Policy Replaced with LCDs L36129 & L33418 Effective February 26, 2018

BlueCross BlueShield of Alabama

Name of Blue Advantage Policy:

Measurement of Lipoprotein-Associated Phospholipase A2 in the Assessment of Cardiovascular Risk

Policy #: 155
Category: Laboratory

Latest Review Date: January 2018
Policy Grade: B

Background:

Blue Advantage *medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
   - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
   - *Furnished in a setting appropriate to the patient's medical needs and condition;*
   - *Ordered and furnished by qualified personnel;*
   - *One that meets, but does not exceed, the patient's medical need; and*
   - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill* ***Original Medicare* *for covered services that are related to* ***clinical trials*** *that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

Description of Procedure or Service:

Lipoprotein-associated phospholipase A_2 (Lp-PLA2), also known as platelet-activating factor acetylhydrolase, is an enzyme that hydrolyzes phospholipids and is primarily associated with low-density lipoproteins (LDLs). Accumulating evidence has suggested that Lp-PLA2 is a biomarker of coronary artery disease and may have a proinflammatory role in the progression of atherosclerosis.

Low-Density Lipoproteins

Low-density lipoproteins (LDLs) have been identified as major atherogenic lipoproteins and have long been identified by the National Cholesterol Education Project (NCEP) as the primary target of cholesterol-lowering therapy. LDL particles consist of a surface coat composed of phospholipids, free cholesterol, and apolipoproteins, surrounding an inner lipid core composed of cholesterol ester and triglycerides. Traditional lipid risk factors such as LDL-C, while predictive on a population basis, are weaker markers of risk on an individual basis. Only a minority of subjects with elevated LDL and cholesterol levels will develop clinical disease, and up to 50% of cases of coronary artery disease occur in subjects with 'normal' levels of total and LDL-C.

Treatment

Although treatment for elevated coronary disease risk with statins targets cholesterol levels, selection for treatment involves estimation of future CAD risk using well validated prediction models that use additional variables.

Lipoprotein-associated phospholipase A_2 (Lp-PLA2), also known as platelet-activating factor acetylhydrolase, is an enzyme that hydrolyzes phospholipids and is primarily associated with LDLs. Accumulating evidence has suggested that Lp-PLA2 is a biomarker of CAD and may have a proinflammatory role in the progression of atherosclerosis. The recognition that atherosclerosis represents, in part, an inflammatory process has created considerable interest in measurement of proinflammatory factors as part of cardiovascular disease risk assessment.

Interest in Lp-PLA2 as a possibly causal risk factor for CAD has generated development and testing of Lp-PLA2 inhibitors as a new class of drugs to reduce risk of CAD. However, clinical trials of Lp-PLA2 inhibitors have not shown significant reductions in CAD end points. Furthermore, assessment of Lp-PLA2 levels has not been used in the selection or management of subjects in the clinical trials.

Policy:

Effective for dates of service on or after July 1, 2005 and prior to February 26, 2018:
Blue Advantage will treat **measurement of lipoprotein-associated phospholipase A2 (Lp-PLA2)** as a **non-covered** benefit and as **investigational.**

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians

should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

Key Points:

The most recent literature review was updated through October 16, 2017.

Evidence reviews assess whether a medical test is clinically useful. A useful test provides information to make a clinical management decision that improves the net health outcome. That is, the balance of benefits and harms is better when the test is used to manage the condition than when another test or no test is used to manage the condition.

The first step in assessing a medical test is to formulate the clinical context and purpose of the test. The test must be technically reliable, clinically valid, and clinically useful for that purpose. The following is a summary of the key literature.

A large body of literature has accumulated on the utility of risk factors in the prediction of future cardiac events. The evidence reviewed for this policy statement consists of large, prospective cohort studies that have evaluated the association between lipoprotein-associated phospholipase A_2 (Lp-PLA2) and cardiovascular outcomes.

The National Cholesterol Education Program (NCEP) ATP-III guidelines have indicated that to determine the clinical significance of Lp-PLA2, the emerging risk factors should be evaluated against the following criteria:

- Significant predictive power that is independent of other major risk factors;
- A relatively high prevalence in the population (justifying routine measurement in risk assessment);
- Laboratory or clinical measurement must be widely available, well standardized, inexpensive, have accepted population reference values, and be relatively stable biologically;
- Preferable, but not necessarily, modification of the risk factor in clinical trials will have shown reduction in risk.

