SCORviews

September 2015

The Future of Our Business
Underwriting and Technology

By J.C. Brueckner
Deputy CEO of the American Regions
jcbrueckner@scor.com

On June 15, at 4:01:48pm EDT, Velogica®, SCOR's underwriting solution for the middle market, processed its two millionth application. This notable event reaffirms our role in providing clients a point-of-sale life insurance solution for their middle market customers.

The industry's strong interest in automated underwriting is an indicator of the future of risk selection and the need for a fast, simple approach to life insurance purchases. For many insurers, a growth strategy that incorporates a focus on serving middle market consumers with simple, affordable coverage is becoming a necessity, not an option.

Our industry has trillions of dollars in assets, yet our access to the middle market – the backbone upon which our industry was built – continues to wane. The industry's shift toward high net worth customers has contributed to a middle market "protection gap" of an estimated $20+ trillion in unmet life insurance needs.

We face a changing paradigm today, one that challenges our industry's relevance as financial stewards of our customers' risk needs. Consumers of all ages and income expect us to process an application within days, not weeks – and for the middle market, minutes, not days. Dave Dorans, who heads our Velogica business line, examines options available to carriers looking to develop new underwriting solutions. The growing availability of electronic data and underwriting platforms is changing the way we underwrite business. But implementing such platforms is long, costly and requires constant maintenance. (Dave will discuss these trends in a session at the SOA Annual Meeting in Austin next month. See the back page for a list of all SCOR presenters.)

In this issue Kristin Ringland discusses a growing trend of issuing high face amount policies on minors. While still relatively uncommon, the increase in such application activity since the recession raises some complex underwriting challenges.

David Wylde continues our "Preferred Perspectives" series. He presents an actuarial view of preferred risk criteria and examines how, despite seemingly liberal thresholds, our current knock-out approach has served the industry well.

As a full service reinsurer, SCOR strives to meet the needs of our clients through forward-looking solutions to risk and capital management needs, as well as support for new business growth initiatives. For many carriers, an effective middle market strategy has become a cornerstone to their long-term growth. Let us show you how our collaboration can help your company close the protection gap in your own firm. ∞

Inside this Issue

Editor
Matthew Hughes
704.344.4210
mhughes@scor.com

www.scor.com/SGLA

SCOR Global Life

The New Underwriting Paradigm
Carrier Options

Executive Summary

Dave Dorans, who heads up SCOR's Velogica solution for middle market business, outlines the challenges involved in developing new underwriting platforms that automatically assess mortality risk without traditional medical evidence. He presents development options available to life insurers with a warning: It's not easy.

By Dave Dorans
Senior Vice President
Value Added Solutions
ddorans@scor.com

When underwriting reform became a fixed topic at industry meetings a few years ago, some dismissed it as a topic of the day. But it has proven to be much more than that. Today life insurers from niche players to mainstream companies are taking steps to change the underwriting process. And the support – or mandate – for these initiatives often comes from the highest levels of the company.

The biggest driver of this movement is a desire on the part of life insurers to grow or tap into the under-served middle market. Unlike the high-end market, where traditional underwriting remains very effective, the middle market requires faster, easier and less costly ways to assess mortality risk.

A number of companies already use e-data (MIB, MVR, pharmacy records, electronic identity check, etc.) to increase underwriting efficiencies. And developments underway with electronic health records (EHR) – a rich source of historical medical data – will bring about a more radical paradigm shift in how we sell and underwrite life insurance. These changes are not in the far-off future. Companies can take steps today to leverage existing technology and third party data and prepare for the really big advancements down the road.

It's not easy…

As companies explore the options for building technology- and data-driven platforms, they quickly learn that these projects are big and costly, hard to build and even harder to maintain on a long-term basis. (Just keeping up with new and changing prescription drugs requires an enormous commitment.) From a financial, human and intellectual capital perspective, few companies are positioned to build and maintain these new and innovative systems by themselves.

> *These projects are big and costly, hard to build, and even harder to maintain*

So where can a carrier turn? Basically, there are four options: build in-house, work with a software company, work with a data vendor, work with a reinsurance partner. Each option has its pros and cons, which are outlined here.

