



**ACCADEMIA di  
ALTA FORMAZIONE CLINICA  
per MEDICI del TERRITORIO**

# Accademia di Alta Formazione Clinica per Medici del Territorio

*In memoria del Maestro Alberto Zanchetti*

**TERZO PERCORSO FORMATIVO - ANNO 2024**

**FAD (Formazione a Distanza)**

Responsabile Scientifico  
**Fabio Lucio Albini**

2024

20 gennaio  
3 febbraio  
17 febbraio



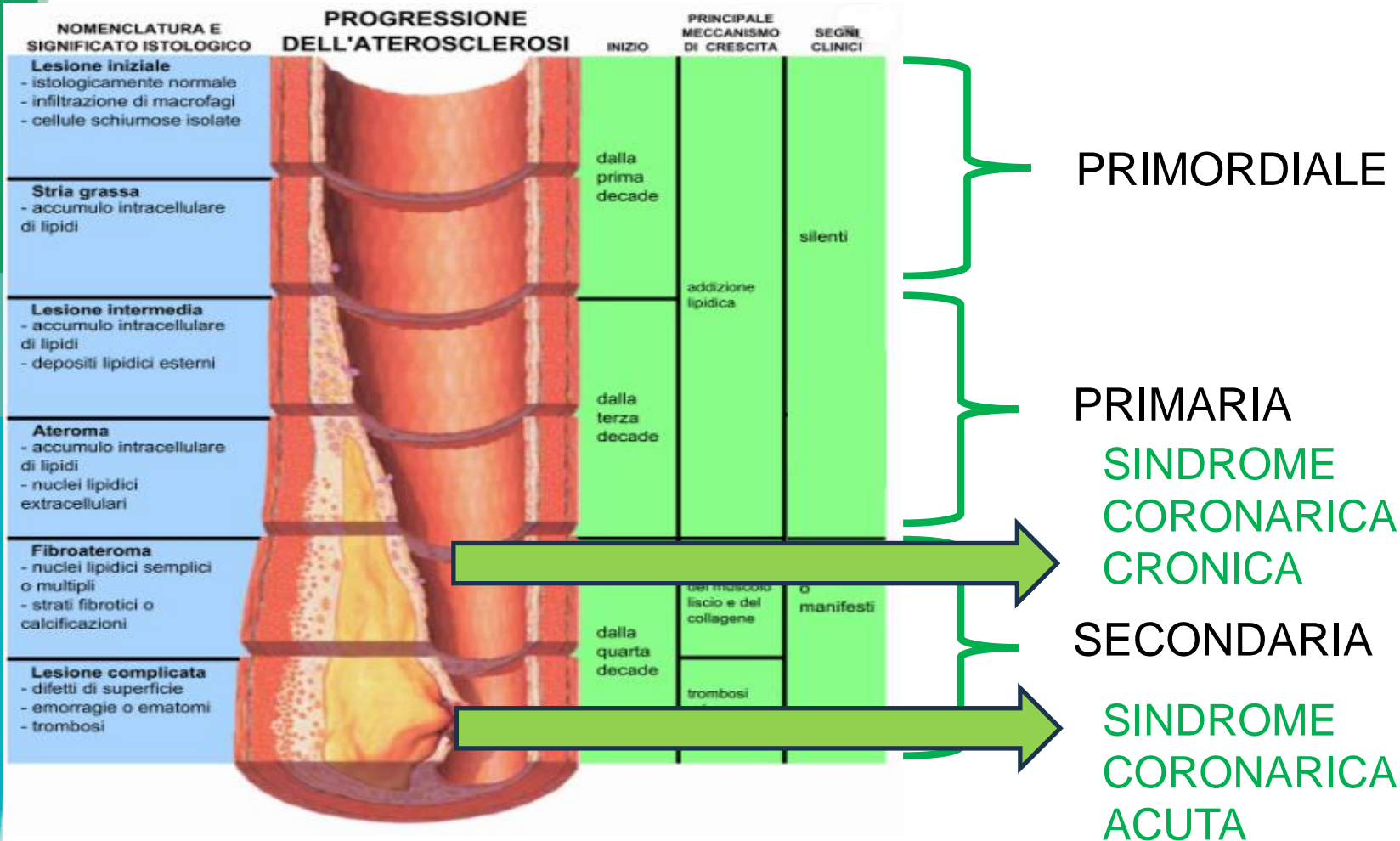
# Prevenzione delle malattie ateromasiche dei grandi e piccoli vasi e protezione delle patologie degli organi bersaglio associati



Dott. Alessandro Maloberti



# ATEROSCLEROSI



# CONCETTI CHIAVE PREVENZIONE CV

NOMENCLATURA E SIGNIFICATO ISTOLOGICO	PROGRESSIONE DELL'ATEROSCLEROSI	INIZIO	PRINCIPALE MECCANISMO DI CRESCITA	SEGNI CLINICI
<b>Lesione iniziale</b> - istologicamente normale - infiltrazione di macrofagi - cellule schiumose isolate		dalla prima decade	addizione lipidica	silenti
<b>Stria grassa</b> - accumulo intracellulare di lipidi		dalla terza decade	aumento del muscolo liscio e del collagene	sintomi o manifesti
<b>Lesione intermedia</b> - accumulo intracellulare di lipidi - depositi lipidici esterni		dalla quarta decade	trombosi e / o ematoma	
<b>Ateroma</b> - accumulo intracellulare di lipidi - nuclei lipidici extracellulari				
<b>Fibroateroma</b> - nuclei lipidici semplici o multipli - strati fibrotici o calcificazioni				
<b>Lesione complicata</b> - difetti di superficie - emorragie o ematomi - trombosi				

THE EARLIER  
-  
THE BETTER

PRIMARIA

SECONDARIA

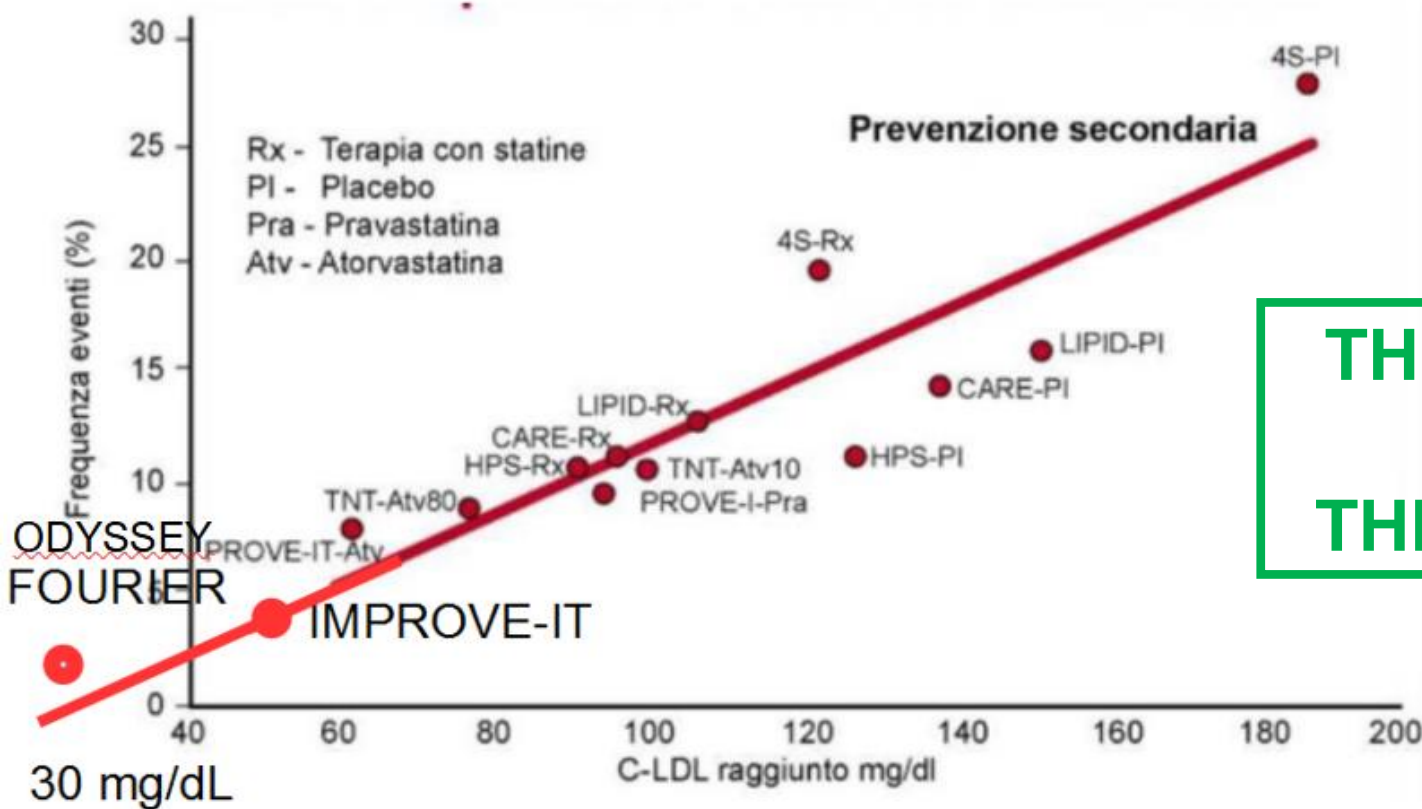
# CONCETTI CHIAVE PREVENZIONE CV

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<b>Lesione iniziale</b> - istologicamente normale - infiltrazione di macrofagi - cellule schiumose isolate		dalla prima decade	addizione lipidica	silenti
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<b>Fibroateroma</b> - nuclei lipidici semplici o multipli - strati fibrotici o calcificazioni		dalla quarta decade	aumento del muscolo liscio e del collagene	breve o manifesti
<b>Lesione complicata</b> - difetti di superficie - emorragie o ematomi - trombosi			trombosi e / o ematoma	

