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Underwriting excellence: The foundation for sustainable growth in health insurance

Florian Schaudel, Florian Niedermann, Sandeep Kumar, and Konstanze Reinecke

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Excellent underwriting capabilities can make possible not only sustained risk taking but also greater efficiency, organizational growth, a better customer experience—and even improved patient health.

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In health insurance, underwriting is often viewed from one of two perspectives. Insurers that focus on technical soundness frequently use restrictive underwriting standards and complex procedures, and limit the intake of new customers to ensure a profitable and healthy membership base.[1] In contrast, insurers that focus on distribution typically view underwriting as a necessary step—but one that should be carefully applied so it does not stand in the way of capturing new customers.

In both cases, the underlying paradigms assume two things that may no longer be true:

- Underwriting is a purely technical step that determines whether someone should be taken on as a customer
- Certain goals, especially profitability and membership growth, are often mutually exclusive

We believe that a paradigm shift is in order. Recent advances in technology, operations, and insurers' organizational mind-sets (e.g., regarding customer experience) make it possible to look at underwriting from a new perspective. When underwriting is performed as a holistic exercise that takes into account multiple factors, including process design and behavioral economics, it can have a positive effect on a wide range of interconnected goals (Exhibit 1). For example, it can:

Open up new growth opportunities. Excellence in underwriting can help health insurers better understand the factors that truly drive risk and develop financially attractive products designed to mitigate those risks—products that can then be offered to a broad audience, including previously uninsured individuals. For example, rather than using simplistic criteria for customers with lifestyle conditions (e.g., a body mass index cutoff for obese patients), insurers could develop more nuanced standards based on large longitudinal studies so they can expand insurance coverage to a broader audience at pricing that correctly reflects the underlying risks.

Influence patient/customer health. Insurers can also help mitigate risk—and improve patients' health—by including in their products incentives for healthy behaviors, such as achieving certain fitness goals, participating in condition-specific disease management programs, or complying with treatment. These products can sometimes also broaden the product's customer base. Underwriting excellence makes it possible to tightly link the impact of these incentives to the lower medical costs and other potential savings associated with improved patient health.

Improve customer experience. Underwriting excellence also makes it possible for insurers to simplify medical questionnaires and other enrollment processes, increase transparency,

[1]This approach is not legally permissible in some countries.

improve customer journeys, and take advantage of alternative (usually self-service digital) forms of data entry. These levers can greatly enhance the customer experience and increase the rate of conversion from lead to customer.

Increase efficiency. Simplification, digital channel use, and the application of advanced analytics to large data sets hold the potential to dramatically improve straight-through-processing (STP) rates. In addition, they make it possible to embed the remaining manual steps into a system with overall operational excellence, which further improves accuracy and efficiency.

Take sustainable risks. Perhaps most important, underwriting excellence can ensure the sustainability of an insurer's risk taking by providing a fact-based, analytical understanding of the effects of certain conditions (both medical and nonmedical), thereby increasing the insurer's ability to manage the associated risks.

In short, underwriting excellence can fundamentally reshape the way health insurers think about and manage risk.

What is needed for underwriting excellence

Underwriting excellence requires technical soundness, customer-centric process redesign, and focused product innovation (Exhibit 2). The three work together to form a virtuous circle. Outlined below are the primary levers used in each of these areas. These levers are not independent efforts but rather an interrelated set of activities that work in concert to achieve excellence. (Note, however, that a country's regulatory environment may dictate which of these levers can be deployed.)

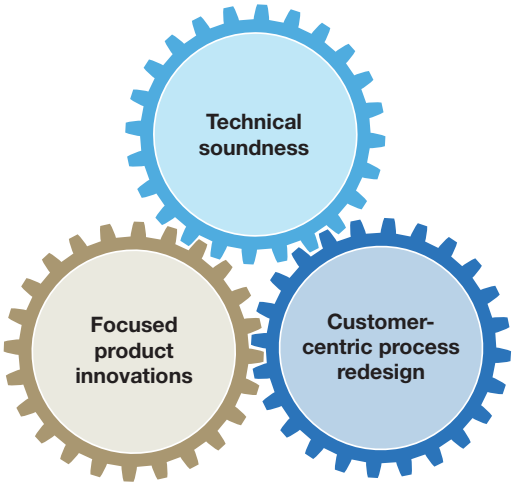
Technical soundness

Underwriting excellence is based on a detailed understanding of how risk can be assessed, evaluated, and covered. An insurer must therefore have a fact-based view of the risks it is taking, what effects those risks could have, and whether the expected costs associated with the risks are manageable. The specific levers required to achieve technical soundness can vary depending on the regulatory environment of a given health system, but the following issues are relevant in most contexts.

