# EU-wide cross-sectional observational study of lipid-modifying therapy use in secondary and primary care: the DA VINCI study[1]

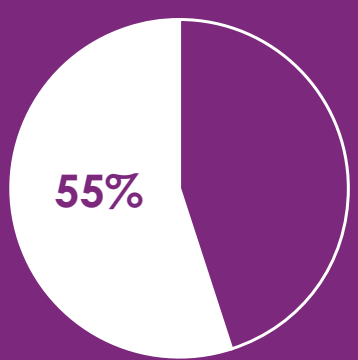
*Ray et al. Eur J Prev Cardiol 2021;28(11):1279-1289*

## Background

**>20%** of patients enrolled in a cross-sectional observational study in Europe (EURIKA) had triglyceride or high-density lipoprotein, which is associated with poor CV outcomes and increased risk of CVD[2]

CVD contributes to **four million deaths** in Europe every year[3], yet **~55%** of participants in the EURIKA study had markers of atherogenic dyslipidaemia and were not receiving LLT[2]

Note: study participants were European, aged ≥50 years with ≥1 CV risk factor but no history of CVD




## The DA VINCI study

**Provides contemporary information regarding LDL-C goal attainment for patients across Europe in diverse healthcare settings and previously under-studied patient groups[1]**

**Explores cardiovascular risk based on 2019 ESC/EAS guidelines compared with the 2016 guidelines[1]**

### Design

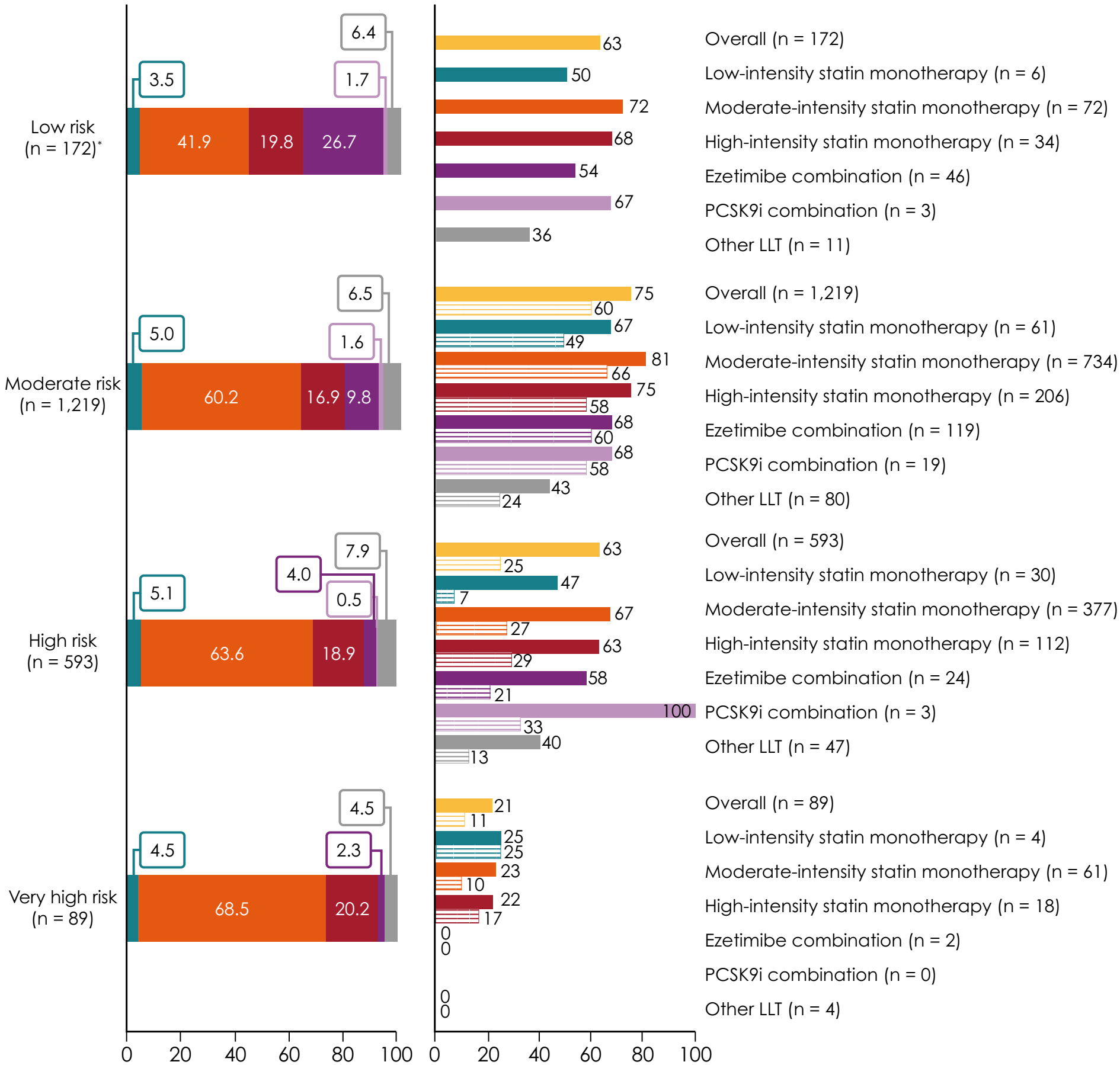
Cross-sectional observational study, 18 European countries, patients prescribed LLT for primary or secondary prevention in primary or secondary care[1]

