



HART
CENTRUM

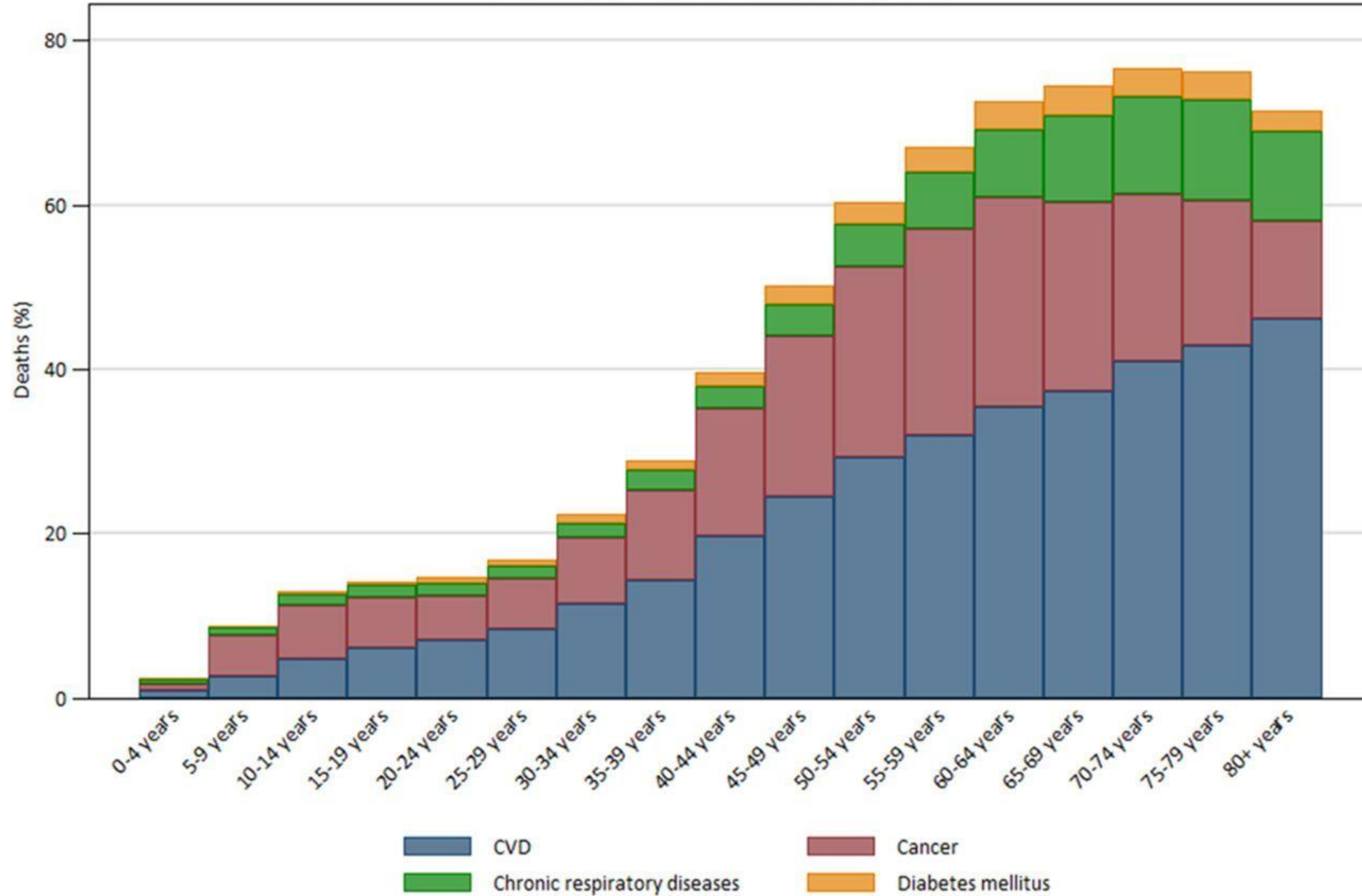
Hypercholesterolemie: Primaire preventie

Nieuwjaarsymposium **2024**

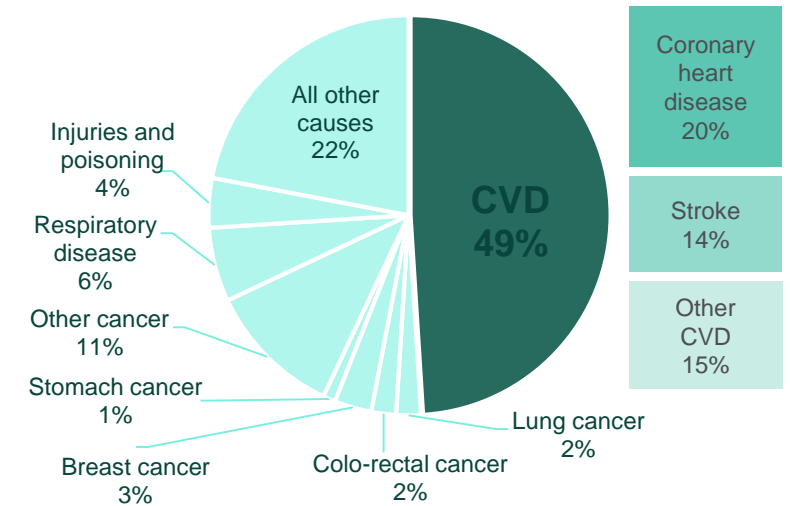
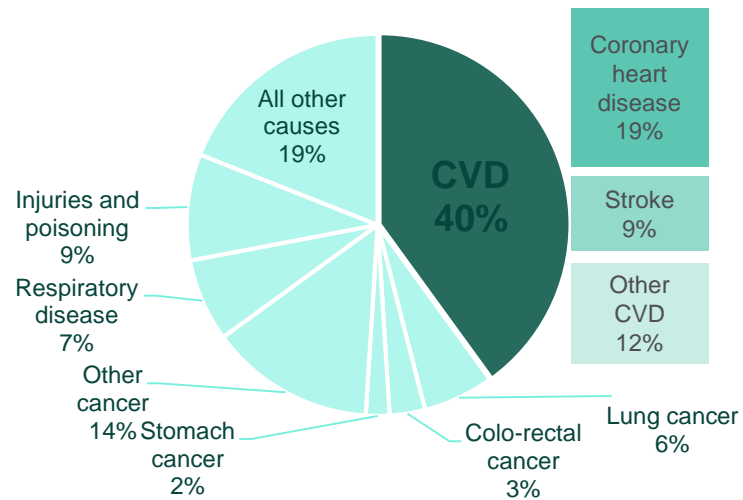
Dr Mark Ronsyn

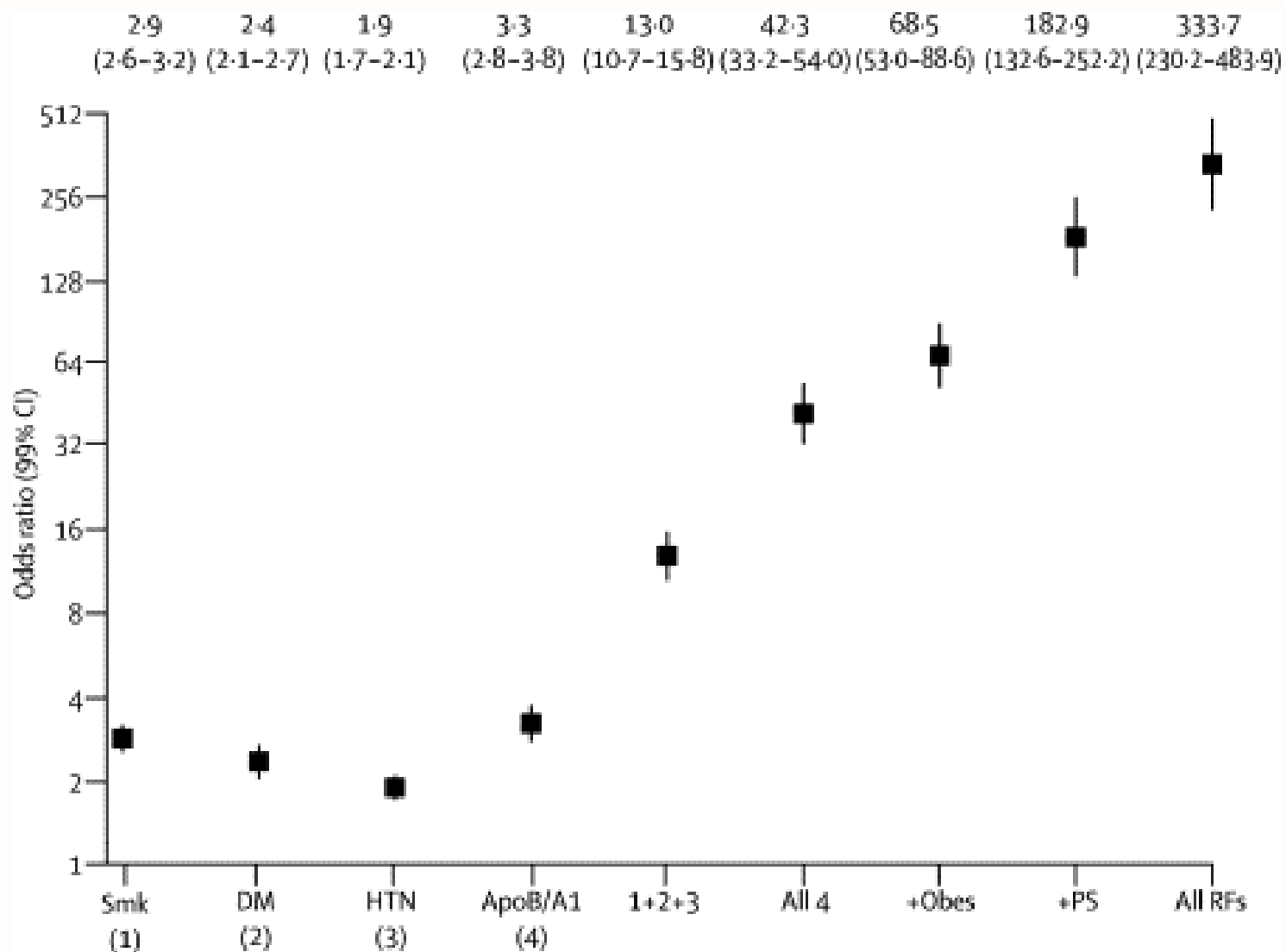
ZIEKENHUIS *aan*
de STROOM

Percent of total deaths due to diabetes, chronic respiratory diseases, CVD, and cancer by age in 2013



