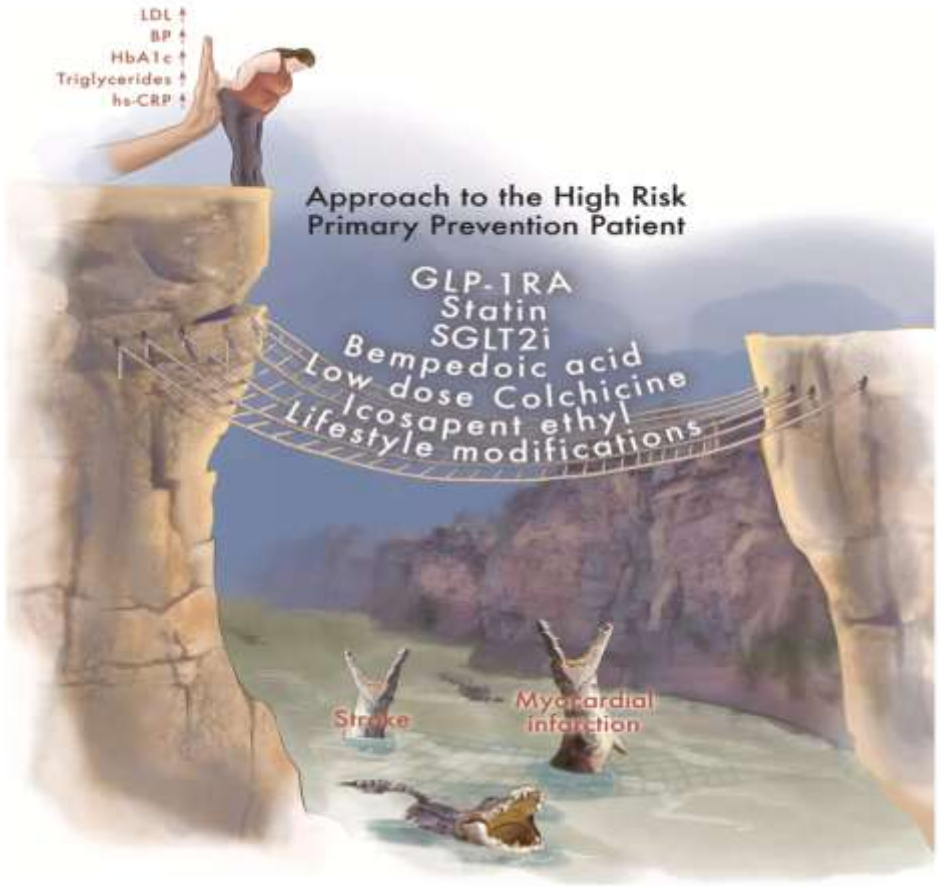
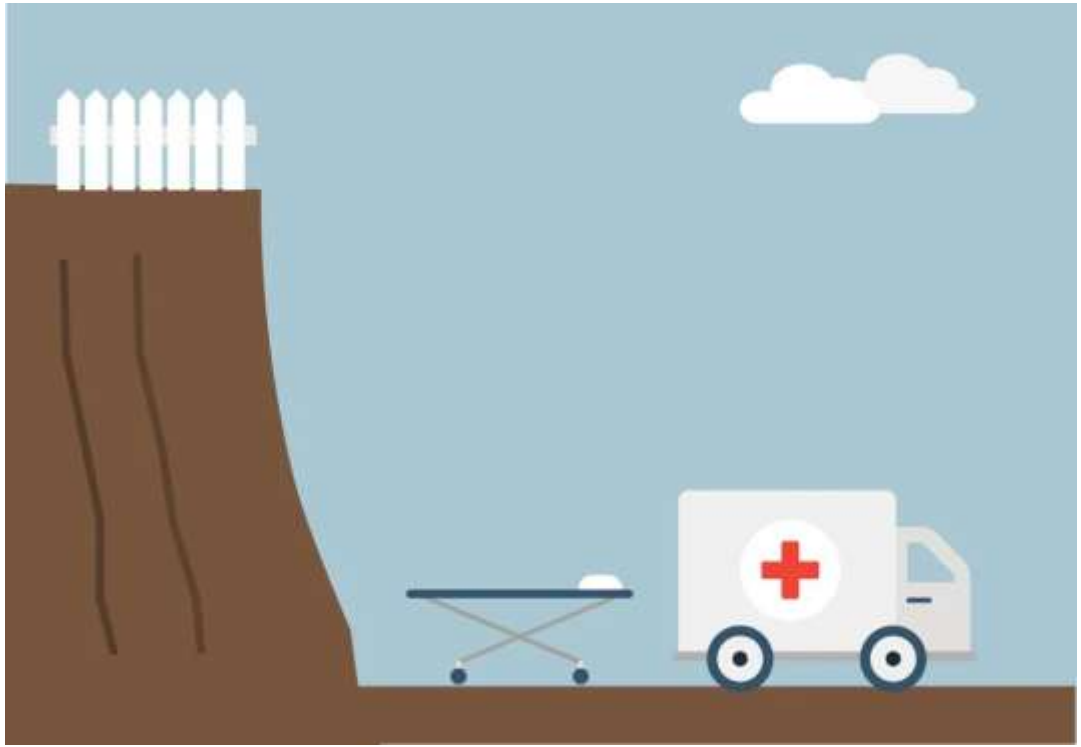
Yüksək riskli şəxslər üçün fərdiləşdirilmiş ürək-damar profilaktikası

Fuad Səmədov



Ahlers M et al. American Journal of Preventive Cardiology 23 (2025) 101265

Çəpər yoxsa ambulans …



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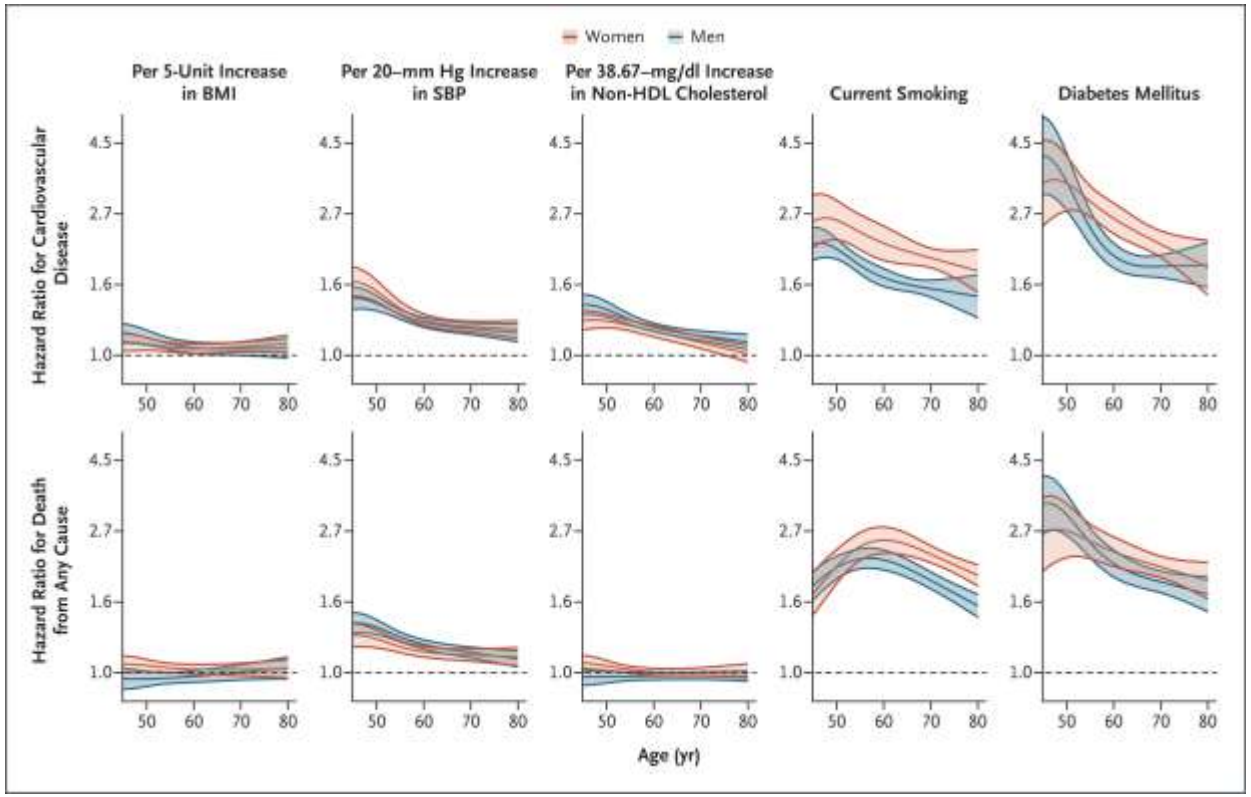
KV risk faktorları



N Engl J Med 2023;389:1273-1285

Life's Simple 7®

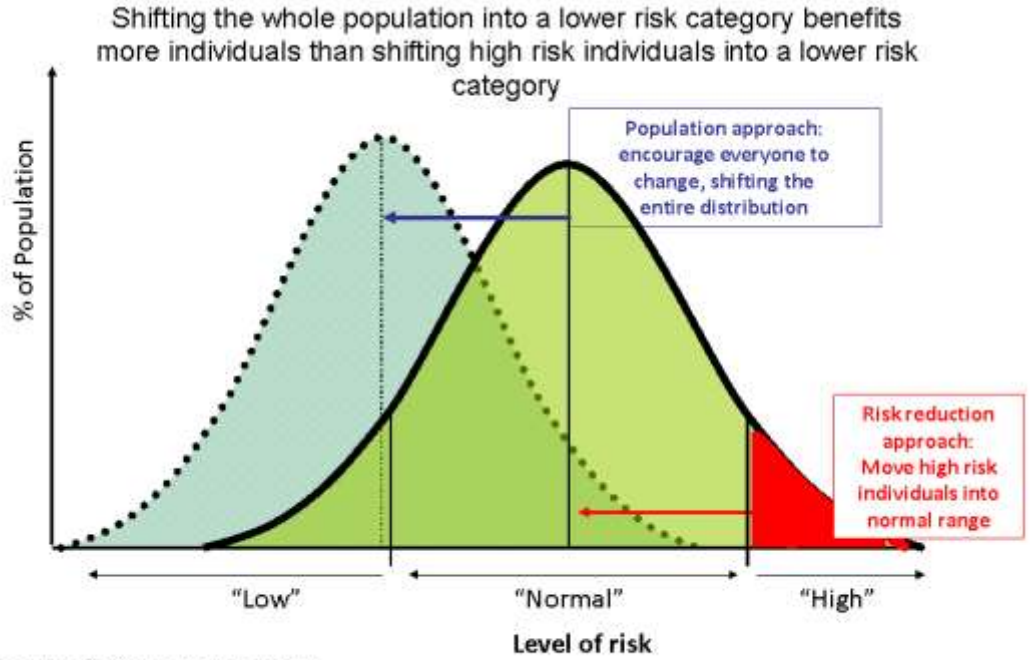
The good news is that small, simple steps can make a big difference. Ideal status for at least