PRIMARIA

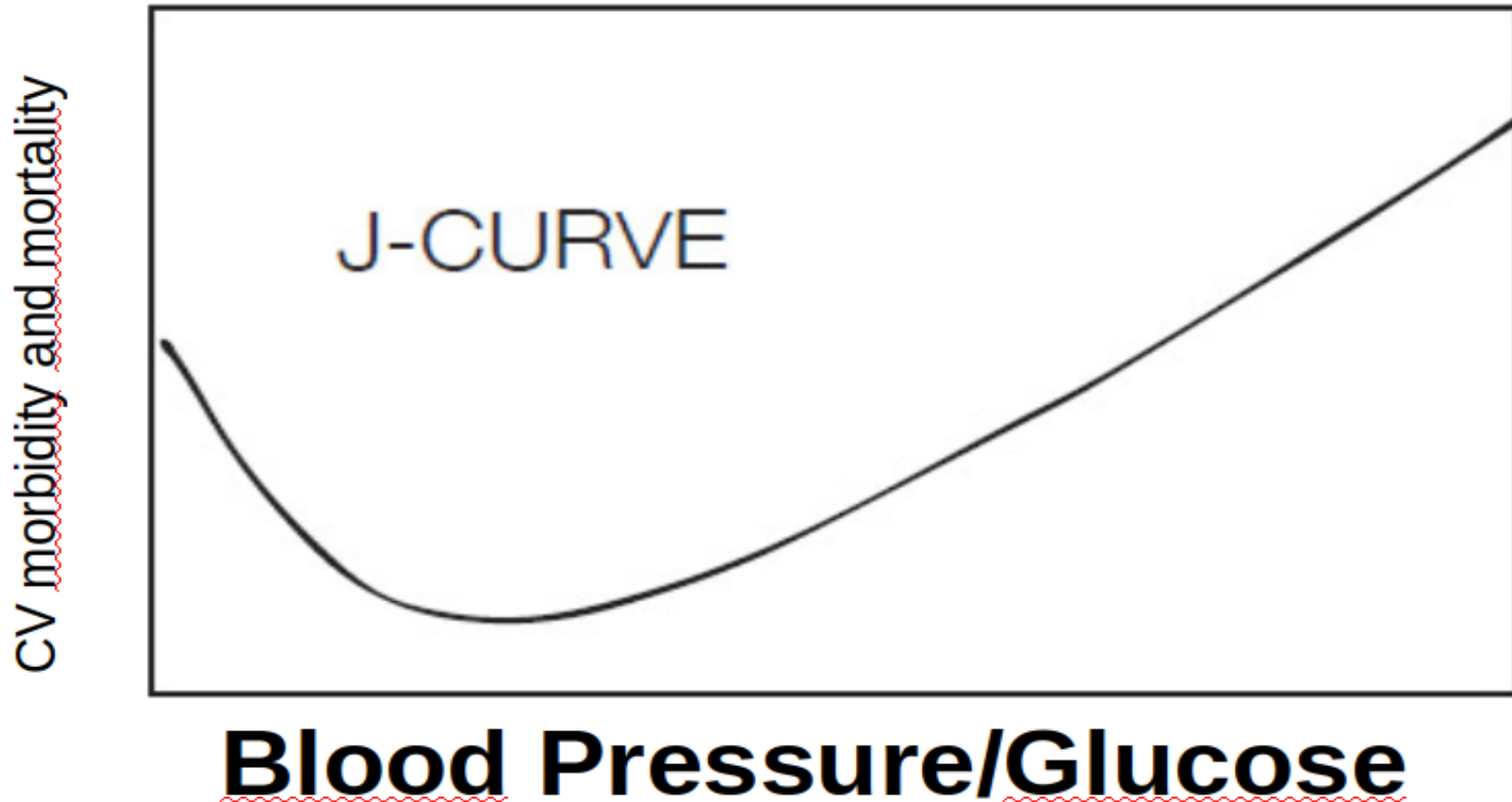
SECONDARIA

# CONCETTI CHIAVE PREVENZIONE CV



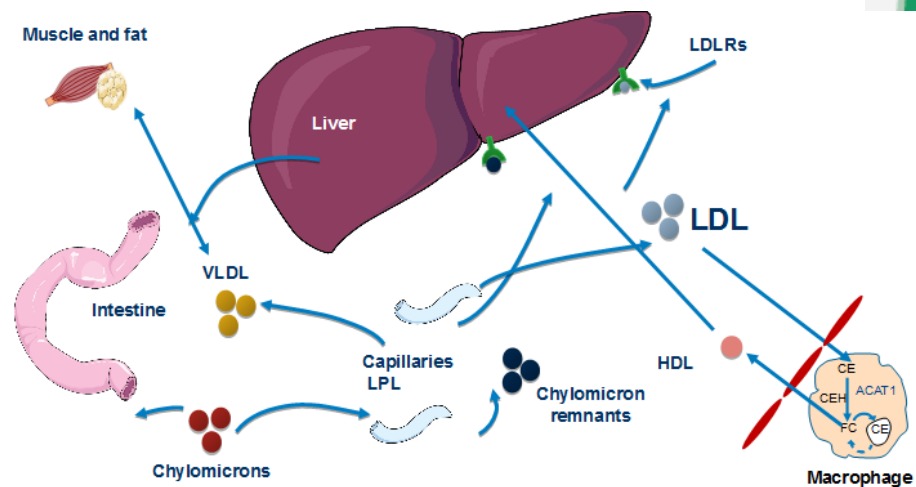
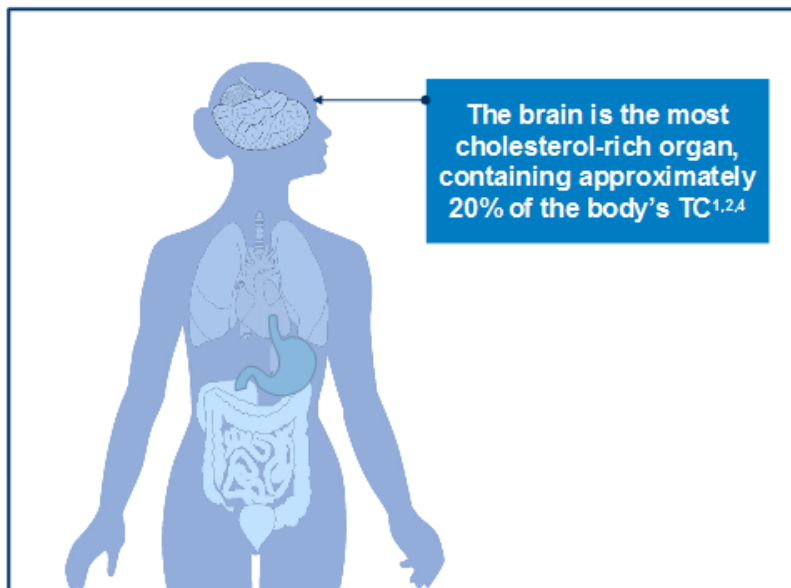
**THE LOWER  
—  
THE BETTER**

# CONCETTI CHIAVE PREVENZIONE CV



# SICUREZZA BASSI LIVELLI DI COLESTEROLE

## Cholesterol in the Brain Is Supplied by De Novo Synthesis

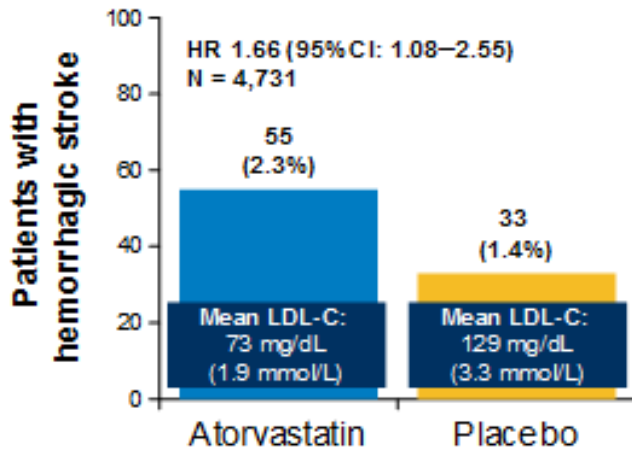






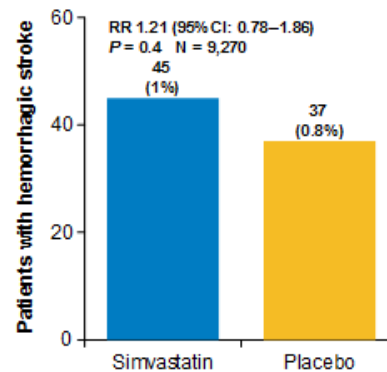
# SICUREZZA BASSI LIVELLI DI COLESTEROLE

## SPARCL Post-Hoc Analysis<sup>1</sup>



## SHARP<sup>1,2</sup>

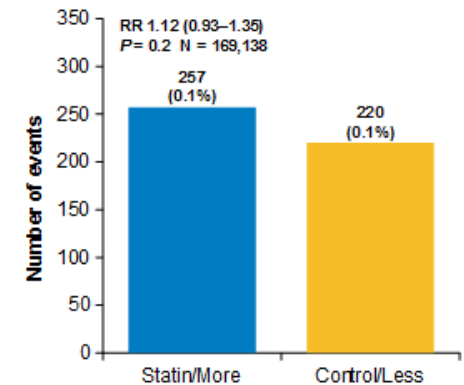
Prospective study of patients with CKD with no known history of MI or coronary revascularization



Mean LDL-C difference (44–49 m):  
Simvastatin: -32 mg/dL (-0.84 mmol/L)  
Placebo: -3 mg/dL (-0.08 mmol/L)

## CTT<sup>3</sup>

Meta-analyses of statin trials with ≥ 1,000 participants and at least 2 years' treatment duration



Mean LDL-C difference (1 y):  
Statin More/Less: -20 mg/dL (-0.5 mmol/L)  
Statin/Control: -42 mg/dL (-1.1 mmol/L)

2006

2010

2011

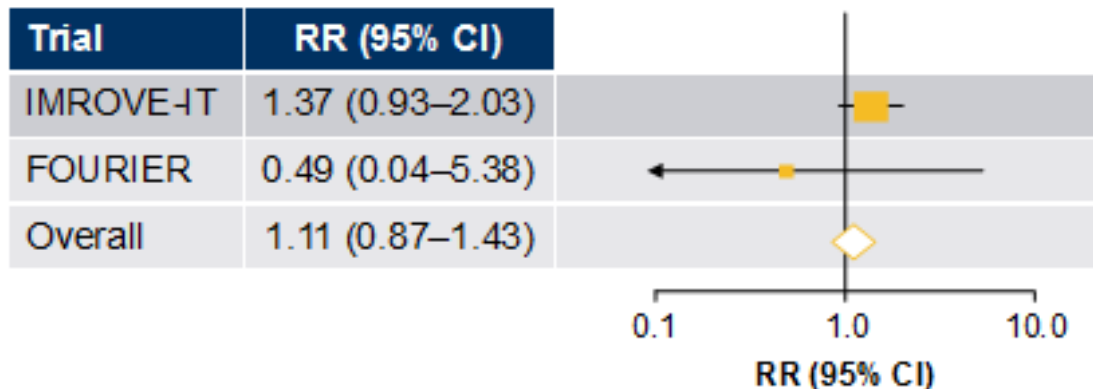


# SICUREZZA BASSI LIVELLI DI COLESTEROLE

2019

Ezetimibe (53.7 mg/dL)

