

Use of a Blood-Based Gene Expression Score was Associated with Lower Diagnostic Testing Costs in Patients Presenting to the Cardiologist with Symptoms Suggestive of Obstructive Coronary Artery Disease: An Economic Analysis of the IMPACT-CARD (Investigation of a Molecular Personalized Coronary Gene Expression Test on Cardiology Practice Pattern) Trial.

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Authors: McPherson JA¹, Yau M², Juusola JL², Monane M², Ladapo JA³

1. Vanderbilt University, Nashville, TN, USA, 2. CardioDx, Inc., Palo Alto, CA, USA, 3. New York University School of Medicine, New York, NY, USA

Objectives: In the United States, patients presenting to physicians' offices with chest pain and related symptoms frequently undergo extensive non-invasive and invasive cardiac testing to assess the likelihood of obstructive coronary artery disease (CAD). We hypothesized that use of a gene expression score (GES) would reduce diagnostic costs among non-acute symptomatic patients presenting to cardiologists.

Methods: The IMPACT-CARD Trial (NCT01251302) prospectively enrolled 88 patients without known CAD who presented with chest pain and related symptoms and were referred to one of six cardiologists. The cardiologist's diagnostic strategy was evaluated before and after GES testing, and diagnostic testing in a matched historical cohort of 83 patients was extracted from medical records. The GES is a previously validated, blood-based diagnostic test that determines the likelihood of obstructive CAD, with a negative predictive value of 96% among low GES (≤ 15) patients. We estimated per-procedure costs from commercially insured patients in a large, national health claims database. We applied these costs to the tests performed in the matched historical cohort and recommended in the prospective arm post-GES to calculate the cost of diagnostic evaluation in the trial. Given the rule-out nature of the GES, we focused this economic analysis on low GES patients.

Results: There were 52 low GES study patients. The total cost of cardiac diagnostic testing in these patients was lower than in the 52 matched controls (\$2,450 versus \$1,735 per patient, inclusive of the GES cost, $p=0.23$), though the difference was not statistically significant. This finding represents 29% savings (\$715 per patient) in cardiac testing costs. No differences in clinical outcomes were observed between the groups.

Conclusions: Physician use of the GES may be associated with reductions in diagnostic testing costs in low score patients. These savings reflect the potential economic utility of the GES in the diagnosis of obstructive CAD.

Reference: McPherson JA, Yau M, Juusola JL, et al. Use of a Blood-Based Gene Expression Score was Associated with Lower Diagnostic Testing Costs in Patients Presenting to the Cardiologist with Symptoms Suggestive of Obstructive Coronary Artery Disease: An Economic Analysis of the IMPACT-CARD (Investigation of a Molecular Personalized Coronary Gene Expression Test on Cardiology Practice Pattern) Trial. *Value Health*. 2014;17(3):A122-A123.