SCORviews

SUMMER 2018

MESSAGE FROM THE LIFE AMERICAS CEO

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Innovation Brings New Relevance to Life Insurance

Life insurers and reinsurers are investing in innovation at a pace and level of commitment not seen before. The goal is not only to transform the way we do business but also – and more importantly – *why* we do business.

Some of the most exciting ventures in innovation involve health and wellness programs directed at both new and inforce policyholders. Working with insurtech partners, life insurers are redefining life insurance, expanding its value beyond financial benefits to include features that help policyholders live longer and healthier lives. It's a win-win value proposition.

To help our clients in these endeavors, SCOR is pursuing partnerships and investments in innovation that promote health and wellness, create paths to sustained customer engagement and, ultimately, improve mortality experience. In June SCOR launched SCOR Life & Health Ventures with a mission to bring complementary offerings to our Life and Health clients. For example, SCOR Life & Health Ventures has a strategic partnership with iBeat, makers of the iBeat Heart Watch that continually monitors users' heart activity.

In this issue of *SCORviews*, Rick Pretty, Senior Vice President of Life Research and Development, looks at the health and wellness movement and shares some of the more promising industry initiatives already launched or in pilot stages.

Also in this edition, Dr. Bill Rooney, Vice President and Medical Director, addresses another topic at the intersection of innovation and life insurance – genetic testing. In keeping with a health and wellness theme, Bill looks at the ways genetic testing can influence the detection and management of hereditary disease.

Another area of business where SCOR is increasing our resources and solution set is Financial Solutions. We began to increase our footprint in this segment in 2017 when Alan Routhenstein joined SCOR as Senior Vice President and Head of Financial Solutions. In a *SCORviews* interview, Alan shares his perspective about the state of the US financial reinsurance market and SCOR's plans for expanding its capabilities in this arena.

As always, if you'd like more information on these and other topics, please feel free to contact our authors, your SCOR account executive or me.

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SCOR
The Art & Science of Risk

WELLNESS PROGRAMS

A New Path to Sustained Customer Engagement?

Life insurers have long struggled to engage new customers and stay connected to existing ones. Faced with these challenges, it's no surprise that health and wellness programs are emerging as a promising new approach to customer engagement. They are a natural extension of life insurance, with a win-win value proposition: policyholders live longer, healthier lives and insurers improve their business performance.

By **Rick Pretty**
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While we see innovation in all areas of life insurance, activity in wellness platforms is a fast-emerging disruptor within the life insurance industry. One reason is that insurtech start-ups are keen to break into the life insurance market, and they see big potential in wellness platforms. These new entrants – far from being competitors – are partnering with carriers to help transform the industry.

With today's technological capabilities, the integration of life insurance and wellness services is both feasible and inevitable – and welcomed.

Launched and Piloted Programs

We've already seen a few insurers launch wellness programs aimed at attracting and retaining new customers. An emerging trend involves pilot programs aimed at inforce policyholders. These programs employ a variety of approaches including personalized health coaching, rewards, incentives and progress reporting. The common goal is to keep customers engaged in the programs to the point where their behavior has a positive impact on their health. This is also the biggest challenge as it is much easier to engage individuals up front than to keep them engaged over the long term.