EXHIBIT 1 **Holistic effects of underwriting excellence**

Improved customer experience	Sustainable risk taking	Increased efficiency	Healthier patients	New growth opportunities
Using simpler questions, faster processes, more understandable communications	Maintaining overall health of members; ensuring adequate profitability	Using simplified processes and underwriting logic; maximizing use of automation and customer "self-service" for data entry	Linking healthy behaviors (e.g., fitness, treatment compliance) to underwriting conditions (e.g., risk premiums)	Providing more attractive offerings; enrolling a wider range of customers

EXHIBIT 2 **Underwriting excellence levers can create a positive feedback loop**



1. Identification of very-high-cost diseases
2. Understanding of customer attitudes about health plan and healthcare utilization
3. Integrated fraud management
4. Evidence-based risk modeling
5. End-to-end process redesign
6. Simplification of medical questionnaires
7. Inclusion of behavioral economics approaches
8. Integrated health and benefit management
9. Audience-targeted product positioning
10. Risk management as a service

Very-high-cost conditions. These conditions are generally rare diseases (e.g., severe metabolic, autoimmune, immunodeficiency, or coagulation disorders). Some are present at birth; others arise later in life. Several of the conditions, including glycogen storage disease type II and hemophilia, incur very high annual medical costs.

Because prevalence is so low, underwriters may not be aware of the diseases or their high costs. Consequently, the underwriters may not factor in the small possibility that the insurer might have to cover medical expenses for these diseases, especially when they are determining pricing for contract renewals or group contracts. To incorporate this risk into their planning, many insurers may need to update their underwriting guidelines and processes.

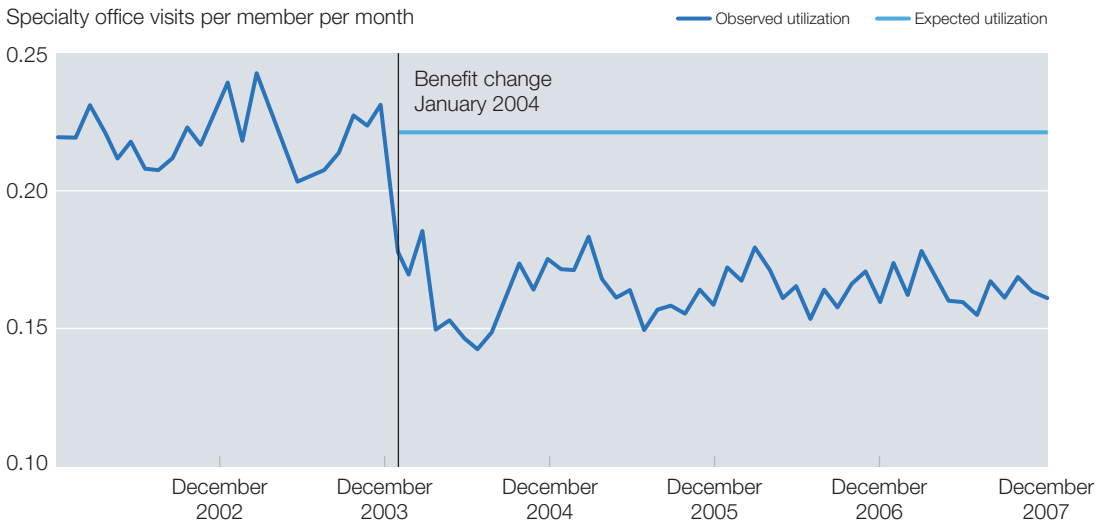
In addition, many insurers may need to look outside their own organizations to develop a realistic understanding of the costs associated with these diseases. Because of their low prevalence, an insurer's own data may not be sufficient. Wherever possible, insurers should take advantage of publicly available information (e.g., medical registries and the data used in public risk-adjustment schemes).

