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reaping the benefits of an actuarial mindset

By thinking like an actuary, healthcare provider organizations can prepare to contend successfully with the expanding risk that characterizes the nation's changing healthcare system.

AT A GLANCE

Healthcare organizations can benefit from applying actuarial thinking in four key areas of activity:
> Negotiating with insurers
> Managing value-based contracts
> Evaluating clinician performance
> Applying predictive analytics

As the complexity of the U.S. healthcare system continues to increase, it presents mounting risks and challenges for its stakeholders. Payment reform and the new technologies arising from the growth in healthcare data are fundamentally changing the way health care is financed, monitored, and delivered.[a] Healthcare providers are held to higher quality standards than ever before, even as many are exposed to new financial risks they may not be equipped to manage.

As healthcare provider organizations increasingly incorporate value-based care contracts into their business model, they are compelled to strategically adapt their approach to financial management, develop strong risk management functions, and recognize new opportunities. These organizations can benefit in many ways from adopting actuarial approaches, which can help them improve financial security, strengthen their leverage in negotiations, and advance their clinical capabilities. Here are just a few activities in which thinking like an actuary can be beneficial to providers.

Negotiating with Insurers

Whether negotiating a traditional fee-for-service arrangement or an alternative arrangement that passes some risk to the provider, healthcare

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a. Rands, K., "How Big Data Is Disrupting The Healthcare Industry," *CIO*, Aug. 1, 2017.

insurers are using actuarial techniques to evaluate and compare provider value. For example, it is a nearly universal practice among insurers to evaluate provider costs on a risk-adjusted basis to ensure the costs are not skewed by the health status of the provider's attributed patients.[b] Claims can be repriced to a single provider contract or to a benchmark fee schedule to compare different contracts on a consistent basis.[c] For insurers whose revenue is subject to risk adjustment programs, like those under the Affordable Care Act (ACA) and Medicare Advantage, actuarial insight into provider coding performance can be gained using sophisticated tools that identify patients who may be incorrectly coded.[d] Insurers come to the negotiation table with a toolbox full of actuarial analytics in support of their proposals, and they use those tools to determine which providers should receive favorable network placement.

Providers can improve their leverage in negotiations by gaining insight into the insurer's perspective. As data become more central to negotiating value, providers must be able to validate, interpret, and critique insurer analyses. An independent actuarial evaluation may improve a healthcare organization's confidence in the data used to value its performance and set contract terms.

Providers also have an opportunity to improve their value proposition and negotiating power by working to improve the data on which insurers focus (risk scores, for instance) or, even better, by taking advantage of data sources that insurers may be unable to access.[e]

Although some provider organizations—health maintenance organizations (HMOs) and other integrated delivery systems, for example—have been assessing and managing actuarial risk for some time, it is a new skill for many providers participating in value-based care contracts, and one that is critical to their success. These providers therefore should take steps to effectively apply actuarial thinking to structuring and negotiating such contracts to make sure their interests are represented and protected.[f]

Amid the pressure to reduce costs and improve quality, health insurers have numerous financial incentives to partner with providers and share risk.[g] When providers take on risk, it is important for them to ensure the payments they receive adequately cover the risks they are assuming. In particular, providers should quantify the likelihood of both favorable and adverse outcomes so that the level of risk they assume aligns with their risk tolerance, and they should ensure that the appropriate risk mitigation strategies (stop-loss provisions, for example) are put in place.

In an ideal world, efforts to improve quality and reduce cost naturally align incentives and encourage collaboration between insurers and providers. Providers that have an actuarial perspective are better positioned to develop and maintain mutually beneficial and sustainable relationships with insurers.