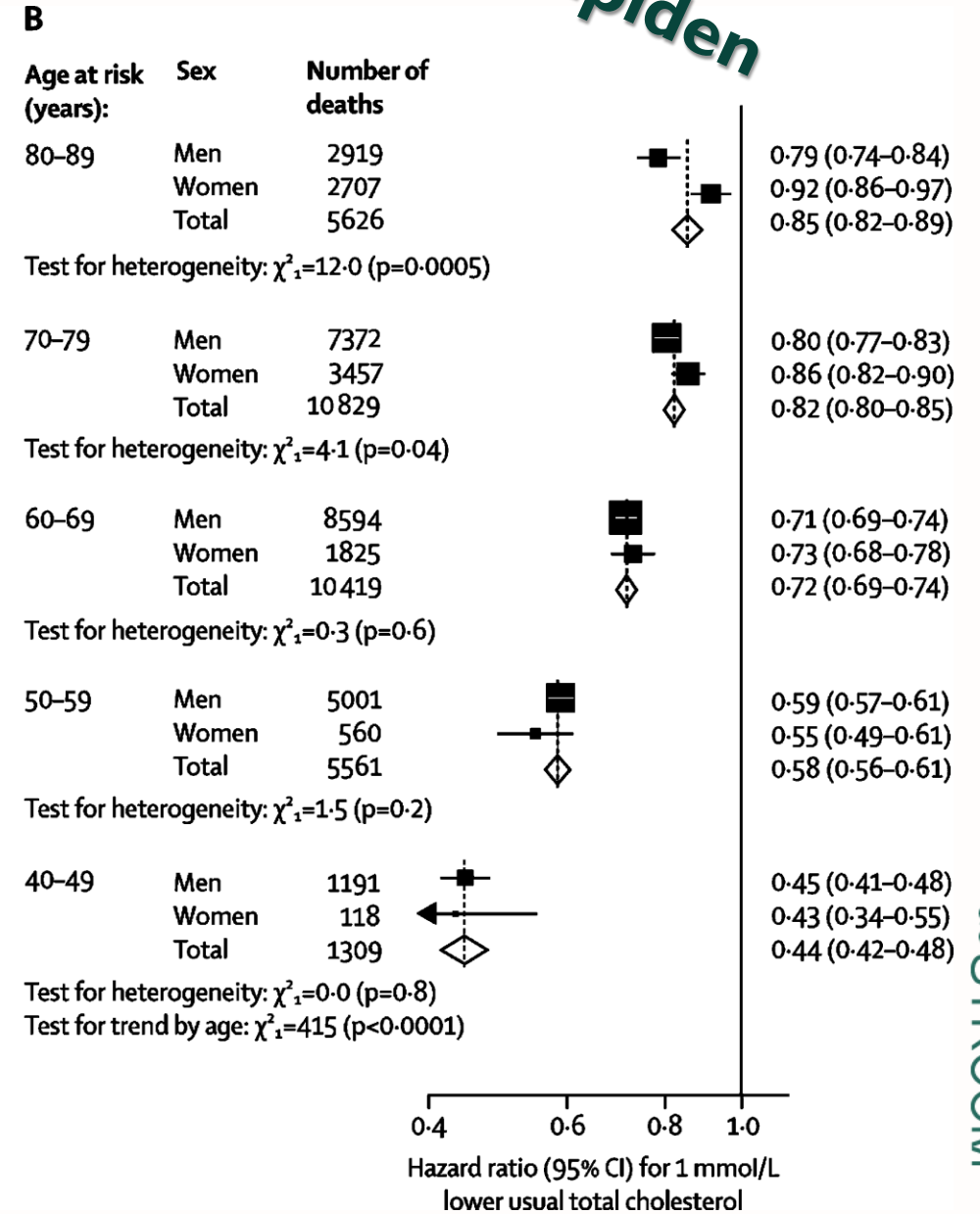
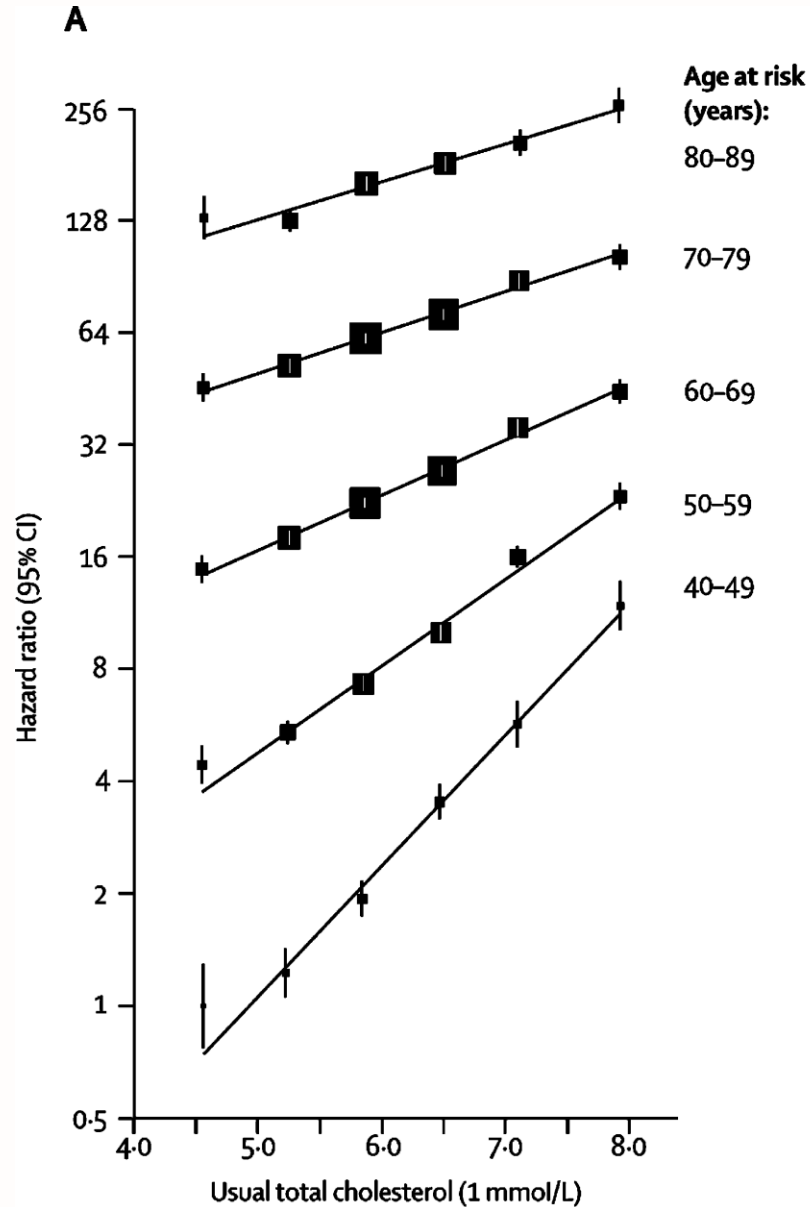
- CVZ: belangrijkste doodsoorzaak wereldwijd
- CVZ > 4 miljoen doden per jaar in Europa: 1,4 miljoen premature overlijdens < 75 jr
 - 45% overall mortaliteit/jaar
 - 49% bij vrouwen
 - 45% bij mannen