Customer attitudes about service consumption. In health insurance, unlike other insurance lines, claims are common. Customers who purchase term life or fire insurance may be happy if they never need to file a claim. In contrast, most health insurance customers expect to receive tangible near-term benefits, and some may try to maximize the cost-benefit ratio between premiums paid and benefits received. Furthermore, because health insurance covers most or all healthcare costs in many countries, some people may overutilize health services.

Although the impact of customer attitudes on healthcare consumption cannot be completely negated, it can be reduced through the use of value-based insurance design, such as copayments and incentives (financial or non-financial) for low service consumption. The effects of these approaches can be significant.

EXHIBIT 3 **Impact of value-based insurance design**

Observed and expected specialist care utilization among Mayo clinic employees following an increase in health plan premiums



Source: Shah ND et al. Mayo Clinic employees responded to new requirements for cost sharing by reducing possibly unneeded health service use. *Health Affairs*. 2011;30(11):2134-41.

For example, the Mayo Clinic was able to markedly lower the number of costly specialist visits made by its employees after it implemented a value-based insurance approach (Exhibit 3).[2]

Integrated fraud management. An accurate understanding of customers' health status is essential for correctly assessing risk. This is especially true in countries that permit health insurers to price individual policies based on each person's health status. However, it is also important for group contracts so insurers can accurately price and later manage risk.

Insurers may be given inaccurate information intentionally or unintentionally. Some applicants may be dishonest, but inaccuracies can also arise if applicants do not fully understand the questions being asked or if intermediaries with a conflict of interest (e.g., agents with sales targets) skew applicants' responses. In all cases, the result is impaired portfolio profitability because the cost of nondeclared conditions must be borne by the whole portfolio. Inaccurate information also makes it more difficult for insurers to price correctly in the future.

A dedicated system designed to rapidly detect inaccurate information is therefore crucial for technical soundness. The system should include comprehensive procedures for detecting inaccuracies, starting with a regularly updated, automated process for comparing the diseases declared by new customers against subsequent claims. Even better results can be obtained when early detection is combined with active steps to improve data accuracy. For example, simplified questionnaires that potential custom-

[2]Shah ND et al. Mayo Clinic employees responded to new requirements for cost sharing by reducing possibly unneeded health services use. *Health Affairs*. 2011;30(11):2134-41.

ers can understand and fill out themselves reduce the likelihood of misinterpretation. As we discuss below, behavioral "nudges" can also be used to encourage honesty when the questionnaires are being filled out. A clear declaration of the implications of intentional fraud also helps.

Evidence-based risk modeling. At many health insurers, medical underwriting guidelines are a patchwork of best practices, expert opinions, external tools, and long-established policies. Only rarely have the guidelines been updated based on published research or the decades of information available in claims data (from an individual insurer or through a partnership between an insurer and reinsurer). By taking advantage of such information, insurers can better understand both the progression and cost of various diseases, as well as the actions that could potentially mitigate them.

Risk modeling is the core of technical soundness, but how the risk modeling is done can vary significantly, depending on two factors:

- The regulatory setup an insurer operates in (e.g., is the underwriting done on an individual or community level? Should it cover one year—or for life?)

- The available talent and data (see below)

Customer-centric process redesign

For consumers, applying for health insurance often has emotional as well as economic implications. Underwriting is an important part of the application process and can promote success—or be an obstacle to conversion. By taking a fresh look at their application and onboarding process, health insurers can spot opportunities to improve efficiency and the customer experience, reduce fraud, and attract new customers.

End-to-end process redesign. Few health insurers today have a customer-centric application and onboarding process. A complete redesign is often needed to solve this problem (Exhibit 4). What a given insurer chooses to focus on most will depend on its specific situation. Some may view simplified data entry as their primary goal; others may want to stress the ability to offer consumers quick checks for eligibility and an intuitive process for obtaining an initial quote.

The results of a complete redesign are often substantial. We have seen health insurers achieve double-digit increases in new business or improve their technical results (their combined ratios) by 2% to 5% (depending on their starting point).

Simplified medical questionnaires. Simplified questionnaires can improve the customer experience as well as data accuracy. As the sidebar on p. 7 shows, a variety of approaches can be used, alone or in combination.