Managing Value-Based Contracts

Provider organizations have increasing incentives to participate in value-based payment contracts.[h] Yet value-based payment models can be very complex, and contracts for different subsets of a patient population can have drastically different terms. A small inconsistency in the data or algorithms used to evaluate these arrangements can have significant financial implications. Moreover, an inconsistency in the interpretation

b. Ward, B., "Risk Adjustment and Provider Profiling: My Patients Are Sicker," Milliman Healthcare Analytics Blog, Jan. 11, 2013.
c. Lewis, D.C., and Mills, C., *Provider Reimbursement Analytics*. Milliman white paper, Nov. 30, 2016.
d. Hirsch, J., Kahn, H., and Yi, R., *Provider Coding Accuracy in Commercial Value-Based Contracts*, Milliman white paper, October 2017.
e. Doyle, M., "The Value of Claims Versus EHR Data in Care Management and Population Health Analytics Strategies," Health Catalyst, Accessed March 10, 2018.

f. Pantano, M., *Are You Ready for the New World of Value-Based Reimbursement*, Milliman white paper, July 11, 2016.
g. Liner, D.M., *Regulatory Capital Strategies in an Evolving Health Insurance Landscape*, Milliman white paper, August 2017.
h. It should be noted that the term *provider organization* here encompasses all entities covered by value-based payment methods, including eligible practitioners, group practices, and virtual groups.

of ambiguous contract terms can affect outcomes by substantial margins. Thus, as providers take on more risk, they require more and more the ability to forecast, monitor, and track financial outcomes. In short, to manage risks effectively, they should develop a strong IT infrastructure and an actuarial function to monitor performance, reconcile data, and validate settlements.

Provider organizations participating in value-based contracts also should be aware of how their clinical strategies influence their financial results. To maintain this awareness, they must track and understand progress toward the quality metrics and targets established under the contract. Routine reports and monitoring of performance metrics and contract targets can help ensure provider resources, incentives, and goals are focused in ways that support favorable financial outcomes.

Another central consideration in managing performance under value-based contracts is patient attribution. In value-based arrangements, patients are assigned, or *attributed*, to the providers that are held accountable for their care according to the provisions of the contract. Providers should understand the implications and manage the risks associated with various attribution methodologies.[i] A solid actuarial risk management strategy includes evaluating the impact of changes in practice patterns or operational strategies and understanding how attribution affects the allocation of savings (or losses) among physicians or physician groups.

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) is a primary example of how providers are being given incentives to deliver high-quality care and participate in value-based contracts—also referred to as advanced alternative payment models (APMs). It also exemplifies why it is so important for providers to identify opportunities and quantify the complex risks inherent in a value-based environment.

Under MACRA, Medicare payment rates will remain flat or increase by minimal amounts in future years, and payment adjustments will be made based on the Merit-based Incentive Payment System (MIPS). MIPS will reduce payments for low-performing providers and increase payments for high-performing providers. Providers participating in advanced APMs who meet certain requirements may elect to forego the uncertainty of the MIPS adjustment and receive a 5 percent bonus on Part B payment instead. In future years, participation in APMs in other markets (i.e., commercial or Medicaid) will add to an organization's ability to qualify for bonus payments. Most recently, the Centers for Medicare & Medicaid Services (CMS) introduced a new voluntary bundled payment model—called Bundled Payments for Care Improvement Advanced (BPCI Advanced)—that will qualify as an advanced APM option. In the press release announcing its launch of the model, CMS notes, "BPCI Advanced participants may receive payments for performance on 32 different clinical episodes, such as major joint replacement of the lower extremity (inpatient) and percutaneous coronary intervention (inpatient or outpatient).[j]

It is incumbent on providers to decide how to respond to new MACRA requirements, and those decisions come with significant financial implications and risks. A clear actuarial strategy requires advanced planning and monitoring, an understanding of the organization's risk tolerance, and multiyear financial modeling of a range of possible outcomes.[k]

Evaluating Clinician Performance

Many provider organizations are recognizing the role of evaluating the performance of physicians and other clinicians toward meeting clinical and financial goals. Comparing physicians' performance with that of their peers or with a standard benchmark can inspire healthy competition and

i. Pantely, S.E., *Whose Patient Is It? Patient Attributions in ACOs*, Milliman healthcare reform briefing paper, January 2011.

j. CMS, "CMS Announces New Payment Model to Improve Quality, Coordination, and Cost-Effectiveness for Both Inpatient and Outpatient Care," press release, Jan. 9, 2018.
k. Kunkel, C., Norris, C., Dong, L., *MACRA: Key Issues for Providers*, Milliman white paper, December 2016.

encourage improvement. For providers partici-pating in value-based payment arrangements, it may be prudent to monitor performance relative to the targets established in the contract.