Evolocumab (30 mg/dL)



Hemorrhagic Stroke by Achieved LDL-C at 4 Months

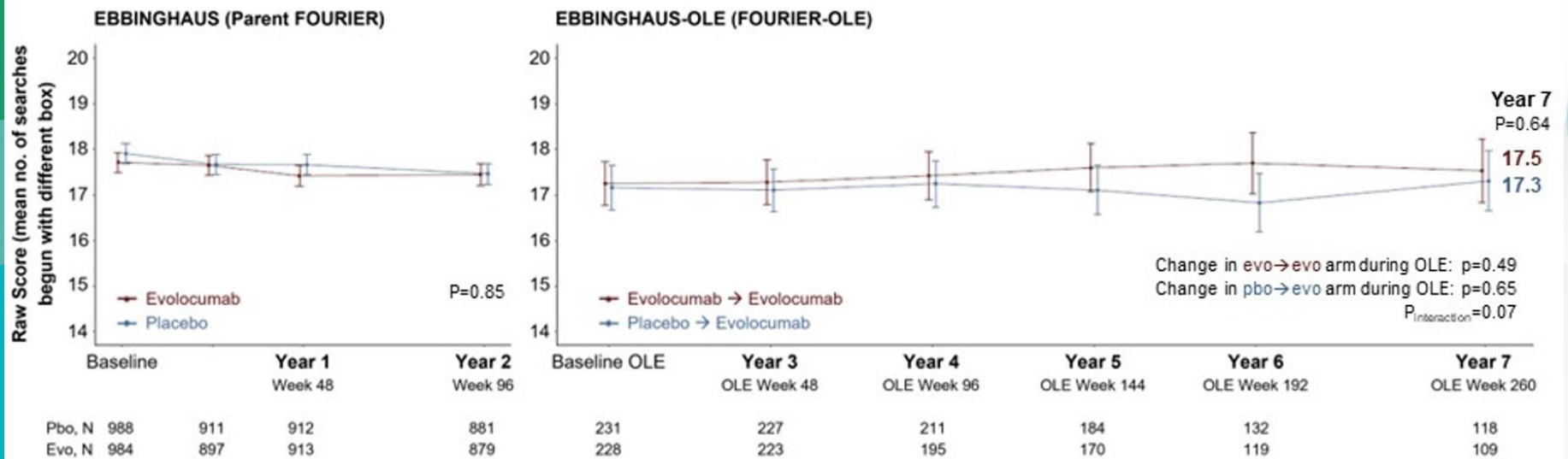
**Prespecified analysis of  
ODYSSEY OUTCOMES study in  
patients with recent ACS with or  
without history of  
cerebrovascular disease**

Month 4 LDL-C	n/N(%)
< 25 mg/dL (0.65 mmol/L)	2/3399 (0.1)
25 to < 50 mg/dL (0.65 – 1.3 mmol/L)	3/3754 (0.1)
50 to <70 mg/dL (1.30 – 1.8 mmol/L)	3/1090 (0.3)
≥ 70 mg/dL (≥ 1.8 mmol/L)	4/1177 (0.3)



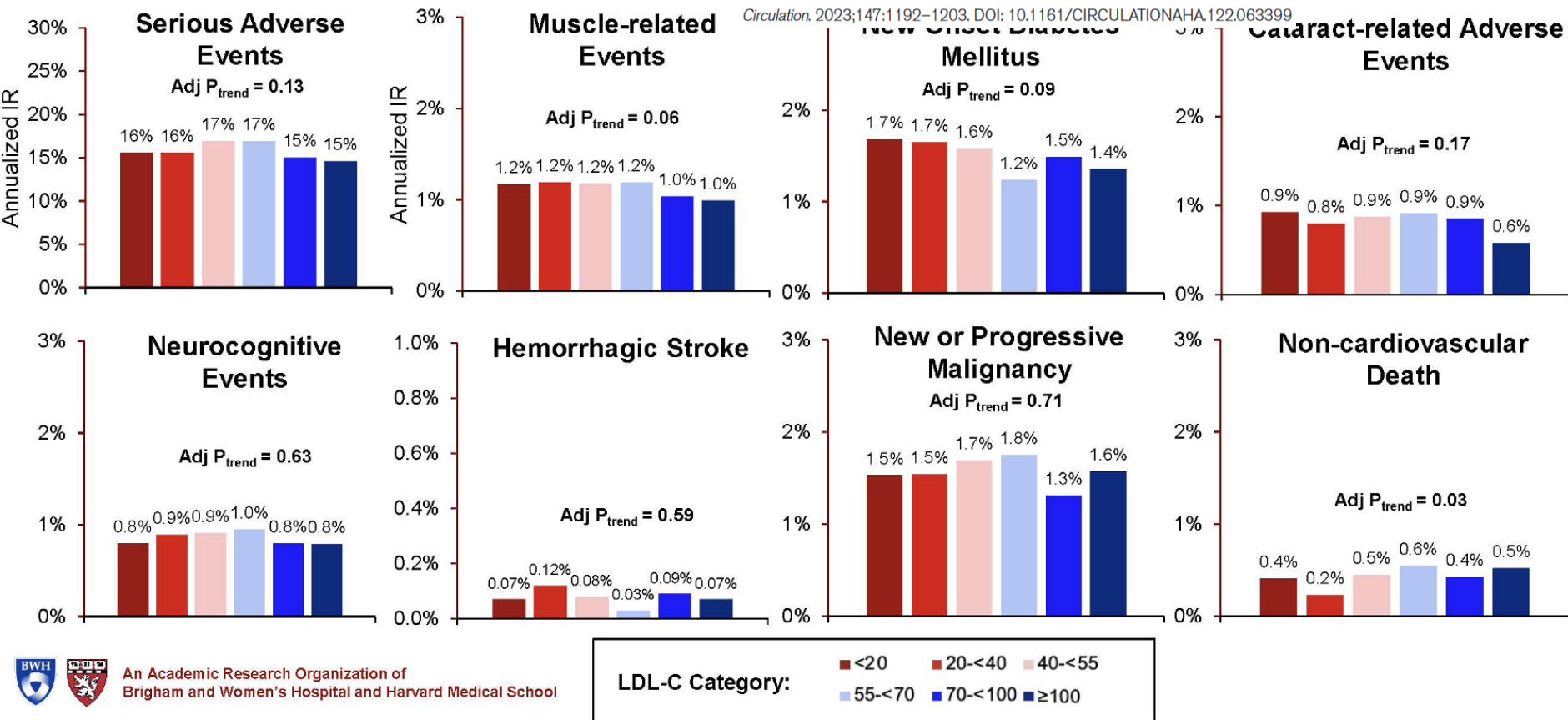
# SICUREZZA BASSI LIVELLI DI COLESTEROLE

## EXECUTIVE FUNCTION





# SICUREZZA BASSI LIVELLI DI COLESTEROLE

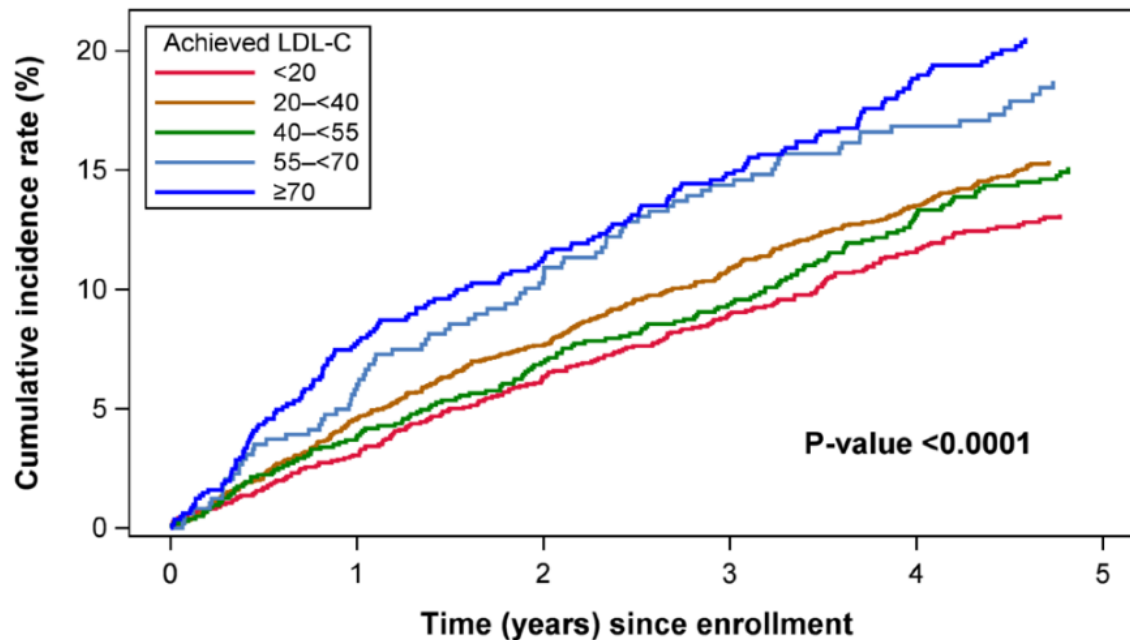


# EFFICACIA BASSI LIVELLI DI COLESTEROLO

Association Between Achieved Low-Density Lipoprotein Cholesterol Levels and Long-Term Cardiovascular and Safety Outcomes: An Analysis of FOURIER-OLE