**ESC/EAS 2019 LDL-C targets[1]**

- Low–moderate CV risk <2.6 mmol/L
- High CV risk <1.8 mmol/L
- Very high CV risk <1.4 mmol/L

# Study results[1]

- Differences in goal attainment with statin monotherapy most apparent in very high-risk patients to reach an LDL-C goal <1.8 mmol/L
- Use of ezetimibe and PCSK9i combined with statins was low (9% and 1%, respectively) compared with statin monotherapy, however these combination therapies achieved the lower 2019 LDL-C goals compared with 2016 (37% and 57%, respectively)
- In the ezetimibe combination, 2016 and 2019 goal attainment was 53% and 20% respectively, while in the PCSK9i combination goal attainment was 67% and 58% respectively



**Proportion of patients receiving LLT (%)**

**Proportion of patients achieving goal (%)**

**2016/2019 risk-based LDL-C targets:**

Low risk: 2016/2019, <3.0 mmol/L

Moderate risk: 2016, <3.0 mmol/L; 2019, <2.6 mmol/L

High risk: 2016, <2.6 mmol/L; 2019, <1.8 mmol/L

Very high risk: 2016, <1.8 mmol/L; 2019, <1.4 mmol/L

2016 2019

- Overall
- Low-intensity statin monotherapy
- Moderate-intensity statin monotherapy
- High-intensity statin monotherapy
- Ezetimibe combination
- PCSK9i combination
- Other LLT

**Figure 1.** A comparison of 2016 and 2019 goal attainment. Note that in individuals at high and very high CV risk, 2019 goal attainment was ~half that of 2016 (25% [95% CI, 22–29] vs 63%, and 11% [95% CI, 6–20] vs 21%, respectively) (Adapted[1]). *Goal attainment for low risk was the same for 2016 and 2019 (<3.0 mmol/L), therefore only one bar is displayed

