

**Reference range (% of total hemoglobin):**

1 – 124 PG/ML when applicant age is less than 75.  
0 – 449 PG/ML when applicant age is greater than or equal to 75

**Methodology:**

Roche Electrochemiluminescence immunoassay  
“ECLIA”

**Specimen required:**

Serum

**Stability:**

28 days

## Background

As the population ages, more and more individuals are being affected by congestive heart failure (CHF). Estimates are that over five million people in the US currently have CHF, and almost 600,000 new cases are diagnosed every year. Symptoms of heart failure include fatigue, edema, and shortness of breath on minimal exertion. These may be attributed to lung disease or the advancing age of the individual. Fortunately, there is a convenient blood test that will help the underwriter identify cardiac stress and heart failure. It is called NT-proBNP.

## NT-proBNP Defined

N-terminal pro B-type natriuretic peptide (NT-proBNP or proBNP) is a chemical released into the blood in increased amounts when the heart muscle is stressed. Conditions such as heart failure, left ventricular dysfunction, and coronary artery disease cause elevations of proBNP. ProBNP is released from the heart muscle in response to increasing pressures. It is cleaved into two parts. NT-proBNP is the biologically active peptide that assists in the regulation of body salts and fluids. It is short-lived with a biologic half-life of 18 minutes. NT-proBNP, the remaining peptide, has been shown to be stable for transport.

## Correlation and Study Results

NT-proBNP levels correlate closely with the severity of congestive heart failure, and can be used to monitor therapy. The test has been approved by the FDA for risk assessment of future cardiac events for people with stable coronary disease. One clinical study found NT-proBNP to be the most predictive

indicator of overall mortality in patients with stable coronary disease <sup>(1)</sup>. Another study found that patients with known coronary artery disease who had NT-proBNP levels in the highest 25% were four times more likely to have subsequent coronary events as those with levels in the lowest 25% <sup>(2)</sup>.

NT-proBNP has strong predictive characteristics in testing the elderly and community dwelling adults. A population-based study of 764 participants aged 50-89 years showed that those with levels greater than the 80<sup>th</sup> percentile had twice the risk of mortality over the five years of follow-up <sup>(3)</sup>.

## Recommended Testing Guidelines

NT-proBNP should be considered as a screening tool for those at older ages (>59) and higher amounts of insurance. It should be considered in those with known CAD to identify individuals with congestive heart failure or ongoing cardiac stress. It can also be used to identify CHF as a cause of shortness of breath or edema.

## References

- (1) Kragelund, C. et al. N Engl J Med 2005; 352: 666-675
- (2) Schnabel, MD J Am Coll Cardiol, 2006; 47: 552-558
- (3) JAMA 2005 Apr 6; 293 (13): 1609-16