- 4 of the Life's Simple 7 metrics have a 75% lower diabetes incidence
- 5 of the Life's Simple 7 metrics cuts the risk of cardiovascular disease by 50%
- 6 of the Life's Simple 7 metrics have a 51% lower risk of cancer

(Joseph et. al., 2016; Ford et.al., 2012; Rassmussen-Torvik et. al., 2013)

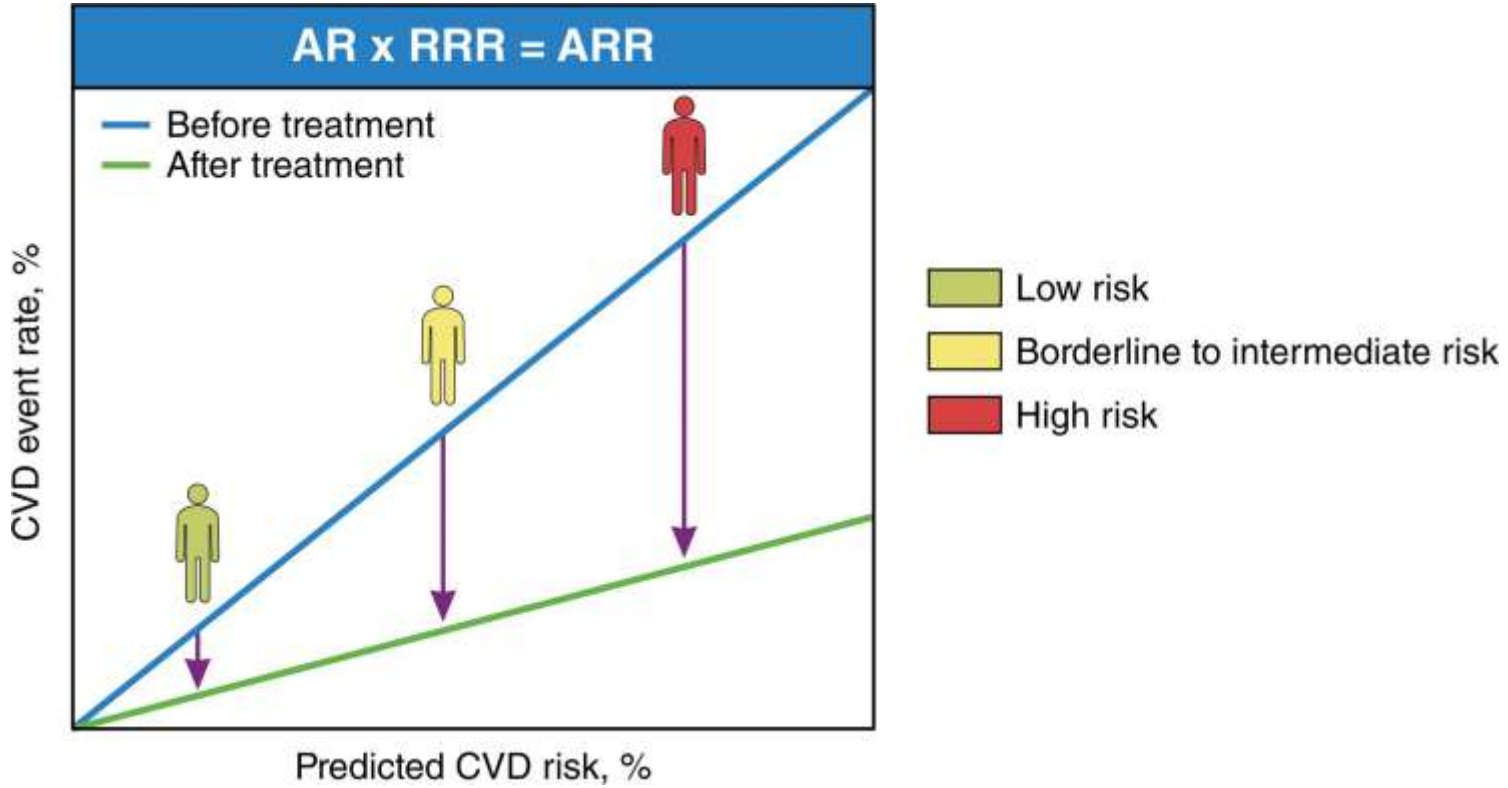
Circulation., (2010), 121 pp. 586-613

Xəstə fərdlər və ya xəstə populyasiya



Source: Rose G. Sick Individuals and sick populations. *Int J Epidemiol* 1985; 12:32-38.

Risk qrupu – əldə olunan risk azalması



Çox yüksək risk qrupu

Very high risk	People with any of the following: • Documented ASCVD, either clinical or unequivocal on imaging. Documented ASCVD includes previous ACS (MI or unstable angina), chronic coronary syndromes, coronary revascularization (PCI, CABG, and other arterial revascularization procedures), stroke and TIA, and peripheral arterial disease. Unequivocally documented ASCVD on imaging includes those findings that are known to be predictive of clinical events, such as significant plaque on coronary angiography or CT scan or on carotid or femoral ultrasound or markedly elevated CAC score by CT. • DM with target organ damage, or at least three major risk factors, or early onset of T1DM of long duration (>20 years). • Severe CKD (eGFR <30 mL/min/1.73 m^2). • A calculated SCORE2 or SCORE2-OP ≥20% for 10-year risk of fatal or non-fatal CVD. • FH with ASCVD or with another major risk factor.

2025 Focused Update of the 2019 ESC/EAS guidelines for the management of dyslipidemias

Yüksək risk qrupu

High risk	People with any of the following: • Markedly elevated single risk factors, in particular TC >8 mmol/L (>310 mg/dL), LDL-C >4.9 mmol/L (>190 mg/dL), or BP ≥180/110 mmHg. • Patients with FH without other major risk factors. • Patients with DM without target organ damage, with DM duration ≥10 years or another additional risk factor. • Moderate CKD (eGFR 30–59 mL/min/1.73 m^2). • A calculated SCORE2 or SCORE2-OP ≥10% and <20% for 10-year risk of fatal or non-fatal CVD.

2025 Focused Update of the 2019 ESC/EAS guidelines for the management of dyslipidemias

Risk modifikatorları

Demographic/clinical conditions

- Family history of premature CVD (men: <55 years; women: <60 years)
- High-risk (e.g. Southern Asian) ethnicity
- Stress symptoms and psychosocial stressors
- Social deprivation
- Obesity
- Physical inactivity
- Chronic immune-mediated/inflammatory disorders
- Major psychiatric disorders
- History of premature menopause
- Pre-eclampsia or other hypertensive disorders of pregnancy
- Human immunodeficiency virus infection
- Obstructive sleep apnoea syndrome.

Biomarkers

- Persistently elevated hs-CRP (>2 mg/L)
- Elevated Lp(a) [>50 mg/dL (>105 nmol/L)]

2025 Focused Update of the 2019 ESC/EAS guidelines for the management of dyslipidemias

Lp(a) təyini KV riskin düzgün hesablanmasına imkan verir.

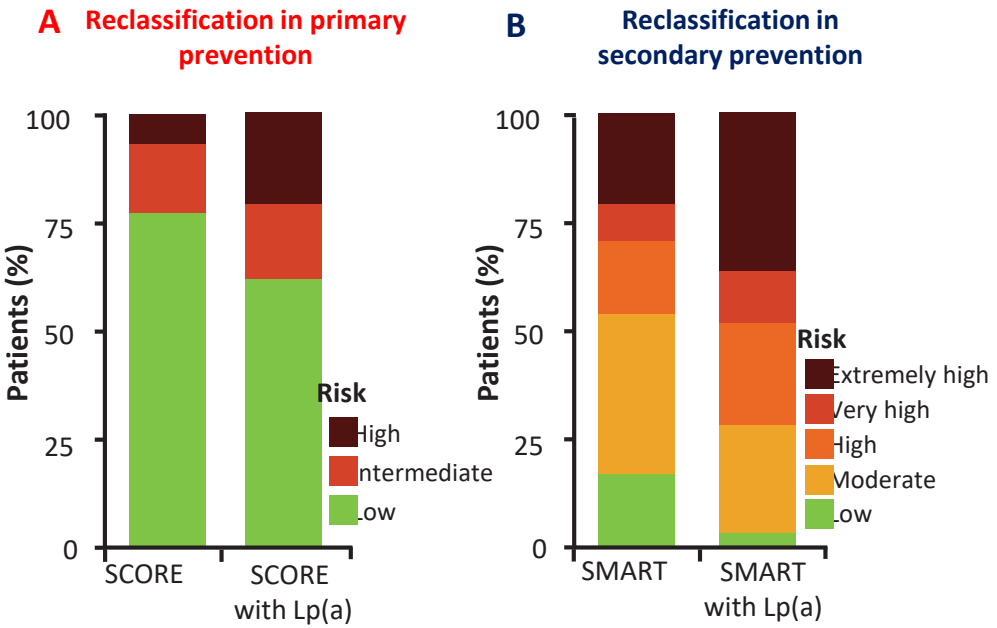
The impact of routine Lp(a) measurements on CV disease risk reclassification was determined in primary- and secondary-prevention settings, based on SCORE and SMART algorithms, respectively

(A) SCORE

- Three in four patients initially classified as low risk*
- One in three patients with high Lp(a)† levels were reclassified into a higher risk category

(B) SMART

- >50% of all patients with high Lp(a)† levels were reclassified into a higher risk category



*The majority of these patients would not have qualified for CV risk management in the absence of Lp(a) testing; †>99th percentile, mean Lp(a) of 460 nmol/L.
Nurmohamed NS, et al. *Eur J Prev Cardiol*. 2022;29(5):769–776.

Lp(a) təyini KV riskin düzgün hesablanmasına imkan verir.

