of either the gains or the losses, which are calculated as the difference between performance period claims per member per year (PMPY) and benchmark claims PMPY.

FIGURE 1 SHARED SAVINGS FINANCIAL PROJECTION: PROVIDER GAIN

	PROJECTION
ENROLLEES	1,500
BENCHMARK CLAIMS PMPY	$12,500
PERFORMANCE PERIOD CLAIMS PMPY	$11,875
TOTAL POTENTIAL SHARED SAVINGS OR (ADD'L COST) PMPY	$625
% SHARE FOR PROVIDER	50%
TOTAL SAVINGS SHARED OR (ADDITIONAL COST) PMPY	$312
TOTAL SAVINGS SHARED OR (ADDITIONAL COST)	**$468,750**

Figure 2 represents a sensitivity test wherein costs increase by about 7.5% compared with the benchmark. The difference in financial results between the scenarios represented in Figures 1 and 2 is approximately $1,200,000 for the healthcare provider.

FIGURE 2 SHARED SAVINGS FINANCIAL PROJECTION: PROVIDER LOSS

	PROJECTION
ENROLLEES	1,500
BENCHMARK CLAIMS PMPY	$12,500
PERFORMANCE PERIOD CLAIMS PMPY	$13,437
TOTAL POTENTIAL SHARED SAVINGS OR (ADD'L COST) PMPY	$(937)
% SHARE FOR PROVIDER	50%
TOTAL SAVINGS SHARED OR (ADDITIONAL COST) PMPY	$(469)
TOTAL SAVINGS SHARED OR (ADDITIONAL COST)	**$(703,125)**

Note: All numbers are purely illustrative and are rounded.

Figures 1 and 2 are simplified versions of the financial projections we are performing for CARE Award hospitals to estimate the financial effects of alternate payment models. Our financial projections are simulations, which incorporate a number of scenarios to test the sensitivity of financial results to changes under various assumptions. Analyzing multiple-year projections that incorporate multiple variables and sensitivity-testing them is a good way to estimate the financial risks of a new alternate payment model.

Population size matters

Children with complex medical conditions are a relatively small portion of the Medicaid population. The number of children with complex medical conditions enrolled at any one CARE hospital complex care clinic typically ranges from 500 to 2,000 children. The average claims PMPY for a population can be volatile and unpredictable, especially because children with costly conditions (e.g., factor VII deficiency) are usually part of the CARE target enrollment.

The volatility of claims PMPY has important implications for the choice of alternate payment model. If a payment model depends on the predictability of claims, an unexpected result can pose a substantial risk if not properly accounted for.

The volatility of claims naturally reduces with population size. For example, in a population of 500 members with average claims PMPY of $12,500, the addition of one member with annual claims totaling $2,000,000 increases claims PMPY for the entire

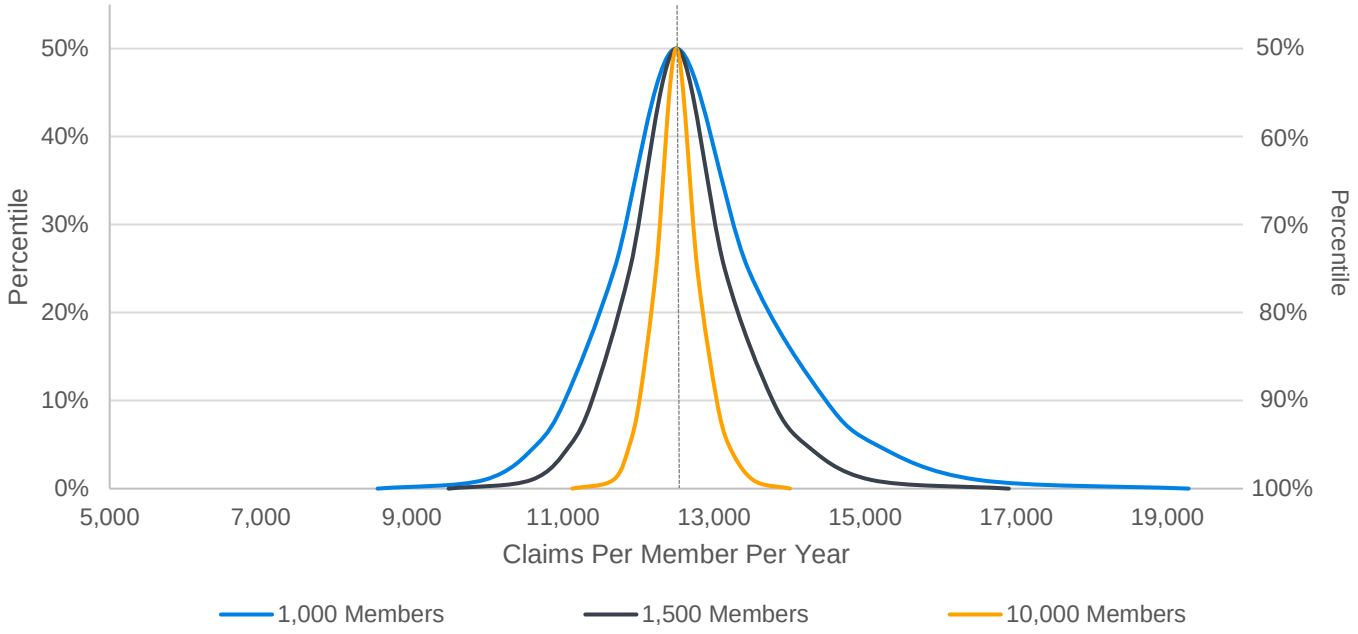
[5] Costs affiliated with the children's hospital. Typically this involves an algorithm that needs to be negotiated with the payer.

population block to $16,467 PMPY, an increase of 32%. In contrast, if the same population originally consists of 2,000 members, the claims impact of adding a member with $2,000,000 of claims is $13,493 PMPY, an increase of 8%.