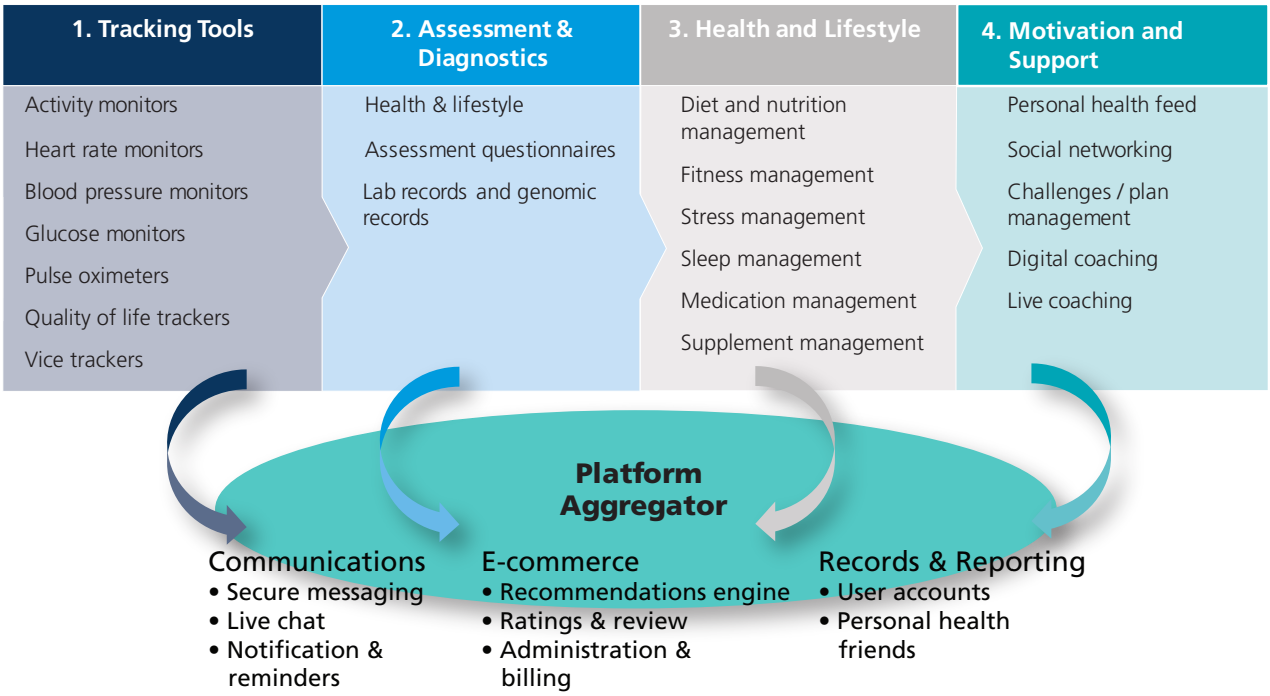
Wellness programs may involve wearable technology where the policyholder gets a wearable device in exchange for allowing the carrier monitor data captured from the device. Data on individuals may include heart rate, activity, sleep and blood oxygen levels.

Other programs are app-based where individuals self-report. Either way, the policyholder sets goals and earns credits that can be redeemed for gift cards or other rewards. In Europe, there are some wellness programs that are designed to reduce or include a rebate toward future life insurance premiums for insureds who demonstrate activities that align to a healthier lifestyle. But this design still faces regulatory hurdles in the US.

Wellness programs deliver a steady stream of actionable data points that insurers can use to interact in a positive way with their customers throughout the duration of a policy. This ongoing interaction can lead to a stronger, trust-based relationship between the policyholder and insurer. It has the potential to change the image of life insurers in the eyes of consumers to be a company that cares about their overall well-being as well as the financial security of their heirs.

From a mortality management perspective, wellness platforms offer rich potential for carriers to develop a better understanding of how health conditions and lifestyle habits affect mortality. SCOR's R&D team is currently working with a client on a protective value study to establish what impact wearables can have on an inforce block of business. Analysis of data from wearable devices has the potential to lead to more accurate pricing and underwriting as well as innovation in product design.

Figure 1: Components of a Wellness Platform



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Everybody Wants to Be Healthy

The wellness phenomenon in the life insurance arena is driven largely by the fact that there is a ready market for it. Research conducted by ReMark, a SCOR affiliate, shows that a focus on health and wellness presents an opportunity for growth. A preoccupation with health is shared by all generations.

ReMark research shows that the priority consumers place on health is attitudinal rather than chronological: 30% of Boomers, 33% of Gen X and 32% of Millennials all cite health issues as a motivation for future policy purchase. Clearly, health matters across the generations. This begs the question: Could the reimagining of life insurance combined with a health and wellness offering lead the way to renewed growth and a brighter future for the industry?

Reinsurers on Board

As a global leader in life reinsurance, SCOR is actively participating in the health and wellness movement. It recently launched SCOR Life & Health Ventures to pursue targeted strategic partnerships and investments in companies that can bring a complementary offering to our clients.

- One venture involves an investment in and partnership with iBeat, a San Francisco-based health and wellness company that created the iBeat Heart Watch. This cellular smartwatch tracks the wearer's heart rate 24/7, can detect oncoming cardiac arrest and engages an expanded emergency response network to shorten the time it takes for help to arrive. We are currently launching a pilot program involving the iBeat Heart Watch with clients.
- SCOR also is working with a genetic sequencing firm that is an innovator in providing data-driven health intelligence to a broader range of people. The health profile they work up is a health plan to help prevent, reduce or postpone the onset of certain conditions with the goal of improving life expectancy of the 50+ cohort by 5-10 years. Similar to the iBeat pilot, piloting this program is geared toward improving the health of in force policyholders.
- In Asia, SCOR launched a Biological Age Model that identifies applicants whose biological age is lower than their actual age. Built in partnership with several companies, it assesses mortality risk using continuous data provided by wearable devices. The goal of the initiative is to increase the number of life insurance products that offer discounts and other benefits to customers who are likely to have more favorable mortality.