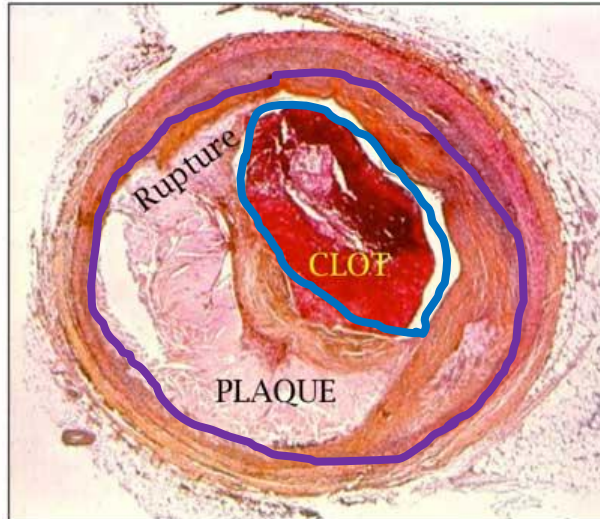


Leeftijd-specifiek verband tussen totaal Ch en CV-sterfte

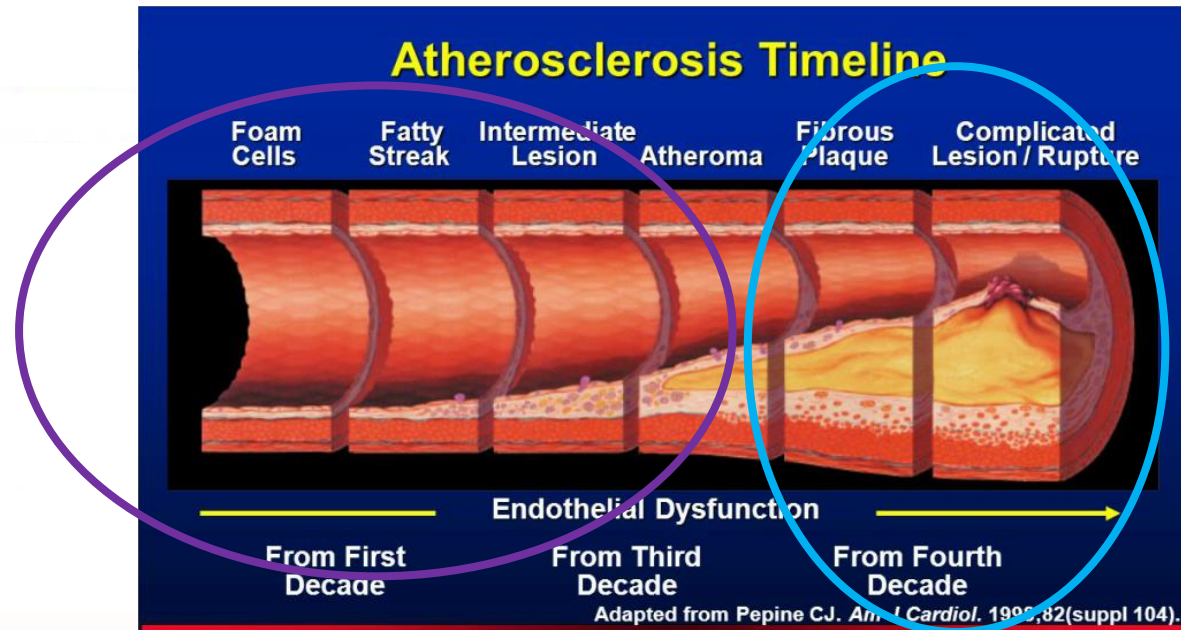
Lancet 2007



Primaire preventie



Secundaire preventie



Casus

Vrouw, 49 jr

CH/HDL/LDL/TG/non-HDL
241/35/191/75/206

L 180 cm, G 69 kg, BMI 21

Fam:- Roken:-, DM:-, AHT:-, CH:+

Fam:+ Roken:+, DM:-, AHT:+, CH:+

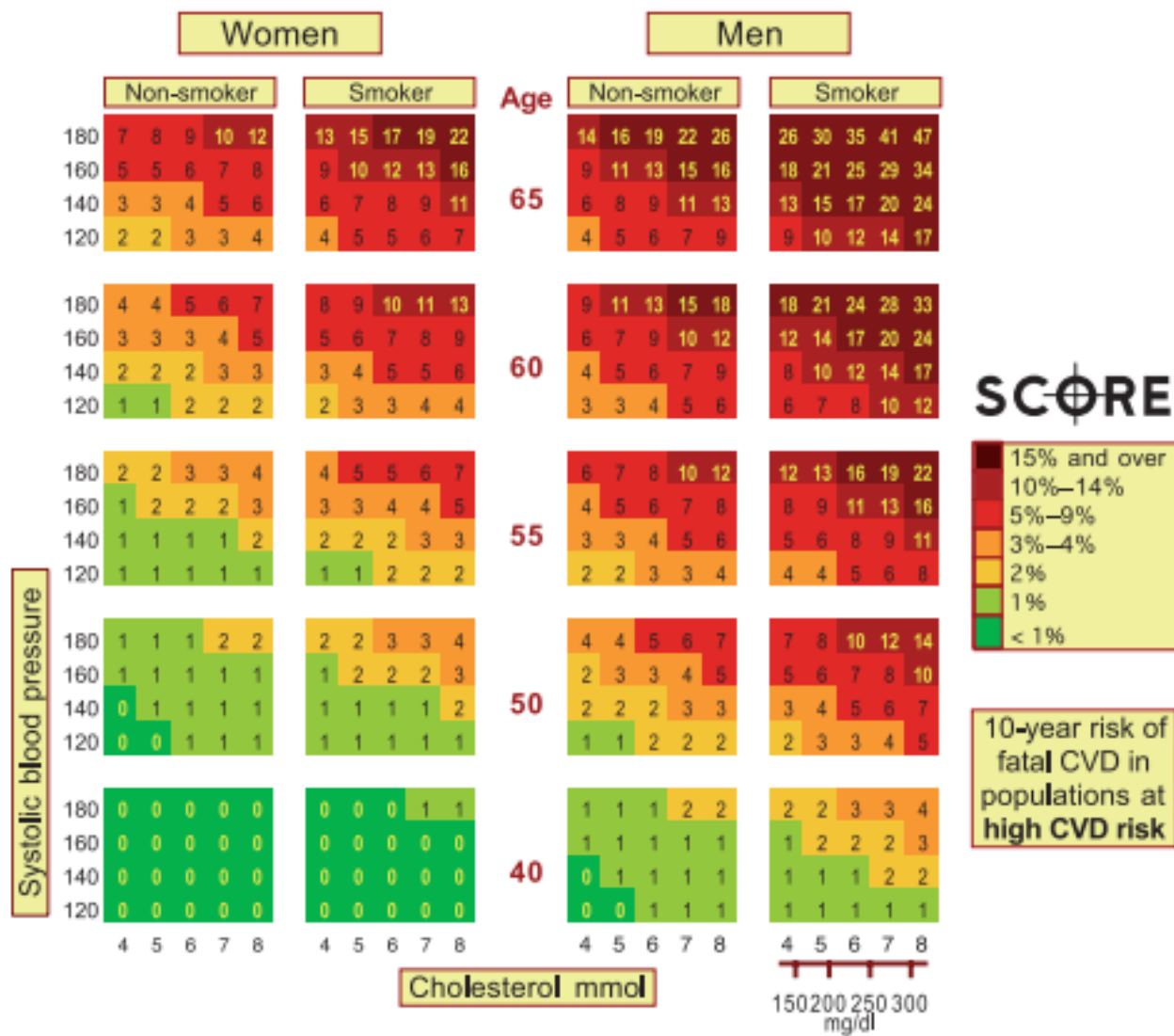


Fig. 1 Ten-year risk of fatal cardiovascular disease in populations at high cardiovascular disease risk. Chart based on total cholesterol.



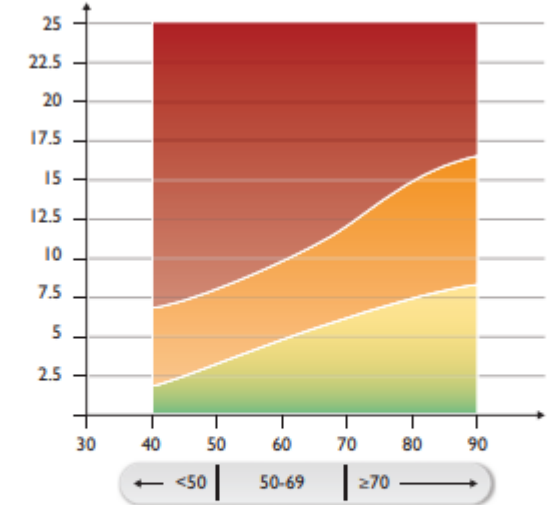
SCORE2 & SCORE2-OP

10-year risk of (fatal and non-fatal) CV events in populations at low CVD risk

● <50 years <2.5%
● 50-69 years 2.5 to <7.5%
● ≥70 years ≥7.5%

Systolic blood pressure (mmHg)	Women				Men											
	Non-smoking		Smoking		Non-smoking		Smoking									
	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9								
SCORE2-OP	150	200	250	mg/dL	150	200	250									
160-179	28	29	30	31	31	32	33	34	29	35	42	49	29	35	42	49
140-159	26	27	28	29	29	30	31	32	28	33	40	47	27	33	40	47
120-139	24	25	26	27	27	28	29	30	27	32	38	45	26	32	38	45
100-119	23	24	25	26	25	26	27	28	25	30	36	43	25	30	36	43
160-179	20	21	22	23	25	26	28	29	23	27	32	37	26	31	36	41
140-159	18	19	20	21	23	24	25	26	21	25	29	34	24	28	33	38
120-139	16	17	18	19	20	21	22	23	19	22	26	31	22	25	30	34
100-119	15	15	16	17	18	19	20	21	17	20	24	28	19	23	27	31
160-179	15	15	16	17	21	22	23	24	19	21	24	27	24	27	31	34
140-159	13	13	14	15	18	19	20	21	16	18	21	23	21	23	26	30
120-139	11	11	12	13	15	16	17	18	14	15	18	20	18	20	23	26
100-119	9	10	10	11	13	14	15	15	12	13	15	17	15	17	19	22
160-179	10	11	12	12	17	18	19	20	15	16	18	19	22	24	26	28
140-159	9	9	10	10	14	15	16	16	14	15	16	16	18	19	21	23
120-139	7	7	8	8	11	12	13	13	11	11	12	13	14	16	17	19
100-119	6	6	6	7	9	10	10	11	8	8	9	10	12	13	14	15
SCORE2	150	200	250		150	200	250									
160-179	8	8	9	9	12	12	13	13	11	12	12	13	15	16	17	19
140-159	7	7	7	7	10	10	11	11	9	10	11	11	13	14	15	16
120-139	5	6	6	6	8	9	9	9	8	8	9	10	11	12	13	13
100-119	5	5	5	5	7	7	7	8	6	7	7	8	9	10	11	11
160-179	6	6	7	7	10	10	11	11	8	9	10	11	13	14	15	17
140-159	5	5	5	6	8	8	9	9	7	8	8	9	10	11	13	14
120-139	4	4	4	5	6	7	7	8	6	6	7	8	9	10	10	11
100-119	3	3	4	4	5	6	6	6	5	5	6	6	7	8	9	10
160-179	4	5	5	5	8	8	9	10	7	7	8	9	10	12	13	15
140-159	3	4	4	4	6	7	7	8	5	6	7	8	9	10	11	12
120-139	3	3	3	3	5	6	6	6	4	5	5	6	7	8	9	10
100-119	2	2	3	3	4	4	5	5	4	4	4	5	6	6	7	8
160-179	3	4	4	4	6	7	7	8	5	6	7	8	9	10	11	13
140-159	3	3	3	3	5	5	6	6	4	5	5	6	7	8	9	10
120-139	2	2	2	3	4	4	5	5	3	4	4	5	6	6	7	8
100-119	2	2	2	2	3	3	4	4	3	3	3	4	4	5	6	7
160-179	2	3	3	3	5	5	6	7	4	5	6	6	7	8	10	11
140-159	2	2	2	3	4	4	5	5	3	4	4	5	6	7	8	9
120-139	1	2	2	2	3	3	4	4	2	3	3	4	4	5	6	7
100-119	1	1	1	1	2	2	3	3	2	2	3	3	3	4	5	5
160-179	2	2	2	3	4	4	5	6	3	4	5	5	6	7	8	10
140-159	1	2	2	2	3	3	4	4	2	3	3	4	5	5	6	8
120-139	1	1	1	1	2	3	3	3	2	2	3	3	3	4	5	6
100-119	1	1	1	1	2	2	2	2	1	2	2	2	3	3	4	5

10-year CVD risk (%)



CVD risk thresholds (%)

- Very high CVD risk (Red)
- High CVD risk (Orange)
- Low-to-moderate CVD risk (Green)