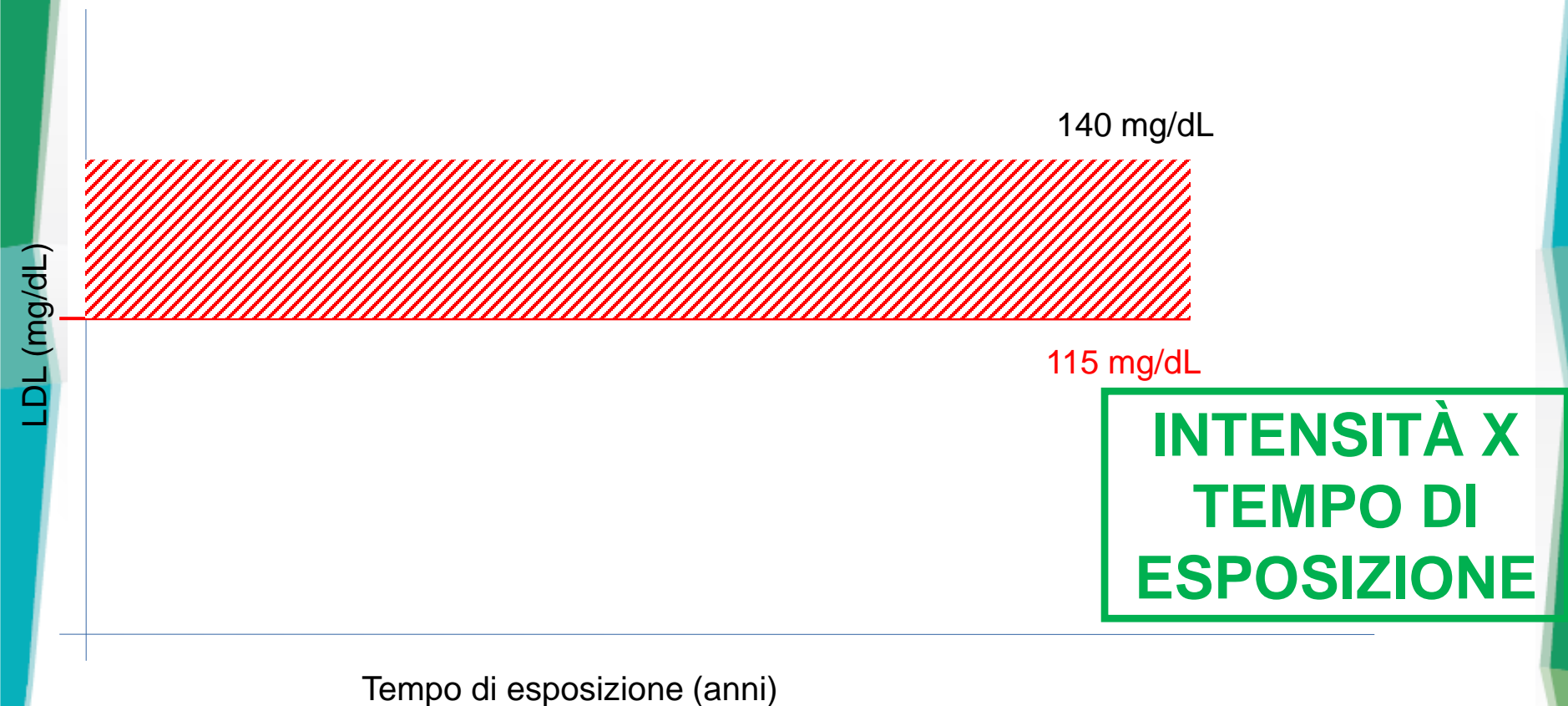
*Circulation.* 2023;147:1192–1203. DOI: 10.1161/CIRCULATIONAHA.122.063399