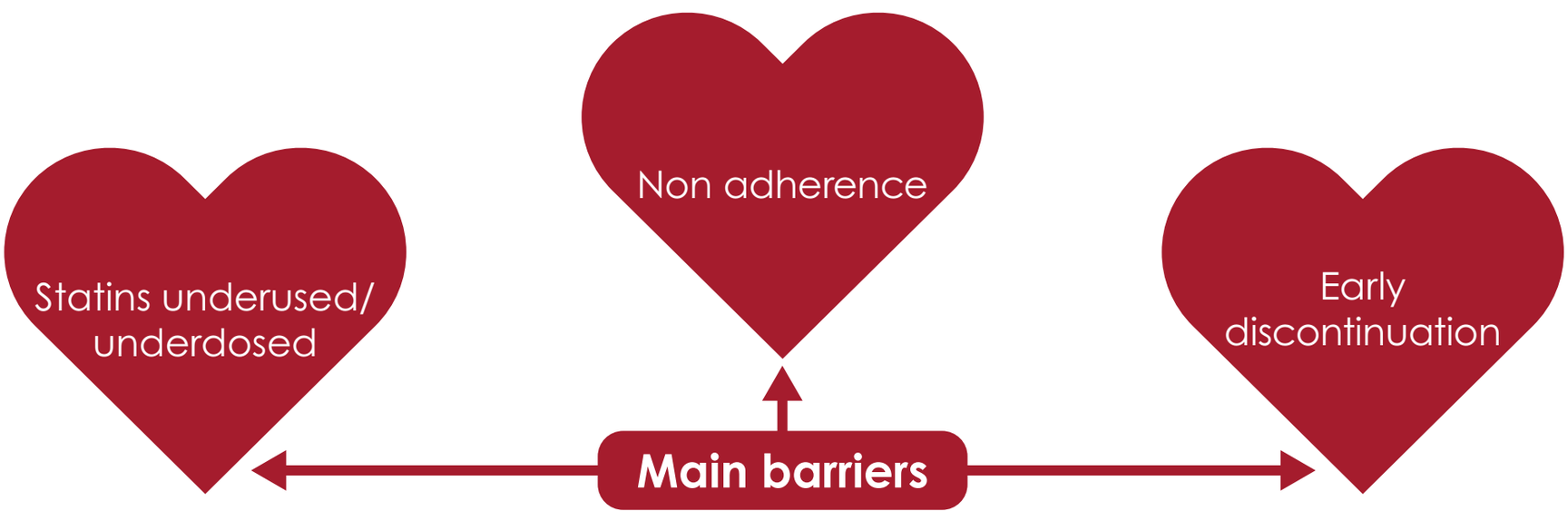
Patients not attaining goals are more likely to require add-on non-statin therapies, such as ezetimibe or PCSK9i, which may reduce LDL-C by a further 20–25% and 50–60%, respectively[1]

Overall, 57% (95% CI, 43–70%) of patients receiving PCSK9i combination therapy, and 37% (95% CI, 32–42) of those receiving ezetimibe combination therapy achieved their risk-based LDL-C goal[1]

## Takeaway

**Goal attainment was more likely in patients treated with statin in combination with ezetimibe or PCSK9i therapies, being 54% (95% CI, 47–61) and 67% (95% CI, 47–82) respectively[1]**

