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Resolution No. 12 – 2023

Introduced by: OSMA Medical Student Section

Subject: Support of Improving Cardiovascular Screenings by Including Lipoprotein(a) (Lp(a))

Referred to: Resolutions Committee No. 1

WHEREAS, Lipoprotein A (Lp(a)), a variant of low-density lipoprotein (LDL) with apolipoprotein(a) covalently bound to apolipoprotein-B100, can accumulate, promoting atherosclerosis and thrombosis;¹⁻⁹ and

WHEREAS, Elevated Lp(a) is genetically inherited on the LPA gene locus and is relatively independent of age, gender, and diet;^{1,7,9,10-13} and

WHEREAS, An estimated one in five people have elevated levels of Lp(a);^{1,2,9,13-16} and

WHEREAS, Lp(a) is a direct, risk factor for cardiovascular disease, independent of total cholesterol, High Density Lipoprotein-Cholesterol (HDL-C), triglycerides, and Low Density Lipoprotein-Cholesterol (LDL-C);^{7,9,13,15-17, 26} and

WHEREAS, if regularly screened, Lp(a) and its independent nature as a risk factor allows for identification and notification of a previously unrecognized group with significantly increased ASCVD risk,^{7,9,13,15-17, 26} and

WHEREAS, Lp(a) is not traditionally included on lipid panel screening, as current guidelines suggest screening only in those with early atherosclerotic cardiovascular disease (ASCVD) or family history of early ASCVD;^{9,18,19} and

WHEREAS, Adult levels of Lp(a) are reached by the age of two, therefore Lp(a) screening can begin as early as childhood;²⁰ and

WHEREAS, Serum concentration of Lp(a) can be measured through a simple blood draw;^{1,8,21} and

WHEREAS, Lp(a) screening is a low cost test, ranging from \$11-\$179 before insurance;^{22,23} and

WHEREAS, Elevated Lp(a) would only require a one-time screening test to detect;^{1,9,24} and

47
48 **WHEREAS**, the American Heart Association (AHA) and American College of
49 Cardiology (ACC) call for an increase in Lp(a) screening and research based on the link
50 between Lp(a) and ASCVD;^{2,25} and

51
52 **WHEREAS**, The European Society of Cardiology and European Atherosclerosis
53 Society suggests measurement of Lp(a) levels at least once in each adult lifetime;²⁰ and

54
55 **WHEREAS**, Lp(a) screening is not currently covered by Medicare as a biomarker
56 for cardiovascular risk assessment panel, which currently includes a basic lipid panel
57 consisting of total cholesterol, HDL-C, triglycerides, and LDL-C;²⁶ and

58
59 **WHEREAS**, Testing of Lp(a) is more frequently conducted in non-Hispanic white
60 patients and those with private insurance; indicating potential barriers in access;²⁷ and

61
62 **WHEREAS**, 2018 AHA analysis found individuals of low socioeconomic status
63 (SES), particularly those with low income, have a heavier CVD burden and are more
64 likely to face increased cardiovascular event rates and poorer outcomes;³⁴ and

65
66 **WHEREAS**, Medicaid, by definition, provides health coverage to low-income
67 families and individuals, and the most recent Medicare beneficiary enrollment trends
68 indicate Medicare and Medicare Advantage enrollees are disproportionately lower-
69 income;^{35, 36} and

70
71 **WHEREAS**, ASCVD is a major cause of mortality, hence risk factors such as
72 elevated Lp(a) should be detected early in order to initiate preventative care
73 methodologies including lowering LDL levels via pharmacological intervention, lifestyle
74 and diet changes;^{1,2,8,9,28-30} and

75
76 **WHEREAS**, Recommendations have been made for the lab cut off values of
77 Lp(a) which are considered "elevated" to be lower in the African American population in
78 comparison to other groups due to direct correlation to ASCVD events, making
79 accessible preventative screening an even greater priority in this specific
80 community;^{31,32} and