SCOR is also an "Anchor Partner" in Plug and Play, a US-based accelerator for tech start-ups. Through this partnership, SCOR gains access to world-class technology start-ups along with an early preview of emerging technology innovations. It is an effective and efficient way for us to broaden and deepen our know-how in technology-driven solutions and strengthen our commitment to disruptive innovation.

Through these and other ventures, we aim to further support our clients in developing innovative solutions to help achieve their growth and strategic objectives.

With today's technological capabilities, the integration of life insurance and health services is not just feasible but inevitable – and welcomed.

UNDERWRITING

Can Genetic Testing Improve Mortality Risk?

Genetic testing is now available for many disorders. We have known for centuries that heredity is involved in many diseases. However, 15 years ago the Human Genome project was completed, and the sequence of human DNA is now known. This major accomplishment has caused an explosion of new information about genetic diseases, confirming previous suspicions in many diseases and identifying the genetic contribution in others.

By **Bill Rooney MD**
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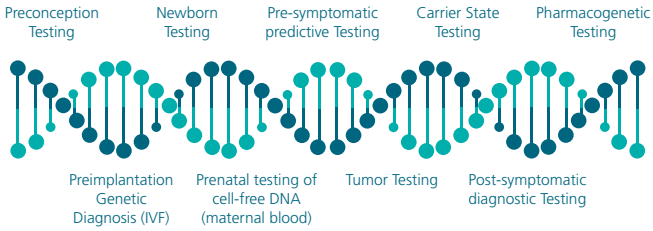
A dramatic increase in genetic tests has become available not only to researchers and clinicians but also to any interested individual through direct-to-consumer vendors. The cost of this testing has fallen dramatically. When done properly, genetic testing has been shown to be accurate and reproducible. A list of genetic testing opportunities that are now available is displayed in Figure 1.

Figure 1: Genetics Testing Opportunities



As often occurs with new technology or scientific advances, there is a delay in gathering enough population data to make reliable judgements about long term outcomes. Scientists and physicians rely on evidence-based data, and with any new technology there is a delay in obtaining this information.

Long term studies need, well, long terms. Therefore, in 2018, patients don't always know which genetic diseases are present in their family, which diseases have tests that would be helpful or which medical professionals to consult to have the testing performed or the results explained.

Fortunately, there are many ongoing studies to gather information on how best to use genetic testing in individual diseases. In addition, population management studies are being performed to evaluate the impact of large scale genetic testing on the general population.

More clinical research is needed to identify which tests have the greatest impact on mortality. Questions on whom should be tested, when they should be completed and which tests to perform have been only partially answered.

As genetic testing has become more available, clinicians now are able to combine genetic as well as non-genetic information to predict the development and/or severity of many diseases. As these genetic risks are being identified, one big question has been at the forefront: Is genetic testing improving mortality risk?

Mortality improvement would be expected only if an outcome from modifying behavior is available and the individual is willing to modify the behavior. Examples of behavior change could include more frequent monitoring/screening, modification of lifestyle risks and/or improved medication adherence. In some cases, disease modifying surgeries such as mastectomies, oophorectomies or colectomies have been shown to modify risk.

Currently, not all genetic diseases have effective disease-modifying behavior changes available to significantly reduce risk (e.g., Huntington's' disease). However, there is a growing list of diseases where specific behavior changes have been shown to reduce mortality risk.

Many inherited diseases have intervention options that can favorably impact mortality. Examples of diseases in which specific behavior changes have been shown to significantly improve risk include those in figure 2.

Figure 2: Specific diseases and behavior changes associated with mortality improvement

Disease/condition with strong genetic component	Behavior change(s) which can favorably impact mortality
Lynch Syndrome	Frequent screening for cancer
BRCA Mutation	Frequent screening for cancer Disease modifying surgery (mastectomy/salpingo-oopherectomy) Hormonal treatment
Familial Adenomatous Polyposis	Frequent screening for cancer Disease modifying surgery (coloectomy)
Hemochromatosis	Frequent phlebotomies
Cystic fibrosis	CFTR modulator treatment Vaccination Prompt infection treatment
PKU	Dietary restriction Pharmacotherapy
Cytochrome P450 2D6 ultra-fast or poor metabolizer characteristics (Pharmacogenetic testing)	Modification of medication dosage or selection
Tumor Genetic Testing	Chemotherapy selection modification

Many inherited diseases have intervention options that can favorably impact mortality.

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Can Genetic Testing Improve Mortality Risk?

Cont.

