Labs serve an essential role in life insurance underwriting by providing information about relevant medical markers in blood and fluid panels for underwriters’ use in risk assessment. In recent years, labs have expanded these services, capitalizing on data collected through life insurance applications to create mortality scoring algorithms. These systems produce “score cards,” easy-to-understand aggregate values representing the expected relative mortality of an applicant based on fluid panel results, age, gender and build, compared to Death Master File (DMF) mortality.

Interest in lab scoring systems has been growing among life insurers as a way to support their traditional underwriting capabilities. However, reinsurer acceptance to date has been limited due to uncertainties about how these algorithms derive their ratings. To increase acceptance, labs, life insurers and their reinsurers should collaborate closely to understand the ramifications of incorporating such systems into their risk selection process.

**Advantages to Lab Scoring**

Scoring or rating applicants based on these algorithms may offer carriers a number of potential advantages.

- The score or rating offers a simple interpretation of relative mortality. If a lab uses a scoring system where “100” is average relative mortality, an applicant score of 85 is immediately understood to be more favorable than a score of 120, all other factors held constant.
- Labs offer services to help carriers interpret and correlate ratings to their existing class criteria. A grade of 85 may qualify an applicant as preferred; 120 may represent a decline.
- Labs also work with companies to run comparative parallel studies to determine protective value.
- A single score may improve underwriting cycle times.

**Challenges Remain**

The relative newness of lab rating systems may create several hurdles for companies considering these services.

- To date, the labs have compared fluid results of a submitted population against DMF data, which is not representative of mortality in an insured population. Labs now are testing their algorithms against the mortality of various companies’ insured populations to help fine tune the underlying systems.
- Carriers that rely on these lab scoring algorithms for risk classification should consider the implications of their decisions relative to
consumers, producers and regulators. The “black box” nature of these systems limits the underwriter’s ability to justify underwriting decisions to agents, applicants and potentially regulators.

- The lab ratings primarily consider medical-related mortality factors that can be analyzed through fluid collection. Other non-medical criteria (e.g., occupation, avocations, driving history, financial need) play an important role in risk classification.

- Mortality produced by the lab grade is just one component in the pricing process. Mortality is the most important assumption in pricing, but other assumptions such as lapse and interest crediting rates are also important.

- A lab score methodology can shift the expected distribution mix, which may affect pricing assumptions relative to premium income. The chief underwriter and chief actuary must work together to determine how using lab scoring systems may affect risk distributions and compositions.

**Reinsurer Reaction**

Reinsurers have been cautious about accepting results from lab grading systems. As a full risk participant, reinsurers want assurance that underwriting decisions are based on the most relevant medical risk criteria. The labs understandably are reluctant to share details of their methodology. Without a more thorough and insightful understanding of the labs’ approach in designing their algorithms, carriers should expect reinsurers to ask for additional substantiation.

Labs are valued partners in mortality risk underwriting. Their expansion into grading mechanisms is a logical step to capitalize on the wealth of data they have on hand. Refining these systems can best be achieved with collaboration among the labs, life insurers and reinsurers. We look forward to working with all parties in these efforts. ∞