In our experience, a healthy person should have to answer no more than three questions about their health status to provide the necessary input. For applicants with pre-existing conditions, the task should take no more than 10 or 15 minutes, and help should be readily available if they get stuck at any point.

In countries where health insurers are permitted to require applicants to undergo physical examinations, the tests performed should be based on the conditions and risk factors an applicant has acknowledged having, as well as the specific product (benefit type, coverage, and limits) being applied for. Analytics can help inform this decision by identifying risk factors that, alone or in combination, increase claims frequency. However, the actual decision should be made by an expert medical panel.

Behavioral economics approaches. "Nudges" based on insights from behavioral economics can be used to improve the accuracy of submitted data and the subsequent underwriting process. Some of the core insights for health insurers include:[3]

- ***Implicit expectations:*** Applicants often read between the lines to see what they "should" say
- ***Self-image:*** Most applicants decide for themselves which "truths" they want to believe about themselves (e.g., the smoking rates reported on health insurance applications are often significantly below the smoking rates in the overall population[4])
- ***Context:*** Signing a form before filling it out can double the accuracy of the information provided[5]
- ***Word choice:*** Complicated, multi-statement questions are likely to yield inaccurate results

EXHIBIT 4 **Exemplary elements of an end-to-end process redesign**

Selection finalization	• **Integration of customer into the process:** Customers can follow product configuration in real time • **Continuity:** The online site for product purchase looks very similar to the site members use to access services
Quick check and rate calculation	• **Interactivity:** Customers can intervene in the policy finalization process at any time, if they want to • **Transparent process:** All data and entered information is summarized intuitively and transparently to customers (before the policy is issued)
Risk assessment	• **Pre-check:** To determine an applicant's eligibility, a one-minute quick assessment suffices • **Self-service:** Customers can answer health-check questions on their own • **Verification without additional questions:** If possible, data from other carriers is used to verify information so that applicants do not have to answer additional questions
Capture of master and collection data	• **Digital data capture:** All data can be captured by scanning or data transfer
Application and policy finalization	• **Direct policy issuing:** Customers enjoy immediate insurance coverage and receive a digital policy at the point of sale • **Paperless:** Documents are permanently available online; no signatures on paper are needed
App launch	• **Direct access:** Customers are given access to app at the point of sale • **Introduction to access portal:** Customers learn about the portal's functions and capabilities directly at the point of sale • **Status overview:** Offers transparency regarding finalization progress and an overview of customer activities

Underwriting process redesign is usually best done as part of an overall redesign of application/onboarding

[3]Warren L. Behavioral economics: Making improvements in health insurance. Lecture given at the Society of Actuaries meeting. June 16, 2016.
[4]Galewitz P. Smokers' ranks look conspicuously sparse in Obamacare. Kaiser Health News. May 4, 2016.
[5]Nobel C. Signing at the top: The key to preventing tax fraud? Harvard Business School Working Knowledge. June 2, 2011.

Steps for simplifying medical questionnaires

- Reduce the number of questions asked, particularly in areas where customers may not be able to provide accurate information (e.g., differentiating between variants of a disease)
- Make the questionnaire dynamic by using the answers to previous questions to determine what comes next (e.g., specification of a precondition)
- Change the means of entry (e.g., use a body map[1] to help customers explain where they have problems) or pose questions in creative ways (e.g., ask for a list of current medications)
- Use alternative means to assess, and potentially adjust, risk after the initial underwriting—e.g., adjust individual premium levels to the level of (measurable) individual activity or changes in the insured's body mass index
- Where possible, use existing or alternative data sources (e.g., public health plans)

[1]A body map is an illustration of a human body that a person can use to indicate where he or she may be having problems.

The popular science literature about behavioral economics may lead some to believe that applying these insights to medical questionnaires can be a do-it-yourself exercise. In our experience, however, collaboration with experts (including academics) can yield significantly better results—and the results are usually immediately effective.

Focused product innovations

Technical soundness and customer-centric process redesign can enable health insurers to create innovative products focused on customer needs. Those products can, in turn, enable the insurer to further improve its technical soundness and customer-centric processes, thereby completing the virtuous circle.

Integrated health and benefit management. The integration of underwriting with health management creates a powerful combination that can open up coverage for previously uninsured groups and, simultaneously, greatly improve customer experience and net promoter scores. Integration generally takes one of two forms.