A 2002 TEC Assessment summarized the steps necessary to determine utility of a novel cardiac risk factor. The following three steps were required:

- Standardize the measurement of the risk factor.
- Determine its contribution to risk assessment. As a risk factor, it is important to determine whether the novel risk factor independently contributes to risk assessment compared to established risk factors.
- Determine how the novel risk assessment will be used in the management of the patient, compared to standard methods of assessing risk, and whether any subsequent changes in patient management result in an improvement in patient outcome.

LP-PLA2 and Cardiovascular Risk

Clinical Context and Test Purpose

The purpose of Lp-PLA2 testing in patients who have risk of cardiovascular disease (CVD) is to inform improve patient stratification using risk prediction models that alter management decisions and improve health outcomes.

The question addressed in this evidence review is: Does testing for Lp-PLA2 improve health outcomes for individuals at risk for CVD?

The following PICOTS were used to select literature to inform this review.

Patients

The relevant population of interest is individuals are at risk for CAD.

Interventions

The relevant intervention of interest is testing for Lp-PLA2 as a biomarker of CAD.

Comparators

The relevant comparator of interest is standard assessment of cardiovascular risk.

Outcomes

The primary outcomes of interest are development of CVD such as coronary artery disease, stroke, and mortality.

Timing

The development of CVD typically occurs over many years or decades.

Setting

Asymptomatic patients are typically evaluated by primary care physicians. Symptomatic patients are referred to cardiology.

Technically Reliable

According to the U.S.FDA's Summary of Safety and Effectiveness for the PLAC (Lp-PLA2) assay, the intra-assay precision for the assay was 7% coefficient of variability (CV), and the inter-assay precision was 9% CV, with a detection limit of 1.2ng/mL. Reference intervals for the Lp-PLA2 assay were calculated from samples for 251 apparently healthy males and 174 apparently healthy females aged 40 to 70 years; the reference interval calculated from the samples (central 90%) was determined to be between 120ng/mL to 342ng/mL for females and between 131ng/mL to 376ng/mL for males. FDA concluded that the assay demonstrated acceptable technical performance.

Clinically Valid

Lp-PLA2 as a Predictor of Coronary Artery Disease

Results of numerous, large-scale observational studies have examined whether Lp-PLA2 is an independent risk factor for cardiovascular disease. Some of these observational studies have been

evaluated in systematic reviews and meta-analyses. A representative sample of some of the larger studies is given next.

Systematic Reviews
The Emerging Risk Factors Collaboration performed a patient-level meta-analysis (2012) of the association between novel lipid risk factors and cardiovascular risk. Records from 37 prospective cohort studies enrolling 165,544 participants were combined to predict cardiovascular risk over a median follow-up of 10.4 years. Reviewers examined the independent association of markers with cardiovascular risk and the ability to reclassify risk into clinically relevant categories. For Lp-PLA2, 11 studies (n=32,075 participants) measured this factor. Overall, Lp-PLA2 was an independent risk factor for cardiovascular events with a hazard ratio of 1.12 (95% confidence interval [CI], 1.09 to 1.21) for each 1 standard deviation increase in Lp-PLA2 activity. There was no significant improvement in risk reclassification following the addition of Lp-PLA2 to the reclassification model, with a net reclassification improvement of 0.21 (95% CI, -0.45 to 0.86). The fact that the net reclassification improvement crossed 0.0 indicates that the addition of Lp-PLA2 to the model did not result in an important magnitude of change.

Garza et al (2007) reviewed 14 observational studies enrolling 20,549 patients. This systematic review reported the predictive ability of Lp- PLA2 levels for CV disease after adjustment for traditional cardiac risk factors. The combined odds ratio for an elevated Lp-PLA2 level was reported as 1.60 (95% CI, 1.36 to 1.89) for the development of future cardiac events.