To illustrate one of the above examples, let's review pharmacogenetic testing. Pharmacogenetic testing has the potential to dramatically impact a person's use of medications. Based upon the individual's medication metabolism characteristics, one can avoid medications that are ineffective or cause serious side effects. In other cases, the dosage can be modified based upon the individual's personal metabolism characteristics to maximize benefit and avoid complications.

Figure 3 illustrates the potential benefit of cytochrome P450 2D6 pharmacogenetic metabolism testing. Approximately 25% of medications are metabolized by this pathway, including such common medications as some antidepressants and pain medications. While 80% of people metabolize these medications at a predictable rate, approximately 5-10% of the population are ultra-fast metabolizers and another 5-10% of people are poor metabolizers.

Some medications such as codeine are prodrugs and require metabolism in the body to begin working. Other medications such as nortriptyline, which is used for depression, work immediately when introduced into the system but are converted into inactive metabolites by this pathway. Thus, an ultra-fast metabolizer can experience a narcotic overdose with typical dosages of codeine. But when given nortriptyline, the medication is quickly converted into inactive metabolites, hampering its effectiveness. Knowing the speed of metabolism can influence the dosage of these medications, making them safer and more beneficial.

The Goal of Predictive Testing

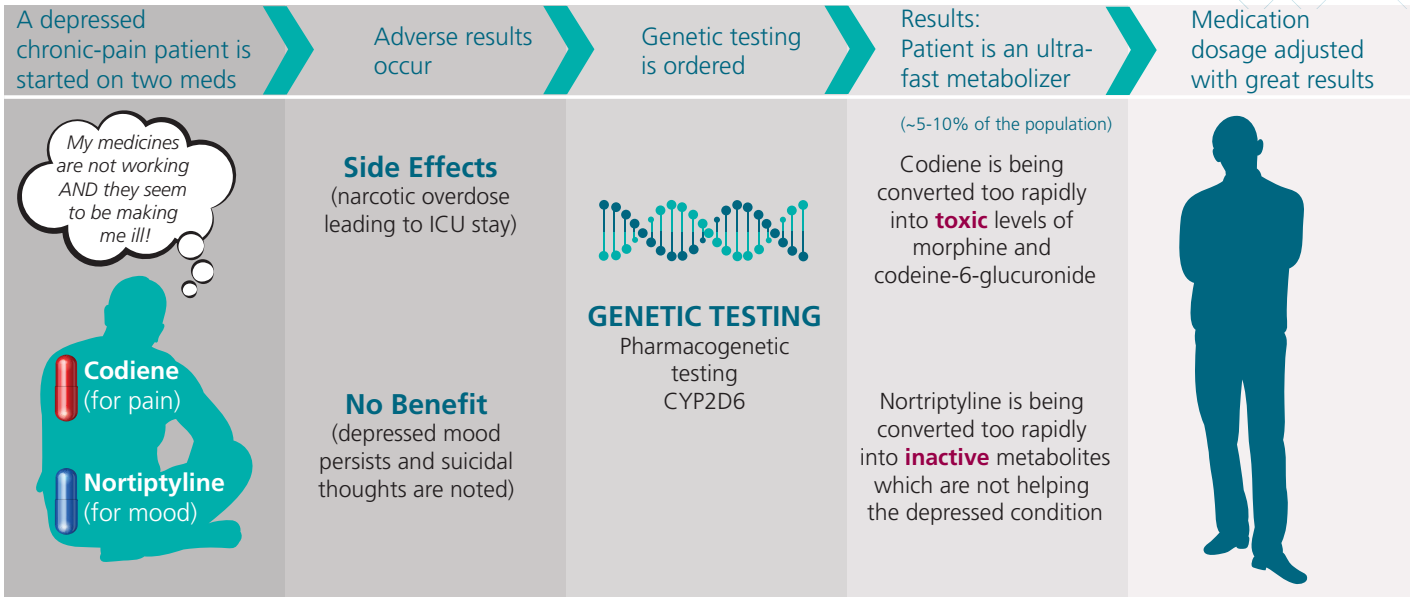
Identifying the genetic disease prior to the onset of symptoms or adverse results is the goal of pre-symptomatic predictive testing. Newborn screening is an example and has been occurring since the 1960s.

In the US and Canada 98% of all newborns undergo testing. The number of genetically linked disorders tested for at birth in the US varies state by state; however, most newborns are screened for at least 29 conditions. These include testing for hemoglobinopathies such as sickle cell anemia (1:5,000), amino acid disorders like phenylketonuria (1:20,000) or other disorders such as cystic fibrosis (1:5,000). When found, treatments can be started immediately which leads to lessened morbidity and improved mortality outcomes.