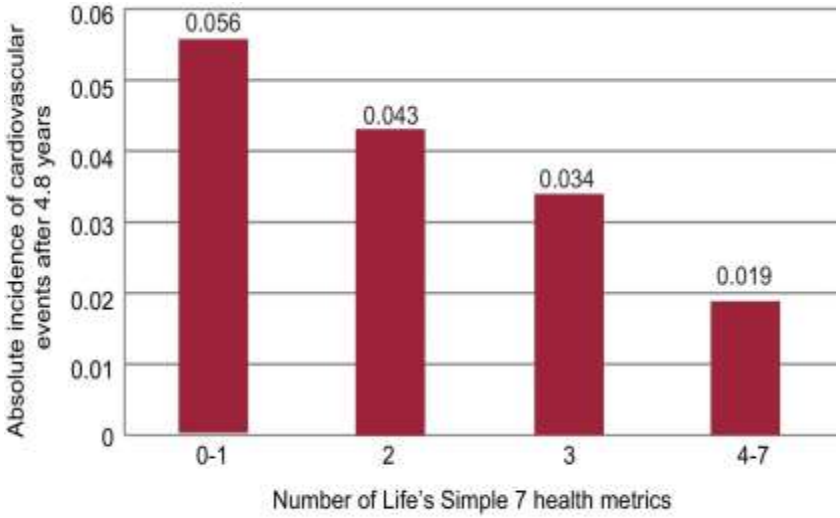
	Plasma Lp(a) Level				
Baseline ASCVD Risk (%) without Lp(a)	30 mg/dL (70 nmol/L)	50 mg/dL (115 nmol/L)	75mg/dL (175 nmol/L)	100 mg/dL (230 nmol/L)	150 mg/dL (350 nmol/L)
5	6.1% (Δ=1.1%)	7.0% (Δ=2.0%)	8.3% (Δ=3.3%)	9.8% (Δ=4.8%)	13.6% (Δ=8.6%)
10	12.2% (Δ=2.2%)	14.0% (Δ=4.0%)	16.5% (Δ=6.5%)	19.5% (Δ=9.5%)	27.2% (Δ=17.2%)
15	18.3% (Δ=3.3%)	20.9% (Δ=5.9%)	24.8% (Δ=9.8%)	29.3% (Δ=14.3%)	40.8% (Δ=25.8%)
20	24.4% (Δ=4.4%)	27.9% (Δ=7.9%)	33.0% (Δ=13.0%)	39.0% (Δ=19.0%)	54.5% (Δ=34.5%)
25	30.5% (Δ=5.5%)	34.9% (Δ=9.9%)	41.3% (Δ=16.3%)	48.8% (Δ=23.8%)	68.1% (Δ=43.1%)
	Baseline ASCVD Risk (%) including plasma Lp(a) levels				

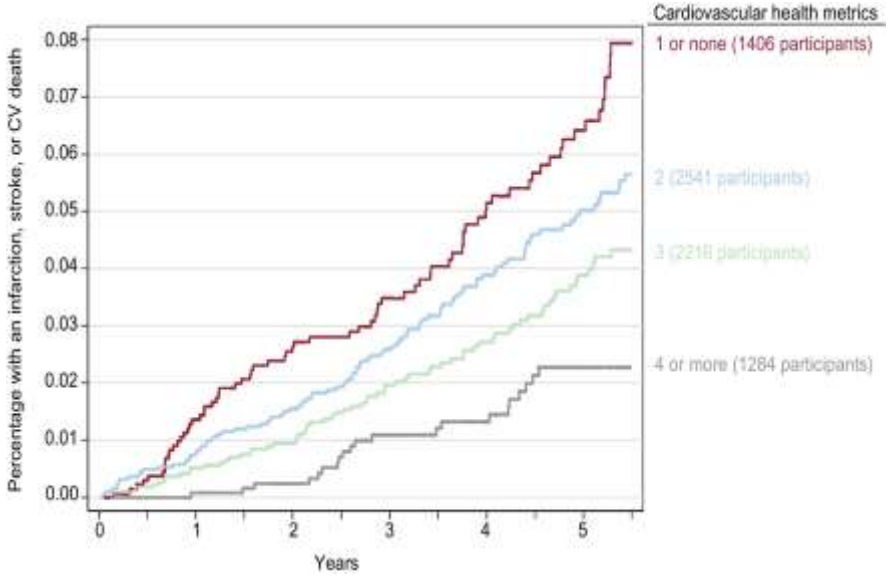
Lipoprotein(a) in atherosclerotic cardiovascular disease and aortic stenosis:
A European Atherosclerosis Society Consensus Statement. European Heart Journal (2022) **43**, 3925–3946

Rev Esp Cardiol. 2020;73(3):205–211

Original article

Impact of Life's Simple 7 on the incidence of major cardiovascular events in high-risk Spanish adults in the PREDIMED study cohort





Arteriosclerosis, Thrombosis, and Vascular Biology
Volume 39, Issue 4, April 2019; Pages 826-833
https://doi.org/10.1161/ATVBAHA.118.311821

CLINICAL AND POPULATION STUDIES

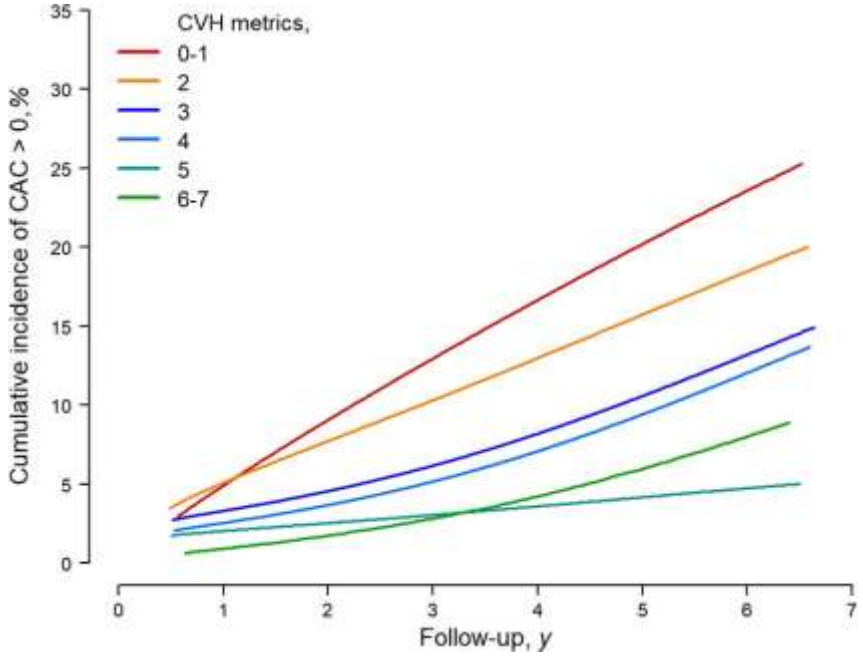
Life's Simple 7 Cardiovascular Health Metrics and Progression of Coronary Artery Calcium in a Low-Risk Population

A Cohort Study

See accompanying editorial on page 531

Seolhye Kim*, Yoosoo Chang*, Juhee Cho, Yun Soo Hong, Di Zhao, Jeonggyu Kang, Hyun-Suk Jung, Kyung Eun Yun, Eliseo Guallar, Seungho Ryu, and Hocheol Shin

Approach and Results— This cohort study included 65 494 men and women 30 years of age and older free of cardiovascular disease at baseline who underwent a comprehensive exam including CAC scoring. CVH metrics were defined according to the American Heart Association Life's Simple 7 metrics based on smoking, diet, physical activity, body mass index, blood pressure, total cholesterol, and fasting glucose. CVH scores range from 0 (all metrics considered unhealthy) to 7 (all metrics considered healthy). Participants were followed-up for a maximum of 6.6 years. Compared with participants with ideal CVH scores 0–1, the multivariable-adjusted difference in the change in geometric means of CAC scores over 5 years of follow-up were −0.40 (−0.62 to −0.19), −0.83 (−1.03 to −0.63), −1.06 (−1.25 to −0.86), −1.22 (−1.42 to −1.03), and −1.05 (−1.42 to −0.69) in participants with ideal CVH scores 2, 3, 4, 5, and 6–7, respectively. The inverse association between CVH scores and progression of CAC was observed both in participants with no CAC and in those with CAC detectable at baseline.



Gözdən qaçanlar

- ✓ Subklinik damar xəstəliyinin markerləri – arterial stiffness, endotel disfunks
- ✓ Qan və sidikdə metabolik biomarkerlər
- ✓ Yeni risk faktorları – hava kirliliyi, sağlam qidalara əlçatanlıq
- ✓ Poligenik risk skorları
- ✓ Epigenetik faktorlar
- ✓ Ekspozom

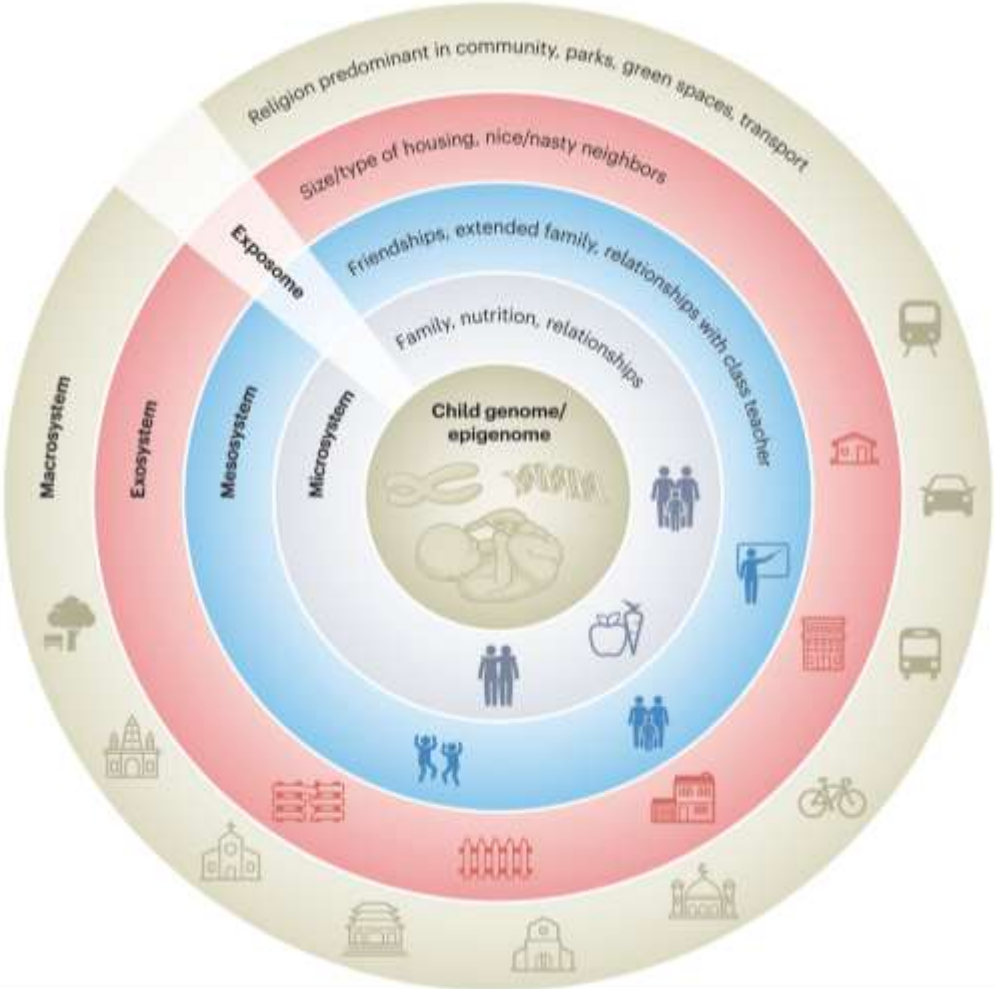
American Heart Association's Life's Simple 7: Lifestyle Recommendations, Polygenic Risk, and Lifetime Risk of Coronary Heart Disease