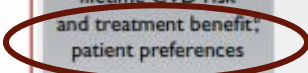
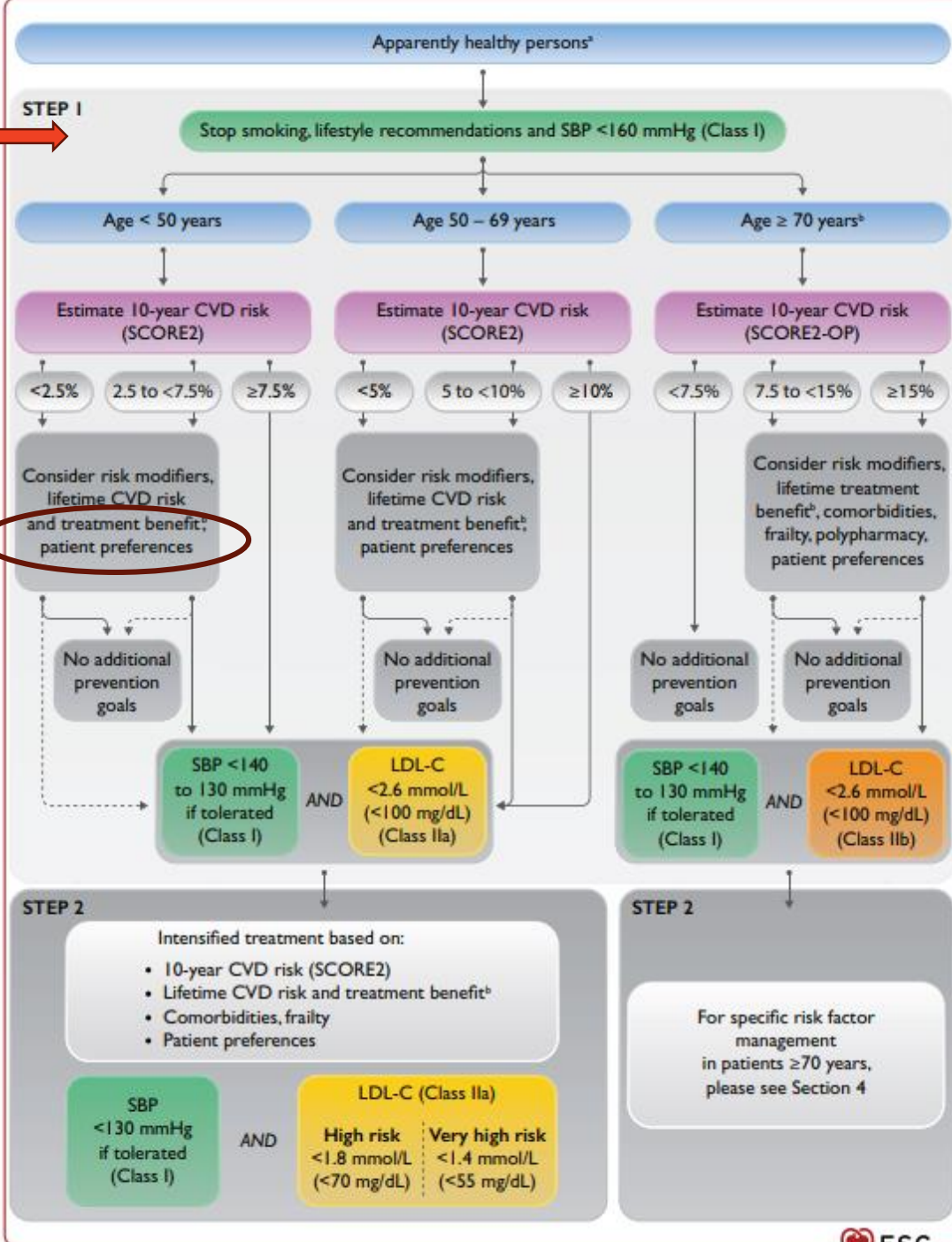


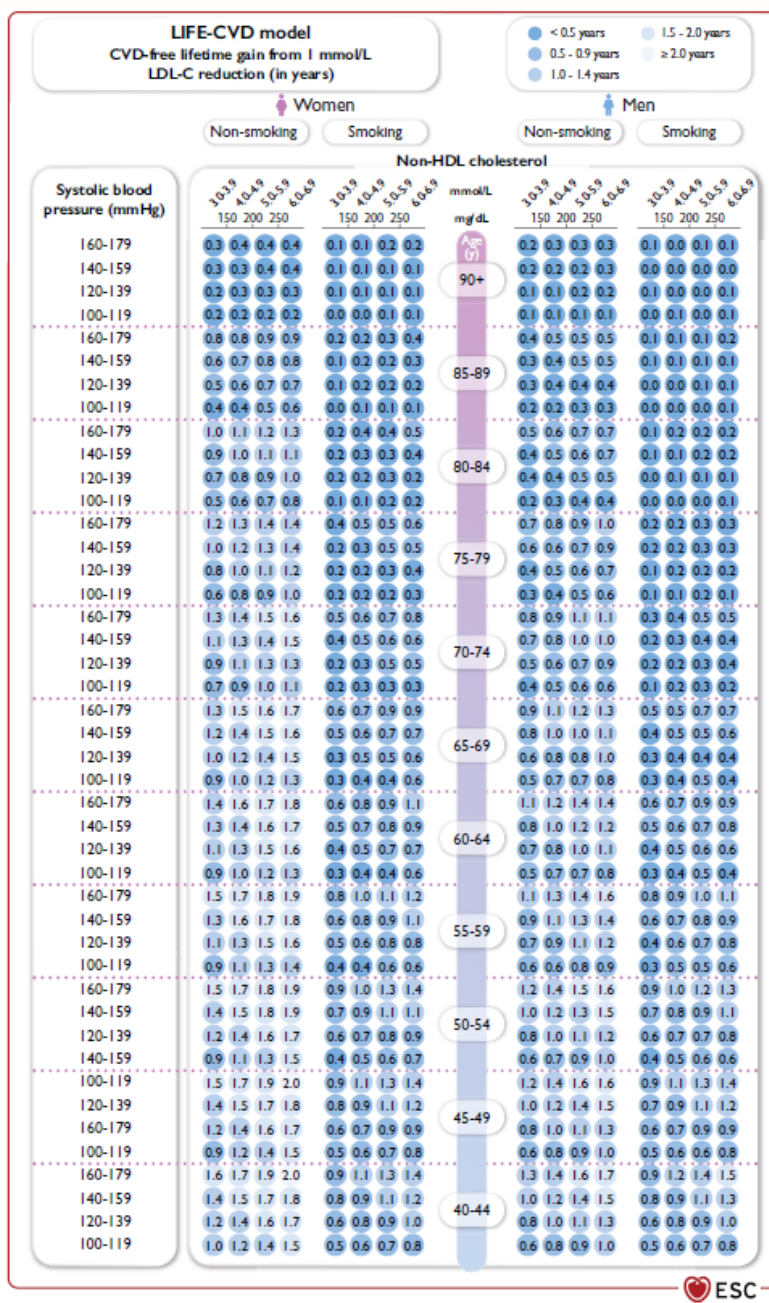
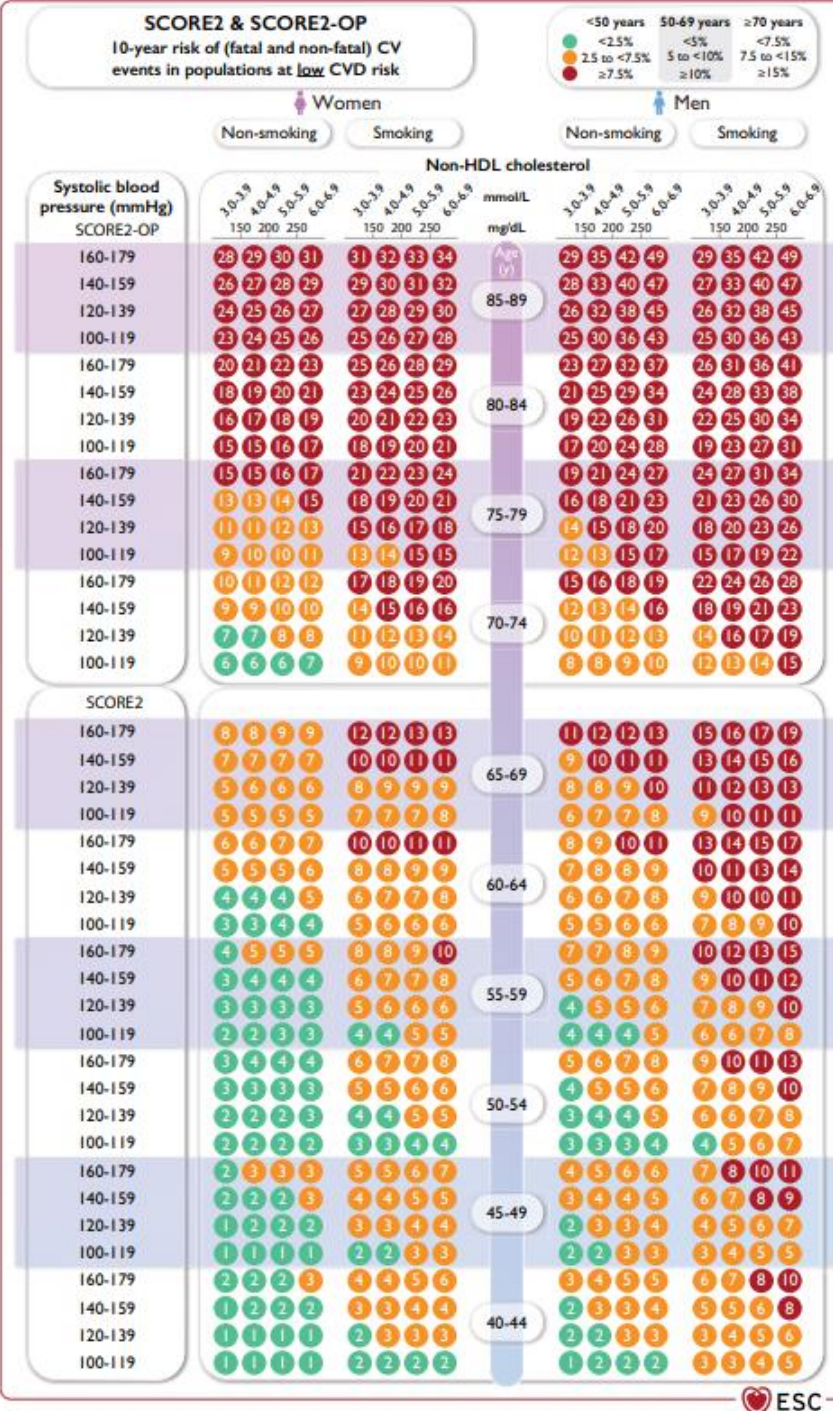
2021 ESC Guidelines on cardiovascular disease prevention in clinical practice