Cystic fibrosis, for instance, is diagnosed at 0.5 months when newborn screening is done, 0.2 months if meconium ileus occurs in the infant and 14.5 months in all others. The CDC reports that the diagnosis based on symptoms creates a greater than two-fold increase in medical complications over diagnosis resulting from screening. Observational studies have shown a consistently lower mortality rate among screened compared to unscreened infants.

Identifying the genetic disease prior to the onset of symptoms or adverse results is the goal of pre-symptomatic predictive testing.

Figure 3: Cytochrome P450 2D6 Pharmacogentic Testing



Pre-symptomatic testing can involve testing young adults with increased risk. Lynch syndrome is a genetic condition involving a mutation in one of several genes which produce mismatch repair proteins. Those afflicted have an increased risk of developing cancer in their lifetime.

Colon, endometrium, stomach, ovarian and urinary tract cancers are just a few of the cancers associated with this condition. The lifetime chance of developing cancer is estimated to be up to 80% of those with the genetic mutation. Afflicting approximately one out of every 370 people, it is estimated that only 1.2% of people know they have it.

In Lynch syndrome cancer can be prevented or detected early enough to significantly impact mortality. In a well-done 2013 study, H. Jarvinen et. al. documented that colorectal cancer screening can decrease the incidence of invasive colon cancer by 62%. Mortality was estimated to be decreased by 65%. Compliance with the frequent colonoscopy screening suggested in one study was 80%. Even when the recommendation was much more difficult, such as undergoing disease modifying surgery (hysterectomy and bilateral salpingo-oopherectomy to prevent pelvic cancer), 19% proceeded with the recommendation.

Another example of pre-symptomatic, predictive testing is testing for the BRCA mutation in those at increased risk. While the incidence of having a deleterious BRCA mutation is approximately 1:400, the lifetime risk of cancer when the mutation is present can be high.

BRCA mutations are associated with an increased risk of cancer in several different sites for men and women but the highest risk is for breast cancer in women (55-70% risk in carriers to age 70 years). The advantage of early identification of this increased risk is the ability to be educated and participate in proven effective treatments in reducing mortality risk.

These treatments include frequent breast imaging (MRI and mammography), chemoprevention and risk-reducing surgery. Chemoprevention includes taking medications such as Tamoxifen (50% reduction in invasive breast cancer when taken for five years).

Risk-reducing surgery, for instance, includes bilateral prophylactic mastectomy (95% reduction in breast cancer) or bilateral prophylactic salpingo-oopherectomy (90% reduction in ovarian cancer, 50% reduction in breast cancer). The rate of women undergoing contralateral prophylactic mastectomy with breast cancer has been estimated to be 50%

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Can Genetic Testing Improve Mortality Risk?

Cont.

Similar results (53%) were found in one study for bilateral prophylactic salpingo-oopherectomy and/or bilateral prophylactic mastectomy in women identified as being high risk and with a known BRCA mutation but with no personal history of cancer.

Avoiding the disease (along with its mortality implications) is the rationale behind carrier testing. Prospective parents can be tested for many of the autosomal recessive diseases to determine the risk of their children inheriting the disease.

Carrier couples have several options. These options include choosing not to have any further biological children, accepting the 25% risk with each subsequent child, having a child by heterologous fertilization or having in vitro fertilization and a preimplantation genetic evaluation. Several studies have shown a reduction in the incidence of some diseases based upon carrier screening.

Adherence to Recommended Interventions is not 100%

Despite examples of helpful behavior change options after identification of genetic risk, there are hurdles people face in implementing these changes. Similar struggles are encountered when high risk individuals are identified using nongenetic testing.

For example, in well-designed studies, individuals who are given a diagnosis of hypertension or hyperlipidemia based upon nongenetic risk information who are asked to modify their diet, activity level and/or regularly take medication have a difficult time adhering to these recommendations long term.

Figure 4: Adherence to recommended interventions.

Disorder	Intervention	Adherence
Hyperlipidemia	Statin medication	10 years after diagnosis: · Meds taken 42% of days
Hypertension	Antihypertensive medication	6 months after diagnosis: · 8.1% high adherence · 40.5% intermei-date adherence · 51.4% low adhe-rence
Prostrate Cancer Screening	PSA testing (2010 data prior to USPSTF change in recommendation)	Annual testing: · 37.8% of men >50 y/o
Breast Cancer Screening in Women of Average Risk	Mammogram (2015 data)	X-ray within the past 2 years: · 65.3% of women >40 y/o

Likewise, behavior change regarding lifestyle proves to be very difficult for most people. Obese individuals frequently struggle to lose weight; alcoholics struggle with discontinuing alcohol; and smokers struggle with quitting cigarettes. Genetic testing and identifying a strong genetic component to the risk of these adverse behaviors has been shown to have little additional benefit.