Table 3. CHD-Free Years According to Polygenic Risk and LS7 (Table view)

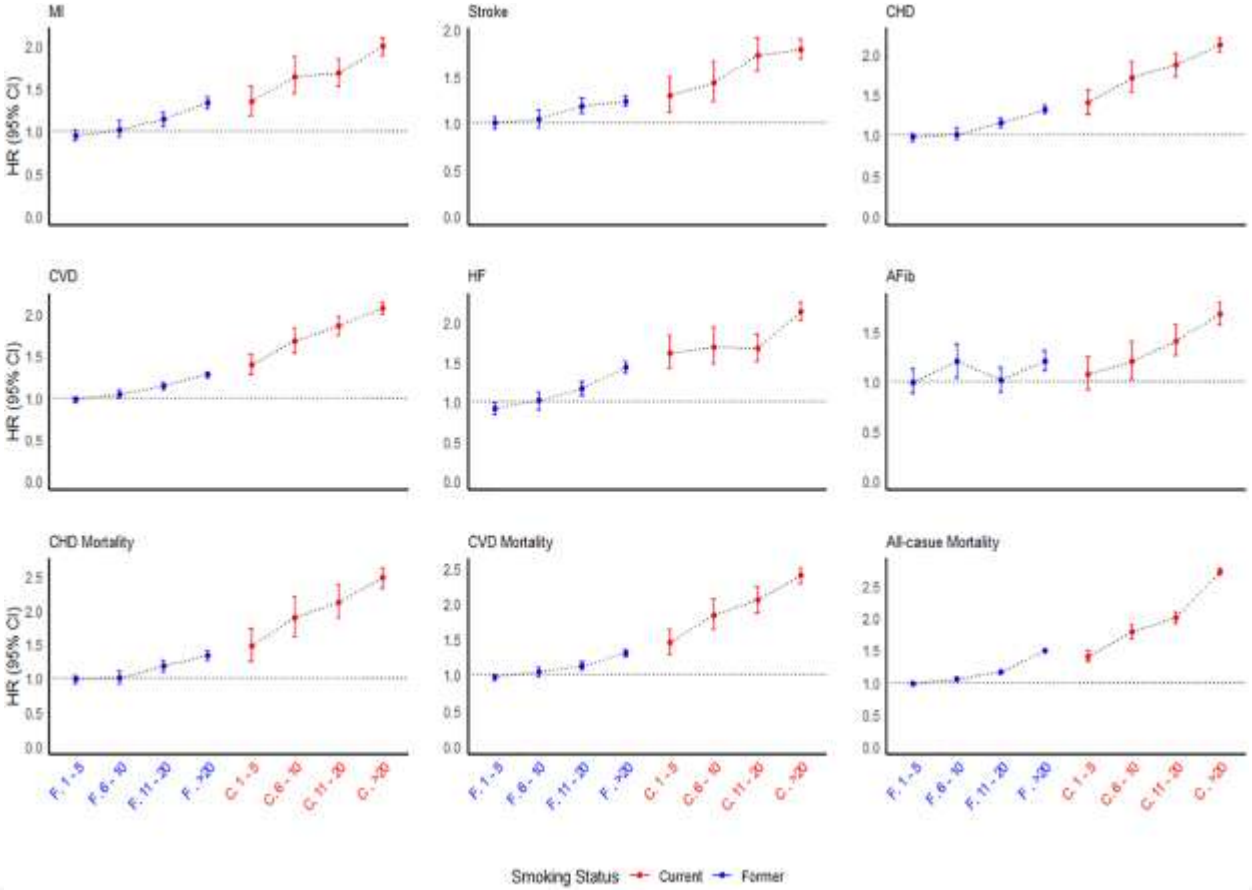
Variable	All participants		White participants		Black participants	
	CHD-free years	Overall survival, y	CHD-free years	Overall survival, y	CHD-free years	Overall survival, y
Low PRS						
Ideal LS7	85.1±0.53	86.4±0.51	85.0±0.58	86.4±0.55	84.6±1.15	84.8±1.14
Intermediate LS7	80.5±0.38	82.8±0.33	80.6±0.43	83.1±0.36	80.4±0.75	82.1±0.69
Poor LS7	72.9±2.26	77.0±1.42	73.6±2.74	78.0±2.21	72.6±3.14	75.8±1.81
Intermediate PRS						
Ideal LS7	83.9±0.32	86.0±0.29	83.7±0.34	86.0±0.30	85.9±1.05	86.8±1.03
Intermediate LS7	78.2±0.26	81.9±0.20	78.2±0.29	82.3±0.22	78.3±0.54	80.7±0.43
Poor LS7	71.2±0.78	75.8±0.61	69.7±1.28	75.5±0.79	72.6±1.01	76.2±0.93
High PRS						
Ideal LS7	82.2±0.63	86.0±0.55	82.5±0.67	86.7±0.56	79.2±1.95	79.8±1.87
Intermediate LS7	75.7±0.68	81.4±0.55	74.9±0.76	81.7±0.36	78.2±1.36	81.0±1.39
Poor LS7	65.8±2.41	74.5±1.14	62.3±2.99	74.3±1.74	72.6±1.20	75.3±1.32

Data are Irwin's restricted mean survival times and standard errors. CHD indicates coronary heart disease; LS7, Life's Simple 7; and PRS, polygenic risk score.

Ekspozom

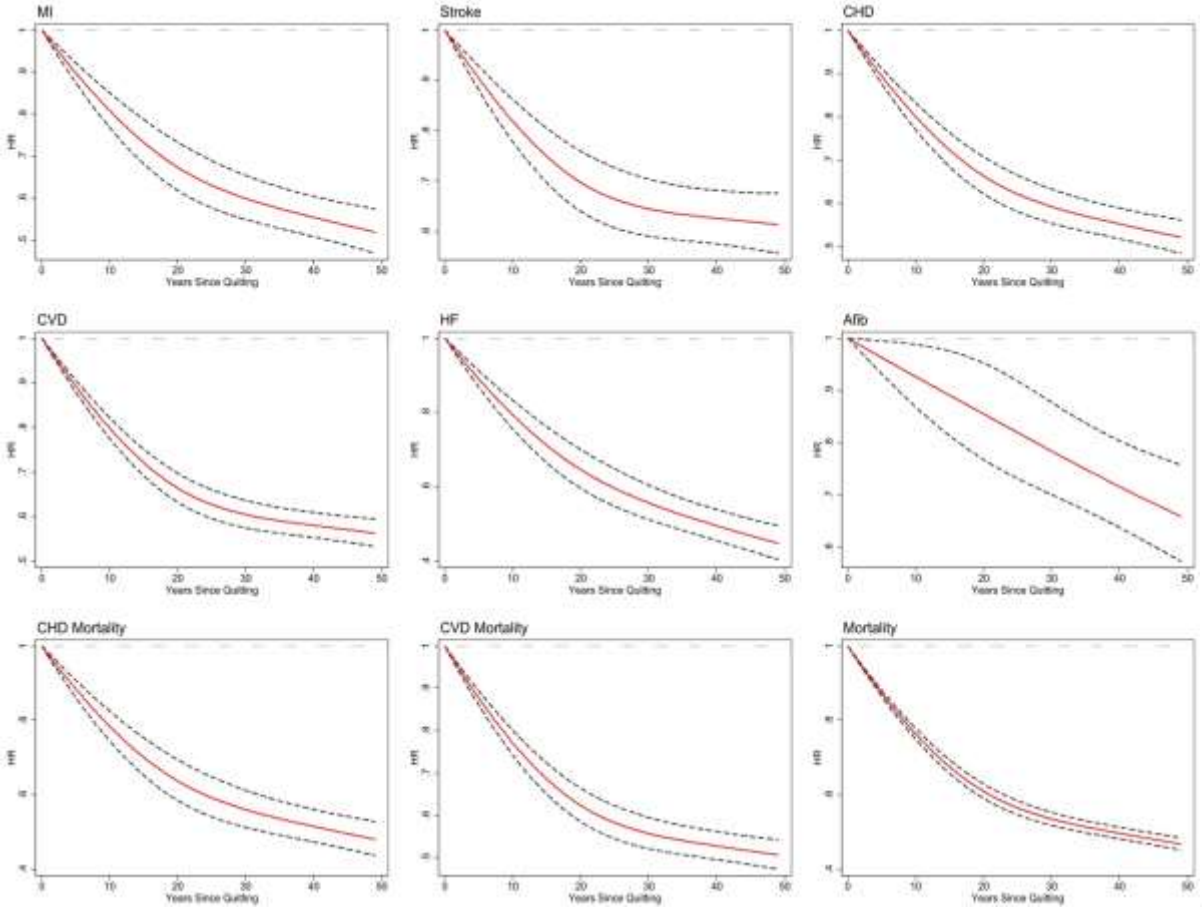

Religion predominant in community, parks, green spaces, transport
Size/type of housing, nice/nasty neighbors
Friendships, extended family, relationships with class teacher
Family, nutrition, relationships
Child genome/
epigenome
Exposome
Macrosystem
Exosystem
Mesosystem
Microsystem

