

Restoring relevance, accuracy and alignment with scientific guidelines to cholesterol quality metrics

Christie M. Ballantyne, MD

Center for Cardiometabolic Disease Prevention

Department of Medicine

Baylor College of Medicine

Houston, Texas

Review

The importance of low-density lipoprotein cholesterol measurement and control as performance measures: A joint Clinical Perspective from the National Lipid Association and the American Society for Preventive Cardiology

Salim S. Virani, MD, PhD¹, Karen Aspary, MD, MS¹, Dave L. Dixon, PharmD, Keith C. Ferdinand, MD, Paul A. Heidenreich, MD, Elizabeth J. Jackson, MSN, Terry A. Jacobson, MD, Janice L. McAlister, MP, DNP, David R. Neff, DO, Martha Gulati, MD², Christie M. Ballantyne, MD^{2,*}

Baylor College of Medicine, Houston, Texas, USA (Drs Virani, Ballantyne); Michael E. DeBakey Veterans Affairs Medical Center, Houston, Texas, USA (Dr Virani); The Aga Khan University, Karachi, Pakistan (Dr Virani); Lifespan Cardiovascular Institute, and Alpert Medical School, Brown University, Providence, Rhode Island, USA (Dr Aspary); Virginia Commonwealth University School of Pharmacy, Richmond, Virginia, USA (Dr Dixon); Tulane University School of Medicine, New Orleans, Louisiana, USA (Dr Ferdinand); Stanford University, Palo Alto, California, USA (Dr Heidenreich); CardioTexas, Austin, Texas, USA (Ms Jackson); Emory University School of Medicine, Atlanta, Georgia, USA (Dr Jacobson); Piedmont Heart Institute, Atlanta, Georgia, USA (Dr McAlister); Michigan State University, College of Osteopathic Medicine, Department of Family and Community Medicine, East Lansing, Michigan, USA (Dr Neff); Smidt Cedars-Sinai Heart Institute, Los Angeles, California, USA (Dr Gulati)

[Journal of Clinical Lipidology \(2023\) 17, 208–218](#)

Simultaneously published in the American Journal of Preventive Cardiology

Clinical Importance of Quality Measures

Perspective of both clinician and patient:

How do I know if the recommended treatment with diet, exercise, and drug therapy is successful for hypertension, diabetes, and LDL-C?

1. Measure blood pressure
2. Measure HbA1C
3. Measure LDL-C

Comparison of the 2023 NCQA HEDIS measures for HTN, DM, and statin therapy

Measure	Description
Controlling High BP	The percentage of members 18–85 years of age who had a diagnosis of HTN and whose BP was adequately controlled (<140/90 mm Hg) during the measurement year.
BP Control for Patients with Diabetes	The percentage of members 18–75 years of age with diabetes (types 1 and 2) whose BP was adequately controlled (<140/90 mm Hg) during the measurement year.
HbA1c Control for Patients with Diabetes	The percentage of members 18–75 years of age with diabetes (types 1 and 2) whose HbA1c was at the following levels during the measurement year: <ul style="list-style-type: none"> • HbA1c control (<8.0%). • HbA1c poor control (>9.0%).
Eye Exam for Patients with Diabetes	The percentage of members 18–75 years of age with diabetes (types 1 and 2) who had a retinal eye exam.
Kidney Health Evaluation for Patients with Diabetes	The percentage of members 18–85 years of age with diabetes (type 1 and type 2) who received a kidney health evaluation, defined by an eGFR and a urine albumin-creatinine ratio, during the measurement year.
Statin Therapy for Patients with Diabetes	The percentage of members 40–75 years of age during the measurement year with diabetes who do not have clinical ASCVD who met the following criteria. Two rates are reported: <ol style="list-style-type: none"> 1. <i>Received Statin Therapy</i>. Members who were dispensed at least one statin medication of any intensity during the measurement year. 2. <i>Statin Adherence 80%</i>. Members who remained on a statin medication of any intensity for at least 80% of the treatment period.
Statin Therapy for Patients with CVD	The percentage of males 21–75 years of age and females 40–75 years of age during the measurement year, who were identified as having clinical ASCVD and met the following criteria. The following rates are reported: <ol style="list-style-type: none"> 1. <i>Received Statin Therapy</i>. Members who were dispensed at least one high-intensity or moderate-intensity statin medication during the measurement year. 2. <i>Statin Adherence 80%</i>. Members who remained on a high-intensity or moderate-intensity statin medication for at least 80% of the treatment period.