Option 1 – Build in-house

Pros:	Cons:
• Carrier owns most, if not all, intellectual property • Complete understanding and control of underwriting decisions/logic • Protection of any competitive advantage • Control of security • Less dependent on partner/vendor strategy changes	• Requires significant resources and investment • Maintenance is complex • Responsible for vendor connectivity and management, disaster recovery and security • Competes with other high value projects • Costs can only be spread over carrier's portfolio

Option 2 – Work with a software company

Pros:	Cons:
• Development costs are spread among multiple customers • System likely already in production and tested • May have expertise in linking solution to multiple administrative systems	• Lack depth/breadth of underwriting expertise (underwriters, physicians, actuaries, etc.) • Carrier provides expertise to design and maintain rules • Can't assume mortality risk • System improvements viewed as an expense unless there is sales benefit • Complex contracts • Expensive maintenance and improvement charges

Option 3 – Work with a data vendor

Pros:	Cons:
• Development costs spread among multiple customers • System likely already in production and tested • Implementation and usage fees may be lessened as the sale of data is the business driver	• Lack depth/breadth of underwriter expertise (underwriters, physicians, actuaries, etc.) • Can't assume mortality risk • System improvements viewed as an expense unless there is sales benefit • Limited flexibility if new provider offers better quality or lower price • New information that lessens importance of their data or discovery of better data may be minimized or ignored

Option 4 – Partner with a reinsurer

Pros:	Cons:
• Mortality risk partner - incentive to keep system current • Typically employ the required medical, underwriting and actuarial expertise • Impartial to new or improved data sources as mortality enhancement directly benefits them • Development costs spread among multiple customers • System likely already in production and tested • Implementation and usage fees may be lessened or even eliminated as reinsurance is the business driver • Enhancements likely implemented at no cost since reinsurer shares in the risk	• Reinsurance will likely be required and may not be a part of carrier's strategy • Solution is likely to be more focused / narrow when compared to a software company

SCOR is one of the most active players in the automated underwriting space. Through our success with Velogica, our automated underwriting platform, we have earned a reputation as an industry innovator in individual life underwriting. We are helping major clients drive new models of efficient underwriting through automated risk assessment and point-of-sale policyholder capture.

Velogica is time-tested and proven, having processed more than 2 million life insurance applications. We have accumulated a wealth of experience data during the past decade, which allows us to continually enhance the system for middle market sales and beyond.

If you are interested in a more in-depth discussion on this topic, please feel free to contact me. ∞

Underwriting Juveniles for Large Cases

The Issue Grows More Complex

Executive Summary

Life insurance for juveniles has been a fairly simple proposition. Most insurers offer a Juvenile Coverage rider to a parent's policy for a nominal face amount and charge. Others offer stand-alone low face whole life policies. Coverage traditionally has been for final expense (the rider) or as a primer for the child's savings (whole life).

But the market is growing more complicated, with parents or grandparents now seeking multimillion dollar policies for their (grand)children. How are companies responding, especially in light of increased consumer (and producer) demand, and what are the risks? Kristin outlines some considerations.

By Kristin Ringland, FLMI, FALU
Vice President and Chief Underwriting Officer for the US
kringland@scor.com

Many companies offer low amounts of coverage for minors through a rider attached to an adult policy or a stand-alone whole life policy. A growing trend we have witnessed through discussions with clients and in our own facultative shop is an increase in high-face applications on children. While still infrequent, we are beginning to see applications for $5 million, $10 million or even more. This business is small relative to total volume but the trend does raise some questions.

Times Have Changed

Life insurance for minors traditionally is sold to provide final expense coverage for an unanticipated death or to help create a nest egg for the child to use in early adulthood. Often the savings element in whole life policies is marketed as a tool to help finance college education. But the product design has not kept up with the times: with annual expenses at many colleges reaching up to $100,000, the cash/surrender value of a $150,000 whole life policy may not cover the first-year tuition and expenses.

We reviewed some recent policy illustrations to examine cash values at age 18 (Figure 1):

- About $80,000 on a $500,000 15-pay whole life policy for a 3-year-old girl
- About $115,000 on a $1 million 10-pay whole life policy for a 5-year-old boy

Based on the illustrations, the cash value $500,000 policy likely would fall short of completely financing education today, whereas the $1 million coverage could provide sufficient funds for all but the most selective universities.

Figure 1 – A Comparison of Two Whole Life Policies

Characteristics	Policy A	Policy B
Insured	3 y/o girl	5 y/o boy
Policy	15-pay whole life	10-pay whole life
Initial Face Amount	$500,000	$974,219
Annual Premium	$3,600	$12,000
Paid Up at Age...	17	18
Cash Value, Age 18	$72,986	$116,312
Face Amount, Age 18	~$1 million	~$1.2 million

The illustrated policies assume dividends finance paid up additions, hence the increase in death benefits. Cash values represent guaranteed values.