**CV death, MI, stroke, hospital admission for unstable angina or coronary revascularization**



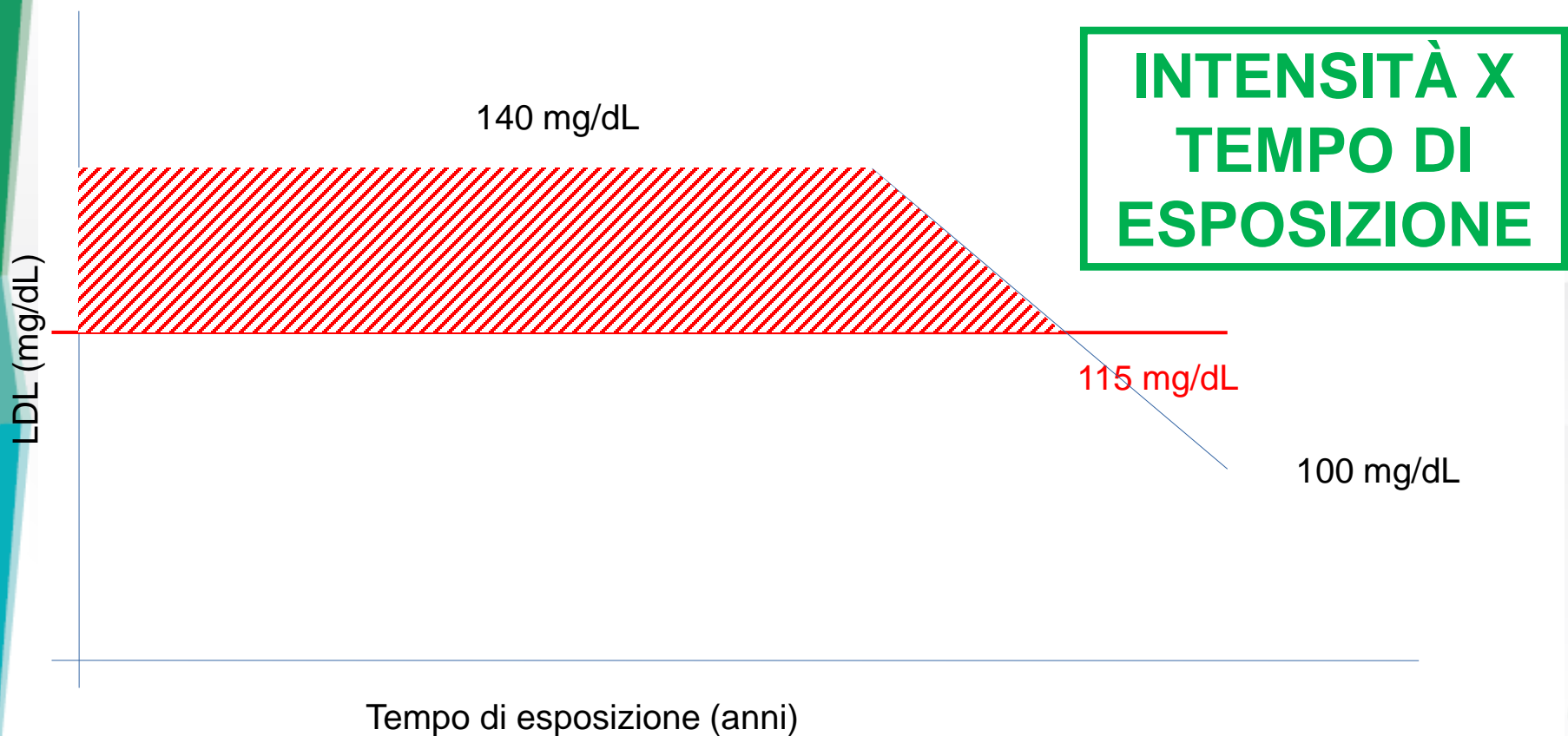


# CONCETTI CHIAVE PREVENZIONE CV



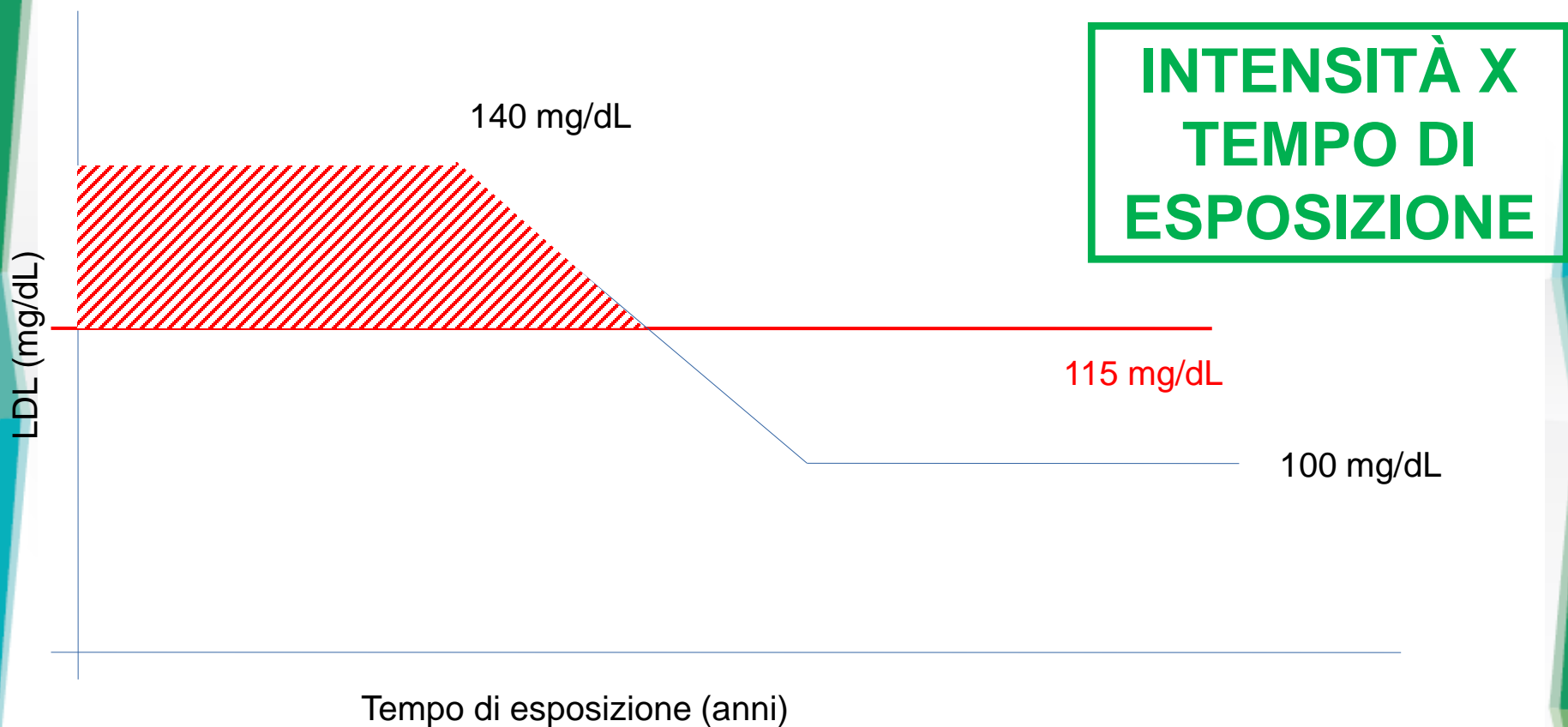


# CONCETTI CHIAVE PREVENZIONE CV





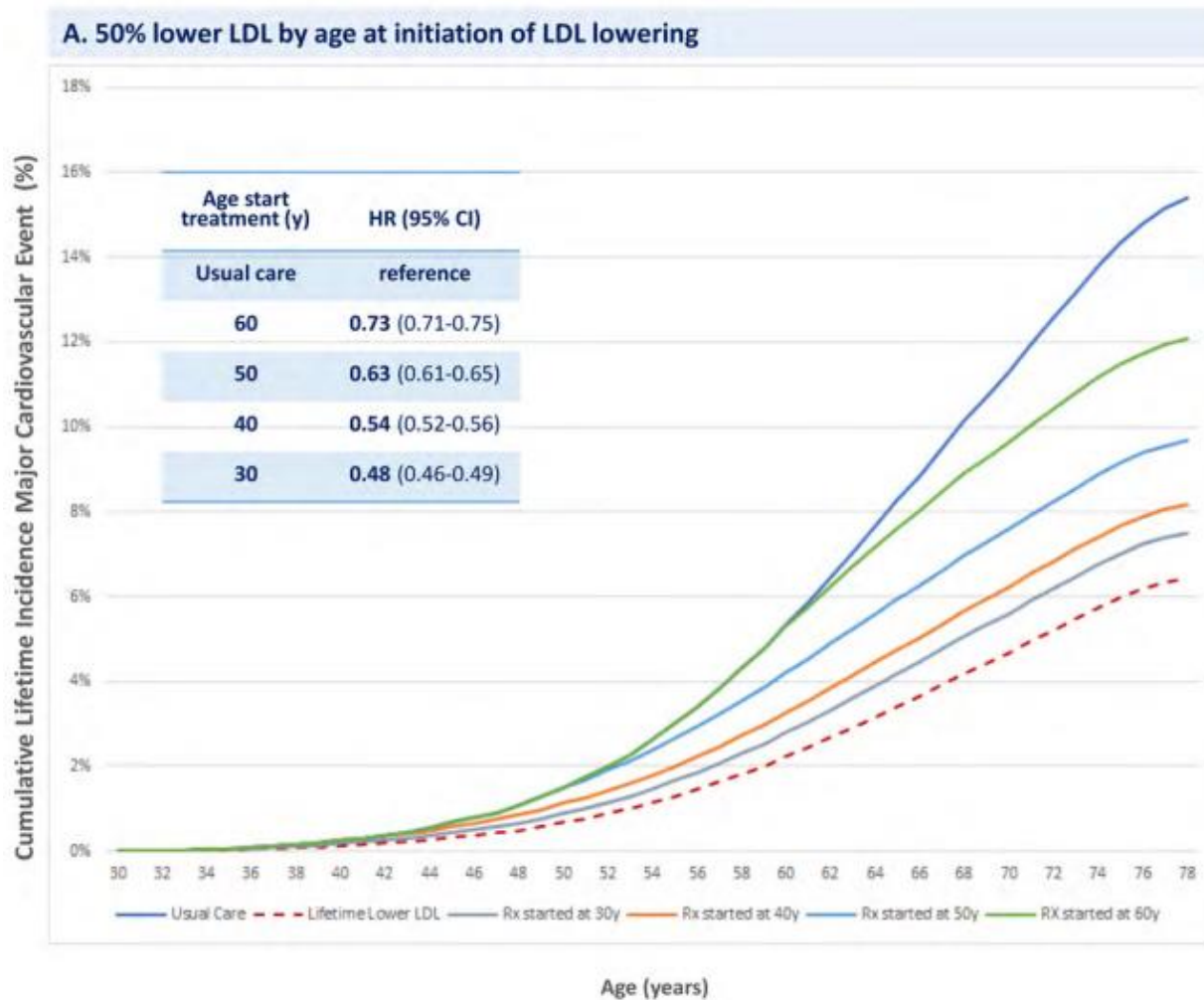
# CONCETTI CHIAVE PREVENZIONE CV





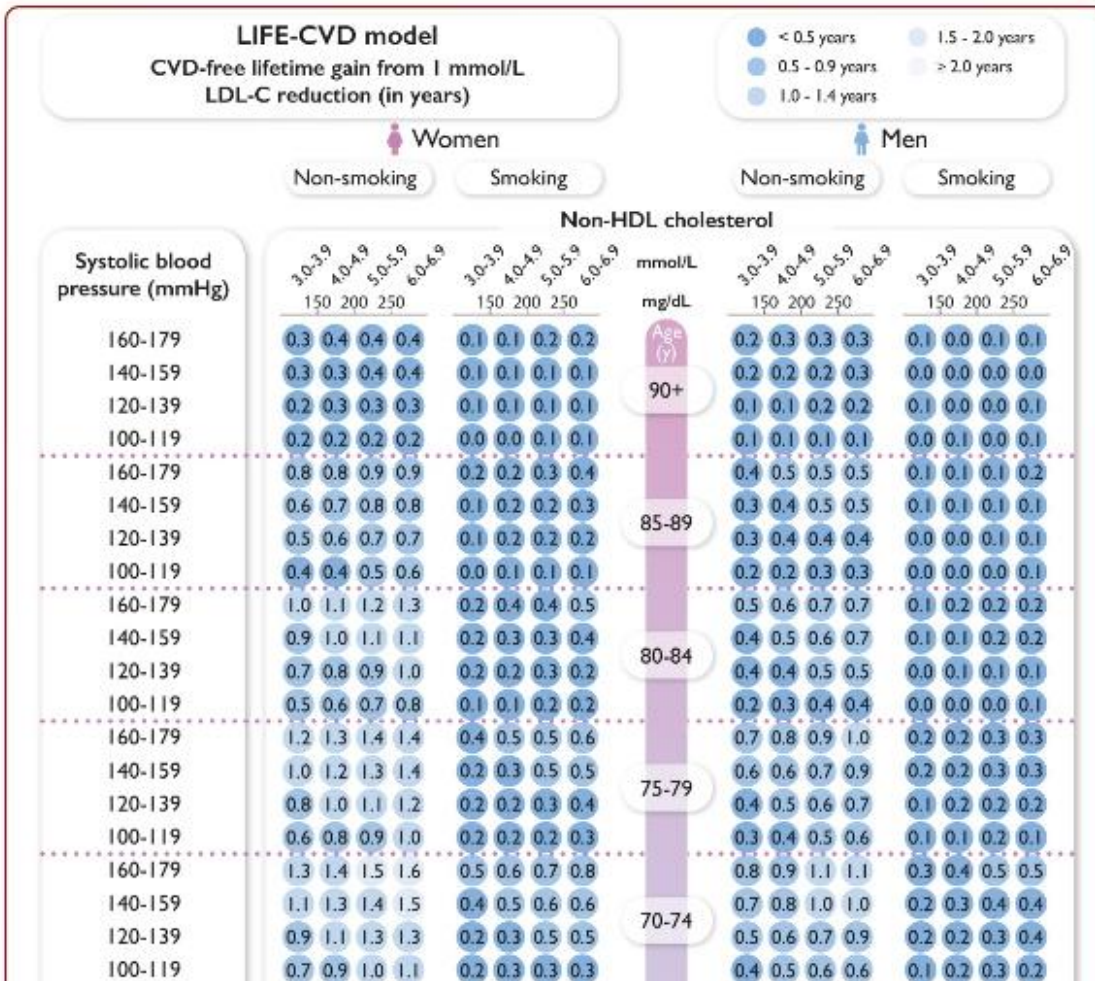


# CONCETTI CHIAVE PREVENZIONE CV





# CONCETTI CHIAVE PREVENZIONE CV



**Average years-free-of-cardiovascular disease gained per 1 mmol/L (40 mg/dL) LDL-C reduction in apparently healthy persons (1)**



# CONCETTI CHIAVE PREVENZIONE CV

160-179	1.3 1.5 1.6 1.7	0.6 0.7 0.9 0.9	65-69	0.9 1.1 1.2 1.3	0.5 0.5 0.7 0.7
140-159	1.2 1.4 1.5 1.6	0.5 0.6 0.7 0.7		0.8 1.0 1.0 1.1	0.4 0.5 0.5 0.6
120-139	1.0 1.2 1.4 1.5	0.3 0.5 0.5 0.6		0.6 0.8 0.8 1.0	0.3 0.4 0.4 0.4
100-119	0.9 1.0 1.2 1.3	0.3 0.4 0.4 0.6		0.5 0.7 0.7 0.8	0.3 0.4 0.5 0.4
160-179	1.4 1.6 1.7 1.8	0.6 0.8 0.9 1.1	60-64	1.1 1.2 1.4 1.4	0.6 0.7 0.9 0.9
140-159	1.3 1.4 1.6 1.7	0.5 0.7 0.8 0.9		0.8 1.0 1.2 1.2	0.5 0.6 0.7 0.8
120-139	1.1 1.3 1.5 1.6	0.4 0.5 0.7 0.7		0.7 0.8 1.0 1.1	0.4 0.5 0.6 0.6
100-119	0.9 1.0 1.2 1.3	0.3 0.4 0.4 0.6		0.5 0.7 0.7 0.8	0.3 0.4 0.5 0.4
160-179	1.5 1.7 1.8 1.9	0.8 1.0 1.1 1.2	55-59	1.1 1.3 1.4 1.6	0.8 0.9 1.0 1.1
140-159	1.3 1.6 1.7 1.8	0.6 0.8 0.9 1.1		0.9 1.1 1.3 1.4	0.6 0.7 0.8 0.9
120-139	1.1 1.3 1.5 1.6	0.5 0.6 0.8 0.8		0.7 0.9 1.1 1.2	0.4 0.6 0.7 0.8
100-119	0.9 1.1 1.3 1.4	0.4 0.4 0.6 0.6		0.6 0.6 0.8 0.9	0.3 0.5 0.5 0.6
160-179	1.5 1.7 1.8 1.9	0.9 1.0 1.3 1.4	50-54	1.2 1.4 1.5 1.6	0.9 1.0 1.2 1.3
140-159	1.4 1.5 1.8 1.9	0.7 0.9 1.1 1.1		1.0 1.2 1.3 1.5	0.7 0.8 0.9 1.1
120-139	1.2 1.4 1.6 1.7	0.6 0.7 0.8 0.9		0.8 1.0 1.1 1.2	0.6 0.7 0.7 0.8
140-159	0.9 1.1 1.3 1.5	0.4 0.5 0.6 0.7		0.6 0.7 0.9 1.0	0.4 0.5 0.6 0.6
100-119	1.5 1.7 1.9 2.0	0.9 1.1 1.3 1.4	45-49	1.2 1.4 1.6 1.6	0.9 1.1 1.3 1.4
120-139	1.4 1.5 1.7 1.8	0.8 0.9 1.1 1.2		1.0 1.2 1.4 1.5	0.7 0.9 1.1 1.2
160-179	1.2 1.4 1.6 1.7	0.6 0.7 0.9 0.9		0.8 1.0 1.1 1.3	0.6 0.7 0.9 0.9
100-119	0.9 1.2 1.4 1.5	0.5 0.6 0.7 0.8		0.6 0.8 0.9 1.0	0.5 0.6 0.6 0.8
160-179	1.6 1.7 1.9 2.0	0.9 1.1 1.3 1.4	40-44	1.3 1.4 1.6 1.7	0.9 1.2 1.4 1.5
140-159	1.4 1.5 1.7 1.8	0.8 0.9 1.1 1.2		1.0 1.2 1.4 1.5	0.8 0.9 1.1 1.3
120-139	1.2 1.4 1.6 1.7	0.6 0.8 0.9 1.0		0.8 1.0 1.1 1.3	0.6 0.8 0.9 1.0
100-119	1.0 1.2 1.4 1.5	0.5 0.6 0.7 0.8		0.6 0.8 0.9 1.0	0.5 0.6 0.7 0.8