A patient-level meta-analysis by Thompson et al (2010) evaluated the association among Lp-PLA2 levels, CAD, stroke, and mortality. A total of 79,036 participants from 32 prospective studies were included in the review. There were significant associations found between Lp-PLA2 and all three outcome measures. For every one SD increase in Lp-PLA2 levels, the relative risk (RR) adjusted for conventional risk factors was 1.10 (95% CI, 1.04 to 1.17) for CAD, 1.08 (95% CI, 0.97 to 1.20) for stroke, and 1.16 (95% CI, 1.09 to 1.24) for vascular death. There was also a significant association between Lp-PLA2 levels and nonvascular deaths (RR=1.10; 95% Cl, 1.04 to 1.17). Reviewers estimated that this strength of association was similar to that seen for non-high-density lipoprotein (HDL) cholesterol and systolic blood pressure.

Association between Lp-PLA2 and CAD in General Population Samples
Some of the representative cohort and case-control studies evaluating the association between Lp-PLA2 and cardiovascular outcomes are described next.

The West of Scotland Coronary Prevention Study (WOSCOPS) was a five-year, case control trial (2000) evaluating 6,595 men with elevated cholesterol levels and no history of a heart attack. Researchers looked at a smaller population of this study to determine if inflammatory markers such as Lp-PLA2 and high-sensitivity C-reactive protein (hsCRP) correlated with coronary heart disease (CHD) events. The 580 men who went on to have a myocardial infarction (MI) or revascularization were compared to 1,160 age- and smoking-matched men who did not have an event. The results showed that those with the highest levels of Lp-PLA2 had twice the risk of an event compared to those with the lowest levels, even after adjustment for traditional risk factors and other inflammatory mediators.

The Atherosclerosis Risk in Communities (ARIC) study (2004) evaluated the various risk markers and their association with increased risk in a large, diverse population of more than 12,000 individuals. At enrollment, patients were free of CHD and were followed up for the development of the disease for the next nine years. The case-cohort component of the study examined two inflammatory markers, Lp-PLA2 and hsCRP, in a subset of 608 cases and 740 controls. The results showed that elevated levels of Lp-PLA2 are higher in incident coronary heart disease cases. In people with non-elevated low-density lipoprotein (LDL) levels (less than 130 mg/dL), Lp-PLA2 levels were independently associated with CHD, even after adjustment for traditional risk factors and C-reactive protein. Koenig et al (2004) reported similar results in a study of 934 apparently healthy men aged 45 to 64 who were followed up between 1984 and 1998. During this period, 97 men experienced a coronary event. Elevated levels of Lp-PLA2 appeared to be predictive of future coronary events in middle-aged men with moderately elevated total cholesterol, independent of C-reactive protein levels.

Ballantyne et al (2005) studied Lp-PLA2 in the 12,762 apparently healthy subjects participating in the ARIC study. Mean levels of both Lp-PLA2 and C-reactive protein were higher in the 194 stroke cases; the authors concluded that Lp-PLA2 levels might provide complementary information beyond traditional risk factors in identifying those at risk for ischemic stroke.

As part of the PEACE study, Lp-PLA2 levels were measured in 3,766 patients with stable CAD followed up for a median of 4.8 years. After adjustment for other baseline risk factors, patients in the highest quartile of Lp-PLA2 were 1.4 times more likely (95% confidence interval [CI]: 1.17–1.70, $p<0.001$) to experience an adverse cardiovascular outcome compared to patients in the lowest quartile. Winkler et al (2007) studied 3,232 consecutive patients referred for coronary angiography and reported that Lp-PLA2 levels were an independent predictor of cardiac mortality (hazard ratio: 2.0; 95% CI: 1.4–3.1, $p<0.001$) after adjusting for established risk factors, including C-reactive protein and N-terminal b-natriuretic peptide. In 2007, Persson et al evaluated the relation between Lp-PLA2 and the metabolic syndrome in 4,480 nondiabetic patients without a history of coronary artery disease (CAD). Both Lp-PLA2 (relative risk [RR]: 1.54; 95% CI: 1.07 to 2.24) and metabolic syndrome (RR: 1.42; 95% CI: 1.06 to 1.90) were significant predictors of a first cardiac event. The combination of elevated Lp-PLA2 and metabolic syndrome conferred a further increase in risk (RR: 1.97; 95% CI: 1.34 to 2.90).

The Rancho Bernardo Study (2008) enrolled 1,077 community-dwelling older adults without known heart disease and followed patients a mean of 16 years to assess for the development of heart disease. Lp-PLA2 was an independent predictor of cardiac events, with a relative risk for patients in the second, third, and fourth quartiles of 1.66, 1.80, and 1.89, respectively, compared with the first quartile.