Armed with genetic information, factors that could play a role in whether an individual significantly changes behavior might include:

- Presence and severity of symptoms
- Mortality risk
- Penetrance of the disease (how likely when identified as having a genetic predisposition that the disease occurs)
- Typical age of onset
- Education level
- Cost (psychological, time and financial) of the suggested behavior change
- Side effects of the suggested behavior change
- Fully understanding the disease, the genetic testing results and the suggested behavior changes
- An adequate support system which might include encouragement, education and coaching from family members and professional staff
- Difficulty of implementing the change

In summary, accurate genetic testing is now available for many but not all inherited diseases. Based upon this information in many but not all diseases, there are effective treatments available to alter mortality risk. Many people, but not all, when appropriately tested and counseled, modify their behaviour to reduce the risk.

Clearly, there is a huge opportunity for genetic testing to have a significant beneficial impact in not only one individual's life but also in the entire population. However, more studies are needed to further define how best to implement genetic testing in clinical medicine.

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An Interview with Alan Routhenstein

More than mortality risk managers, life reinsurers play increasingly complex roles in their clients' day-to-day business. SCOR provides traditional life reinsurance solutions but has also been a leader in the accelerated underwriting movement that is transforming the life insurance buying experience. For the past 18 months and looking ahead, SCOR is also focusing on building depth and breadth to the financial solutions we offer clients.

In both the US and globally, SCOR has created tailor-made solutions to help clients with reserve and capital strain. New initiatives to increase our footprint in this segment began in January 2017 when Alan Routhenstein joined SCOR Global Life in the Americas as Senior Vice President, Head of Financial Solutions. A recognized expert on XXX/AXXX reserve financing and other capital management transactions, Alan brings in-depth experience in traditional and nontraditional financial solutions for life and health insurers. He came to SCOR from Milliman, where he was a key member of the consulting firm's life insurance initiatives.

In the following *SCORviews* interview, Alan shares his perspective about the state of the US market and SCOR's plans for expanding its capabilities in this arena.

Alan Routhenstein
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The financial solutions area in the US is fairly developed. Will you give us a quick snapshot of where the market stands in terms of supply and demand for services?

Correct, financial solutions in the US is a mature market, and various capital management solutions with comparative advantages and disadvantages are available to direct writers. Solutions include transactions for which the reinsurer's risk of loss is similar to traditional yearly renewable term (YRT) reinsurance or coinsurance of new business as well as transactions for which the reinsurer's risk of loss is more remote.

Financial solutions that are similar to traditional new business solutions include inforce YRT and inforce coinsurance. The former transfers C-2 risk based capital (RBC) to the reinsurer, and the latter also transfers reserves on the directly written policies to the reinsurer.

There is a broader variety of solutions for which the reinsurer's risk of loss is remote. The original approach primarily used surplus relief reinsurance with coinsurance as an incentive to recapture after a specified number of years. The relative prevalence of this approach has varied over time. After the advent of risk-based capital, RBC relief reinsurance became increasingly popular.

It generally involved a YRT treaty with high premium rates and large experience refunds when experience is favorable.

When the National Association of Insurance Commissioners (NAIC) created Regulation XXX and AXXX, some life insurers began to cede their term life policies and universal life policies with secondary guarantees (ULSG) to their own captive reinsurers that obtained reserve financing via an evolving variety of solution types. On a somewhat parallel path with XXX/AXXX reserve financing, financial solutions providing financing for other forms of life, health and annuity products emerged and evolved, and these solutions have generally been referred to as embedded value (EV) financing.

Across these solution types, the overall direct writer demand remains strong, and the market still has ample need for affordable financing. So, we see opportunities for all players, which should make deals more competitive.

How is SCOR staffed to address the overall financial solutions market opportunity in the US, Canada and Latin America?

We have added significant talent to the US Financial Solutions operation. Our management team has grown to include three vice presidents, so we now can simultaneously address multiple transactions covering a variety of solution types. Our vice presidents are George Hrischenko, Dhrubo Krishnaiyer and Jose Siberon.

How would you describe the reception to your expanded participation in the market?

The US market overall has responded quite favorably, as the team has executed three milestone transactions since October 2017, and we have a diverse deal pipeline that includes virtually all the solution types discussed here.