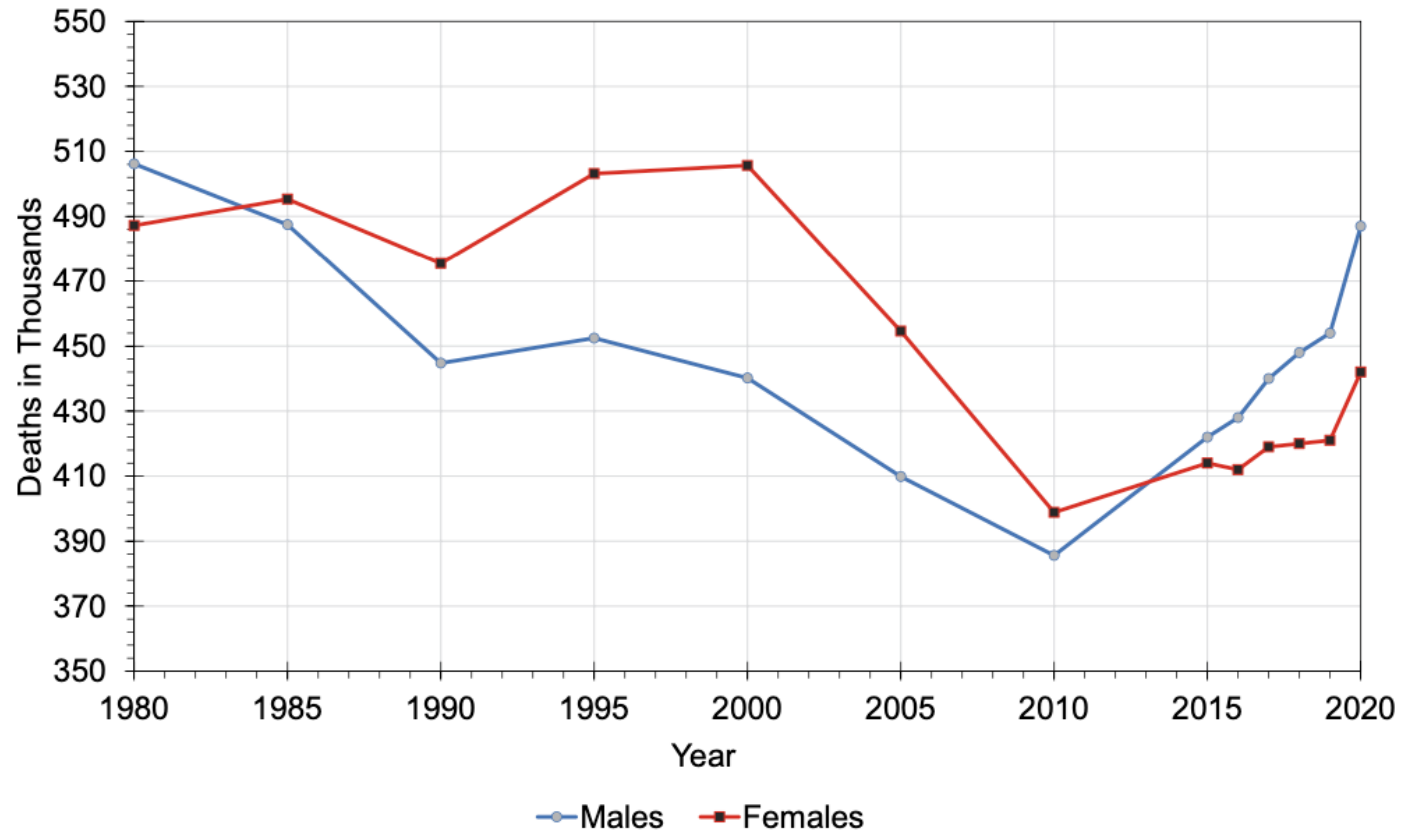
Updates to previous lipid performance measures by the 2015 ACC/AHA Focused Update of Secondary Prevention Lipid Performance Measures