**Average years-free-of-cardiovascular disease gained per 1 mmol/L (40 mg/dL) LDL-C reduction in apparently healthy persons (2)**



## CONCETTI CHIAVE PREVENZIONE CV

THE EARLIER

—

THE BETTER

THE LOWER

—

THE BETTER

**STRIKE FIRST**  
**STRIKE HARD**

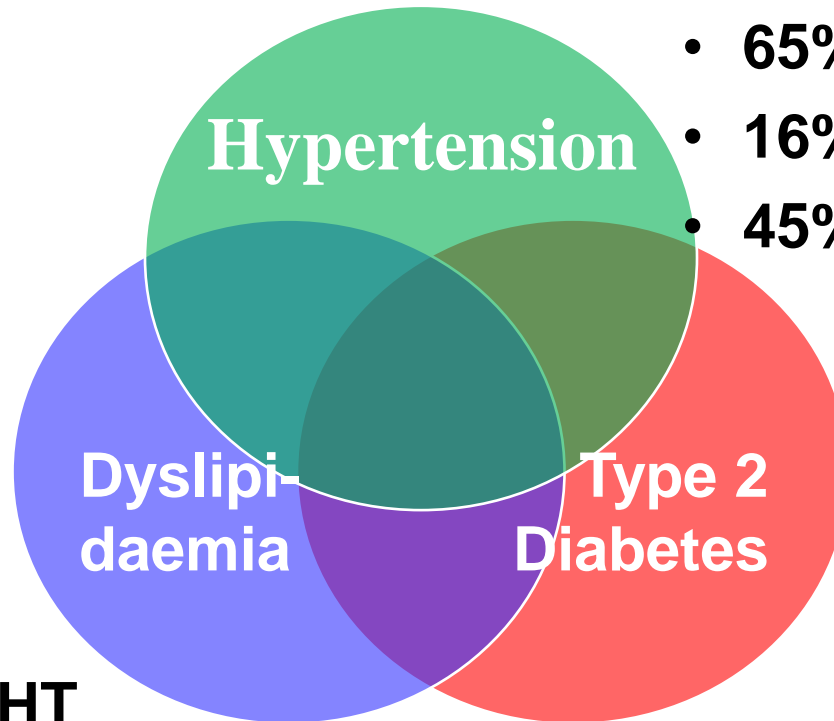
INTENSITÀ X  
TEMPO DI  
ESPOSIZIONE



# SINDROME METABOLICA

Criteria	OMS	NCEP-ATP III	IDF
Iperglicemia/Diabete	IGT, IFG, HbA1c $\geq 6,5\%$ o DMT2	$>110$ mg/dl o DMT2	$>100$ mg/dl o DMT2
Ipertensione	PA $\geq 140/90$ mmHg	PA $\geq 130/85$ mmHg	PA $\geq 130/85$ mmHg o terapia
Obesità addominale	WHR $>0,9$ M WHR $>0,85$ F e/o BMI $>30$ kg/m <sup>2</sup>	WC $\geq 102$ cm M WC $\geq 88$ cm F	Europei: WC $\geq 94$ cm M WC $\geq 80$ F
Profilo lipidico	TG $\geq 150$ mg/dl e/o HDL $<35$ mg/dl M HDL $<39$ mg/dl F	TG $\geq 150$ mg/dl e/o HDL $<40$ mg/dl M HDL $<50$ mg/dl F	TG $\geq 150$ mg/dl e/o HDL $<40$ mg/dl M HDL $<50$ mg/dl F
Altro	Microalbuminuria		

# SINDROME METABOLICA



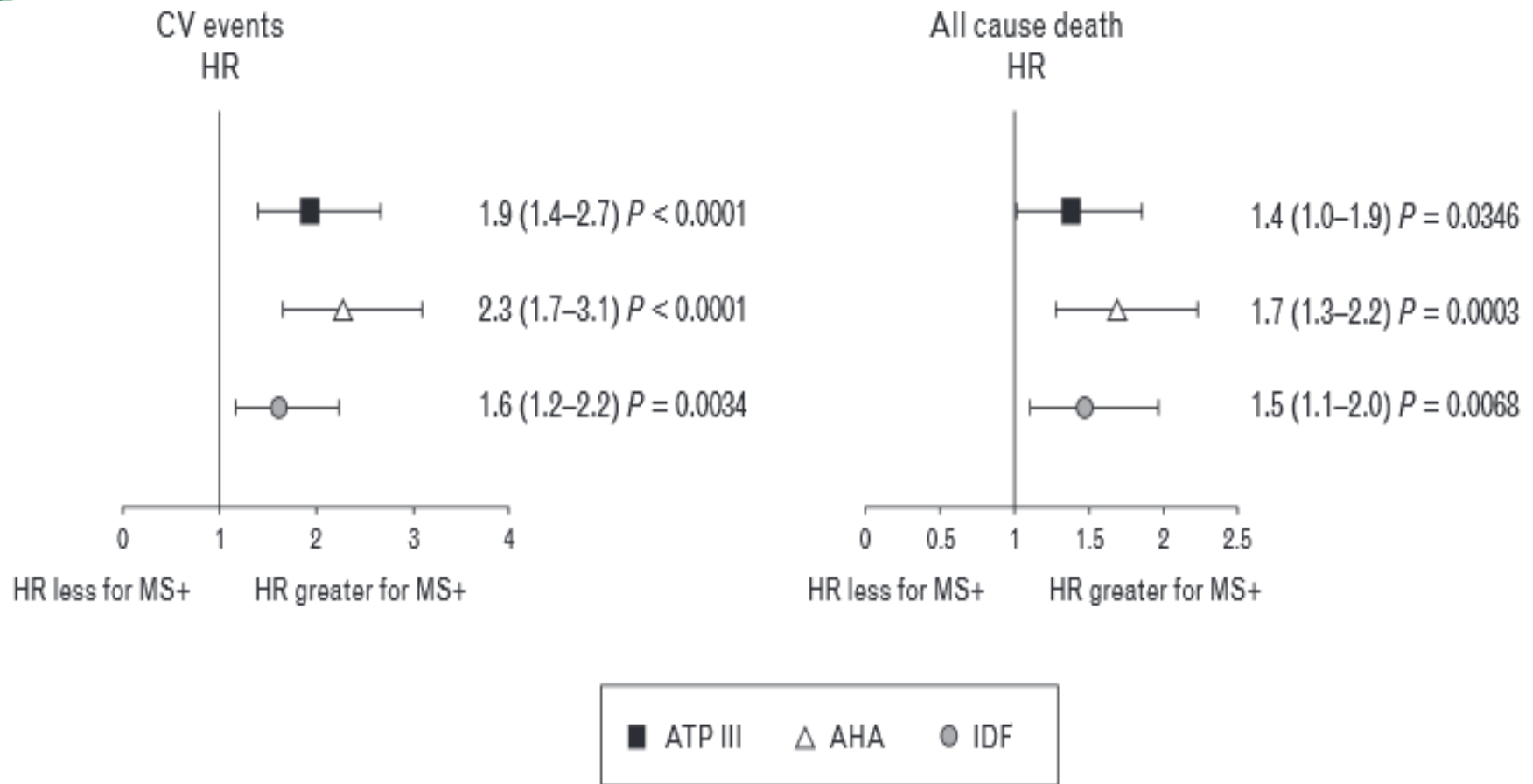
- 65% have dyslipidaemia
- 16% have DM
- 45% are overweight/ obese