Other factors certainly play a role in the trend, however:

Gifting. The IRS allows an individual to gift assets up to $14,000 ($28,000 for a couple) to another person without causing a taxable event. The gifting of premium into a secure, large risk/savings instrument can be attractive, especially compared to other savings vehicles.

For the high-income segment who may have maximized their own tax-favored vehicles (jumbo life coverage, maximum contributions to 401(k) and other retirement vehicle savings, etc.), such policies on their children may be an attractive wealth transfer option.

Tax Benefits. The cash and surrender values of whole life insurance have numerous tax advantages over many investment alternatives. Policy loans trigger no tax event as long as the loan is repaid. And of course death benefits pass to beneficiaries tax-free.

Guaranteed Insurability. Permanent products allow the parents to lock in a child's insurability based on current health status. In addition, many policies, such as those in Figure 1, are paid up at age 18 to maximize the gifting/benefit balance.

International Dollar Business. Customers from overseas value the security of a hard-currency denominated instrument issued by a highly rated life insurer. In Canada we see more clients from Asia purchasing permanent policies with C$5 million or more in face amount. Similar trends exist in the US, especially with wealthy clients from Latin America.

We expect children to exhibit favorable mortality, so high-face, high-premium life insurance may be a profitable business. But some issues persist.

Carrier Participation. Demand cannot be met without supply, and some life insurers have signalled at least some willingness to offer high-face policies on minors.

Challenges Arise...

With the exception of infants, we expect children to exhibit favorable mortality. In theory then, high-face, high-premium life insurance policies on minors may be a profitable business. However, some issues persist.

Insurance Experience. As an industry, we do not have adequate experience to underwrite or price such products accurately. Our previous product offering has been very low face amount with a very conservative premium rate. Large cases are new territory for many companies.

Adult vs. Juvenile Underwriting. Most large-face policies are designed to be fully underwritten on adult applicants. An insurer is unlikely to require blood, urine, APS, rest/stress EKGs, etc. from a child. In any case such test results likely would not be too informative: NTPro-BNP is likely not a relevant risk marker for a fifth grader.

Causes of Death. Children and adults die from different causes. Death from age 5-25 is primarily driven by accidents (http://www.nlm.nih.gov/medlineplus/ency/article/001915.htm). According to the National Institutes of Health, death rates among US children fall significantly after infancy, and rise around age 15 from accidents, suicide and homicide.

Note that NIH data is population-based, and data from other countries may not be as readily available or credible for IDB business.

Definition of Insurance. A key consideration in the definition of insurance is insurable interest. If a policy fails the insurable interest test, is it in fact "insurance"? Risk transfer remains the defining test in distinguishing between life insurance and an endowment.

Carrier Response

We recently conducted an informal poll of client chief underwriters on this subject. The consensus is that companies are seeing more of such cases and the trend is raising interest and concern.

However, approaches vary, from retaining the traditional approach (perhaps raising the coverage limits to reflect today's education costs) to being fairly comfortable with writing higher-face policies on minors. Some companies will not consider such coverage unless the applicant's parent(s) are covered with the company; others appear willing to issue policies without this prerequisite. Some insurers may limit coverage amounts as a percent of the parent's inforce. Other carriers may match the parent's face amount dollar for dollar.

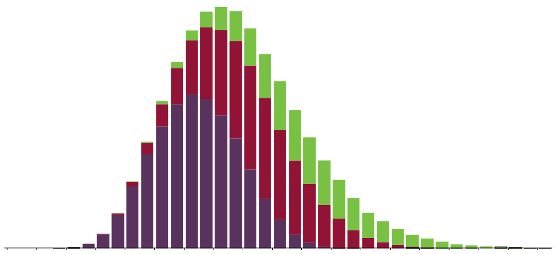
Reinsurer Involvement

SCOR Global Life Americas continues to monitor this development and assess the trend's implications for the industry. If your company is seeing an increase in such application activity, please feel free to contact any of SCOR's underwriters for consultation. ∞

Preferred Perspectives

Executive Summary

The life insurance industry has relied mostly on the knock-out approach to underwriting preferred risks. When reviewing the thresholds for individual risk criteria, one may ask whether the system is too liberal – i.e., are we admitting too many questionable risks into our best classes? Yet industry experience seems to indicate that the system works well.



In this issue, David Wylde continues our "Preferred Perspectives" series. He presents an actuarial view of preferred risk criteria and examines how, despite seemingly liberal thresholds, our current knock-out approach has served the industry well.

Preferred Risk Classification

Should We Keep the Status Quo?