Patient population	Previous performance measures	2015 performance measures
PCI	2013: Percentage of patients \geq 18 years of age for whom PCI is performed and who are prescribed optimal medical therapy at discharge [12].	Percentage of patients 18-75 years of age for whom PCI was performed who were offered optimal medical therapy at discharge.
CAD	2011: Percentage of patients \geq 18 years of age diagnosed with CAD seen within a 12-month period who have an LDL-C result $<$ 100 mg/dL OR patients who have an LDL-C result \geq 100 mg/dL and have a documented plan of care to achieve an LDL-C $<$ 100 mg/dL, including at a minimum the prescription of a statin [11].	Percentage of patients 18-75 years of age with CAD who were offered moderate- to high-intensity statin.
STEMI/ NSTEMI	2008: Percentage of patients \geq 18 years of age with STEMI/NSTEMI with documented LDL-C level in the hospital record or documented LDL-C testing done during the hospital stay or planned after discharge [9].	Percentage of patients 18-75 years of age with AMI who were offered moderate- to high-intensity statin.
PAD	2010: Percentage of patients \geq 18 years of age with PAD who were prescribed a statin and whose LDL-C is $<$ 100 mg/dL [10].	Percentage of patients 18-75 years of age with PAD who were offered moderate- to high-intensity statin.
ASCVD		Percentage of patients 18-75 years of age with clinical ASCVD who were offered moderate- to high-intensity statin.

Drozda JP Jr et al., J Am Coll Cardiol. 2016;67:558-87.
 2013: Nallamothu BK et al. Circulation 2014;129:926-49.
 2011: Drozda J Jr et al. Circulation 2011;124:248-70.
 2008: Krumholz HM et al. J Am Coll Cardiol 2008;52:2046-99.
 2010: American College of Cardiology Foundation et al. J Vasc Surg 2010;52:1616-52.

CVD Mortality Back on the Rise

CVD Mortality Trends, 1980-2020



Tsao CW, et al. Circulation. 2023;147:e93-e621.

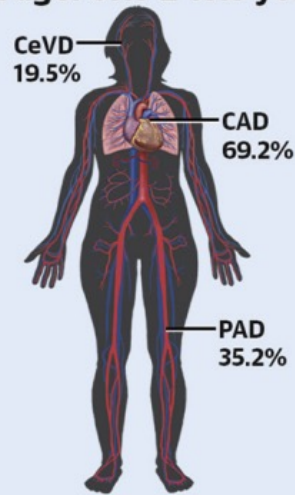
Universal Foundation of Quality Metrics

- A recent *New England Journal of Medicine* commentary described a working group focused on the development of a universal foundation of quality measures across the Centers for Medicare and Medicaid Services (CMS)
- Recommendations for quality measures for chronic conditions included “controlling high blood pressure” and “hemoglobin A1c poor control (>9%)” but did not mention measurement and control of LDL-C