A 2011 study evaluated the discriminatory ability of Lp-PLA2 for incident CHD in 421 cases and 800 controls from the Nurses' Health Study. Lp-PLA2 was a significant predictor of CHD after adjustment for traditional risk factors with a RR of 1.75 (95% CI, 1.09 to 2.84). It also added significantly to the discriminatory ability, as judged by an increase in the area under the curve, improving it from 0.720 without Lp-PLA2 to 0.733 with Lp-PLA2, and improved the net reclassification improvement index for discriminating between patients with and without CHD ($p=0.004$).

Other studies have correlated Lp-PLA2 levels with different parameters of CVD. Multiple publications have reported that Lp-PLA2 levels are associated with characteristics of "vulnerable atherosclerotic plaques," both in the coronary and in the carotid arteries. Subsequent publications have also found an association between Lp-PLA2 levels and plaque rupture and fibrous cap thickness in patients with acute coronary syndrome. Muller et al (2013) reported that Lp-PLA2 levels were associated with low fractional flow reserve on cardiac catheterization in 197 patients with stable CAD. Tehrani et al (2013) evaluated the association between Lp-PLA2 levels and the protective effect of high-density lipoprotein-cholesterol (HDL-C) on incident CHD among 3888 adults with known cardiovascular disease. Among patients with the highest tertile of Lp-PLA2, the relationship between HDL-C and incident CHD was attenuated, although there was no consistent association of higher levels of Lp-PLA2 with CHD risk across HDL-C categories. Recent studies have shown associations between Lp-PLA2 and cardiovascular events in a nonwhite multiethnic population, in the severity of angiographically defined CAD in a Chinese sample, and subclinical atherosclerosis in young adults.

Some studies have shown that the association of Lp-PLA2 and CAD diminishes or disappears after adjustment for other risk factors. For example, Allison et al (2007) studied 508 patients with peripheral vascular disease followed for an average of 6.7 years. While there was a modest univariate association between Lp-PLA2 and cardiovascular events, this association disappeared after adjusting for established risk factors. In the Rotterdam Coronary Calcification Study (2007), a similar diminution of risk was observed. This population-based study followed 520 patients for seven years and evaluated the association between Lp-PLA2 and coronary calcification using electron-beam computed tomography scan. The unadjusted odds ratio (OR) for each standard deviation (SD) increase in Lp-PLA2 was 1.6 (95% CI: 1.1 to 2.4); however, this association became nonsignificant after controlling for lipid levels.

Association of Lp-PLA2 and CAD in Specific Populations
Some studies have specifically evaluated Lp-PLA2 as a risk factor in the diabetic population. For example, Saremi et al (2010) performed a secondary analysis of the Veterans Affairs Diabetes trial (VADT) examining risk factors that predicted the progression of coronary artery calcification over an average of 4.6 years of follow-up. Lp-PLA2 mass was one of two significant independent predictors that remained (p=0.01) after adjustment for standard risk factors. Hatoum et al (2010) evaluated Lp-PLA2 as a risk factor for incident coronary heart disease in 1,517 diabetic patients enrolled in the Health Profession Follow-Up Study. After adjustment for standard risk factors, the RR for incident CHD for the upper quartile of Lp-PLA2 activity compared with the lower quartile was 1.39 (95% CI, 1.01 to 1.90, p=0.03).

Association between Lp-PLA2 and CAD in Patients Receiving CAD Preventive Drugs
If levels of Lp-PLA2 change in response to effective CAD preventive drugs such as statins, and there is an association between CAD risk on treatment and Lp-PLA2 levels, then measurement of Lp-PLA2 levels may be useful in monitoring treatment response.

Interventional studies of antihyperlipidemic drugs (e.g., statins, fibrates, niacin) show that La-PLA2 levels decrease during treatment. A secondary analysis of the PROVE IT-TIMI 22 (Pravastatin or Atorvastatin Evaluation and Infection Therapy–Thrombolysis In Myocardial

Infarction) trial (2006), in which Lp-PLA2 levels were measured at baseline (n=3648) and at 30 days (n=3265) showed that patients randomized to atorvastatin 80 mg/d, but not pravastatin 40 mg/d, experienced a 20% reduction of Lp-PLA2 levels at 30 days. The 30-day, Lp-PLA2 level was independently associated with an increased risk of CV events. A 2006 secondary analysis from the DIACOR (Diabetes and Combined Lipid Therapy Regimen) trial demonstrated lower Lp-PLA2 levels (overall 16.8% reduction) after treatment compared with baseline.