- 48% have HT
- 14% have DM
- 35% are overweight/ obese

- 60% have HT
- 60% have hyperlipidemia
- 90% are overweight/ obese

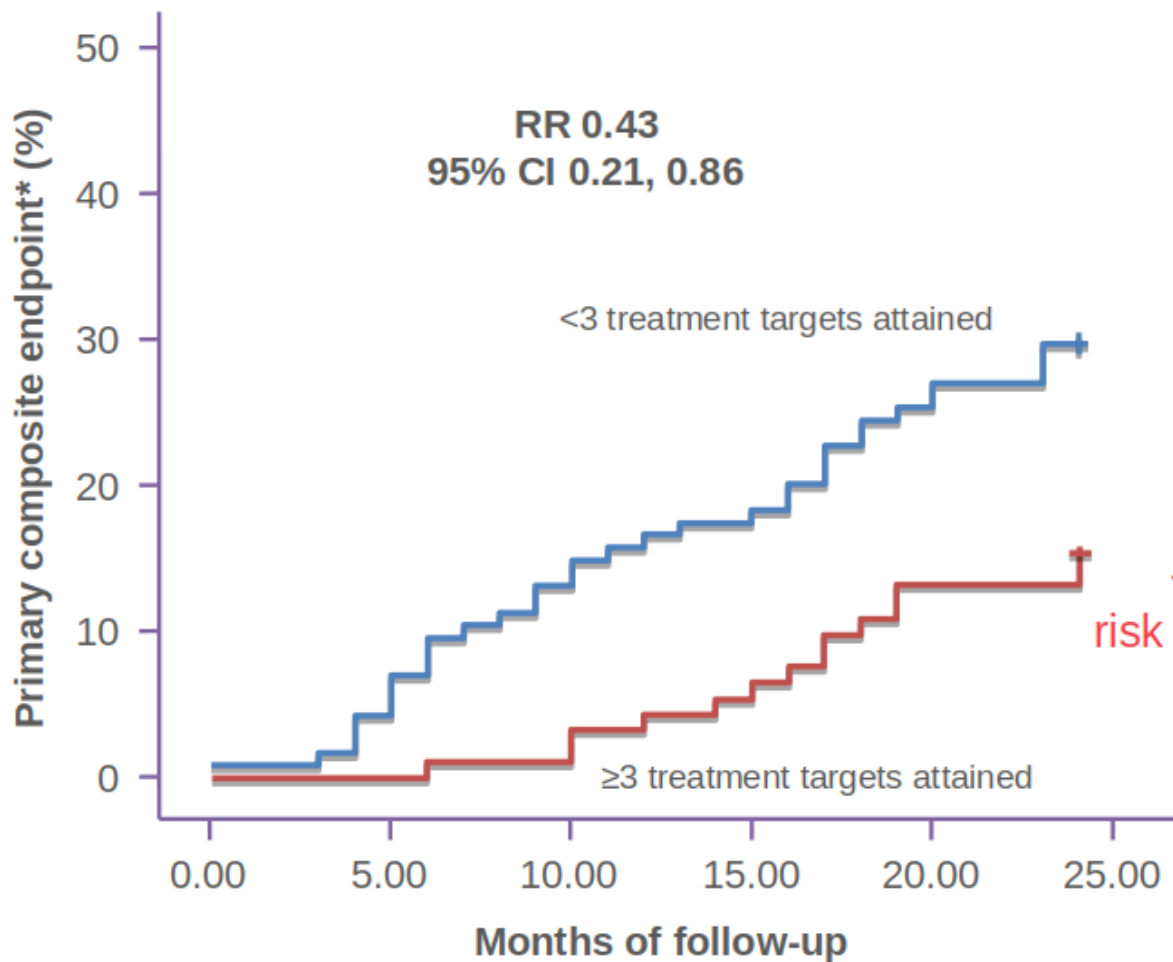


# SINDROME METABOLICA





# SINDROME METABOLICA



## Predefined protocol and targets

- HbA1c <7%
- BP <130/80mmHg
- LDL-C <2.6 mM (100 mg/dL)
- Triglyceride <2 mM (177 mg/dL)
- Persistence with RAS inhibitors



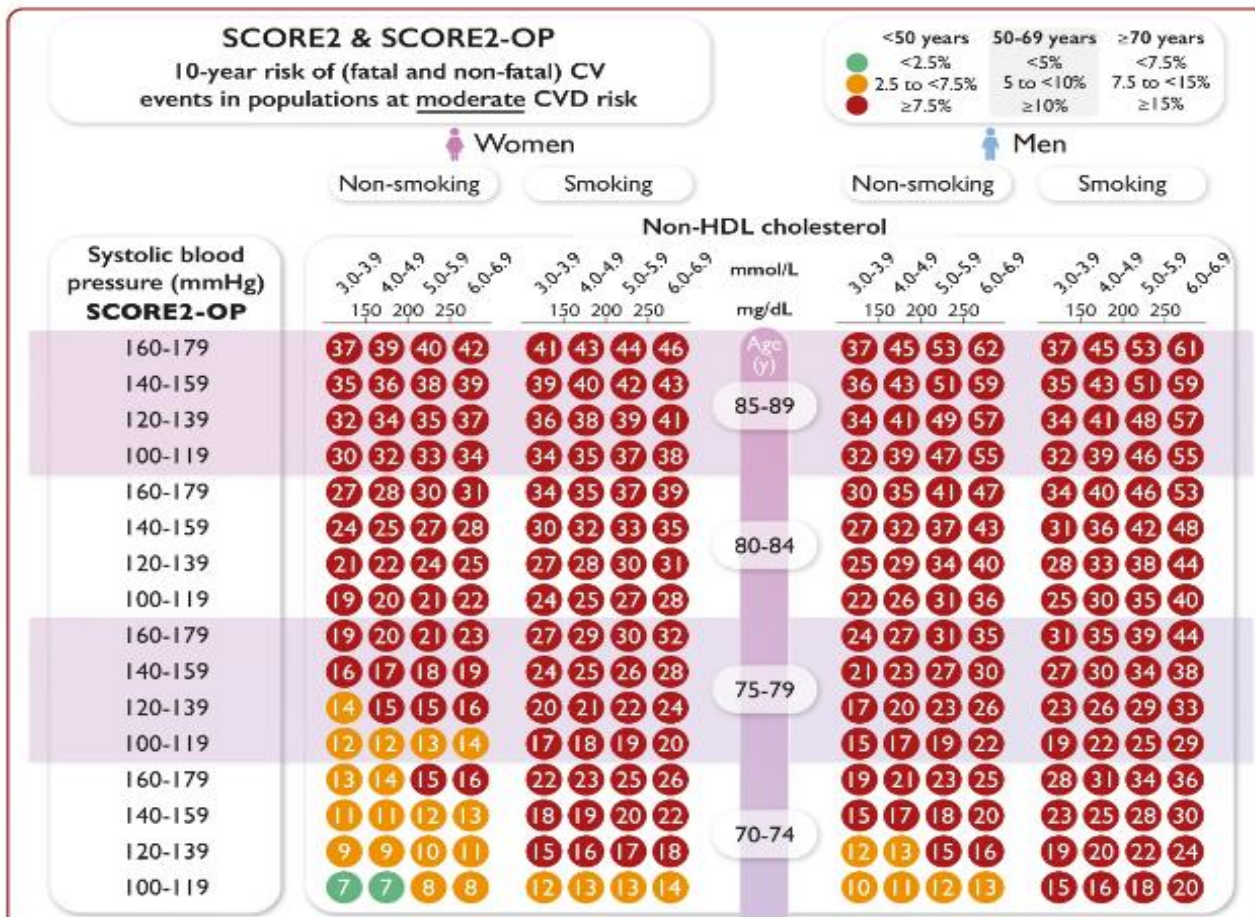
~60%  
risk reduction

**TRATTARE  
TUTTO!!!**





# IDENTIFICARE IL RISCHIO CV: PRIMARIA



**SCORE2 and SCORE2-OP risk chart for fatal and non-fatal (MI, stroke) ASCVD**

**Moderate CVD Risk (1)**





# IDENTIFICARE IL RISCHIO CV: PRIMARIA

## SCORE2

160-179	10 10 11 12	15 16 17 18	14 15 17 18	20 22 23 25
140-159	8 9 9 9	13 13 14 15	12 13 14 15	17 18 20 21
120-139	7 7 7 8	10 11 12 12	10 11 12 13	14 15 17 18
100-119	5 6 6 6	9 9 9 10	8 9 10 10	12 13 14 15
160-179	7 8 8 9	12 13 14 15	11 12 13 15	17 18 20 22
140-159	6 6 7 7	10 11 11 12	9 10 11 12	14 15 17 18
120-139	5 5 5 6	8 9 9 10	7 8 9 10	11 13 14 15
100-119	4 4 4 5	6 7 7 8	6 7 7 8	9 10 11 12
160-179	5 6 6 7	10 11 11 12	9 10 11 12	14 16 17 20
140-159	4 4 5 5	8 8 9 10	7 8 9 10	11 13 14 16
120-139	3 3 4 4	6 7 7 8	5 6 7 8	9 10 11 13
100-119	3 3 3 3	5 5 6 6	4 5 6 6	7 8 9 10
160-179	4 4 5 5	8 8 9 10	7 8 9 10	11 13 15 17
140-159	3 3 4 4	6 6 7 8	5 6 7 8	9 10 12 14
120-139	2 2 3 3	5 5 6 6	4 5 5 6	7 8 9 11
100-119	2 2 2 2	3 4 4 5	3 4 4 5	5 6 7 8
160-179	3 3 3 4	6 7 8 9	5 6 7 8	9 11 13 15
140-159	2 2 3 3	5 5 6 6	4 5 5 6	7 8 10 12
120-139	2 2 2 2	3 4 4 5	3 4 4 5	5 7 8 9
100-119	1 1 1 2	3 3 3 4	2 3 3 4	4 5 6 7
160-179	2 2 3 3	5 5 6 7	4 5 6 7	8 9 11 13
140-159	1 2 2 2	3 4 5 5	3 4 4 5	6 7 8 10
120-139	1 1 1 2	3 3 3 4	2 3 3 4	4 5 6 8
100-119	1 1 1 1	2 2 2 3	2 2 2 3	3 4 5 6

65-69

60-64

55-59

50-54

45-49

40-44



**SCORE2 and SCORE2-OP  
risk chart for fatal and  
non-fatal (MI, stroke)  
ASCVD  
Moderate CVD Risk (2)**



# IDENTIFICARE IL RISCHIO CV: PRIMARIA

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High normal SBP 130-139 DBP 85-89	Grade 1 SBP 140-159 DBP 90-99	Grade 2 SBP 160-179 DBP 100-109	Grade 3 SBP $\geq$ 180 or DBP $\geq$ 110
Stage 1 (uncomplicated)	No other risk factors	Low risk	Low risk	Moderate risk	High risk
	1 or 2 risk factors	Low risk	Moderate risk	Moderate to high risk	High risk
	$\geq$ 3 risk factors	Low to Moderate risk	Moderate to high risk	High Risk	High risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade 3, or diabetes mellitus without organ damage	Moderate to high risk	High risk	High risk	High to very high risk
Stage 3 (established disease)	Established CVD, CKD grade $\geq$ 4, or diabetes mellitus with organ damage	Very high risk	Very high risk	Very high risk	Very high risk



# IDENTIFICARE IL RISCHIO CV: PRIMARIA

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High normal SBP 130-139 DBP 85-89	Grade 1 SBP 140-159 DBP 90-99	Grade 2 SBP 160-179 DBP 100-109	Grade 3 SBP $\geq$ 180 or DBP $\geq$ 110
Stage 1 (uncomplicated)	No other risk factors	Low risk	Low risk	Moderate risk	High risk
	1 or 2 risk factors	Low risk	Moderate risk	Moderate to high risk	High risk
	$\geq$ 3 risk factors	Low to Moderate risk	Moderate to high risk	High Risk	High risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade $\geq$ 3, or diabetes mellitus without organ damage	Moderate to high risk	High risk	High risk	High to very high risk
Stage 3 (established disease)	Established CVD, CKD grade $\geq$ 4, or diabetes mellitus with organ damage	Very high risk	Very high risk	Very high risk	Very high risk