81
82 **WHEREAS**, No current FDA approved medications directly address Lp(a) levels,
83 yet promising candidates are currently undergoing clinical trials, providing a potential for
84 future direct Lp(a) pharmacological treatment options;^{1,9} and

85
86 **WHEREAS**, Addition of Lp(a) to preventative screening panels will provide a
87 more accurate estimation of Lp(a) prevalence and increase the number of potential
88 participants in clinical trials evaluating potential treatments;³³ and

89
90 **WHEREAS**, By Lp(a) testing every patient enrolled in their cardiac prevention
91 program for over 10 years, the Cleveland Clinic has built a sample of over 25,000

patients, from which they have corroborated the cardiovascular event and direct cardiovascular mortality rate increase associated with Lp(a);³³ and

WHEREAS, The Cleveland Clinic screening initiative may serve as an example of what nationwide efforts could resemble and provide in terms of predictive value and resource allocation;^{33,37} and **NOW THEREFORE**

BE IT RESOLVED, that our OSMA supports Research into Lp(a) for cardiovascular risk assessment.

Fiscal Note: \$ (Sponsor)
 \$ 1,000 (Staff)

References:

1. Elevated lipoprotein(a) - National Lipid Association Online. https://www.lipid.org/sites/default/files/elevated_lipoprotein_a.pdf. Accessed August 29, 2022.
2. Lipoprotein(a) in clinical practice. American College of Cardiology. <https://www.acc.org/latest-in-cardiology/articles/2019/07/02/08/05/lipoproteina-in-clinical-practice>. Accessed August 31, 2022.
3. Farzam K, Senthilkumaran S. Lipoprotein A. PubMed. Published 2021. <https://www.ncbi.nlm.nih.gov/books/NBK570621/>
4. Vasquez N, Joshi PH. Lp(a): Addressing a Target for Cardiovascular Disease Prevention. *Curr Cardiol Rep*. 2019;21(9):102. Published 2019 Jul 31. doi:10.1007/s11886-019-1182-0
5. Jang AY, Han SH, Sohn IS, Oh PC, Koh KK. Lipoprotein(a) and Cardiovascular Diseases - Revisited. *Circ J*. 2020;84(6):867-874. doi:10.1253/circj.CJ-20-0051
6. Gu J-X, Huang J, Li S-S, et al. Elevated lipoprotein(a) and genetic polymorphisms in the LPA gene may predict cardiovascular events. *Scientific reports*. 2022;12(1):3588. doi:10.1038/s41598-022-07596-4
7. Reyes-Soffer G, Gissette Reyes-Soffer, Ginsberg HN, et al. Lipoprotein(a): A genetically determined, causal, and prevalent risk factor for atherosclerotic cardiovascular disease: A scientific statement from the American Heart Association. *Arteriosclerosis, Thrombosis, and Vascular Biology*. https://www.ahajournals.org/doi/10.1161/ATV.000000000000147?utm_campaign=sciencenews21-22&utm_source=science-news&utm_medium=phd-link&utm_content=phd-10-14-21. Published October 14, 2021. Accessed August 28, 2022.
8. Cegla J, France M, Marcovina SM, Neely RDG. Lp(a): When and how to measure it. *Ann Clin Biochem*. 2021;58(1):16-21. doi:10.1177/0004563220968473
9. Thanassoulis G. Screening for High Lipoprotein(a). *Circulation*. 2019;139(12):1493-1496. doi:10.1161/CIRCULATIONAHA.119.038989

