

## CHOLESTEROL (LIPID) ELEVATIONS

### **Overview:**

Cholesterol and triglycerides are transported around the body by blood in the form of lipoproteins. Lipoproteins are particles with a core, made up of cholesterol and triglycerides in varying proportions. Levels of cholesterol and triglycerides found in the blood are influenced by diet, heredity, and certain metabolic diseases, such as diabetes mellitus.

High levels of cholesterol and triglycerides increase the risk of developing atherosclerosis, a condition in which fatty tissue accumulates on the inner lining of arteries, carrying with it the risk of coronary heart disease or stroke.

Recent studies have shown that the risk of developing complications from atherosclerotic disease can be assessed more accurately by measuring the proportions of the various lipoprotein levels in the blood. In general, if most of the cholesterol in the blood is in the form of low density lipoproteins (LDLs) or very low density lipoproteins (VLDLs) the risk of developing and accelerating atherosclerotic disease is enhanced. Thus, LDLs are often referred to as “bad cholesterol”.

If, on the other hand, most of the cholesterol levels found in the blood is in the form of high density lipoproteins (HDLs) the risk of developing or accelerating atherosclerotic disease is reduced. Thus, HDLs are often referred to as “good cholesterol”.

A good index of future risk to the premature development of atherosclerotic or heart disease is the “bad cholesterol” (LDLs) to “good cholesterol” (HDLs) ratio. This is often provided with the analyses of insurance company laboratory data. However, if this ratio is not provided, it can be calculated with the following formula (provided triglycerides levels are less than 400 mg%):

$$\text{HDL "good cholesterol"} = \text{Total Cholesterol} - (1/5 \text{ triglyceride} + \text{LDL cholesterol level})$$

A group of genetic metabolic disorders, the hyperlipidemias, cause abnormally high levels of LDLs in the blood. Individuals with these very high levels of LDL are susceptible to heart disease and stroke at a much younger age than the general population. Such people often have to restrict their diet and may have to be treated with medications to control their “bad cholesterol” levels.

### **Impact on Life Underwriting:**

Preferred rates are often available up to total cholesterol levels of 250. Standard rates are available with some companies with a total cholesterol level of up to 299, as long as the HDL (“good cholesterol”) level is sufficiently high (20 or higher). Most companies, begin to rate for total cholesterol levels of 300 and higher unless several other variables, such as excellent family history, good blood pressure, and excellent heart condition can be documented.

In recent years some life insurance companies have given underwriting *credits* for high levels of HDL when compared to other cholesterol levels. This variable is generally expressed as the total cholesterol to HDL ratio, or the “bad cholesterol to good cholesterol ratio”. The lower the ratio, the more “good cholesterol” there is for “bad cholesterol”, somewhat offsetting the negative effects of bad cholesterol. In general, preferred rates are not available for LDL/HDL ratios 5.0 or higher. Levels of 8 and higher generally lead to a ratings. Declinations are common with LDL/HDL ratios of 13 and higher.

In addition to the actual cholesterol/lipid levels, related variables will influence an overall underwriting assessment. These variables include pre-existing cardiovascular disease, blood pressure history, height/weight ratio (and trend), diabetes, nicotine use, and adverse family history. Family history has become an increasingly significant underwriting determinant in recent years. Certainly good family history, such as parents who have reached old age, should be discussed in a cover letter.

Triglycerides are also routinely tested for during insurance company medical exams. Although often considered less important due to their unreliability unless a fasting blood profile was obtained, underwriters will generally rate cases with triglyceride levels in excess of 500 (especially at younger ages). Triglyceride levels in the 500 to 1,000 range range from Table 2 for those age 60 and over to Table 4 for those under age 40. Many companies will decline cases of triglyceride levels of 1,500 and higher, regardless of age. Since triglyceride levels are easily influenced by various metabolic processes following the consumption of food or many beverages, many companies encourage their proposed customers to have the insurance company medical exam done early in the morning, prior to any consumption of food or beverage (unless this is not possible, perhaps due to other medical conditions, such as diabetes).

Aggressive cardiovascular underwriting depends on many variables. We encourage you to complete our “Search for Underwriting Credits Questionnaire” for any cardiovascular underwriting risk. Information provided with this questionnaire helps us negotiate for the best possible underwriting rates, even if some of the lab variables, such as cholesterol, are other than ideal. SB 04/16/2001