Inadequate Statin Use Among Patients with Established ASCVD

Study Population

601,934 patients with ASCVD
Mean age: 67.5 ± 13.3 years



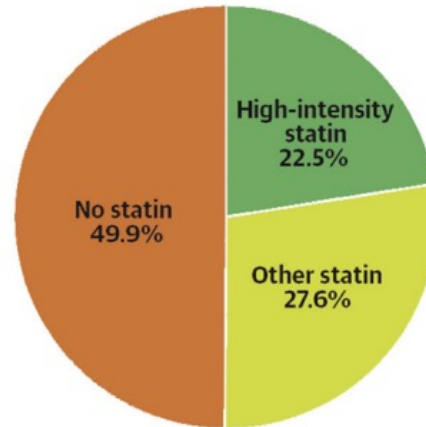
Outcomes

Statin usage on January 31, 2019
± 30 days

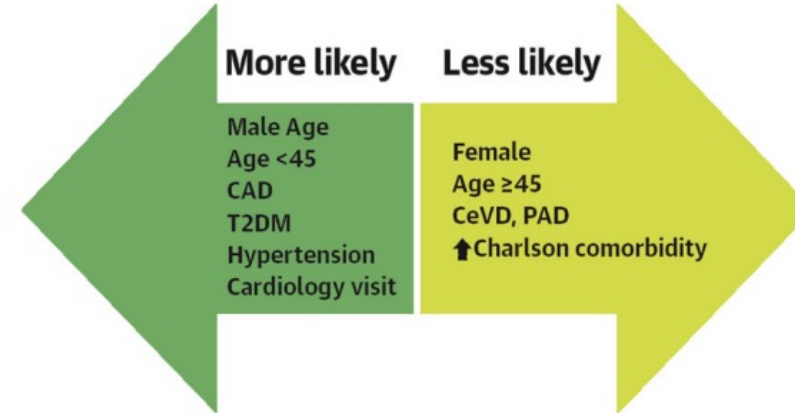
Proportion of days covered

Results

Proportion on high-intensity statin vs other statin vs no statin



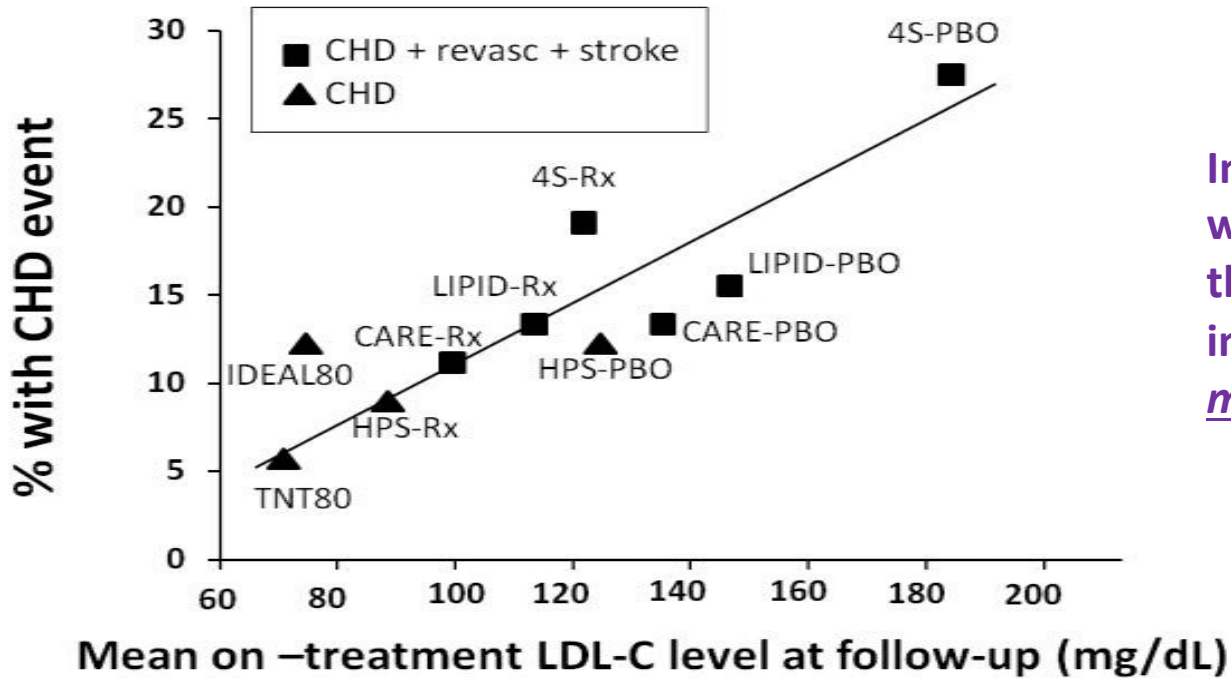
Odds of high (vs other) intensity statin use



Proportion of days covered



LDL-C and CVD Events in Secondary Prevention Statin RCTs



In the GOULD US Registry of patients with ASCVD receiving lipid-lowering therapy, LDL-C tracked over 2 years indicated two-thirds remained ≥ 70 mg/dL