10. Clarke R, Peden JF, Hopewell JC, et al. Genetic variants associated with lipoprotein(a) level and coronary disease. *New England Journal of Medicine*. 2009;361(26):2518-2528. doi:10.1056/nejmoa0902604
11. Enas EA, Varkey B, Dharmarajan TS, Pare G, Bahl VK. Lipoprotein(a): An independent, genetic, and causal factor for cardiovascular disease and acute myocardial infarction. *Indian Heart Journal*. 2019;71(2):99-112. doi:10.1016/j.ihj.2019.03.004
12. Schmidt K, Noureen A, Kronenberg F, Utermann G. Structure, function, and genetics of lipoprotein (a). *Journal of Lipid Research*. 2016;57(8):1339-1359. doi:10.1194/jlr.r067314
13. Cho L. Why would my doctor order a lipoprotein(a) blood test? Cleveland Clinic. <https://health.clevelandclinic.org/why-would-my-doctor-order-a-lipoproteina-blood-test/>. Published December 10, 2021. Accessed August 26, 2022.
14. Brandt EJ, Mani A, Spatz ES, Desai NR, Nasir K. Lipoprotein(a) levels and association with myocardial infarction and stroke in a nationally representative cross-sectional US cohort. *J Clin Lipidol*. 2020;14(5):695-706.e4. doi:10.1016/j.jacl.2020.06.010
15. Jacobson TA. Lipoprotein(a), cardiovascular disease, and contemporary management. *Mayo Clin Proc*. 2013;88(11):1294-1311. doi:10.1016/j.mayocp.2013.09.003
16. Burgess S, Ference BA, Staley JR, et al. Association of LPA Variants With Risk of Coronary Disease and the Implications for Lipoprotein(a)-Lowering Therapies: A Mendelian Randomization Analysis. *JAMA Cardiol*. 2018;3(7):619-627. doi:10.1001/jamacardio.2018.1470
17. Nordestgaard BG, Chapman MJ, Ray K, et al. Lipoprotein(a) as a cardiovascular risk factor: current status. *Eur Heart J*. 2010;31(23):2844-2853. doi:10.1093/eurheartj/ehq386
18. Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation*. 2019;140:e596–e646. DOI: 10.1161/CIR.0000000000000678
19. Lipid panel: What it is, purpose, preparation & results. Cleveland Clinic. Updated November 9, 2021. Accessed August 26, 2022. <https://my.clevelandclinic.org/health/diagnostics/17176-lipid-panel#:~:text=A%20lipid%20panel%20is%20a,a%20measurement%20of%20your%20triglycerides.>
20. Kohn B, Ashraf AP, Wilson DP. Should lipoprotein(a) be measured in youth? *The Journal of Pediatrics*. 2021;228:285-289. doi:10.1016/j.jpeds.2020.08.042
21. Lipoprotein (a) Blood Test. MedlinePlus. Accessed August 28, 2022. <https://medlineplus.gov/lab-tests/lipoprotein-a-blood-test/>
22. Pearson A. Opinion: What about testing for lipoprotein(a)? *Medical News*. <https://www.medpagetoday.com/opinion/skeptical-cardiologist/85423>. Published March 14, 2020. Accessed August 31, 2022.