ESC Clinical Practice Guidelines

30 Aug 2021

Age is the major driver of CVD risk. Women below 50 years and men below 40 years of age are almost invariably at low 10-year CVD risk, but may have unfavourable modifiable risk factors that sharply increase their longer-term CVD risk. Conversely, men over 65 years and women over 75 years of age are almost always at high 10-year CVD risk. Only between the ages of 55 and 75 years in women and 40 and 65 years in men does the 10-year CVD risk vary around commonly used thresholds for intervention. The age categories <50, 50–69, and ≥70 years should be used with common sense and flexi-





Lipiden

Figure 12 Average years-free-of-cardiovascular disease gained per 1 mmol/L (40 mg/dL) low-density lipoprotein cholesterol reduction in apparently healthy persons. The model is currently validated for low- and moderate-risk countries. Lifetime benefit of 1 mmol/L LDL-C lowering for apparently healthy persons, based on the following risk factors: age, sex, current smoking, SBP, and non-HDL-C. The lifetime benefit is expressed as 'years of median life expectancy free from myocardial infarction or stroke' gained from 1 mmol/L LDL-C lowering. For 2 mmol/L LDL-C lowering, the average effect is



LDL-C level X aantal jaren = plaque burden

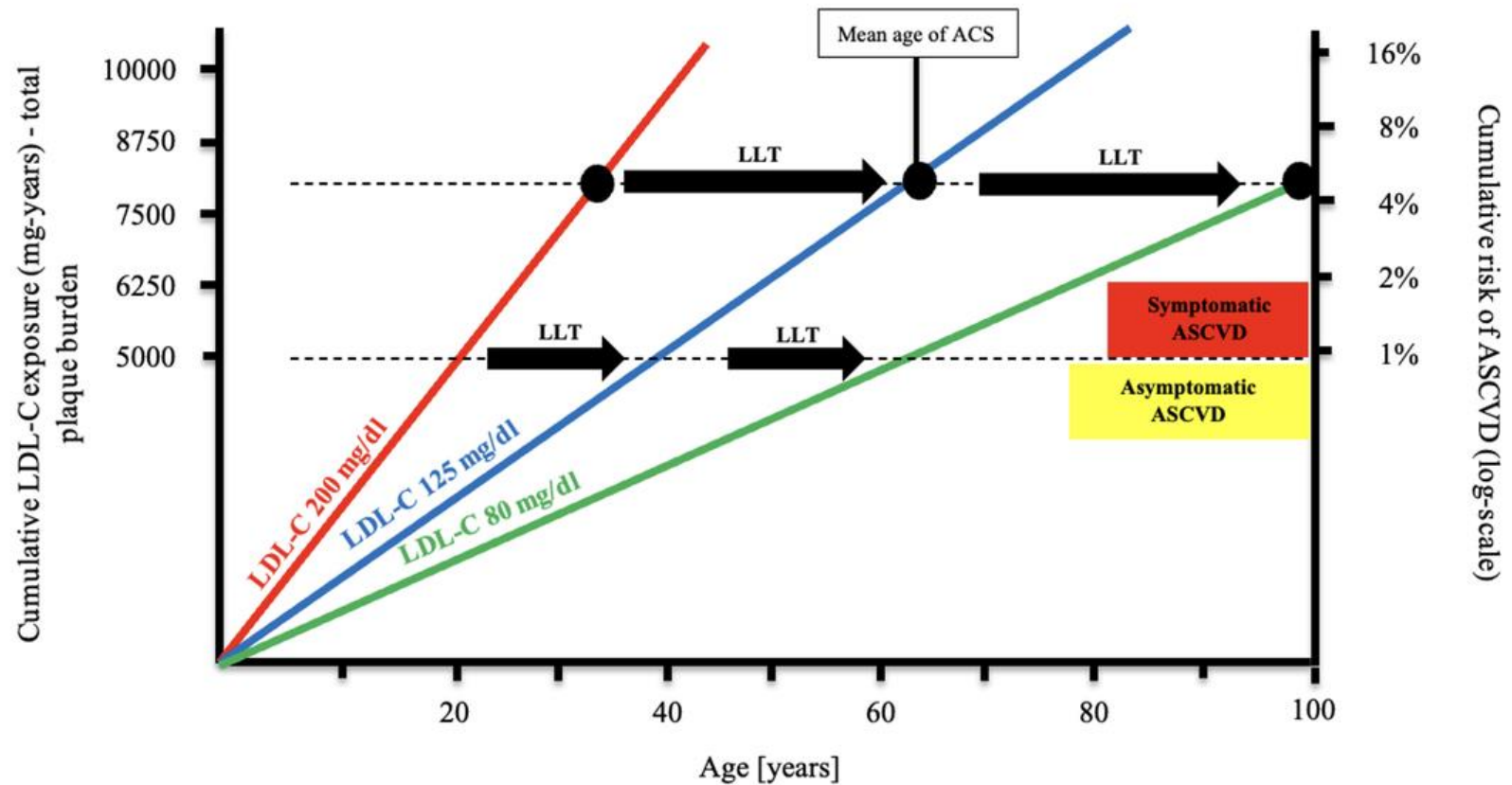
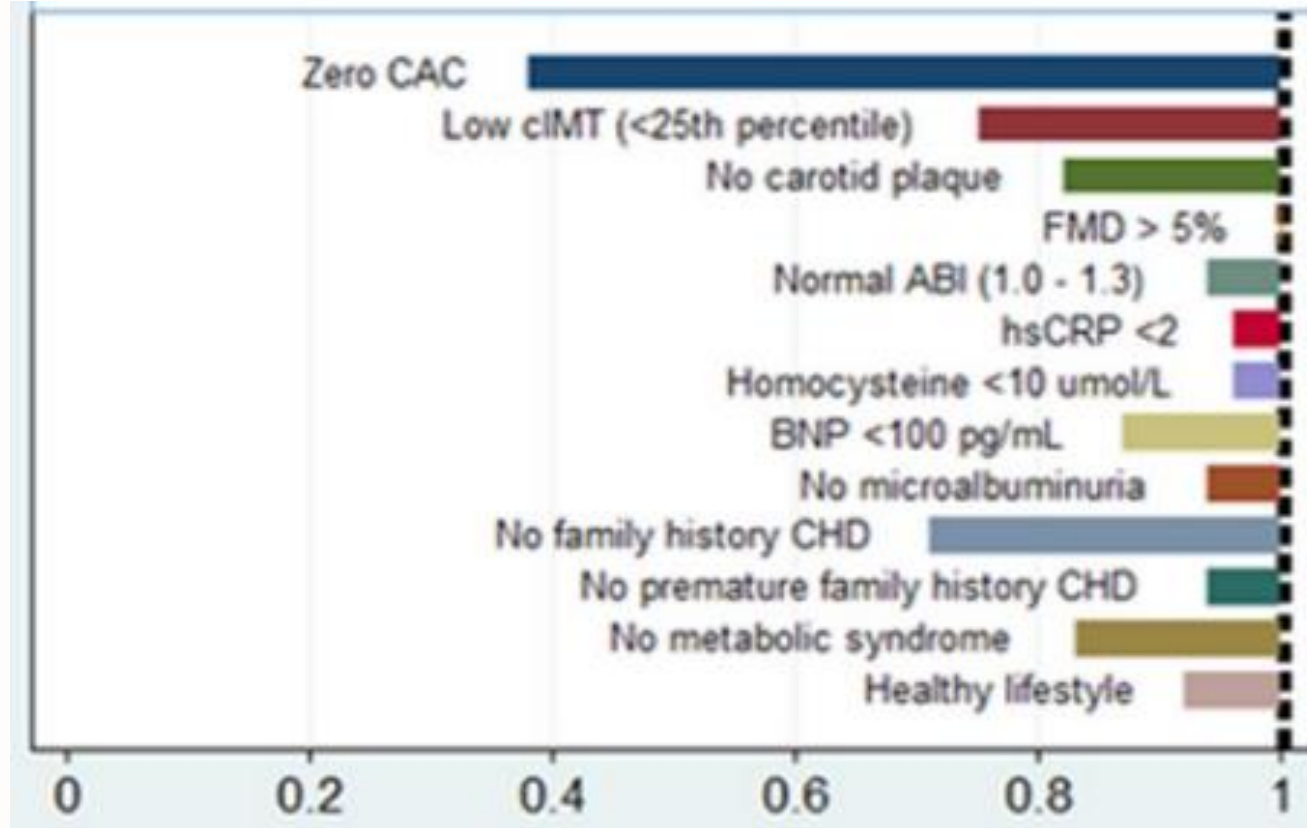


Figure 1. Effect of exposure to different serum LDL-C concentrations on the risk of ACS and the role of LLT in cardiovascular prevention.^{4,5} Abbreviations: LDL-C - low density lipoprotein cholesterol; ACS - acute coronary syndrome; ASCVD - atherosclerotic cardiovascular disease; LLT - lipid lowering therapy.