However, because every physician's patient panel is unique, with its own distinct characteristics, thoughtful consideration is required to ensure performance is measured consistently across all physicians.[l] Provider organizations must be able to mine large data sets to select the appropriate performance metrics and compare them in an actuarially adjusted way. The objective should be to account for the impact of inherent patient characteristics that are not directly affected by the physician's performance, such as demographic mix, case mix, underlying morbidity, outliers, and other variables. This process also requires an in-depth understanding of each metric's proper-ties so that the metrics are measured, compared, and communicated in a way that will be useful to clinicians. An actuarial approach establishes processes to monitor these metrics over time so that they can be used to inform clinical and business decisions.

Applying Predictive Analytics

Predictive models are powerful tools that can be used by providers to inform and support clinical decisions and improve financial outcomes. With the increasing prevalence of electronic health records (EHRs), the opportunities to use predic-tive analytics in health care are expanding rapidly. According to a recent survey conducted by the Society of Actuaries, 89 percent of providers currently use predictive analytics or plan to do so in the next five years, and 57 percent of executives in provider organizations forecast predictive analytics will save their organizations 15 percent or more over the next five years.[m]

Predictive models forecast future unknown outcomes by using statistical and machine-learning algorithms to identify patterns and

relationships in historical data. For example, predictive models can help identify patients who might benefit from preventive care, intervention, or care management—and further, those patients most likely to respond to attempts to engage them in such programs. They can support evidence-based medicine by predicting the outcomes of various treatment options or the effectiveness of a new therapy.[n]

Provider organizations also can use predictive analytics to forecast the outcome of value-based payment arrangements or to detect potential fraud and abuse. Implementing effective predic-tive models, however, requires not only the technical skills needed to select the appropriate data and design predictive algorithms, but also the expertise to translate results into meaningful business solutions.

Many of the predictive models used today were developed using historical administrative claim data. They rely on patient encounter information such as medical cost, utilization, procedures, diagnoses, and demographics. Claim data are useful because such data are discrete and structured and follow a patient throughout the continuum of care (i.e., from provider to provid-er). However, claim data lack important clinical details and therefore do not provide a complete picture of a patient's care.

Healthcare organizations have an opportunity to enhance their predictive capabilities by leverag-ing both claim and clinical data sources. When paired with claim data, clinical data such as medical records, lab results, socioeconomic variables, and patient feedback measures offer a more comprehensive view of a patient's health-care profile.

Of course, such an undertaking poses challenges for providers. For example, providers may find it difficult to obtain complete claim data. Moreover, clinical data often are of insufficient quality and

l. Herbold, J., *Evaluating Healthcare Provider Performance*, Milliman healthcare reform briefing paper, October 2015.
m. Society of Actuaries, *2017 Predictive Analytics in Healthcare Trend Forecast*, 2017.

n. Parikh, R.B., Obermeyer, Z., Bates, D.W., "Making Predictive Analytics a Routine Part of Patient Care," *Harvard Business Review*, April 21, 2016.

consistency, may not be in a standardized format, and are inaccessible for care rendered outside of the provider system.

Determining how best to combine the clinical and claim data presents another complex obstacle.[o] Doing so requires the ability to standardize data elements, link patients from multiple data sources, and combine the data in a centralized data repository. Unlocking the full potential of unstructured data such as clinical notes may require sophisticated analysis such as natural language processing.[p]

Nonetheless, healthcare organizations that find opportunities to overcome these challenges may develop a more robust data infrastructure ripe for predictive analytics.

A Clear Choice

Although today's healthcare landscape remains fraught with uncertainty, healthcare providers can be certain of one thing: Risk will continue to be a growing force in the healthcare industry.

As healthcare leaders search for ways to control spending and improve quality, the reality is that insurance risk is being spread beyond the insurance entity. Provider organizations that leverage actuarial techniques to secure equitable contracts, evaluate and monitor performance to encourage growth, and use predictive analytics to inform clinical and financial decisions will be best positioned to succeed. ■

o. Doyle, M., *The Value of Claims Versus EHR Data in Care Management and Population Health Analytics Strategies*, Accessed March 10, 2018.
p. Miliard, M., "EHR Natural Language Processing Isn't Perfect, But It's Really Useful," *HealthcareIT News*, May 18, 2017.

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