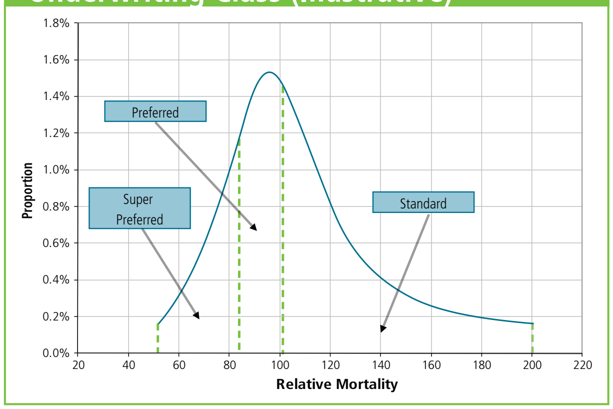
By David N. Wylde, FSA, MAAA
Pricing Research Actuary, Life Solutions
dwylde@scor.com

A recent *SCORviews* article shared potential considerations when resetting existing underwriting criteria cutoffs within a preferred class underwriting knock-out methodology. While this is a worthy goal for companies using this approach, some companies have switched to either debit-credit systems or more sophisticated predictive modeling schemes. These ever-evolving nontraditional underwriting methodologies have overcome many of the deficiencies inherent in simple knock-out systems. But from a practical standpoint, is the industry ready for an *en masse* movement to a new way of classifying preferred risks?

How We Got Here

Much of today's preferred criteria came from clinical research studies into the causes of cardiovascular disease, primarily the Framingham Heart Study. Using these studies, pricing actuaries developed theories relating insurable population distributions to the mortality associated with the definitions of preferred underwriting classes (Figure 1). Using knock-out criteria, one could determine the proportion of applicants qualifying for a class and then calculate the relative mortality for that class, which allowed us to develop reasonable mortality pricing assumptions before actual life insurance claims experience emerged.

Figure 1 – Distribution of Mortality by Underwriting Class (Illustrative)



As preferred experience began to emerge in the late 1990s and early 2000s, it turned out that the theories were good at predicting the relative mortality for preferred and residual standard classes. An example from SCOR's propriety reinsurance mortality experience database is shown in Figure 2. Based upon male and female fully underwritten nontobacco business with exposures from 2004-2010, experience illustrates that knock-out classification systems using mostly cardiovascular criteria are clearly effective in segmenting mortality risk.

Why Does it Work?

Most preferred classification systems, when removed from the sanitary controls of the theoretical environment, suffer at the hands of "the real world." Market forces skew our expected theoretical distributions. For example, evolving distribution channels, agent selection criteria and underwriting business decisions can have a measurable impact on the A/E ratio. This can be seen in Figure 2. Companies can compensate to a degree by designing underwriting classifications that reflect the company's agency structure and marketing approach. However, the effects of these remedies remain limited. Therefore it is natural to question why and how these traditional underwriting schemes have served the industry so well over the years. Many factors contribute to the answer, but let's focus on two major considerations – one statistical and one underwriting.

Figure 2 – Underwriting Class Differentials

Underwriting Class	Exposure Distribution	Mortality Distribution	Mortality A/E Ratio*	Relative Mortality
Super Preferred	46%	31%	45%	72%
Preferred	28%	31%	55%	88%
Standard	26%	38%	73%	118%

*A/E ratios are based upon the SOA 2001 VBT.

From a statistical standpoint, preferred classes must contain enough lives to assure emerging experience is credible and capable of providing predictive value. This is especially important given that pricing margins among preferred risks are relatively thin. In the real world, this often requires on average 30% of the entire pool to be classified as "best-preferred," which may require some relaxation in our selection criteria thresholds.

From an underwriting perspective, failure to pass the threshold for a single criteria in a knock-out system may disqualify the applicant from the best class. Any individual risk factor's knock-out threshold in isolation (i.e., keeping all other risk factors constant), may seem overly generous: 90%-95% of the applicant population would pass. However, the knock-out system introduces the concept of "conditional probability" into underwriting. For example, a single risk factor may pass 90% of applicants. Assuming the same 90% pass rate, the applicant pass rate for the next criteria will be 81% (90% of 90%). The third risk factor passes 90% of the remaining 81% (i.e., 73%), and so on, until we have the desired 30% to 40% of the applicants in the "best-preferred" class.

Additionally, underwriting provides for judgment calls. If an applicant misses a threshold by just a few points the underwriter nevertheless may decide to approve the applicant if other correlated hurdles are well surpassed. Furthermore, other relatively uncorrelated criteria are designed to catch less favorable risks that happen to slip through other risk thresholds.