In 2015, Actuarial Guideline 48 (AG48), which modified requirements for XXX/AXXX policies ceded to captives, became effective. At the start of 2017, principles-based reserving, through the enactment of VM-20, was open for adoption for US life insurers. What effect has this had on the market for XXX/AXXX reserve financing?

For the financing of *grandfathered policies* (i.e., pre-2015 XXX/AXXX policies ceded to a captive as of year-end 2014), there's no real effect as they are governed under pre-AG48 rules and the grandfathering is permanent. If such policies were grandfathered as of year-end 2014, the business remains grandfathered, even if a sponsoring insurer decides to refinance, restructure, etc.

For XXX/AXXX *policies that are not grandfathered*, AG48 has had a dramatic impact on the reserve financing market, starting in 2015. When such policies are ceded to a captive or another reinsurer, AG48 requires that qualified invested assets (i.e., Primary Security) be held by the cedant as funds withheld or by the reinsurer as funds in trust for the benefit of the cedant in an amount not less than the Actuarial Method Reserve (AMR), a modified VM-20 reserve defined in AG48.

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An Interview with Alan Routhenstein

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The VM-20 reserve itself is more akin to best-estimate economic reserves plus a conservative margin intended to approximate a 70% Conditional Tail Expectation (i.e., the average of the worst 30% of results across a number of stochastically generated scenarios). Qualified assets include investment-grade securities, derivatives used for hedging purposes, cash and cash equivalents but exclude affiliate investments and forms of financing that do not meet the NAIC definition of Admitted Assets.

As states adopt 2016 Amendments to the Credit for Reinsurance Model Law and a 2016 XXX/AXXX Reserve Financing Model Regulation, each state's version of such law and regulation will replace AG48 as the authoritative documents governing such transactions, but the requirements will be similar to those contained in AG48, with an AMR based on the VM-20 reserve.

What economic impact will VM-20 and AG48 have on direct writers?

The economic impact on direct writers that have historically financed the excess of XXX/AXXX reserves over economic or GAAP reserves has been material. For term life (for which the great majority of policy forms have sizeable XXX reserve redundancy), the net economic impact of AG48 has been to decrease the amount of financing achievable (for companies that only finance the excess over AMR reserves) or to increase the overall cost of reserve financing (for companies that also finance the AG48 strain in a manner that qualifies as Primary Security).

For ULSG (for which the degree of AXXX reserve redundancy has historically varied considerably by policy form), the net impact of AG48 has been similar to XXX for policy forms with substantial redundancies. For other policy forms the net impact has been to make reserve financing uneconomical, leading some insurers to the early adoption of VM-20 for such policy types.

A number of reinsurers and banks have proposed innovative AG48 financing structures to direct writers to cost effectively finance the excess of the AMR over economic or GAAP reserves. But thus far, most regulators have not been willing to approve such AG48 structures, mostly stating a concern that the structures violate the spirit of AG48. Some direct writers, reinsurers and other financing providers have continued efforts to develop cost effective AG48 financing solutions that regulators will approve. It is not yet clear whether such efforts will result in many AG48 financing transactions.

Let's shift to principles-based reserves under VM-20. Thus far, VM-20 has only been adopted by a limited number of insurers for new business but will be applicable for all US insurers' individual life new business on January 1, 2020. How has VM-20 affected reserve financing thus far for the early adopters, and how do you expect that to change over the next few years?

For term life, the majority of VM-20 early adopters were not previously users of XXX reserve financing and, likewise, had no intention of using reserve financing under VM-20. Early adopters that *have* used XXX reserve financing are exploring term life VM-20 financing solutions. We expect one or more transactions will reach the public domain later in 2018 or when year-end 2018 blue books are available. We generally expect this same behavior to emerge over the next two years among later adopters of VM-20.

For ULSG, early VM-20 adopters include a mix of insurers. Some never used reserve financing, and some used AXXX financing pre-AG48 and determined that early VM-20 adoption works better than deferred adoption for ULSG products. Most of the latter would also like to finance their VM-20 ULSG policies but are focused on implementing replicable AG48 XXX and VM-20 term life policy financing before addressing the challenges of VM-20 ULSG policy financing.