Siqaretin ÜDX riskinə təsiri



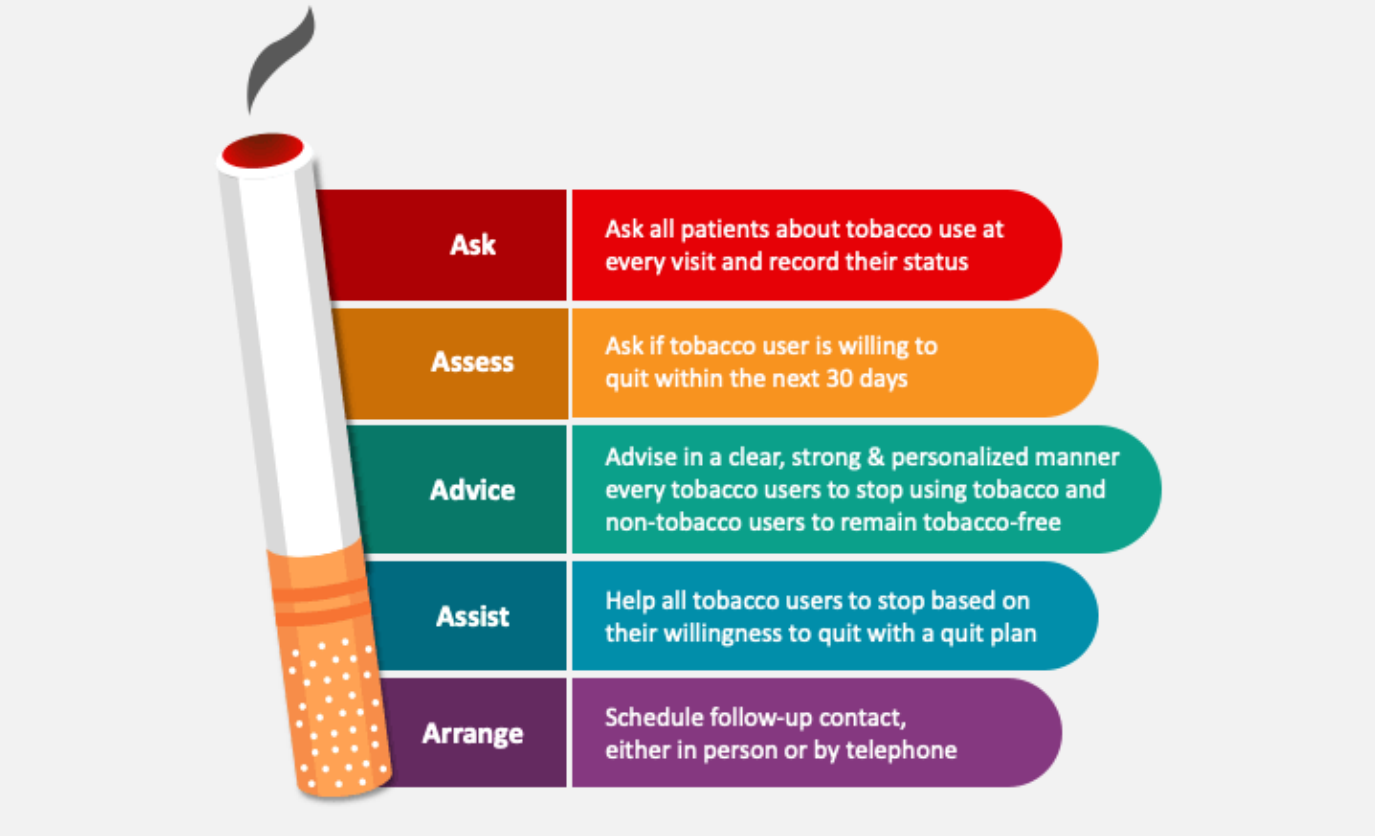
Tasdighi E, et al.
The Cross-Cohort Collaboration (CCC).
PLoS Med 22(11): e1004561.

Siqaretin tərgidilməsi – faydaları

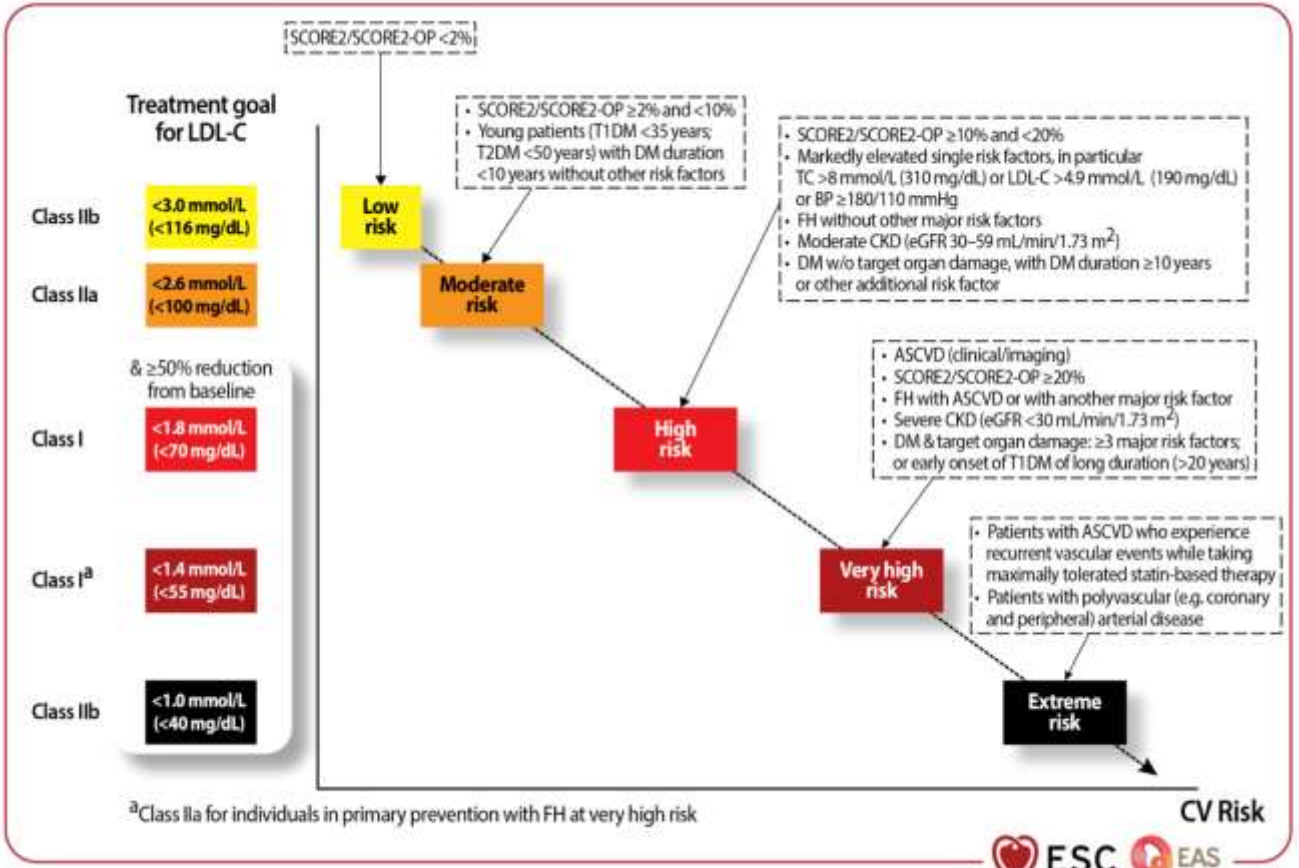


Tasdighi E, et al.
The Cross-Cohort Collaboration (CCC).
PLoS Med 22(11): e1004561.

Siqaretin tərgidilməsi – 5A modeli



LDL hədəfləri



2025 Focused Update of the 2019 ESC/EAS guidelines for the management of dyslipidemias

Total CV Risk	Untreated LDL-C levels					
	<1.4 mmol/L (<55 mg/dL)	1.4 to <1.8 mmol/L (55 to <70 mg/dL)	1.8 to <2.6 mmol/L (70 to <100 mg/dL)	2.6 to <3.0 mmol/L (100 to <116 mg/dL)	3.0 to <4.9 mmol/L (116 to <190 mg/dL	≥4.9 mmol/L (≥190 mg/dL)
Low	Lifestyle advice	Lifestyle advice	Lifestyle advice	Lifestyle advice	Lifestyle modification, consider adding drug if uncontrolled	N/A
Moderate	Lifestyle advice	Lifestyle advice	Lifestyle advice	Lifestyle modification, consider adding drug if uncontrolled	Lifestyle modification, consider adding drug if uncontrolled	N/A
High	Lifestyle advice	Lifestyle advice	Lifestyle modification, consider adding drug if uncontrolled	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention
Very high: primary prevention	Lifestyle modification, consider adding drug	Lifestyle modification, consider adding drug	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention
Very high: secondary prevention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention	Lifestyle modification and concomitant drug intervention

2025 Focused Update of the 2019 ESC/EAS guidelines for the management of dyslipidemias

Statinin faydası – risk qrupundan asılı olaraq

10-year cardiovascular disease risk, %	Pretreatment LDL cholesterol (change on treatment), mmol/L					
	2 (–0.86)	3 (–1.29)	4 (–1.72)	5 (–2.15)	6 (–2.58)	7 (–3.01)
	NNT* with atorvastatin 20 mg daily					
5	103	73	57	48	42	38
7.5	69	49	38	32	28	25
10	52	36	29	24	21	19
20	26	18	14	12	11	9
30	17	12	10	8	7	6

