Editor’s note: The development of preferred risk led to revolutionary product design, marketing and underwriting of life insurance, changing the concept and value of life insurance in the process. Preferred risk classes have benefitted insurers, customers and society in general by providing more affordable coverage for many consumers.

SCOR Global Life Americas has invested heavily in its research functions over the past few years, enhancing the value it derives from its large database of inforce mortality. In the months ahead we will examine the current state of preferred risk from the underwriting and pricing viewpoints. This first article looks at traditional preferred risk criteria and values and possible improvements to the risk selection process.

Preferred Risk Criteria and Values: Can We Move from Good to Better?

Executive Summary
Since the inception of preferred programs in the late 1980s life insurance underwriters have done a good job in identifying applicants that demonstrate more favorable mortality, even as the products, best-class qualification cutoffs and other features have continued to change.

With decades of underwriting experience to research, the author reviews some of the criteria commonly used to try to answer the question: "We have done well in the past, but could the industry use its criteria to make risk selection more effective?"

There is no doubt that preferred underwriting has revolutionized the industry by creating lower priced products benefiting carriers, producers and consumers alike. Preferred criteria utilized in the risk assessment process have done their job – selecting risks that produce mortality which is better than the standard class. While the underlying dynamics of creating ‘better-than-standard’ risk classes have worked for the industry as a whole, it should not deter us from examining the risk selection process used to create preferred classes in more detail.

Although preferred underwriting has existed for more than 25 years, the industry only recently began asking some critical questions, one of which is, “Are we using existing preferred criteria in a manner that produces the best mortality?”
It may help set the stage if we examine how preferred criteria were initially developed. Medical research such as the Framingham study were utilized in the development of preferred criteria by demonstrating that build, blood pressure (BP), lipids and smoking were significant mortality markers. The cutoffs or thresholds used for each criterion were set by guidance from clinical medicine and not through detailed distribution analysis. These and other criteria are assessed through a knock-out approach where an applicant will fail to qualify for the best class if even one criteria threshold is exceeded.

Companies often define their preferred class(es) more from competition and market pressures than analysis of the parameters used to select risk. However, setting the cutoffs for each individual preferred criterion is an important part of developing a set of preferred guidelines. If you set the thresholds too conservatively, you risk throwing away good risks; too liberally, you are allowing too many ‘higher’ risks in. In today’s market, the same threshold is used regardless of whether the applicant is a 30-year-old female or a 55-year-old male: age and gender are not taken into consideration. Since the distribution often varies greatly by age and gender, does it make sense to have this one-size-fits-all approach?

As the percent of applicants qualifying under any risk factor approaches 100%, the effectiveness of that criterion lessens. In fact, if a particular risk factor has a qualification rate of 100% that factor has no selective power on its own. To illustrate the importance of determining appropriate thresholds, we will examine the distribution curves of some commonly used preferred criteria. I will focus on three quantifiable criteria: BP, Cholesterol/HDL ratio and build. The accompanying figures are based on an internal proprietary database of insurable applicants.

**Blood Pressure**

Based on the SOA’s Preferred Underwriting Structures Survey (December 2012), the maximum untreated blood pressure to qualify a 45-year-old male for the best class was between 130/80 and 140/85. The cumulative distribution of systolic BP by select ages for both genders appears in Figure 1.

Two observations can be made. First, the distribution is different among each group. Second, regardless of age or gender, most people meet the cutoff of 130-140. Although the figure does not illustrate diastolic
BP, we should note its distribution produced similar results. Therefore, very few individuals would be knocked out of the best class solely because of BP.

**Cholesterol/HDL Ratio**

Cholesterol/HDL's distribution also varies significantly by age and gender. The most common cutoff used in today's market is 5.0, which is a good differentiator for older men. However, the same does not hold true for women: over 95% of women in a typical applicant pool have a Chol/HDL ratio of 5.0 or less. Therefore if a company wants to classify a consistent percentage of male and female risks in their best class, a lower cutoff for women (especially young women) would be more appropriate.

**Build**

The foundation of any preferred structure is the build chart. With the median body mass index (BMI) in the US hovering around 27, there is a nice spread of individuals with BMI cutoffs above a typical cutoff of 28 (Figure 3, next page). Therefore, build cutoffs carry a lot of power in their ability to segregate risk. The fact that individuals with lower BMIs tend to have lower lipid and BP levels strengthens using build/BMI as a risk differentiator. Any changes to a company's build chart may create a measurable impact in the number of people qualifying for the preferred class.

**Impact of Preferred Criteria Changes**

Due to the competitive nature of the industry, periodic tweaks to preferred criteria are common. The change in best-class qualification rates depends on which criterion is changed and by how much. For example, minor tweaks in systolic blood pressure cutoffs will have a negligible impact. For build, a small change may have a profound effect on how risks will be distributed (Figure 4).

**Conclusion**

Progress in collecting and analyzing data has allowed the industry to discover nuances that were not known at the time of preferred criteria development.

The industry's preferred risk structure has worked...
Preferred Risk Assessment:
Can We Move from Good to Better? (cont.)

well, but could it be more effective in classifying risk without pushing away good business? Certainly a deeper understanding of mortality, the availability of alternative mortality markers and advances in technology may lead to improvements. However, any changes to underwriting criteria require a delicate balance between risk appetite and the company’s production goals. Underwriters should work with their pricing actuaries to determine how new or changing underwriting guidelines may affect the selection of risks and corresponding mortality in each class.

Over the past five years we have seen significant underwriting changes in the industry, and undoubtedly more changes will come. SCOR has a dedicated team of researchers who analyze underwriting criteria and how changes in clients’ thresholds may affect their business. As always, SCOR’s underwriting research team is available for consultation. ☞