Can We Underwrite Better?

While we continue to rely on the knock-out system as an industry, research is ongoing in alternative approaches, such as debit-credit systems, predictive modeling, and non-fluid underwriting. However, many of these efforts remain as ongoing research, and companies are hesitant to roll out new risk platforms without sufficient validation.

Conclusion

From a pricing perspective, the relative mortalities based on the theoretical mortality distributions line up well against emerging experience. Still, we used theoretical mortalities because we had little knowledge of how cardiovascular risk factors from general population studies translated to a fully insured population. Today, individual company and industry experience studies reflect true life-insured relative mortality and drive new product premium calculations. An entirely new classification method might mean having to repeat this theoretical/experience process again.

Any movement away from the current (mostly knock-out) preferred classification system could adversely affect the competitive landscape. This is especially true if the new system dramatically alters which risks are assigned to which underwriting class. Currently, most companies perform basically the same process to classify preferred risks, and in the process largely minimize antiselection across the industry. A change in the status quo could produce a dramatic (albeit temporary) shift in sales distributions and also create market confusion among agents and consumers. No company wants to be the first to make a change – or the last.

As American patriot John Hancock is quoted in the musical *1776*, "Either we all walk together, or together we should stay where we are." ∞

SCOR Presenters at SOA Annual Meeting

Join Us in Austin, October 11-14

SCOR is pleased to have our employees participate in the 2015 SOA Annual Meeting as presenters. SCOR speakers and their sessions are listed below.

Date	Time	Session #	Session	Presenter
Monday Oct 12	10:00-1:00	028 PD	Women's Leadership Forum and Luncheon	Mary Bahna-Nolan and Tammy Kapeller
	1:45-3:00	030 PD	How to Keep your Spreadsheet Out of the Headlines	Sandra To
	1:45-3:00	038 PD	Life Insurance & Annuity Product Regulatory Update	Rob Foster
	3:30-4:45	046 PD	Mortality Table Update on the 2014 VBT/CSO	Mary Bahna-Nolan
	3:30-4:45	048 PD	Predictive Modeling - Where Are the Values?	Zhiwei Zhu
Tuesday Oct 13	10:15-11:30	095 PD	Mortality Potpourri	Mary Bahna-Nolan and David Wylde
	10:15-11:30	096 PD	Post-Level Term and Inforce Management	Sandra To
	3:45-5:00	127 PD	Life and Annuity In-Force Management	Brock Robbins
	3:45-5:00	128 PD	Reinsurance Trends	George Hrischenko
Wednesday Oct 14	7:15-8:15	142 S	Reinsurance Hot Breakfast	Joe Gilmour
	8:30-9:45	156 PD	Bridging the Gap between SI and Fully Underwritten	Dave Dorans
	10:15-11:30	170 PD	Life Products Trends	Bill Winterman

SCOR Publications Released

SCOR SE regularly publishes reports that provide insight on topics of interest to client companies worldwide. Some of the more recent publications appear below and are available on SCOR's website at www.scor.com. For a pdf copy, please contact Matthew Hughes at mhughes@scor.com.

Date	Publication	Date	Publication
1/2014	HIV infection and AIDS: new information, new hopes	**12/2014**	The latest on strokes
4/2014	A new overview of neurology, epilepsy and multiple sclerosis	**7/2015**	The impact of different screening scenarios on breast cancer incidence
6/2014	New insights into SLE (Systemic Lupus Erythematosus)		

SCOR Global Life

Charlotte
101 South Tryon Street
Suite 3200
Charlotte, NC 28280

Kansas City
11625 Rosewood Street
Suite 300
Leawood, KS 66211

Minneapolis
901 Marquette Avenue
Suite 1500
Minneapolis, MN 55402

Toronto
199 Bay Street, Suite 2800
Toronto, ON M5L 1G1
Canada

Montreal
1250 Boulevard René Lévesque Ouest
Bureau 4510
Montréal - Québec H3B 4W8
Canada

Mexico
Oficina de Representación en México
Edificio Torre del Angel
Paseo de la Reforma 350, piso 6
Col. Juárez
CP 06600 México DF
MEXICO

Sao Paulo
SCOR Global Life U.S. Re
Escritorio de Representação no Brasil Ltda
R.Luigi Galvani 70, suite 121
04575-020 São Paulo - SP
Brazil

Santiago
Edificio Isidora Magdalena Norte
Magdalena 181, Piso 12, Oficina 1201 Norte
7550055 Las Condes
Santiago
Chile

SVN-03155000-04