Rosenson (2008) randomized 55 hyperlipidemic subjects with metabolic syndrome to fenofibrate or placebo. Fenofibrate treatment was associated with a 13% reduction in Lp-PLA2 mass compared to placebo. Saougos et al (2007) studied the effect of three lipid-lowering agents, rosuvastatin, ezetimibe, and fenofibrate, on Lp-PLA2 levels. All three agents significantly lowered Lp-PLA2 levels; fenofibrate also selectively increased HDL-associated Lp-PLA2 levels.

Although Lp-PLA2 levels respond to CAD preventive drugs, some studies have shown that Lp-PLA2 levels do not correlate with subsequent CAD risk in treated patients. At least two clinical trials have examined the change in Lp-PLA2 levels in patients treated with statins versus placebo and evaluated whether the clinical utility of Lp-PLA2 levels for risk stratification is modified by statin treatment. Ridker et al (2012) analyzed the changes in Lp-PLA2 levels among patients in the JUPITER trial, a randomized controlled trial of 17,802 subjects allocated to rosuvastatin or placebo. Among patients who received rosuvastatin, Lp-PLA2 mass decreased by 33.8%. In the placebo group, Lp-PLA2 levels were predictive of subsequent cardiac events, but this was not true in the rosuvastatin group. In a similar analysis of the MIRACL randomized controlled trial, Ryu et al (2012) analyzed 2587 patients treated with high-dose atorvastatin, or placebo. Atorvastatin reduced Lp-PLA2 levels in 2587 patients treated with high-dose atorvastatin. Atorvastatin reduced Lp-PLA2 mass by 32.1% and Lp-PLA2 activity by 29.5%. In the placebo group, Lp-PLA2 levels were predictive of adverse cardiac outcomes, but no correlation was found in the atorvastatin group. In a 2014 clinical trial by White et al, patients were randomized to placebo or darapladib, an Lp-PLA2 inhibitor. A secondary analysis of this trial by Wallentin et al (2016) demonstrated that, although baseline Lp-PLA2 levels were associated with cardiovascular risk, there was no association between changes in Lp-PLA2 levels and outcomes.

Section Summary: Clinically Valid

A large consistent body of evidence has established that Lp-PLA2 level is an independent predictor of CAD. Relatively few studies have examined the degree to which Lp-PLA2 improves on existing CAD prediction models in terms of clinically important magnitudes of reclassification.

Levels of Lp-PLA2 decrease substantially following treatment with anti-lipid medications, including statins. However, in treated patients, Lp-PLA2 may no longer be associated with risk of CAD, and thus not be useful as a measure of treatment response.

Clinically Useful

Although the preceding studies showed that Lp-PLA2 level is an independent risk factor for CAD, clinical utility depends on whether the use of Lp-PLA2 levels improves on existing models of CAD prediction, which then translates into differences in treatment that improve patient outcomes. Establishing improved outcomes compared with existing prediction models

could be demonstrated with clinical trials, but the expected difference in outcomes would probably be so small that the sample size of the trial would be impractically large. Decision modeling is another approach to estimating differences in patient outcomes due to improved reclassification of risk. A robust, validated model using Lp-PLA2 to predict CAD outcomes is necessary to use the test to manage patients. No studies identified evaluated whether a testing strategy that uses Lp-PLA2 levels improves health outcomes.

Section Summary: Clinically Useful
Changes in patient management that could potentially occur with a strategy using Lp-PLA2 levels are not well-established. Studies that directly evaluate patient management changes and/or health outcome improvements are needed to determine whether the use of Lp-PLA2 measurement has efficacy in cardiovascular diseases. Alternatively, robust decision modeling studies may demonstrate clinically important changes in health outcomes by incorporating Lp-PLA2 into CAD prediction models. Groups such as the American Heart Association have often incorporated results from decision models to inform their guidelines when the data underlying the models is robust. Incorporation of Lp-PLA2 into decision models is necessary to demonstrate the potential clinical utility of the biomarker.