We perform Monte Carlo simulations of claims PMPY for populations of various sizes using claim probability distributions developed from the historical data of children with complex medical conditions who are eligible for participation in the CARE Award. We show some illustrative results in Figure 3. Each "bell curve" in Figure 3 shows the probability of claims PMPY on the y-axis and the simulated claims PMPY on the x-axis. A thinner bell curve represents a population with less claims volatility, because the probability of very high or very low average claims for the population is lower. We simulated populations of 1,000 and 1,500 members to represent two possible scenarios for ultimate enrollment at one CARE Award hospital. We also simulated a population of 10,000 to illustrate a more credible (i.e., predictable) population.

The tails of the distribution of average claims PMPY are smaller for larger populations. It is therefore less risky to engage in payment models with downside risk for the provider with a sufficiently large population. Children with complex medical conditions have diverse and sometimes very costly conditions. However, by definition, they all have claims; therefore, they may exhibit less claims volatility than a general population (which includes healthy people). This is why it is important to test the claims volatility for a given population.

FIGURE 3: CLAIMS VOLATILITY ANALYSIS FOR CHILDREN WITH COMPLEX MEDICAL CONDITIONS USING MONTE CARLO SIMULATIONS



The devil is in the details

In analyzing historical data and financial projections, we often uncover obstacles for an alternate payment model that were not foreseen by CARE Award hospitals at the outset.

One such obstacle is a lack of high-quality data. By examining the historical data and assessing its reasonability, serious data quality issues may be uncovered and resolved. High data quality is necessary in order to administer most alternate payment models. For example, in a shared savings arrangement, historical claims data are usually used to calculate benchmark and performance period costs for the determination of savings. If data quality issues are not resolved, an additional element of technical and potentially legal risk is introduced. A lack of timeliness in data delivery can also be a significant obstacle.

There are also important regulatory considerations. Many medically complex children are Medicaid-eligible. The myriad of differences between state Medicaid programs means providers should carefully consider the specific circumstances in their

states' Medicaid programs when designing payment models for Medicaid-eligible members.

Providers may find that the ideal solution to some issues may not be practical. For example, many alternate payment models use risk adjusters to control for severity. We have found the risk adjusters currently in place may not be a good fit for a population of children with complex medical conditions, because risk adjusters are typically calibrated to populations consisting of mostly adults. The ideal solution would be to develop a new risk adjuster calibrated to children with complex medical conditions. This would be a large and time-consuming endeavor.

There are many concerns that should be carefully investigated in any payment model, including, but not limited to, patient attribution, risk adjustment, risk corridors, contract language, and the timing of funds disbursement. A thorough analysis of all these facets is essential in order to understand the risks involved in a new payment model.

Don't reinvent the wheel

Some healthcare providers, including CARE Award hospitals, are seeking to implement innovative new payment models. However, there are many practical considerations that can hinder their development. Payers, including state Medicaid agencies, may not be immediately able to try complex new payment models for their Medicaid populations.

Providers looking to develop alternate payment models for a Medicaid-eligible population may need to start small and / or leverage existing programs. Some states have existing innovative payment model programs providers can join or leverage. One such example in Missouri is the Community Mental Health Center Healthcare Homes program. Providers enrolled in this program receive a care management payment to compensate for the care of patients with mental health conditions. For Medicaid populations, providers can explore programs offered in their states as a first step into the landscape of alternate payment models.

While these programs can sometimes provide meaningful payments for initiatives like the coordination of care, they don't have to be the final destination. These programs can become a stepping-stone on the way to more sophisticated alternate payment models.

It takes two to tango

In order to implement new payment models, providers need willing partners in their payers. If a payer is not willing or able to implement a new payment model, a new payment model cannot be implemented.

Payment models need to be implemented by at least two parties: a payer and a provider. There may be multiple provider groups involved (e.g., a hospital and a physician group) or multiple payers (e.g., a state Medicaid agency and an MCO). The parties involved will need to agree upon a wide range of contract items in order to implement a new payment model.

Contract language will need to be drafted. Negotiations to agree upon final contract language can be lengthy. A good relationship with the payer can facilitate and expedite this process. Providers will likely need to acquire data from the payer in order to facilitate the analyses described in this paper. The provider may need to work with the payer to resolve data quality issues and other concerns. With a willing partner, everything from the acquisition of data for analysis to the negotiation of the details of the new payment model can be facilitated.

Conclusion

Each healthcare provider's circumstances are unique, which is why a provider should engage in a careful review of all the facets of a new payment model before implementation. The type of analyses we describe in this paper can assist a provider in its review of the risks and rewards of an alternate payment model.

Through a review of our actuarial analyses, CARE Award hospitals participating in the CARE Award are exploring the financial risks and rewards of alternate payment models. Our analyses have assisted CARE Award's hospitals in identifying substantial financial risks as well as material opportunities in their new payment models. A careful review of the important considerations for a new payment model has uncovered unforeseen obstacles, particularly with respect to Medicaid data quality, uniformity, and timeliness. With an understanding of the risks and opportunities present in alternate payment models, hospitals can move forward toward their goal of obtaining new funding for the coordination of care.

Limitations

The authors are consulting actuaries for Milliman, Inc. The authors are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The figures presented in this report are purely illustrative. The average claims cost PMPY for children with complex medical conditions can vary greatly, and the numbers in this report should not be considered average claim costs.

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