23. Lipoprotein(a). Find Lab Tests Online. <https://www.findlabtest.com/lab-test/blood-tests-for-heart-disease/lipoprotein-a-labcorp-120188>. Published August 26, 2022. Accessed August 31, 2022.
24. Saeedi R, Frohlich J. Lipoprotein (a), an independent cardiovascular risk marker. *Clin Diabetes Endocrinol*. 2016;2:7. Published 2016 Mar 31. doi:10.1186/s40842-016-0024-x
25. Lipoprotein(a): A genetically determined, causal, and prevalent risk factor for atherosclerotic cardiovascular disease. professional.heart.org. <https://professional.heart.org/en/science-news/lipoprotein-a-a-genetically-determined-causal-and-prevalent-risk-factor-for-ascvd/Commentary>. Published July 20, 2022. Accessed August 31, 2022.
26. MolDX: Biomarkers in cardiovascular risk assessment. CMS.gov Centers for Medicare & Medicaid Services. <https://www.cms.gov/medicare-coverage-database/view/lcd.aspx?LCDId=36358>. Accessed August 31, 2022.
27. Michelle Kelsey, Courtney Page, Brooke Alhanti, Shannon L. Rhodes, Shia T. Kent, Eric Peterson, Neha Pagidipati, Lipoprotein(a) Testing Patterns in a Large Health System, *The American Journal of Cardiology*, Volume 153, 2021, pages 43-50, ISSN 0002-9149, <https://doi.org/10.1016/j.amjcard.2021.05.018>.
28. Ellulu MS, Patimah I, Khaza'ai H, Rahmat A, Abed Y, Ali F. Atherosclerotic cardiovascular disease: a review of initiators and protective factors. *Inflammopharmacology*. 2016;24(1):1-10. doi:10.1007/s10787-015-0255-y
29. Schmitz G, Orsó E. Lipoprotein(a) hyperlipidemia as cardiovascular risk factor: pathophysiological aspects. *Clin Res Cardiol Suppl*. 2015;10(Suppl 1):21-25. doi:10.1007/s11789-015-0074-0
30. Hill MF, Bordoni B. Hyperlipidemia - StatPearls - NCBI Bookshelf. <https://www.ncbi.nlm.nih.gov/books/NBK559182/>. Published February 8, 2022. Accessed August 29, 2022.
31. Guan W, Cao J, Steffen BT, et al. Race is a key variable in assigning lipoprotein(a) cutoff values for coronary heart disease risk assessment: the Multi-Ethnic Study of Atherosclerosis. *Arterioscler Thromb Vasc Biol*. 2015;35(4):996-1001. doi:10.1161/ATVBAHA.114.304785
32. Virani SS, Brautbar A, Davis BC, et al. Associations between lipoprotein(a) levels and cardiovascular outcomes in black and white subjects: the Atherosclerosis Risk in Communities (ARIC) Study. *Circulation*. 2012;125(2):241-249. doi:10.1161/CIRCULATIONAHA.111.045120
33. Leahy DR. The need to simplify lipoprotein(A) testing guidelines: Test everyone. *The Cardiology Advisor*. <https://www.thecardiologyadvisor.com/home/topics/metabolic/lipoprotein-a-testing-guidelines-atherosclerotic-cardiovascular-disease-ascvd-cas/>. Published January 7, 2022. Accessed August 31, 2022.
34. Schultz WM, Kelli HM, Lisko JC, et al. Socioeconomic status and cardiovascular outcomes. *Circulation*. 2018;137(20):2166-2178. doi:10.1161/circulationaha.117.029652
35. Policy basics: Introduction to Medicaid. Center on Budget and Policy Priorities. <https://www.cbpp.org/research/health/introduction-to-medicaid>. Published April 14, 2020. Accessed September 20, 2022.

- 229 36. Assistant Secretary For Planning and Evaluation, Tarazi W, Welch WP, et al.;
230 2022.
231 [https://aspe.hhs.gov/sites/default/files/documents/f81aafbba0b331c71c6e8bc665](https://aspe.hhs.gov/sites/default/files/documents/f81aafbba0b331c71c6e8bc66512e25d/medicare-beneficiary-enrollment-ib.pdf)
232 [12e25d/medicare-beneficiary-enrollment-ib.pdf](https://aspe.hhs.gov/sites/default/files/documents/f81aafbba0b331c71c6e8bc66512e25d/medicare-beneficiary-enrollment-ib.pdf). Accessed September 20, 2022.
233 37. Preventive Cardiology & Rehabilitation. Cleveland Clinic.
234 [https://my.clevelandclinic.org/departments/heart/depts/preventive-cardiology-](https://my.clevelandclinic.org/departments/heart/depts/preventive-cardiology-rehabilitation#programs-clinics-tab)
235 [rehabilitation#programs-clinics-tab](https://my.clevelandclinic.org/departments/heart/depts/preventive-cardiology-rehabilitation#programs-clinics-tab). Accessed September 20, 2022.