Figure 1: Pre- and Post-AG48 Valuation Characterisitics

	Pre-AG48	Post-AG48
Valuation Basics	Regulation AXXX	VM-20
Reserve structure	Reserves held are considered redundant, perhaps excessively	Actuarial Method Reserve is similar to the economic reserve plus a conservative pad, but reserves must be financed with low-yield (primary securities) which can raise the cost of capital
Current reserve financing treatment	If reinsured via coinsurance or modco, ULSG policies issued before AG48's effective date are grandfathered under AXXX	All ULSG policies issued after AG48's effective date are subject to the new guideline
Is financial reinsurance attractive?	Depends on whether the policies were ceded to capital-efficient reinsurers (professional or captive) before AG48 took effect	Yes, for many policies if the reinsurer can present a more competitive structure for financing the primary securities
How does this apply to Term Life?	Financial reinsurance remains an attractive alternative for companies wishing to optimize the performance of their XXX and AXXX policy blocks	VM-20's primary securities requirements offer life insurers an option to seek more efficient financing of this segment of reserves

Given that your team's responsibility also includes Canada and Latin America, how do you see financial solutions developing in these jurisdictions?

Canada and most countries in Latin America have accounting, capital, regulatory, tax and legal issues that are distinct from those in the US. We are in exploratory discussions with non-US insurers about financial solutions in their jurisdictions. We are hopeful that some of these discussions will result in executed transactions later in 2018 or in 2019.

However, at the time of this writing, it is too early to tell which of these might fizzle as a result of an adverse opinion with regard to accounting, capital, regulatory, tax or legal issues, given that any such adverse opinion could potentially make a transaction unattractive for the insurer or for SCOR.

Thanks, Alan. What closing message would you like to leave with our readers?

SCOR's Financial Solutions team in the Americas welcomes the opportunity to transact with insurers in the Americas and in particular those that already are strategic traditional clients for SCOR. If a financial solutions discussion with SCOR is of interest, please contact your account executive or a member of the management team for Financial Solutions – Americas.

The economic impact on direct writers that have historically financed the excess of XXX/AXXX reserves over economic or GAAP reserves has been material.

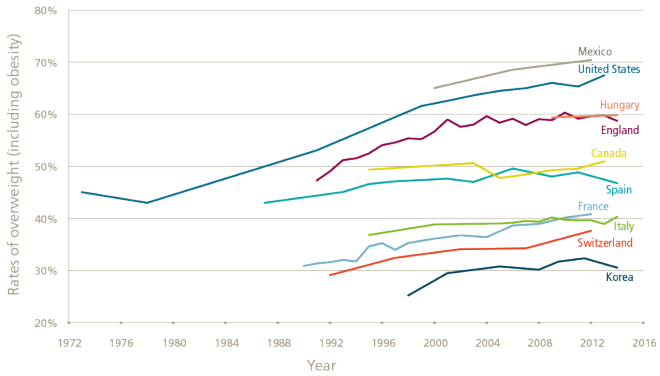
Health Challenge of 21st Century

For the first time in history, more people are suffering from obesity than from starvation worldwide. A recent SCOR *inFORM* newsletter entitled "Obesity: Health Challenge of the 21st Century" discusses who is at risk as well as causes and consequences of being obese.

Obesity is defined by the World Health Organization (WHO) as "abnormal or excessive fat accumulation that presents a risk to health." Diagnosis is typically indirect via calculation of body mass index (BMI), which is the ratio between weight and height of an individual. According to the authors, the increase in obesity during the past 20 years has been substantial, wide-ranging and rapid. Projections are for obesity rates to continue to rise in linear fashion, particularly in the US, Mexico and England, where 35% - 50% of the populations are expected to be obese by 2030.

Of concern is the rise in the number of children (aged 5-11 years) with BMI above the 85th percentile. Childhood obesity in the US was approximately 15% in the 1970s but had doubled by 2000s. In 2013, there were 42 million overweight or obese children globally. If the trend continues, the number will rise to 70 million by 2025.

From a personal insurance standpoint globally, the increase in obesity rates and its associated excess mortality should be considered in terms of the pricing perspective by the insurance industry. All studies looking at all-cause mortality show an excess risk of death from a body mass index (BMI) of 30 and upwards, which is more marked from a BMI of 35 and even higher once BMIs increase above 40. The leading causes of mortality are



cardiovascular and cerebrovascular, primarily myocardial infarction and stroke. *The Lancet* published a meta-analysis in 2016 of 239 BMI studies on four different continents. In this study, it was found that the mortality increased linearly with BMIs over 25 and that this impact was more significant in younger people than in people over 70 years of age.

Diet and exercise are the primary ways to prevent and to treat obesity. Bariatric surgery is considered the best weight loss treatment for people with BMI >40 who are morbidly obese.

Authors of the SCOR Life publication are Dr. Christine Abalain-Castela, Dr. Stephan Becher, Dr. Jacques-Louis Boucher, Delphine Labojka and Aja O'Gorman. You will find the complete article on the SCOR website at www.scor.com.

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