In the first, a population (often, a general population) is enrolled in a fitness/activity management program and then financial or nonfinancial benefits are tied to active participation in the program.

In the second approach, a group of people with a specific condition are enrolled in a disease management program, and coverage of that condition is linked to active, compliant participation in the program. What is viable in this area very much depends on the constraints the insurer is facing (particularly whether insurance coverage is for life or renewed annually). Nevertheless, the emergence of disease management programs may allow many insurers to broaden the pool of applicants they may want to attract.

Audience-targeted positioning. A key lever for managing risk is deciding which consumer segments to target and then taking active steps to attract them. This lever can take many shapes, including specific benefit designs, targeted advertising, lead selection, partners to work with, product elements that drive self-

selection (e.g., certain copayments, included services), and network design choices. Tailoring all communications to the targeted segments is particularly important, given that many consumers make decisions about health insurance coverage based on subjective factors. In the United States, for example, a McKinsey survey of consumers eligible to buy individual health insurance policies found that about 70% of those who said they would not purchase coverage had based their decision on political beliefs or attitudes about healthcare utilization.[6]

[6]Anand P et al. Understanding consumer preferences can help capture value in the individual market. McKinsey white paper. October 2016.

Underwriting maturity

The underwriting groups within health insurers differ widely in their level of skill. Thus, the journey toward organizational excellence will be different at each company. The conceptual framework shown in Exhibit 5 can help an insurer determine its starting point.

Although it may be possible to "leapfrog" certain steps, we believe that such an attempt is unwise. Better results will be achieved if an insurer makes certain that the necessary capabilities and technical soundness are in place before it embarks on more advanced activities. There is no magic bullet that can be obtained through a health management program, underwriting tool, or model that can substitute for building strong technical and data analytics capabilities. The effort is significant but well worth the investment.

Nascent. In this first stage, the underwriting group is beginning to establish basic technical soundness so that it can manage high-cost claims, prevent uncontrolled renewals (particularly of group contracts), and make sure risk premiums are based on scientific evidence. The goal is to achieve sufficient technical stability with whatever tools are available so that energy can be freed up to develop the capabilities needed to become more mature.

Basic. In this stage, underwriting is under control from a technical point of view, and basic optimizations of the underwriting and related processes have been put in place. The insurer has sufficient "classical" actuarial talent (derived from other insurance lines, such as life or P&C) that typical challenges are well handled, and it is starting to use claims data or similar sources to create evidence-based models.

Established. The underwriting group is completely sound from a technical perspective, and the insurer has established customer-centric, efficient processes. Data, analytics, and other capabilities are at a level that gives the insurer the freedom to think about where to focus investments to achieve an even greater competitive edge.

Mature. Building on its solid foundation, the insurer has undertaken an end-to-end optimization of all related core processes and has successfully completed several initiatives that derive competitive advantage from its underwriting capabilities (e.g., by being able to insure previously uninsurable populations, or predict the effects of risk through use of advanced analytics and an increasingly sophisticated team of actuaries and data scientists).

Great. The insurer has achieved underwriting excellence because it has fully integrated claims and external data into its model and has a team of highly skilled and motivated actuaries, data

Risk management as a service. A health insurer that has achieved true underwriting excellence could choose to start a new business line. Although the new line could follow the classic model of a third-party administrator to other insurers, other options are also available. An insurer with underwriting excellence knows better than others how to forecast disease- or health-related risks, knowledge that would be extremely useful to organizations in adjacent areas, such as those operating workforce health management programs or designing new reimbursement systems.

scientists, and product designers. Such an insurer is able to experiment successfully with different risk management approaches and can link underwriting to claims and health management and then back to underwriting and product design. In addition, the insurer often explores unconventional risk models and has fundamentally changed how it thinks about and addresses risk.