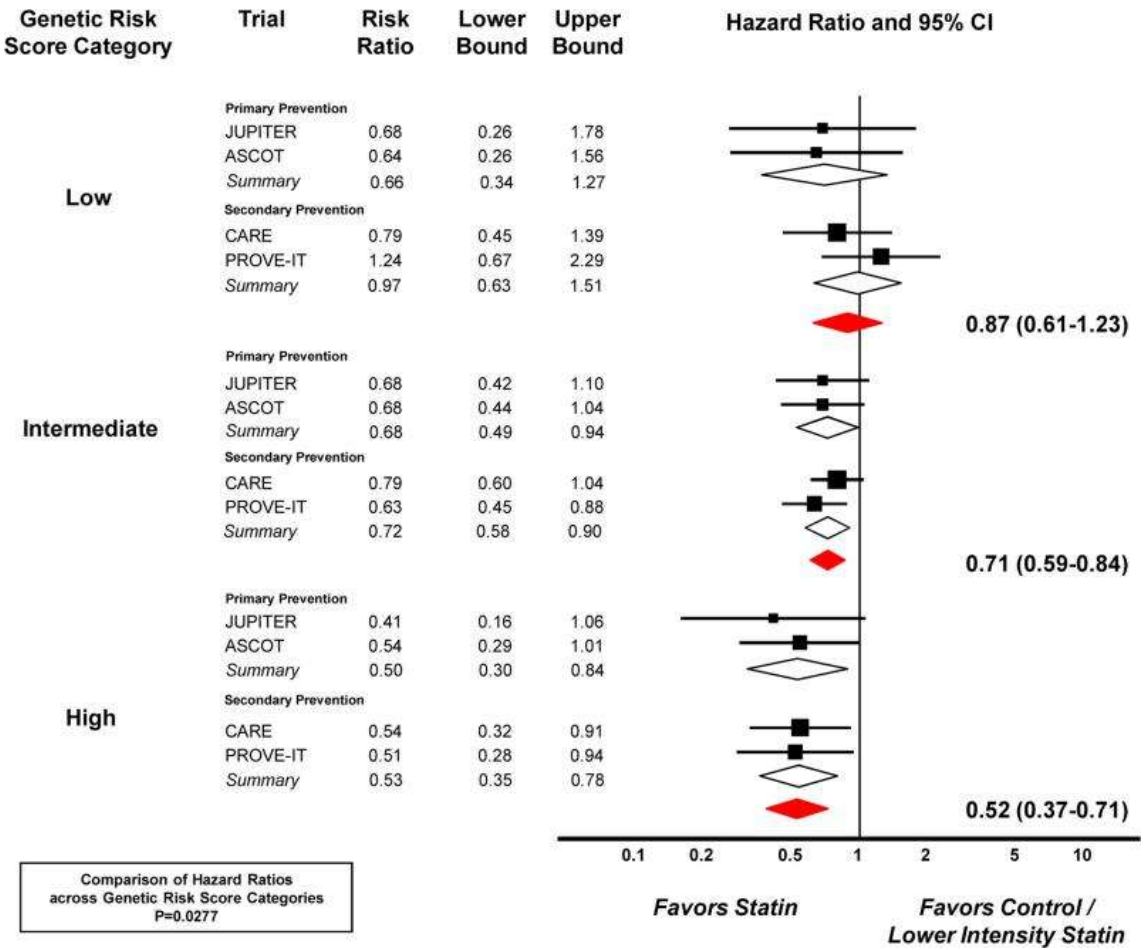
Figures in parentheses are the changes in LDL cholesterol concentration.
LDL, low-density lipoprotein; NNT, number needed to treat to prevent one event.

To convert mmol/L to mg/dl, multiply by 39.

Reprinted with permission *from European Heart Journal.* 2015;36:2975-2983.

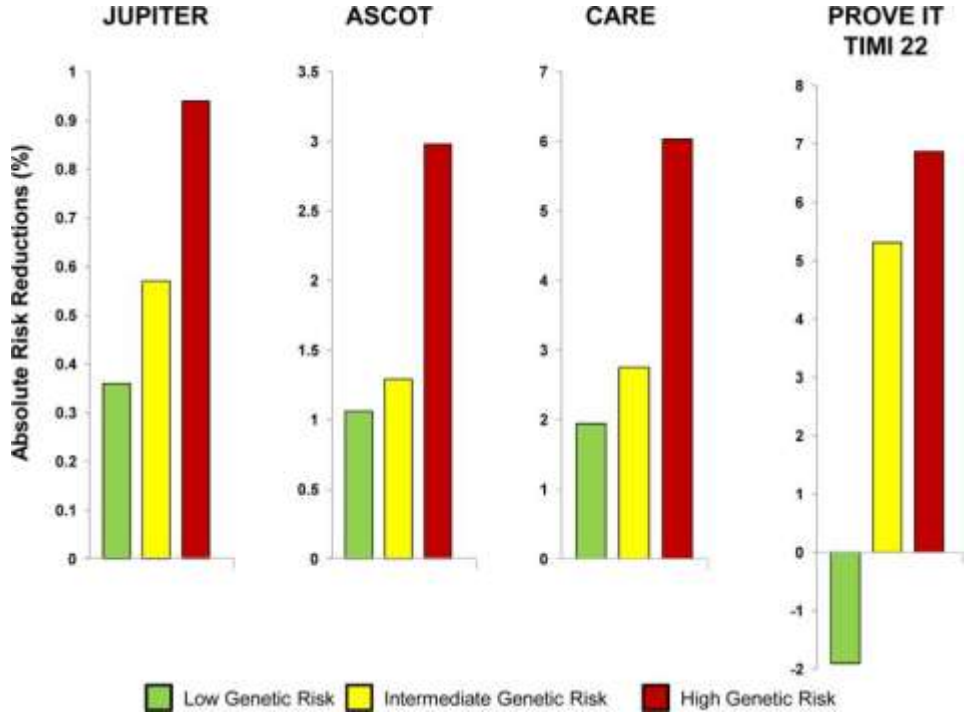
Table 1. The number needed to treat to prevent one cardiovascular disease event (*NNT) with astorvastatin 20 mg daily at a 5–30% cardiovascular disease risk in the next 10 years according to the pretreatment LDL cholesterol concentration with no LDL cholesterol therapeutic goal assuming a 43% decrease in LDL cholesterol

PRS-statin faydası



Mega JL,, et al. Lancet 2015;385:2264–2271

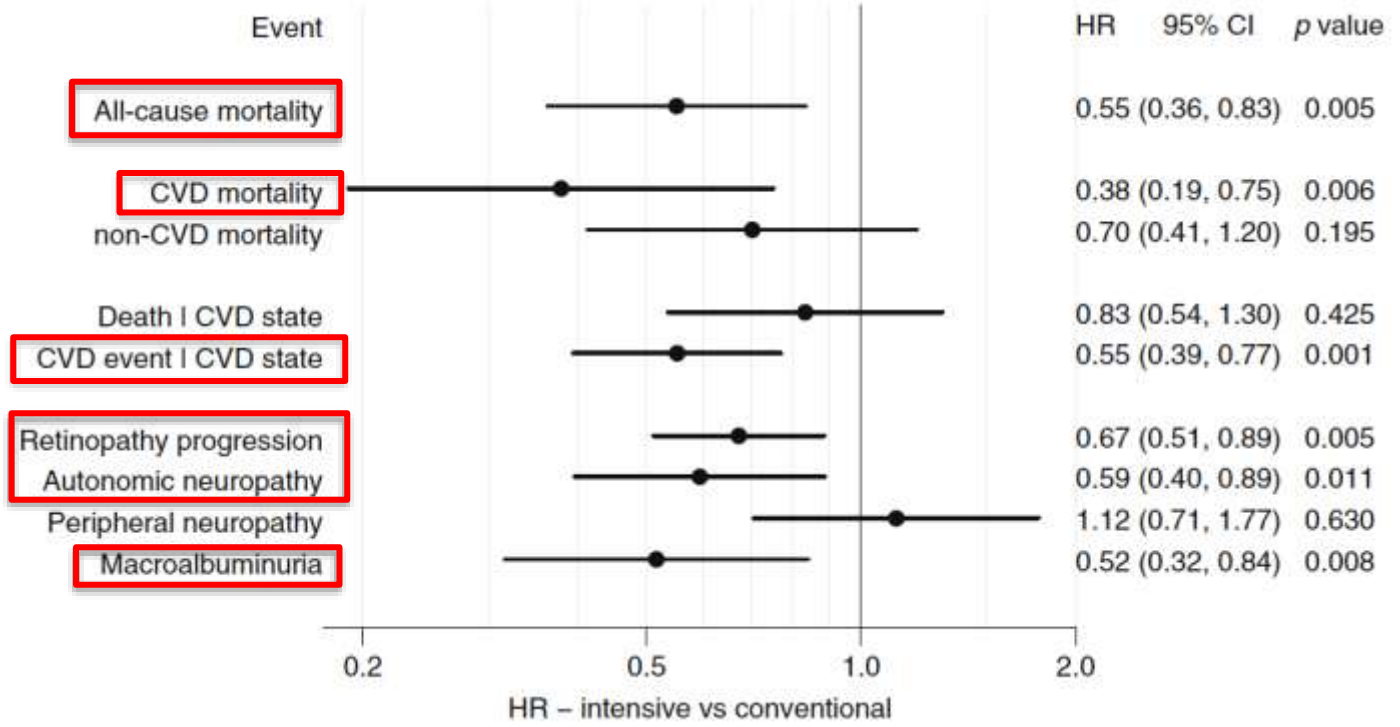
PRS və statinlə ARR



Mega JL,, et al. Lancet 2015;385:2264–2271

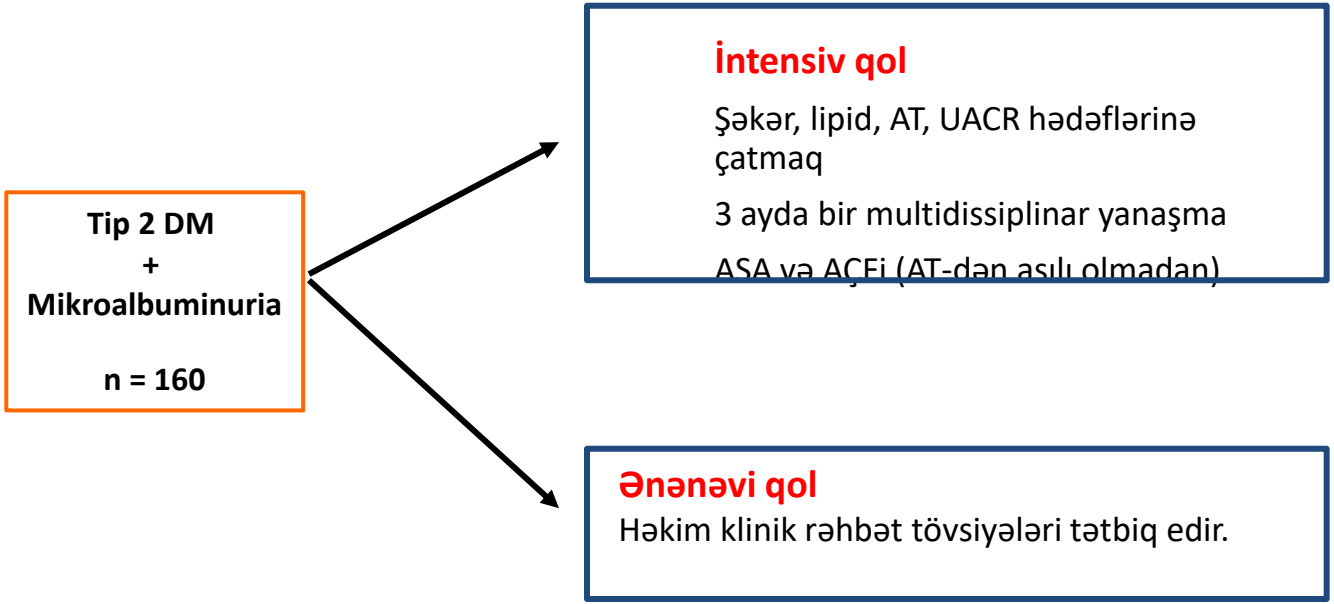
STENO-2: 21-illik təqib

7.8 illik intensiv, multifaktorial müalicə qolunda ömür median 7.9 il daha uzun olmuşdur.