Blaha et al, Circulation, 2016

Table 8. Selected Examples of Candidates for CAC Measurement Who Might Benefit From Knowing Their CAC Score Is Zero

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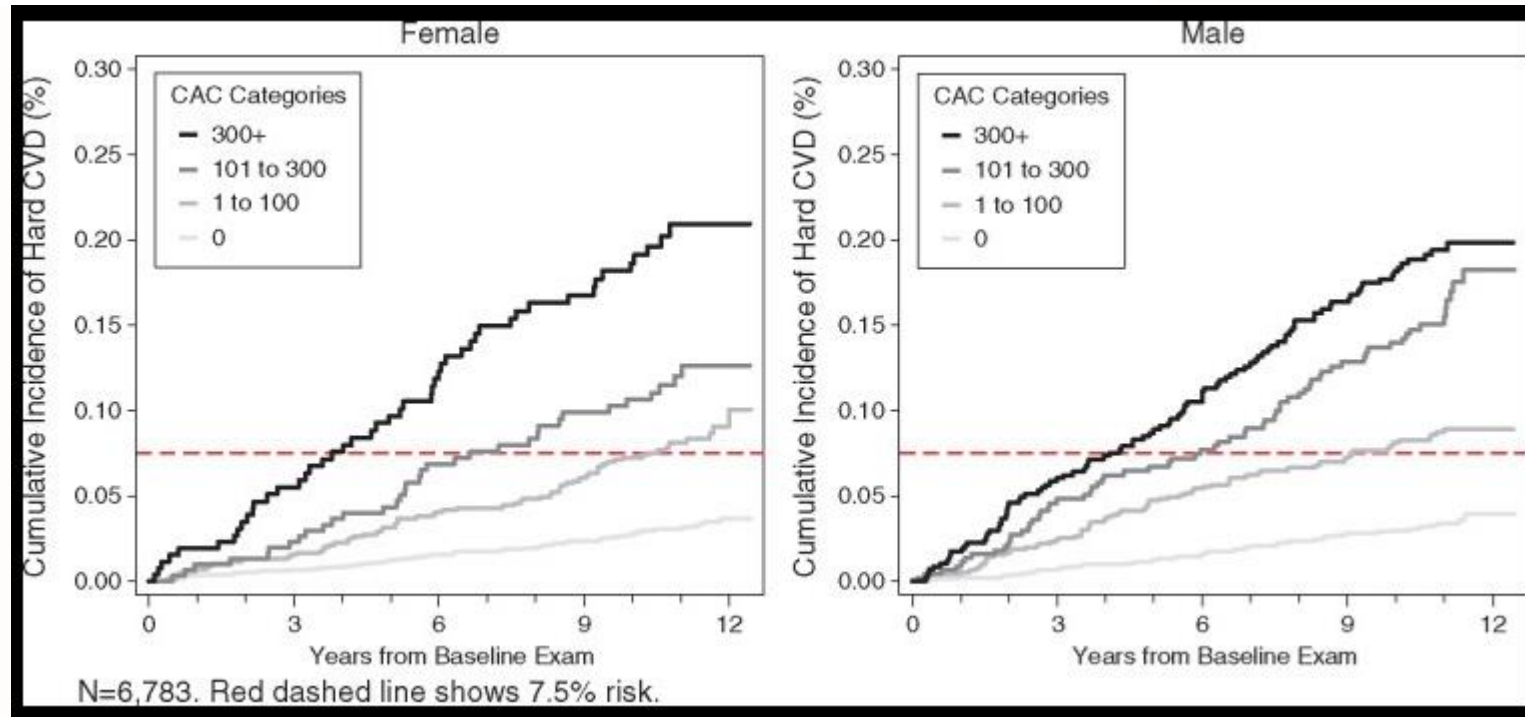
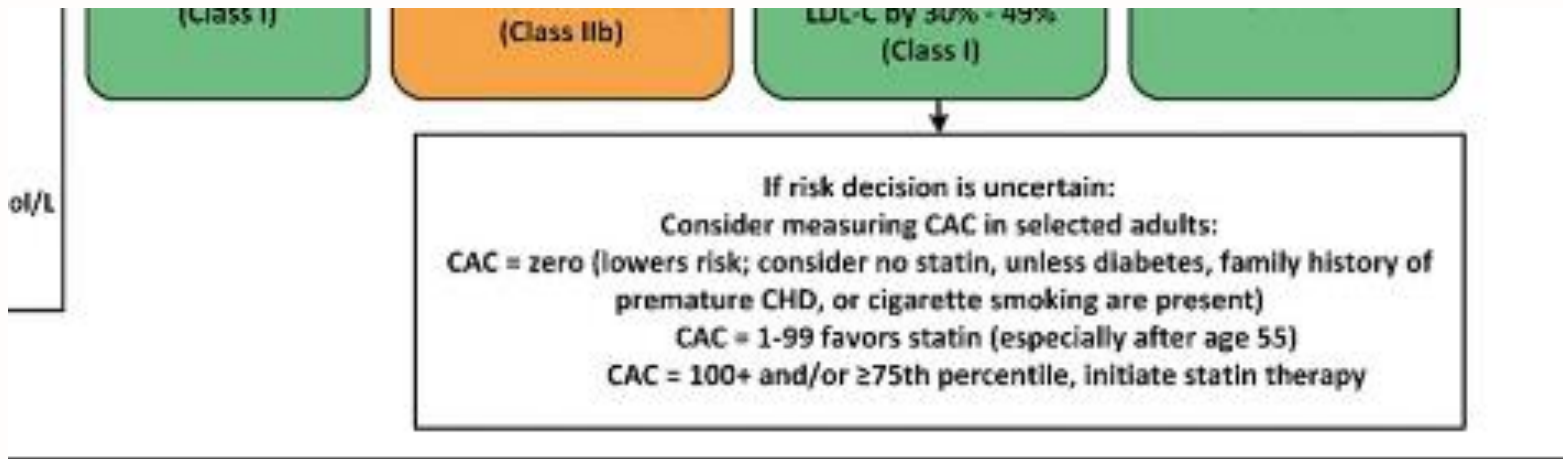
CAC Measurement Candidates Who Might Benefit From Knowing Their CAC Score Is Zero
Patients reluctant to initiate statin therapy who wish to understand their risk and potential for benefit more precisely
Patients concerned about need to reinstitute statin therapy after discontinuation for statin-associated symptoms
Older patients (men, 55-80 y of age; women, 60-80 y of age) with low burden of risk factors ^{S4.4.2-25} who question whether they would benefit from statin therapy
Middle-aged adults (40-55 y of age) with PCE-calculated 10-year risk of ASCVD 5% to <7.5% with factors that increase their ASCVD risk, although they are in a borderline risk group

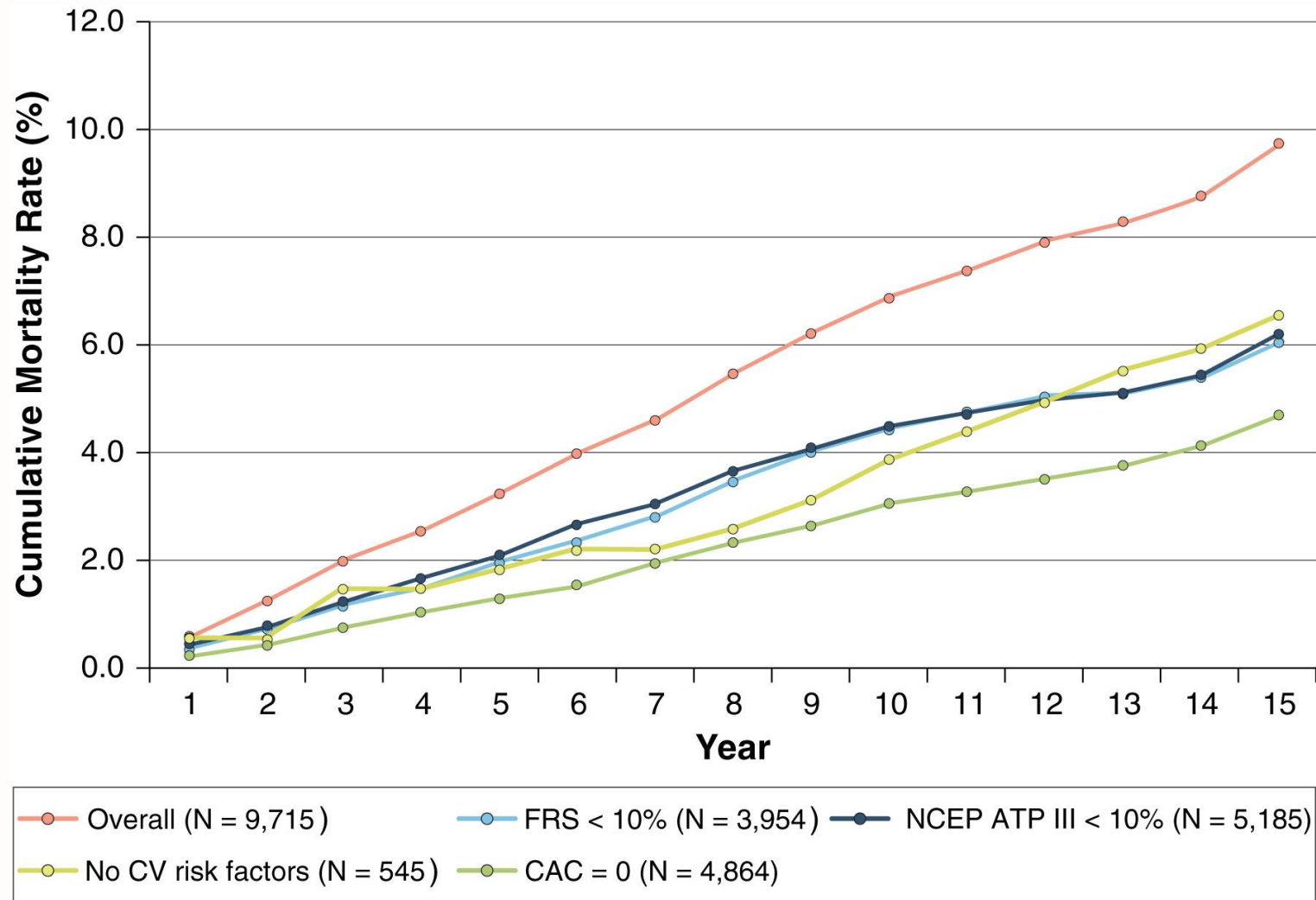
Low-Density Lipoprotein Cholesterol Is Predominantly Associated With Atherosclerotic Cardiovascular Disease Events in Patients With Evidence of Coronary Atherosclerosis: The Western Denmark Heart Registry

Martin Bødtker Mortensen , Omar Dzaye, Hans Erik Bøtker, Jesper Møller Jensen, Michael Maeng, Jacob Fog Bentzon, Helle Kanstrup, Henrik Toft Sørensen, Jonathon Leipsic, Ron Blankstein, Khurram Nasir, Michael J. Blaha and Bjarne Linde Nørgaard

Originally published 9 Jan 2023 | <https://doi.org/10.1161/CIRCULATIONAHA.122.061010> | Circulation. 2023;147:1053–1063

During a median follow-up of 4.3 years, 552 patients experienced a first ASCVD event. In the overall population, LDL-C (per 38.7 mg/dL increase) was associated with ASCVD events occurring during follow-up (adjusted hazard ratio [aHR], 1.14 [95% CI, 1.04–1.24]). When stratified by the presence or absence of baseline CAC, LDL-C was only associated with ASCVD in the 10 792/23 132 patients (47%) with CAC>0 (aHR, 1.18 [95% CI, 1.06–1.31]); no association was observed among the 12 340/23 132 patients (53%) with CAC=0 (aHR, 1.02 [95% CI, 0.87–1.18]). Similarly, a very high LDL-C level (>193 mg/dL) versus LDL-C <116 mg/dL was associated with ASCVD in patients with CAC>0 (aHR, 2.42 [95% CI, 1.59–3.67]) but not in those without CAC (aHR, 0.92 [0.48–1.79]). In patients with CAC=0, diabetes, current smoking, and low high-density lipoprotein cholesterol levels were associated with future ASCVD events. The principal findings were replicated in the Multi-Ethnic Study of Atherosclerosis.



