On August 9, 2011, SCOR SE, a global reinsurer with offices in more than 31 countries, acquired substantially all of the life reinsurance business, operations and staff of Transamerica Reinsurance, the life reinsurance division of the AEGON companies. The business of Transamerica Reinsurance will now be conducted through the SCOR Global Life companies, and Transamerica Reinsurance is no longer affiliated with the AEGON companies.

While articles, treaties and some historic materials may continue to bear the name Transamerica, AEGON is no longer producing new reinsurance business.

Archive Materials

The Value of New Lab Tests: NTpBNP
Reprinted from the June 2008 Messenger newsletter
by David Wesley, Vice President, Medical Research and Development
This is the first of a series of articles on the laboratory and examination components of age and amount requirements. Topics will be chosen on the basis of current interest, whether new tests or simply old tests that are being reconsidered. Sidebars will introduce the mathematical tools that are commonly used to evaluate tests and testing programs.

NT-proBNP (also abbreviated NTpBNP) is a relatively new blood test that has generated a lot of interest in both the clinical and insurance medicine literature – an ideal topic to kick-off this series.

A Screen For Heart Failure?
Many clinical researchers think that the US is experiencing an “epidemic” of heart failure, and they feel that NTpBNP has great promise as a clinical screen for heart failure, often in its early, more treatable stages. However, the conditions for which NTpBNP can screen now include not only systolic and diastolic heart failure but also valvular heart disease, cardiomyopathy, atrial fibrillation and several other conditions. This presents a problem.

It may sound as if NTpBNP is a “fishing” test. However, these conditions are actually related by an underlying disorder, increased cardiac wall tension. They all can be thought of as precursors of heart failure.

Beyond screening for specific diagnoses, several studies have shown that NTpBNP is highly correlated with mortality.

What is NT-proBNP?
Brain-type natriuretic peptide is a member of a family of natriuretic peptide hormones. These are relatively short chains of amino acids that promote sodium and water excretion by the kidneys.

Atrial natriuretic peptide (ANP) is secreted by muscle cells in the cardiac atria. Brain-type natriuretic peptide (BNP) is something of a misnomer since it is actually secreted by muscle cells in the wall of the left ventricle. In both cases,
secretion is in response to increased wall tension. The resulting diuresis of sodium and water relieves the excess pressure in the heart that is common in heart failure.

During BNP biosynthesis, cleavage of the 108 amino acid precursor (proBNP) results in a 32aa active BNP molecule (the C-terminal or right end) and a residual N-terminal 76aa fragment that is inactive (NTpBNP). Either molecule can and has been measured by laboratory methods, but there are advantages to measuring NTpBNP.

NTpBNP has a longer half-life in the blood, and after a blood draw it is much more stable in the collection tube. Current and in-development test kits for NTpBNP all use the same immunologic reagents developed by Roche which result in less variability between different tests.

ROC and area-under-curve (AUC) concepts will be introduced later in this series, but for now accept that tests with a larger AUC do a better job of discriminating between those with and without the target disorder. AUC analysis has shown that NTpBNP performs as well as or better than BNP at detecting heart failure.

**NTpBNP as an Age and Amount Requirement**

As in the clinical world, NTpBNP has great promise as a screen in insurance medicine. There are a number of questions that need to be considered prior to implementing the use of NTpBNP as a requirement.

Clearly, one should use age and sex-specific ranges for NTpBNP. Even for healthy people, NTpBNP values are higher at older ages, and women have significantly higher values than men.

Typically, labs call the lower 97.5% of values for ostensibly healthy people the reference range for a test. This is often erroneously referred to as the “normal range.” However, one may choose to use a lower threshold value to “cast a wider net,” and then distinguish true positives from false positives through reflex testing.

There is not much more a lab can do on blood and urine specimens as a reflex for an elevated NTpBNP; however, minimally elevated values can be considered in the context of other age and amount requirements. This is one argument against the popular concept of substituting NTpBNP for the ECG requirement. Thorough follow-up to an elevated NTpBNP will require a resting ECG, stress test, echocardiogram and evaluation by an attending physician.

**Recommendations**

No one set of recommendations regarding NTpBNP can apply to all life insurers. It cannot even be said that everyone should be using NTpBNP. However, as its acceptance and use grows in the clinical world, it is probably inevitable that insurers will need to include it as a screen for most applicants.

Given the higher prevalence of heart failure at its precursors at older ages, NTpBNP should be considered as an important tool in older age underwriting.

Transamerica Reinsurance has invested in data and expertise regarding NTpBNP. We will be glad to assist those clients who are considering the use of NTpBNP.