Performance of a Lipid Panel is a Class I recommendation

4.4.3. Monitoring in Response to LDL-C-Lowering Therapy

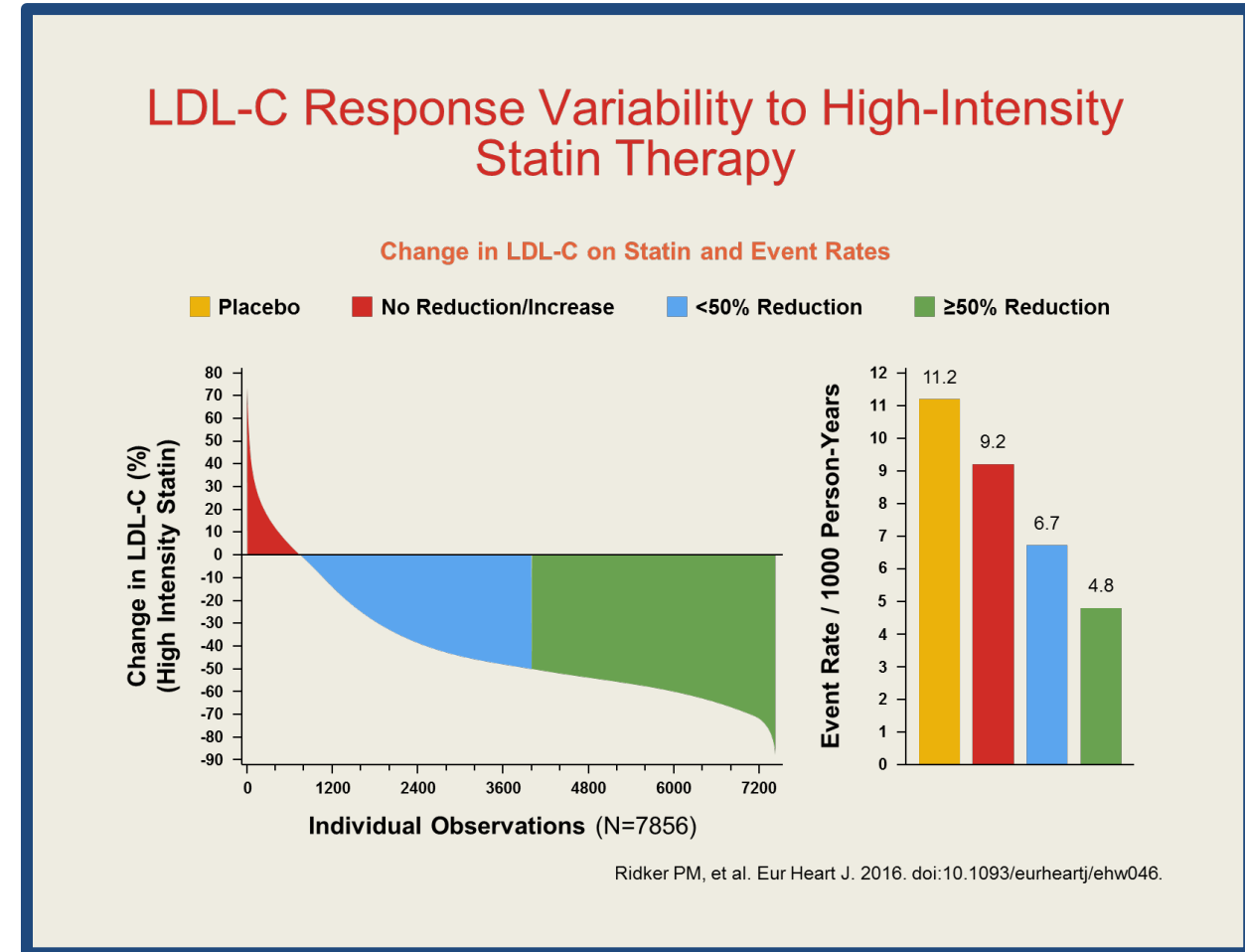
Recommendation for Monitoring

Referenced studies that support the recommendation are summarized in [Online Data Supplement 17](#).