Gaede et al. *Diabetologia* 2016;59(11):2298-

STENO-2: T2D-KV profilaktika üçün çox yönlü yanaşma



8-illik müşahidədə birləşmiş sonlanma nöqtələri:
KV ölüm, MI, AKŞ, PKM, insult, amputasiya və PDX cərrahi müdaxilə

Gaede et al. NEJM. 2003: 348;383-393

Cardiovascular Benefit of Empagliflozin Across the Spectrum of Cardiovascular Risk Factor Control in the EMPA-REG OUTCOME Trial

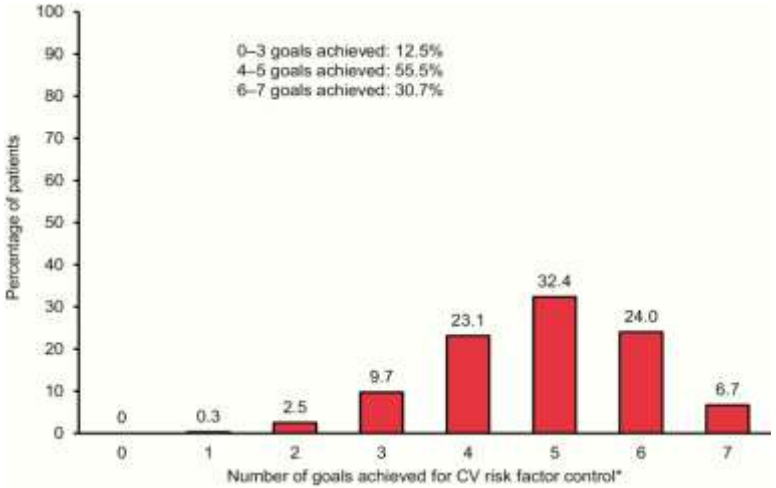
T2D-li 7020 pasient
- yaş ≥18
- HbA1c 7% to 10%
- ASCVD (+),
- BMI≤45 kg/m ,
- Egfr ≥30 mL/min/1.73 m2

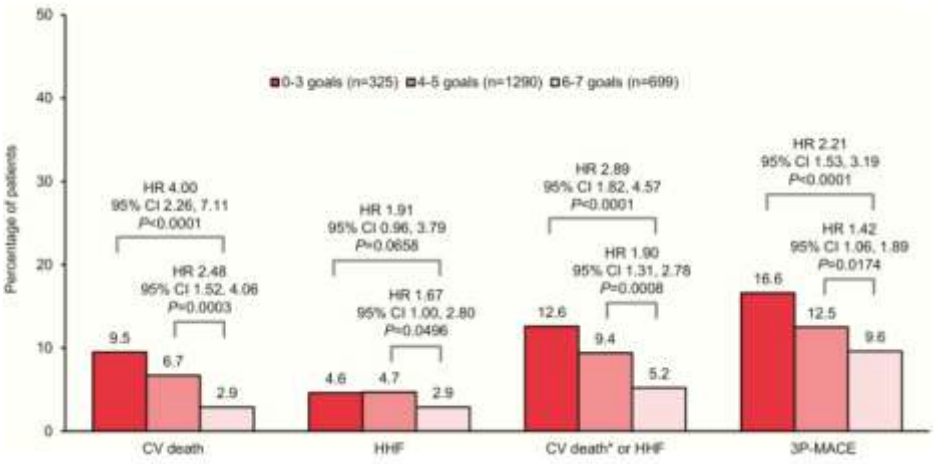
Empa 10mg

Empa 25mg

Plasebo

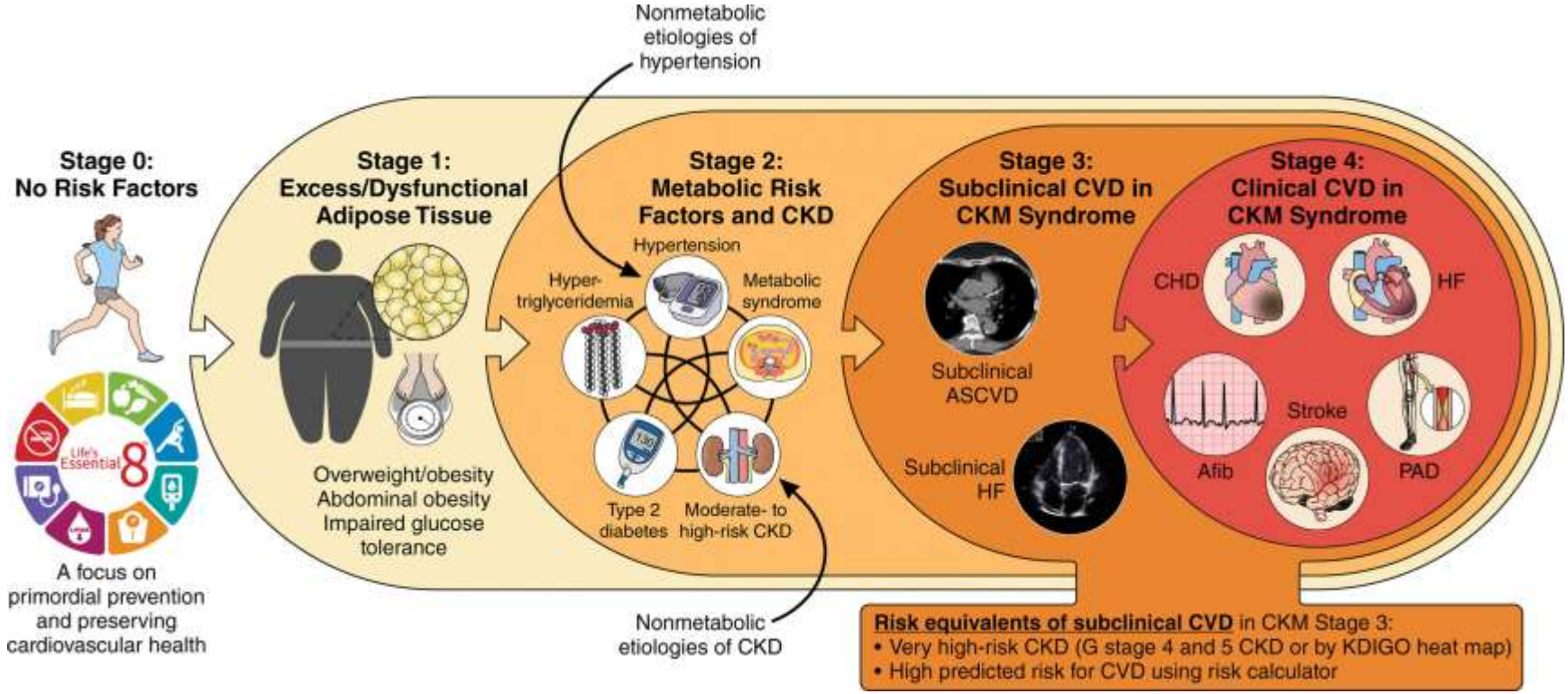
(1) HbA1c<7.5%,
(2) LDL <100 mg/dL və ya statin qəbulu
(3) SAT<140 mmHg, DAT<90 mmHg,
(4) AÇFi/ARB istifadəsi
(5) Normoalbuminuria
(6) Aspirin qəbulu
(7) Siqaret çəkməmək





J Clin Endocrinol Metab 2020 Sep; 105(9): 3025–3035.

Kardio-renal-metabolik sindrom



Kardio-renal-metabolik sindrom

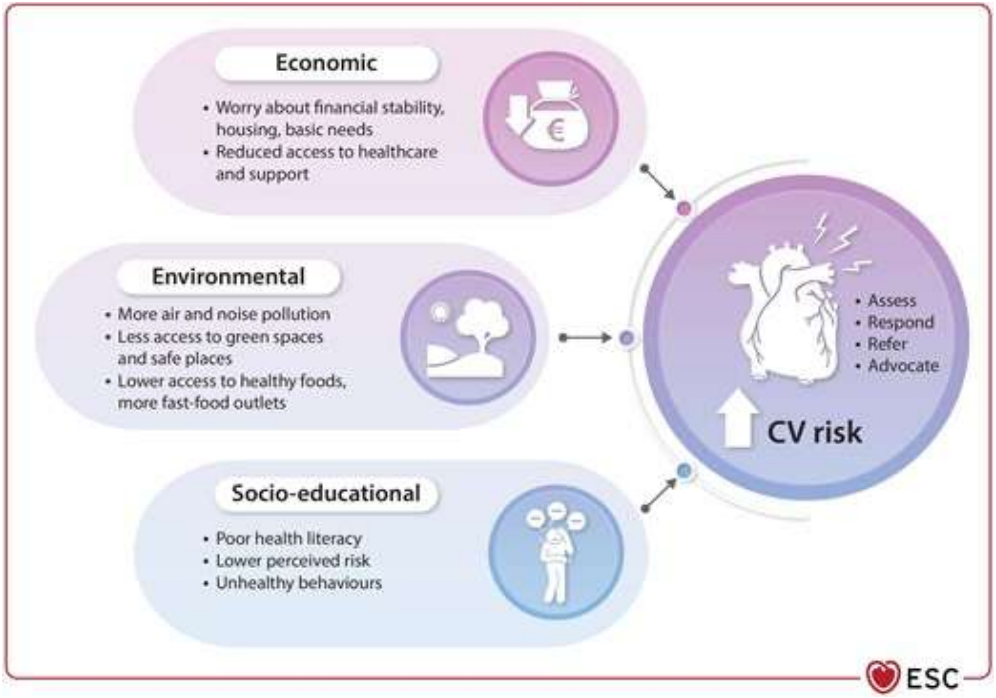
CKD is classified based on:
Cause (C)*
GFR (G)†
Albuminuria (A)†

