

## **Use of a Gene Expression Score in a Primary Care Setting to Evaluate African American Patients Presenting with Symptoms Suggestive of Obstructive Coronary Artery Disease**

### **Meeting:**

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**Authors:** Morris Brown, MD<sup>1</sup>, David Smith, MD<sup>2</sup>, Brian Rhees, PhD<sup>3</sup> and Larry Wilson, MD, MS<sup>3</sup>,

1. Providence Medical Group, Dayton, OH, 2. Novant Health Heart and Vascular Institute, Huntersville, NC, 3. CardioDx, Inc., Palo Alto, CA

**Purpose:** Approximately 3 million patients present annually to primary care clinicians with symptoms suggestive of obstructive coronary artery disease (CAD). After detailed history and physical examination, physicians are often unable to confidently determine the primary etiology of symptoms. As a result, approximately \$5.9 billion is spent annually on non-invasive and invasive cardiac testing in the US for non-diabetic patients with no prior revascularization or myocardial infarction. We hypothesized that use of the gene expression score (GES) would show clinical utility among African Americans, especially relevant given the heterogeneity in clinical manifestations of CAD in this population, around medical decision making around referral to cardiology and/or further diagnostic testing.

**Methods:** This previously validated gene expression diagnostic test has a 96% NPV in ruling out obstructive CAD among symptomatic patients with no previous history of diabetes or myocardial infarction. GES results are predefined as low (GES  $\leq 15$ ) or elevated (GES  $> 15$ ), with low score patients having a low likelihood of obstructive CAD. Previous evaluation showed no significant difference in test performance between non-white and white populations. This retrospective study was conducted in a single primary care practice with a large African American patient population. De-identified patient data was collected from 2011 – 2013.

**Results:** This cohort included 582 African American patients who received a GES, with 325 (56%) female patients and 201 (35%) being  $>65$  yrs. Approximately 90% (518/582) of patients had typical or atypical symptoms suggestive of obstructive CAD. Mean GES was 18.58 (range, 1-40) and 245 patients (42%) had low scores. In this analysis, 11/245 (4%) of low GES patients were referred to cardiology and/or further diagnostic testing, whereas 248/337 (74%) of elevated GES patients were referred to cardiology and/or further diagnostic testing (p-value  $< 0.0001$ ).

**Conclusions:** The gene expression test showed clinical utility in adopting and utilizing the GES to rule-out symptomatic African American patients who had a low likelihood of obstructive CAD. This rate of referral is similar to that observed in largely non-minority patients as seen in previous GES studies: COMPASS, IMPACT-PCP, IMPACT-

Cardiology, Registry 1 and the PRESET Registry. The findings here show fewer cardiology referrals and/or further diagnostic testing for those African American patients at low risk for obstructive CAD, therefore preventing patients from receiving unnecessary, and potentially harmful, additional diagnostic testing.

**Reference:** Brown MR, Smith D, Rhees B, et al. Use of a Gene Expression Score in a Primary Care Setting to Evaluate African American Patients Presenting with Symptoms Suggestive of Obstructive Coronary Artery Disease. *Med Decis Making*. 2015;35:E63.