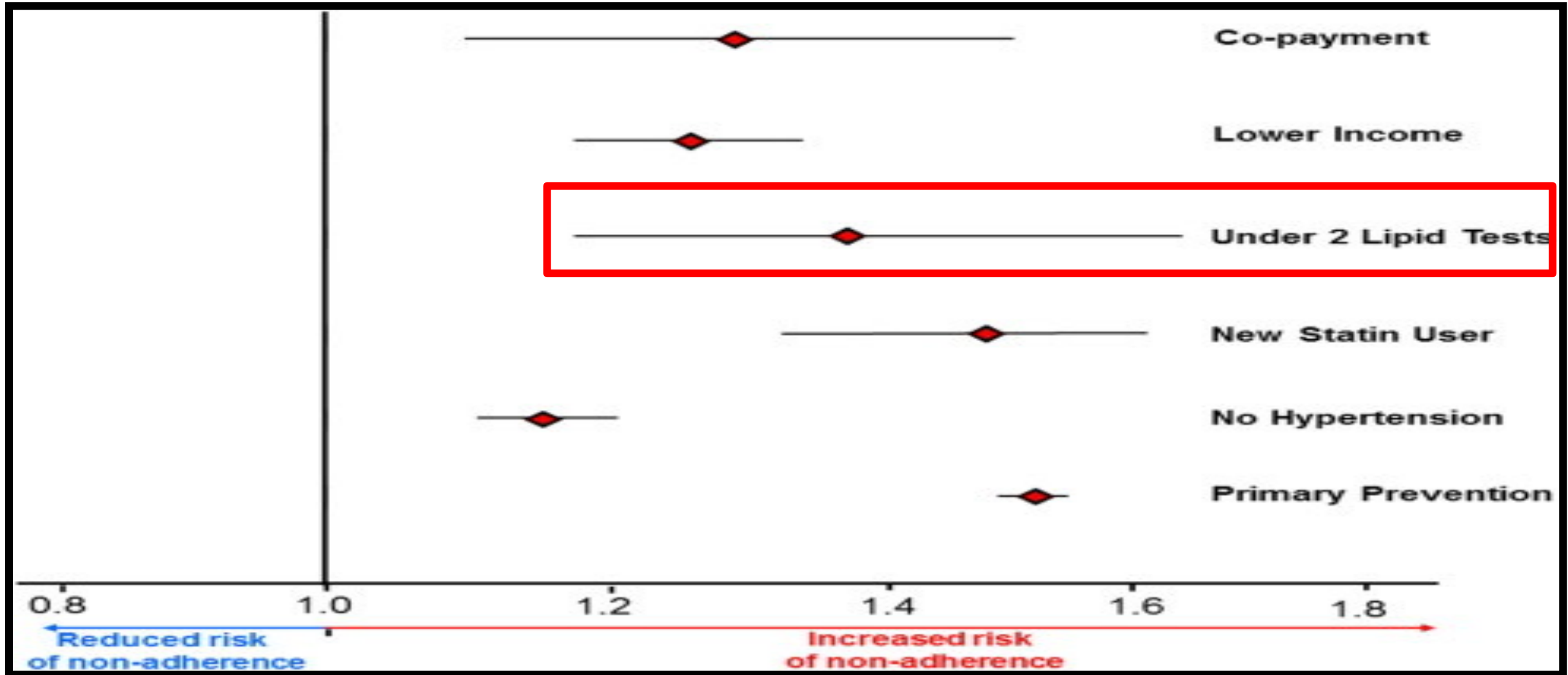
COR	LOE	RECOMMENDATION
I	A	Adherence to changes in lifestyle and effects of LDL-C-lowering medication should be assessed by measurement of fasting lipids and appropriate safety indicators 4 to 12 weeks after statin initiation or dose adjustment and every 3 to 12 months thereafter based on need to assess adherence or safety (S4.4.3-1–S4.4.3-3).

Variation in Response to Statins

- JUPITER trial participants receiving rosuvastatin 20 mg
 - Marked interindividual variability in response to therapy
 - Reduction in ASCVD events greatest in those with greatest % reduction in LDL-C



Prevalence and Determinants of Statin Non-adherence (meta-analysis of 67 studies; 147 variables analyzed)



Key Conclusions

- Recent data from the NCQA and independent surveys show minimal improvement in recent years regarding use of statin therapy in individuals with ASCVD
- Significant heterogeneity exists in the LDL-C response to statin therapy
- Clinical trial evidence with nonstatin therapies supports benefits of additional LDL-C lowering in high-risk patients on statin therapy whose LDL-C levels are above recommended thresholds
- New evidence-based guidelines and recommendations support LDL-C monitoring to assess response and adherence to therapies, as well as the value of add-on therapy for attaining recommended levels of LDL-C
- Advances in data analytics and the use of electronic health records allow health systems and providers to monitor LDL-C levels and prompt actions to address LDL-C measurement and control, and thus improve outcomes

Key Criteria for a quality metric

- Relevant
- Accurate
- Aligned with latest medical guidelines

Take Home Message

“Thus, the totality of evidence, and established criteria for performance measures, favor re-establishment of an LDL-C measurement to improve population-wide lipid control, cardiovascular morbidity and mortality, and health equity.”

Joint Clinical Perspective from the National Lipid Association and the American Society for Preventive Cardiology

Efforts are ongoing to change the quality metric and as recommendations move forwards, there will be a period for the public to provide feedback, so we will all need to speak up!