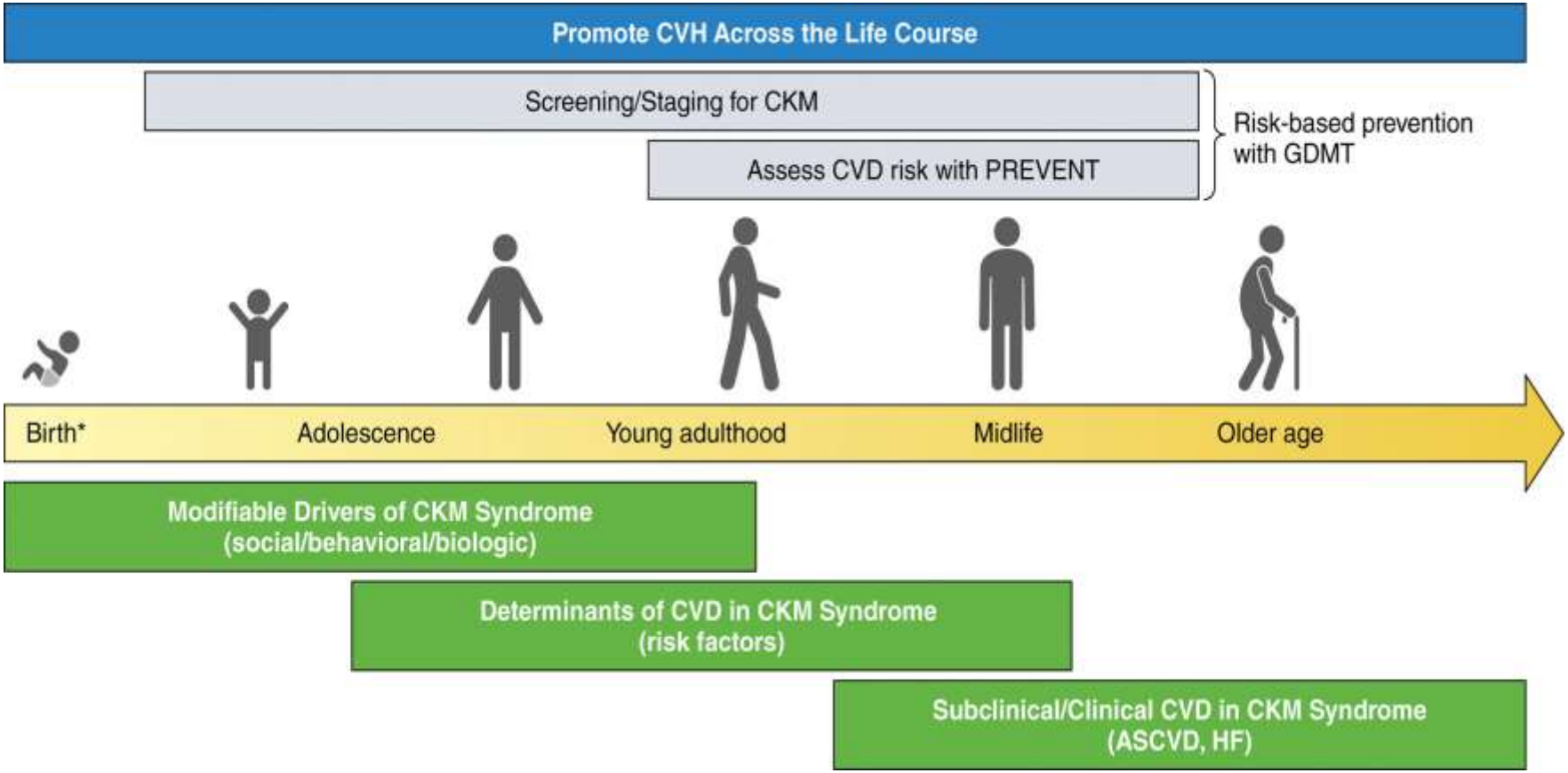
GFR categories (mL/min per 1.73 m²) Description and range				Albuminuria categories Description and range		
				A1	A2	A3
				Normal to mildly increased	Moderately increased	Severely increased
				<30 mg/g <3 mg/mmol	30–299 mg/g 3–29 mg/mmol	≥300 mg/g ≥30 mg/mmol
	G1	Normal or high	≥90	Screen 1	Treat 1	Treat and refer 3
	G2	Mildly decreased	60–89	Screen 1	Treat 1	Treat and refer 3
	G3a	Mildly to moderately decreased	45–59	Treat 1	Treat 2	Treat and refer 3
	G3b	Moderately to severely decreased	30–44	Treat 2	Treat and refer 3	Treat and refer 3
	G4	Severely decreased	15–29	Treat and refer† 3	Treat and refer† 3	Treat and refer 4+
	G5	Kidney failure	<15	Treat and refer 4+	Treat and refer 4+	Treat and refer 4+

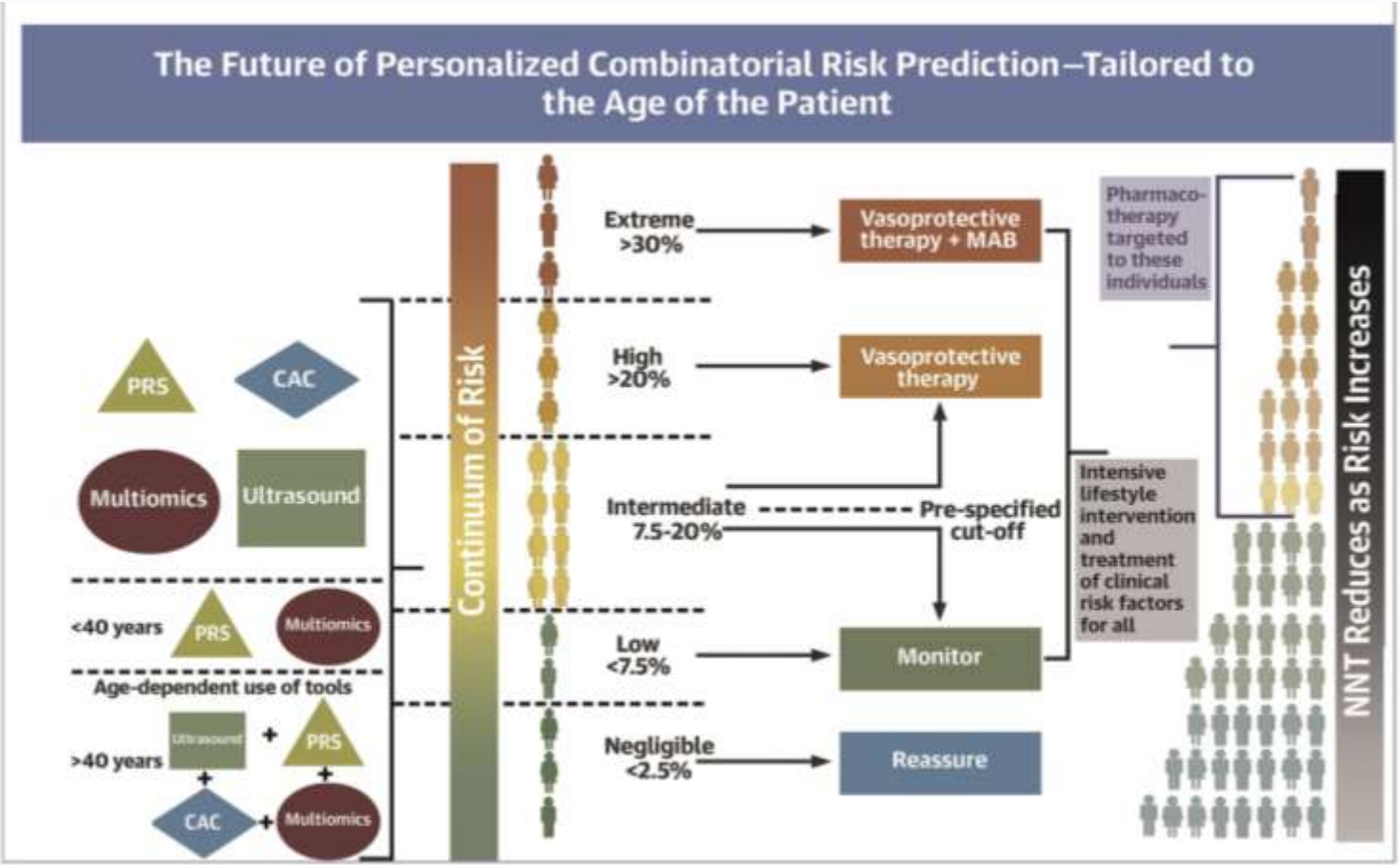
Low risk (if no other markers of kidney disease, no CKD)
High risk
Moderately increased risk
Very high risk

ASKVX – mental pozğunluqlar

Recommendations	Class[a]	Level[b]
Patients with mental disorders need intensified attention and support to improve adherence to lifestyle changes and drug treatment.[3,465]	I	C
In ASCVD patients with mental disorders, evidence-based mental healthcare and interdisciplinary cooperation are recommended.[100,113,466]	I	B
ASCVD patients with stress should be considered for referral to psychotherapeutic stress management to improve CV outcomes and reduce stress symptoms.[467–469]	IIa	B
Patients with CHD and moderate-to-severe major depression should be considered for antidepressive treatment with an SSRI.[470,471]	IIa	B
In patients with HF and major depression, SSRIs, SNRIs, and tricyclic antidepressants are not recommended.[472,473 c]	III	B




Promote CVH Across the Life Course
Screening/Staging for CKM
Assess CVD risk with PREVENT
Risk-based prevention with GDMT
Birth*
Adolescence
Young adulthood
Midlife
Older age
Modifiable Drivers of CKM Syndrome (social/behavioral/biologic)
Determinants of CVD in CKM Syndrome (risk factors)
Subclinical/Clinical CVD in CKM Syndrome (ASCVD, HF)



Verma KP, et al. J Am Coll Cardiol. 2022;80(4):373-387.

Patients with or at high risk for ASCVD

Statins and ASA
Foundational Therapy

Biological Issue	Residual Cholesterol Risk	Residual Inflammatory Risk	Residual Thrombotic Risk	Residual Triglyceride Risk	Residual Lp(a) Risk	Residual Diabetes Risk	Residual Weight Risk
							
Critical Biomarker	LDL-C >1.8mM	hsCRP ≥2mg/L	No simple biomarker Polyvascular disease	TG >1.52mM	Lp(a) >150nmol/L	Regardless of A1C	BMI >27 kg/m^2
Potential Intervention	Statins+ Ezetimibe PCSK9i Bempedoic Acid	Colchicine	Low dose rivaroxiban	Icosapent Ethyl	Lp(a) lowering trials ongoing, may consider PCSK9i	SGLT2 Inhibitors GLP-1 RA based therapies vs. GLP-1 Agonists	Semaglutide Other GLP-1 RA based therapies in trials vs. other GLP-1/GIP in trials

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