Summary of Evidence
For individuals who have a risk of cardiovascular disease who receive Lp-PLA2 testing, the evidence includes studies of technical reliability and studies of the association between Lp-PLA2 and various coronary artery disease outcomes. Relevant outcomes are overall survival, disease-specific survival, and test validity. The studies have demonstrated that Lp-PLA2 levels are an independent predictor of cardiovascular disease. Although Lp-PLA2 levels are associated with cardiovascular disease risk, changes in patient management that would occur as a result of obtaining Lp-PLA2 levels in practice are not well-defined. To demonstrate clinical utility, clinicians must have the tools to incorporate Lp-PLA2 test results into existing risk prediction models that improve classification into risk categories, alter treatment decisions, and lead to improved health outcomes. Direct evidence for such improved health outcomes with Lp-PLA2 testing in clinical practice is lacking. The evidence is insufficient to determine the effects of the technology on health outcomes.

Practice Guidelines and Position Statements
American College of Cardiology and American Heart Association
The American College of Cardiology Foundation (ACCF) and American Heart Association (AHA) published joint guidelines on the assessment of cardiovascular risk in asymptomatic patients in 2013. Lipoprotein-associated phospholipase A_2 (Lp-PLA2) testing was not mentioned in these guidelines, which was a change from 2010 guidelines. In their prior guideline, Lp-PLA2 was given an IIb recommendation for assessing cardiovascular risk in intermediate-risk asymptomatic adults.

American Association of Clinical Endocrinologists
The American Association of Clinical Endocrinologists (AACE) published guidelines for the management of dyslipidemia and prevention of atherosclerosis in 2012. These guidelines made the following recommendations for LpA-PLA2 testing:

Table 1. Guidelines on Dyslipidemia and Atherosclerosis

Recommendation	GOE	LOE
Assess markers of inflammation in patients where further stratification of risk is necessary. Highly sensitive CRP (hsCRP) and Lp-PLA2 provide useful information in these instances and appear to be synergistic in predicting risk of CVD and stroke	B	1
Measure Lp-PLA2, which in some studies has demonstrated more specificity than hsCRP, when it is necessary to further stratify a patient's CVD risk, especially in the presence of systemic highly sensitive CRP elevations	B	2

CRP: C-reactive protein; CVD: cardiovascular disease; GOE: grade of evidence; LOE: level of evidence; Lp-PLA2: lipoprotein-associated phospholipase A_2.

A 2017 update to guidelines published jointly by the American Association of Clinical Endocrinologists and American College of Endocrinology recommended the measurement of Lp-PLA2 as an additional indication of cardiovascular risk. Citing several studies in which Lp-PLA2 was comparable with high-sensitivity C-reactive protein as a risk predictor, the guidelines accordingly recommended the use of Lp-PLA2 data in situations requiring a more specific evaluation of risk of atherosclerotic cardiovascular disease that is provided by high-sensitivity C-reactive protein.

European Society of Cardiology et al

In 2012, the European Society of Cardiology and other cardiovascular disease societies issued guidelines on cardiovascular disease prevention. These guidelines include the following statements about Lp-PLA2 testing:

- LpPLA2 may be measured as part of a refined risk assessment in patients at high risk of a recurrent acute atherothrombotic event. (*Class IIb recommendation; Level of Evidence B; weak evidence).*

U.S. Preventive Services Task Force Recommendations

No U.S. Preventive Services Task Force recommendations on the use of Lp-PLA2 in the assessment of cardiovascular risk have been identified.

Key Words:

Lipoprotein-associated phospholipase A2, Lp-PLA2, PLAC test, coronary risk assessment, high-sensitivity C-reactive protein, hs-CRP, low density cholesterol, LDL

Approved by Governing Bodies:

In December 2014, the PLAC® Test (diaDexus, San Francisco, CA), a quantitative enzyme assay, was cleared for marketing by the U.S. Food and Drug Administration through the 510(k) process for Lp-PLA2 activity. It was considered substantially equivalent to a previous version of the PLAC® Test (diaDexus), which was cleared for marketing by the Food and Drug Administration in July 2003.

Benefit Application:

Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

Current Coding:

CPT codes

83698 Lipoprotein-associated phospholipase a2, (lp-pla2)

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Medical Policy Group, August 2006
Medical Policy Group, June 2007
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Medical Policy Group, January 2016
Medical Policy Group, December 2016
Medical Policy Group, January 2018

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member's plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield's administration of plan contracts.