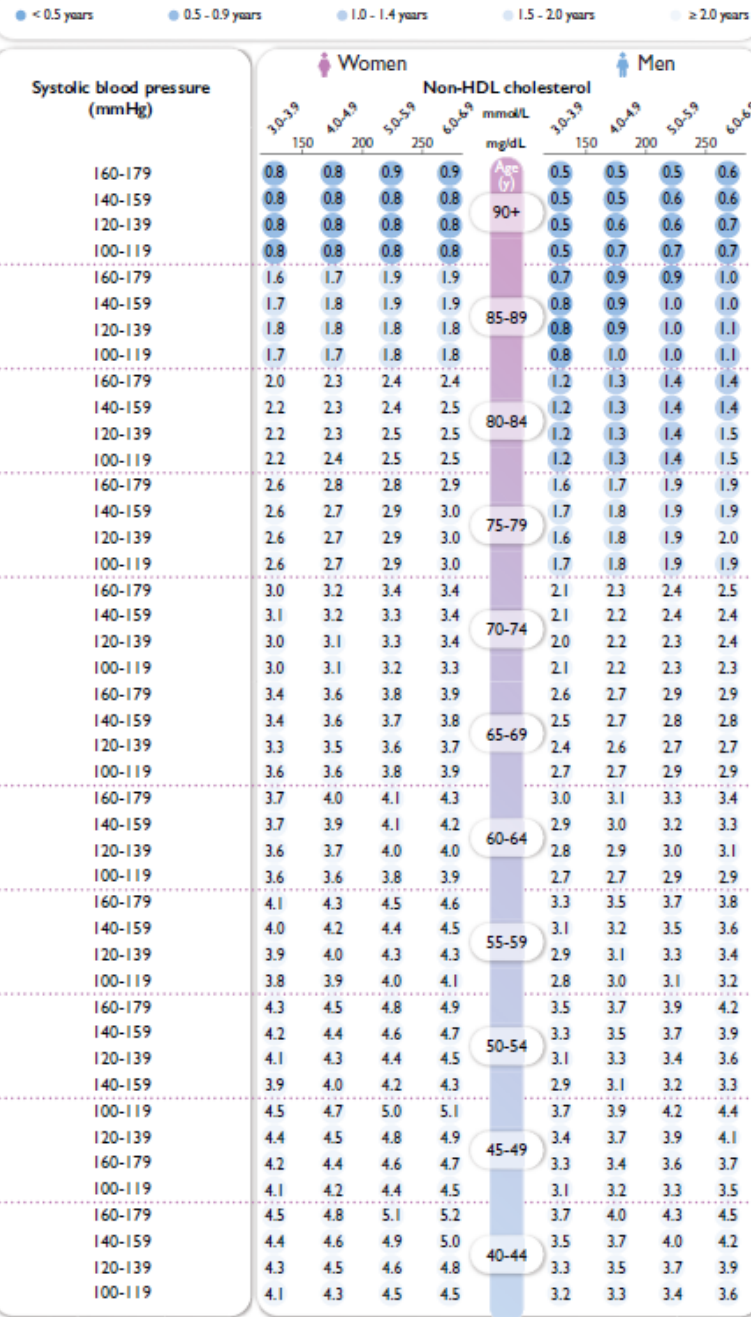


Valentina et al, JACC, 2015

4.5.1. Smoking cessation

Stopping smoking is potentially the most effective of all preventive measures, with substantial reductions in (repeat) myocardial infarctions or death.^{487,488} Lifetime gains in CVD-free years are substantial at all ages, and benefits are obviously even more substantial if other

LIFE-CVD model
CVD-free lifetime gain from smoking cessation (in years)



Roken

Vrouw, 49 jr

CH/HDL/LDL/TG/non-HDL
241/35/191/75/206

L 180 cm, G 69 kg

Fam:- Roken:-, DM:-, AHT:-, CH:+

U-prevent.com

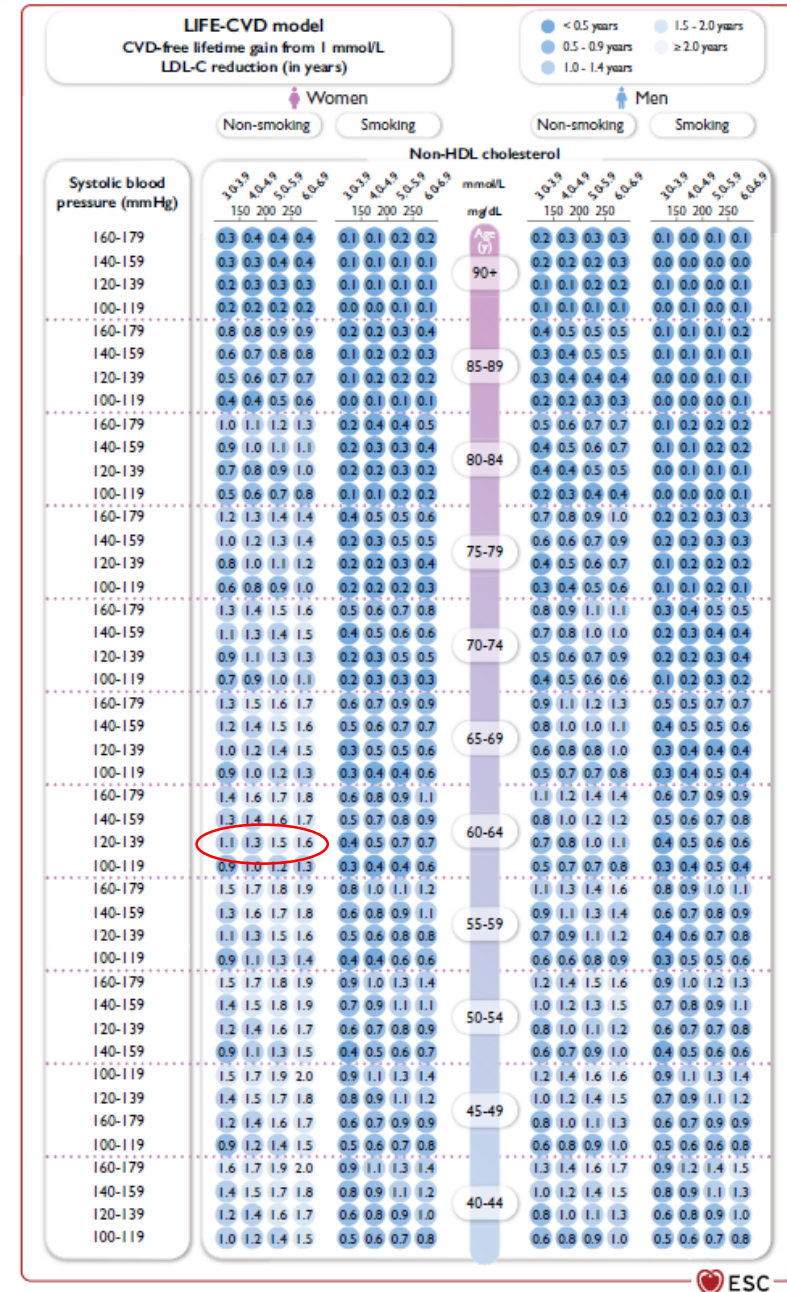
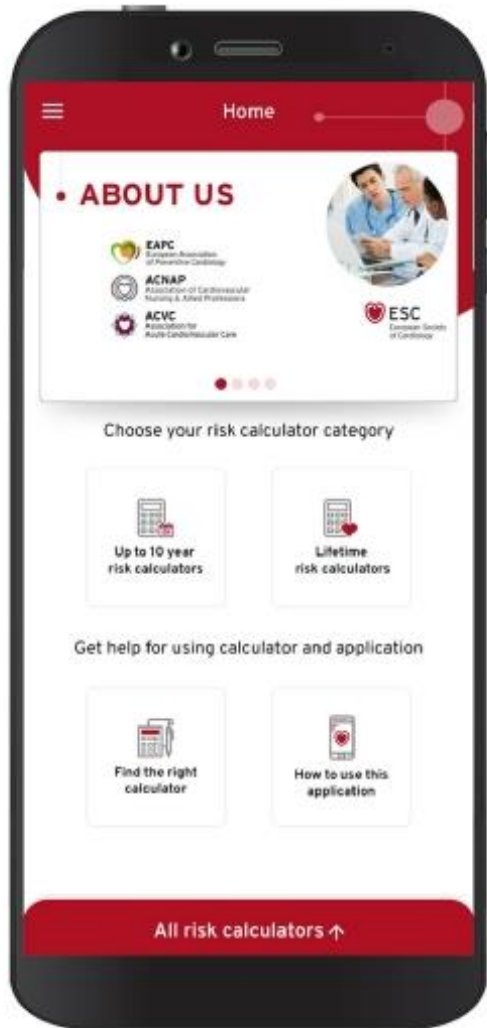


Figure 12 Average years-free-of-cardiovascular disease gained per 1 mmol/L (40 mg/dL) low-density lipoprotein cholesterol reduction in apparently healthy persons. The model is currently validated for low- and moderate-risk countries. Lifetime benefit of 1 mmol/L LDL-C lowering for apparently




Patiëntengroep

10 jaars cardiovasculair risico


Lifetime risico & behandel-effect


Eerder hart- en vaatziekten ⓘ


SMART risicoscore



SMART-REACH model


Type 2 Diabetes Mellitus


ADVANCE risicoscore


DIAL model


Ogenschijnlijk gezond
Geen eerdere hart- en vaatziekte of type 2 diabetes mellitus