EXHIBIT 5 **Underwriting maturity framework**

	Focus	1 Nascent	2 Basic	3 Established	4 Mature	5 Great
		"House in order": Basic principles with respect to risk taking are adhered to	Technical excellence is combined with process optimization and capability buildup for further improvements	Established capabilities ensure that the technical side of underwriting is fully managed within standard expectations	First test bed for innovations: Technical and process core is fully in place and capabilities are established	Big data and advanced analytics form the basis for continued innovation of risk underwriting and management
Status of levers	Technical soundness					
	Process design					
	Focused innovation					
Status of enablers	Data					
	Analytics					
	Skills and capabilities					

The darker the color, the more advanced the insurer's capabilities should be

Core enablers

A health insurer that wants to achieve underwriting excellence must have in place several crucial enablers. In some cases, the availability of these enablers may depend, at least in part, on the maturity of the local health insurance market and the underwriting skills within it. (See the sidebar on p. 8 for more details about underwriting maturity.)

Skills and capabilities. It is no overstatement to say that the skill and motivation of the underwriting staff is one of the largest factors determining whether an insurer can achieve underwriting excellence. Thus, talent acquisition, development, and retention should be a priority. However, several factors, including market maturity, strongly influence the availability of the necessary talent (e.g., actuaries, data scientists, and product developers), and so the approaches insurers use to acquire and retain talent will likely vary based on local conditions.

For example, in a basic or mid-stage market, an insurer will likely need to recruit a combination of generalist underwriters with experience handling life or property and casualty (P&C) insurance as well as medically trained specialist underwriters. The generalists can handle most routine issues, but the specialists should evaluate applications that require an assessment of medical risk based on questionnaire responses or medical exam results.

By contrast, an insurer in a mature market may want to develop a new kind of actuarial health-risk manager—someone who combines strong actuarial skills with a fundamental understanding of how health risk works and how to effectively manage it. This type of person would be involved in a range of activities, including product development, underwriting, claims management, and health management.

Big data. One of the health insurance industry's greatest assets—its often decades-long claims data—often goes unused when it comes to underwriting, which more often than not is based on purely heuristic or best-practice estimates rather than fact-based modeling of disease progression and its effects. Building the database needed to access claims data is no easy feat—it often requires digitizing paper-based information and converting different coding schemes into a common format. And, as we discussed, the database may need to be augmented with external data from medical registries, central databases (e.g., national electronic health record systems, as long as appropriate patient consents have been obtained and other local regulations are followed), and other sources. Furthermore, integrating the claims data into the underwriting model can be challenging. However, the rewards are significant because the integration of claims data and underwriting provides a completely different view of the specific risks an insurer faces and how they can be dealt with.

Advanced analytics. Even at insurers that give sophisticated, year-long training to the actuaries in charge of its underwriting modeling, the models themselves are often basic. The use of advanced techniques from machine learning is rare—often, because of the difficulty understanding how the analytics model makes calculations. This problem can be overcome, however. Many insurers may gain a considerable increase in accuracy by using machine learning. However, a subscale insurer may find that it is more cost effective simply to hire an additional claims adjudicator.

New collaboration mechanisms. Achieving underwriting excellence also requires a new

way of working across the organization. In particular, the different functional areas that address risk (e.g., product development, underwriting, claims management, health management) should work much more closely together. These groups should also regularly discuss the insurer's overall risk profile and how it is evolving, and then take steps to address unexpected developments.

Operational excellence. The greatest tools and models are useless if they are not applied rigorously. Thus, the underwriting department that handles new applications must work with a high degree of professionalism, guided by clear key performance indicators (KPIs), regular reviews of salient cases, and continuing improvements in STP rates. Advanced analytics can improve the consistency and accuracy of underwriting decisions by making it possible to better segment customers based on medical complexity and then allocate the policies to the appropriate type of underwriter. For complexity, one of the factors to be considered is the lifetime value of a customer. Sending the most complex and high-value cases to the most experienced underwriters helps ensure that the most complex risks are evaluated by the highest-performing underwriters.

Governance and KPIs. Two of the most important factors for sustained underwriting excellence are governance and KPIs. Loss ratios should be jointly governed by the underwriting, claims, actuarial, and finance departments to ensure that problems are identified and addressed rapidly. Underwriting KPIs should be actionable, cascading, aligned with overall business objectives, and clearly tracked. The KPIs must ensure that the underwriters are writing a high quantity of high-quality business, but they should not make underwriters so risk averse that they cause unnecessary damage to the customer experience.

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For health insurers, the journey toward underwriting excellence can vary significantly, depending on each organization's starting point. But the journey is well worth making. It can improve not only an insurer's financial performance, but also customers' health status and satisfaction with the insurer.

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