## Barriers to statin therapy implementation



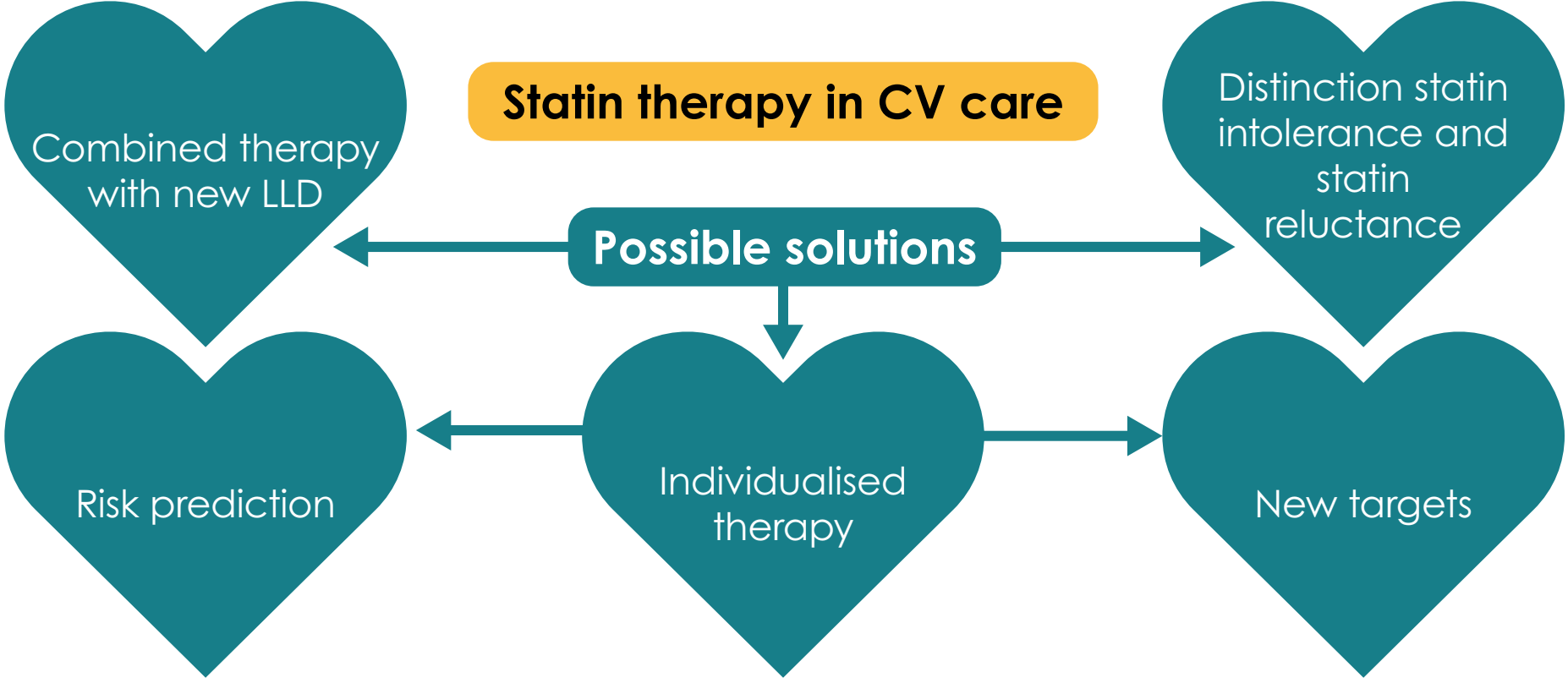



**Figure 2.** Barriers to the implementation of statin therapy (Adapted[4])

Statin intolerance is associated with a greater risk of cardiovascular events, and remains an important clinical challenge[6]

According to one study, the most common reason for statin discontinuation is the fear of statin-associated muscle/joint symptoms[5]

**According to a meta-analysis, the prevalence of statin intolerance is 9.1%[6]**

To identify true statin-associated muscle symptoms, you may refer to the tool available here

Even with optimised statin usage, greater utilisation of non-statin LLT is likely needed to reduce the gaps between guideline recommendations and implementation for those patients at greatest risk

**Abbreviations:** CI, confidence interval; CV, cardiovascular; CVD, cardiovascular disease; ESC/EAS guidelines, European Society of Cardiology/ European Atherosclerosis Society Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk; LDL-C, low-density lipoprotein cholesterol; LLT, lipid-lowering therapy; PCSK9i, proprotein convertase subtilisin/kexin type 9 inhibitors

**References: 1.** Ray KK, Molemans B, Schoonen WM, Giovas P, Bray S, Kiru G, et al. EU-wide cross-sectional observational study of lipid-modifying therapy use in secondary and primary care: the DA VINCI study. Eur J Prev Cardiol. 2021;28(11):1279-1289. **2.** Halcox JP, Banegas JR, Roy C, Dallongeville J, De Backer G, Guallar E, et al. Prevalence and treatment of atherogenic dyslipidemia in the primary prevention of cardiovascular disease in Europe: EURIKA, a cross-sectional observational study. BMC Cardiovasc Disord. 2017;17(1):160. **3.** Martone AM, Landi F, Petricca L, Paglionico A, Liperoti R, Cipriani MC, et al. Prevalence of dyslipidemia and hypercholesterolemia awareness: results from the Lookup 7+ online project. Eur J Public Health. 2022;32(3):402-407. **4.** Drexel H, Coats AJS, Spoletini I, Bilato C, Mollace V, Perrone Filardi P, et al. An expert opinion paper on statin adherence and implementation of new lipid-lowering medications by the ESC Working Group on Cardiovascular Pharmacotherapy: barriers to be overcome. Eur Heart J Cardiovasc Pharmacother. 2020;6(2):115–121. **5.** Tanner RM, Safford MM, Monda KL, Taylor B, O'Beirne R, Morris M, et al. primary care physician perspectives on barriers to statin treatment. Cardiovasc Drugs Ther. 2017;31(3):303-309. **6.** Bytyçi I, Penson PE, Mikhailidis DP, Wong ND, Hernandez AV, Sahebkar A, et al. Prevalence of statin intolerance: a meta-analysis. Eur Heart J. 2022;43(34):3213-3223.

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