SCORE of ASCVD



LIFE-CVD model

Nieuwe calculatoren gebaseerd op Europese populaties

Ogenschijnlijk gezond < 70 years
Geen eerdere hart- en vaatziekte of type 2 diabetes mellitus


SCORE2

Ogenschijnlijk gezond ≥ 70 years
Ouderen zonder eerdere hart- en vaatziekte of type 2 diabetes mellitus


SCORE2-OP

Persoonlijk risicoprofiel i

Geslacht

V*

Leeftijd

49

jaar

Diabetes mellitus

-

Hartinfarct bij vader of moeder <60

-

BMI

21

kg/m²

Totaal cholesterol

243

mg/dL

HDL-cholesterol

35

mg/dL

LDL-cholesterol

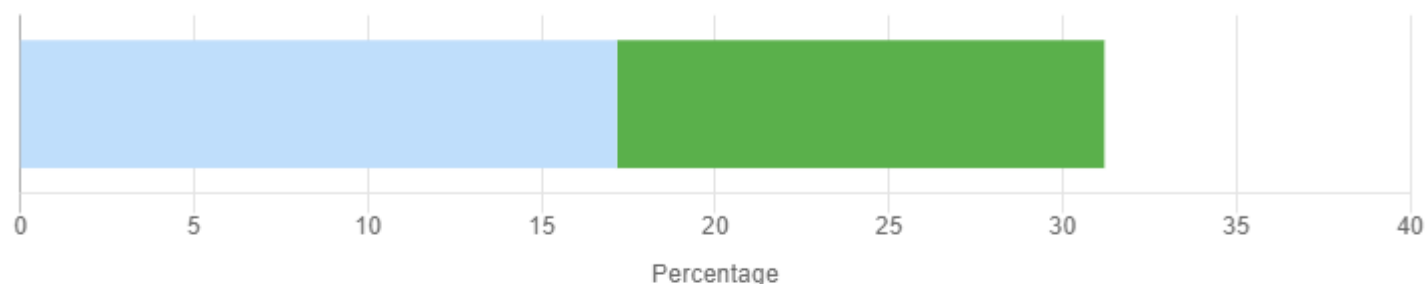
196

mg/dL

HVZ-Vrije jaren

10-jaars risico

Lifetime risico

Huidig lifetime risico op een hartinfarct, beroerte
of cardiovasculaire sterfte

Aanpassen gegevens

31.2%

Huidig risico i

14.0%

Reductie door behandeling i

7

Lifetime NNT i

Leeftijd

49

Startleeftijd behandeling i

>90

Vaatziektevrije levensverwachting i

3.6

Jaren extra zonder vaatziekte iToekomstige behandeling i

Statine

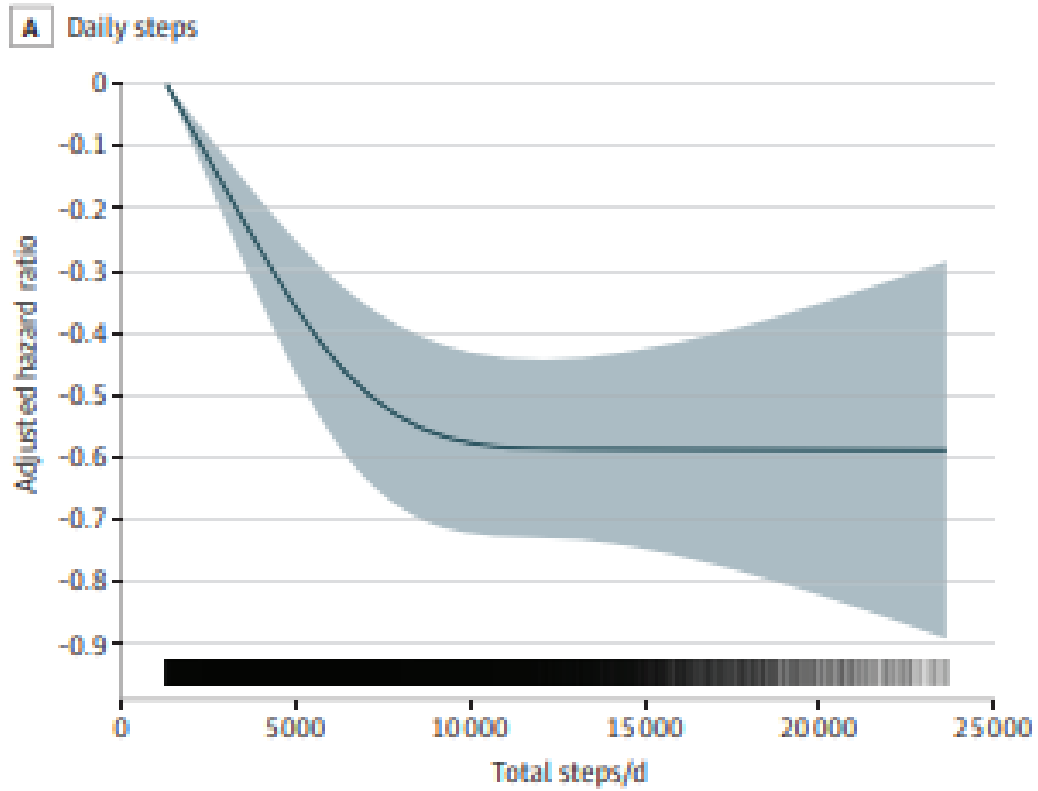
Rosuvastatine v

Dosis

10 mg vEzetimibe v

Systolische bloeddruk

Dose-Response Associations Between Primary Exposures and All-Cause Mortality

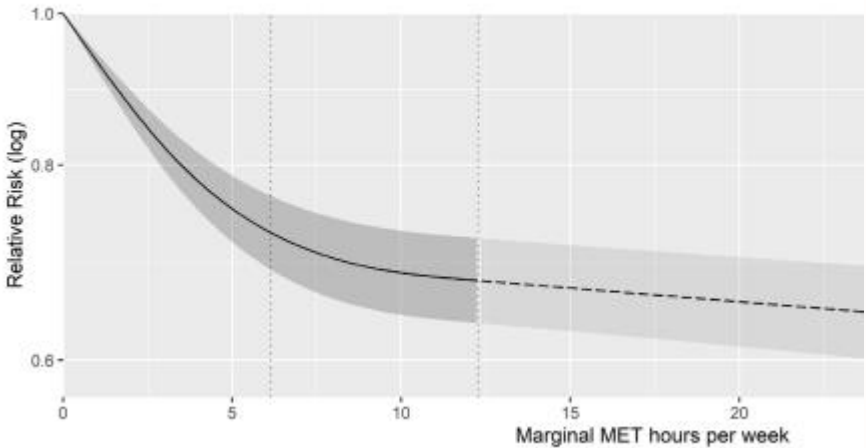


Fysieke activiteit

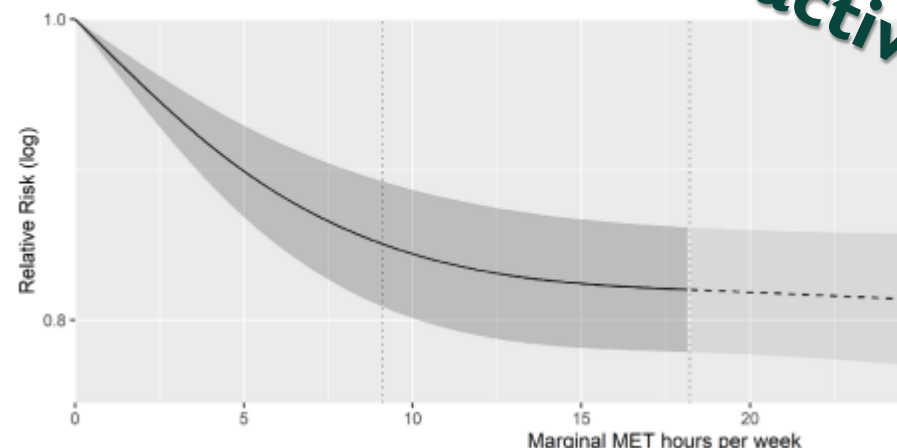
Del Pozo Cruz et al. JAMA Inter Med 2022

Fysieke activiteit

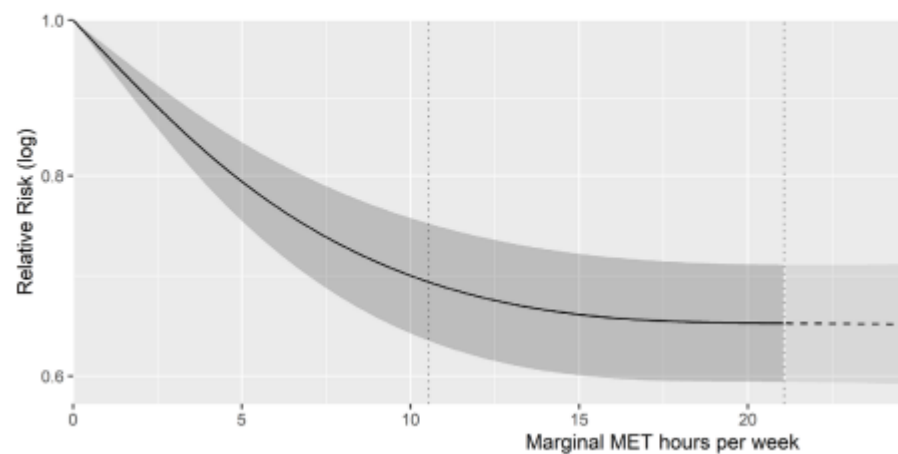
All-cause mortality
Number of entries: 50
Person-years: 163,415,543



Cancer mortality
Number of entries: 24
Person-years: 24,077,682



Cardiovascular disease mortality
Number of entries: 29
Person-years: 25,886,430



Garcia et al. Br J Sports Med 2023



Samenvatting

Primaire preventie >> secundaire preventie

Roken is zeer krachtige risicofactor - Combinatie van risicofactoren

Voor geïsoleerde hyperCH >> beeldvorming en tabellen

Gedeelde beslissing; U-prevent.com



Ziekenhuis aan de Stroom
[ZAS] is het netwerk van
ZNA en GZA Ziekenhuizen