# HMOD

**TABLE 9. Assessment of hypertension-mediated organ damage (HMOD)<sup>a</sup>**

<b>Basic screening tests for HMOD recommended for all hypertensive patients</b>	<b>Aim</b>
12 lead ECG	Measure HR and AV conduction, detect cardiac arrhythmias, myocardial ischemia and infarction, screen for LVH
Urine albumin : creatinine ratio (UACR)	Detect and classify CKD
Serum creatinine and eGFR	Detect and classify CKD
<b>Extended screening for HMOD</b>	
Echocardiography	Evaluate structure and function of the ventricles and left atrium, detect valvular disease, aortic root diameter and ascending aortic aneurysm
cfPWV or baPWV	Evaluate aortic/large artery stiffness
Carotid artery ultrasound	Determine carotid intima-media thickness, plaque and stenosis
Coronary artery calcium scan	Determine the presence and extent of coronary calcium to predict CAD events
Abdominal aorta ultrasound	Screen for aortic aneurysm
Kidney ultrasound	Evaluate size and structure of kidney, detect renovascular disease, determine RRI (by spectral doppler ultrasonography)
Spectral doppler ultrasonography	Diagnosis of renovascular disease and determination of RRI
ABI	Screen for LEAD
Retina microvasculature	Detect microvascular changes
Cognitive function testing (MMSE, MoCA)	Screen for early stages of dementia
Brain imaging (CT, MRI)	Detect structural brain damage



# HMOD

**TABLE 9. Assessment of hypertension-mediated organ damage (HMOD)<sup>a</sup>**

<b>Basic screening tests for HMOD recommended for all hypertensive patients</b>	<b>Aim</b>
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Urine albumin : creatinine ratio (UACR)	Detect and classify CKD
Serum creatinine and eGFR	Detect and classify CKD
<b>Extended screening for HMOD</b>	
Echocardiography	Evaluate structure and function of the ventricles and left atrium, detect valvular disease, aortic root diameter and ascending aortic aneurysm
cfPWV or baPWV	Evaluate aortic/large artery stiffness
Carotid artery ultrasound	Determine carotid intima-media thickness, plaque and stenosis
Coronary artery calcium scan	Determine the presence and extent of coronary calcium to predict CAD events
Abdominal aorta ultrasound	Screen for aortic aneurysm
Kidney ultrasound	Evaluate size and structure of kidney, detect renovascular disease, determine RRI (by spectral doppler ultrasonography)
Spectral doppler ultrasonography	Diagnosis of renovascular disease and determination of RRI
ABI	Screen for LEAD
Retina microvasculature	Detect microvascular changes
Cognitive function testing (MMSE, MoCA)	Screen for early stages of dementia
Brain imaging (CT, MRI)	Detect structural brain damage



# IDENTIFICARE IL RISCHIO CV: PRIMARIA

<p><b>Very high risk</b></p>	<p><b>People with any of the following:</b>  <b>Documented CVD, either clinical or unequivocal on imaging.</b></p> <ul style="list-style-type: none"> <li>• <b>Clinical CVD</b> includes; acute myocardial infarction, acute coronary syndrome, coronary or other arterial revascularization, stroke, TIA, aortic aneurysm, PAD.</li> <li>• <b>Unequivocal documented CVD on imaging</b> includes: significant plaque (i.e. <math>\geq 50\%</math> stenosis) on angiography or ultrasound. It does not include increase in carotid intima-media thickness.</li> </ul> <p><b>Diabetes mellitus with target organ damage</b>, e.g. proteinuria or a with a major risk factor such as</p> <p><b>Severe CKD (eGFR <math>&lt; 30</math> mL/min/1.73 m<sup>2</sup>)</b></p>
<p><b>High risk</b></p>	<p><b>People with any of the following:</b>  <b>Marked elevation of a single risk factor</b>, particularly cholesterol <math>&gt; 8</math> mmol/L (<math>&gt; 310</math> mg/dL) e.g. familial hypercholesterolaemia, grade 3 hypertension (BP <math>\geq 180/110</math> mmHg)  <b>Most other people with diabetes mellitus</b> (except some young people with type 1 diabetes mellitus and without major risk factors, that may be moderate risk)</p> <p><b>Moderate CKD eGFR 30–59 mL/min/1.73 m<sup>2</sup>)</b></p>
<p><b>Moderate risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of 1% to <math>&lt; 5\%</math></b>  <b>Grade 2 hypertension</b>  <b>Many middle-aged people</b> belong to this category</p>
<p><b>Low risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of <math>&lt; 1\%</math></b></p>



# IDENTIFICARE IL RISCHIO CV: SECONDARIA

Hypertension disease staging	Other risk factors, HMOD, or disease	BP (mmHg) grading			
		High normal SBP 130-139 DBP 85-89	Grade 1 SBP 140-159 DBP 90-99	Grade 2 SBP 160-179 DBP 100-109	Grade 3 SBP ≥180 or DBP ≥110
Stage 1 (uncomplicated)	No other risk factors	Low risk	Low risk	Moderate risk	High risk
	1 or 2 risk factors	Low risk	Moderate risk	Moderate to high risk	High risk
	≥3 risk factors	Low to Moderate risk	Moderate to high risk	High Risk	High risk
Stage 2 (asymptomatic disease)	HMOD, CKD grade 3, or diabetes mellitus without organ damage	Moderate to high risk	High risk	High risk	High to very high risk
Stage 3 (established disease)	<b>Established CVD,</b> CKD grade ≥4, or diabetes mellitus with organ damage	Very high risk	Very high risk	Very high risk	Very high risk





# IDENTIFICARE IL RISCHIO CV: SECONDARIA

<p><b>Very high risk</b></p>	<p><b>People with any of the following:</b></p> <p><b>Documented CVD</b>, either clinical or confirmed on imaging</p> <p><b>Clinical CVD</b> includes; acute myocardial infarction, acute coronary syndrome, coronary or other arterial revascularization, stroke, TIA, aortic aneurysm, PAD.</p> <p><b>Unequivocal documented CVD on imaging</b> includes; significant plaque (not <math>\geq 50\%</math> stenosis) on angiography or ultrasound. It does not include increase in carotid intima-media thickness.</p> <p><b>Diabetes mellitus with target organ damage</b>, e.g. proteinuria or a with a major risk factor such as grade 3 hypertension or hypercholesterolaemia</p> <p><b>Severe CKD</b> (eGFR <math>&lt; 30</math> mL/min/1.73 m<sup>2</sup>)</p> <p><b>A calculated 10-year SCORE of <math>\geq 10\%</math></b></p>
<p><b>High risk</b></p>	<p><b>People with any of the following:</b></p> <p><b>Marked elevation of a single risk factor</b>, particularly cholesterol <math>&gt; 8</math> mmol/L (<math>&gt; 310</math> mg/dL) e.g. familial hypercholesterolaemia, grade 3 hypertension (BP <math>\geq 180/110</math> mmHg)</p> <p><b>Most other people with diabetes mellitus</b> (except some young people with type 1 diabetes mellitus and without major risk factors, that may be moderate risk)</p> <p><b>Hypertensive LVH</b></p> <p><b>Moderate CKD</b> eGFR <b>30–59 mL/min/1.73 m<sup>2</sup></b>)</p> <p><b>A calculated 10-year SCORE of 5–10%</b></p>
<p><b>Moderate risk</b></p>	<p><b>People with:</b></p> <p><b>A calculated 10-year SCORE of 1% to <math>&lt; 5\%</math></b></p> <p><b>Grade 2 hypertension</b></p> <p><b>Many middle-aged people</b> belong to this category</p>
<p><b>Low risk</b></p>	<p><b>People with:</b></p> <p><b>A calculated 10-year SCORE of <math>&lt; 1\%</math></b></p>



# IDENTIFICARE IL RISCHIO CV: SECONDARIA

<p><b>Very high risk</b></p>	<p><b>People with any of the following:</b>  <b>Documented CVD, either clinical or unequivocal on imaging.</b></p> <ul style="list-style-type: none"> <li><b>Clinical CVD</b> includes; acute myocardial infarction, acute coronary syndrome, coronary or other arterial disease, stroke, TIA, angina, PAD</li> <li><b>Unequivocal documented CVD on imaging</b> includes: significant plaque (i.e. <math>\geq 50\%</math> stenosis) on angiography or ultrasound. It does not include increase in carotid intima-media thickness.</li> </ul> <p><b>Diabetes mellitus with target organ damage</b>, e.g. proteinuria or a with a major risk factor such as grade 3 hypertension or hypercholesterolaemia</p> <p><b>Severe CKD</b> (eGFR <math>&lt; 30</math> mL/min/1.73 m<sup>2</sup>)</p> <p><b>A calculated 10-year SCORE of <math>\geq 10\%</math></b></p>
<p><b>High risk</b></p>	<p><b>People with any of the following:</b>  <b>Marked elevation of a single risk factor</b>, particularly cholesterol <math>&gt; 8</math> mmol/L (<math>&gt; 310</math> mg/dL) e.g. familial hypercholesterolaemia, grade 3 hypertension (BP <math>\geq 180/110</math> mmHg)  <b>Most other people with diabetes mellitus</b> (except some young people with type 1 diabetes mellitus and without major risk factors, that may be moderate risk)  <b>Hypertensive LVH</b>  <b>Moderate CKD</b> eGFR <b>30–59 mL/min/1.73 m<sup>2</sup></b>  <b>A calculated 10-year SCORE of 5–10%</b></p>
<p><b>Moderate risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of 1% to <math>&lt; 5\%</math></b>  <b>Grade 2 hypertension</b>  <b>Many middle-aged people</b> belong to this category</p>
<p><b>Low risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of <math>&lt; 1\%</math></b></p>

# DEFINIZIONE DEL RISCHIO CV GLOBALE



ESC

European Society  
of Cardiology

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## Extreme cardiovascular risk—do we need a new risk category?

Krzysztof Dyrbus <sup>1,2</sup>, Mariusz Gašior<sup>1,2</sup>, Peter E. Penson <sup>3,4</sup>, and Maciej Banach <sup>5,6,7\*</sup>

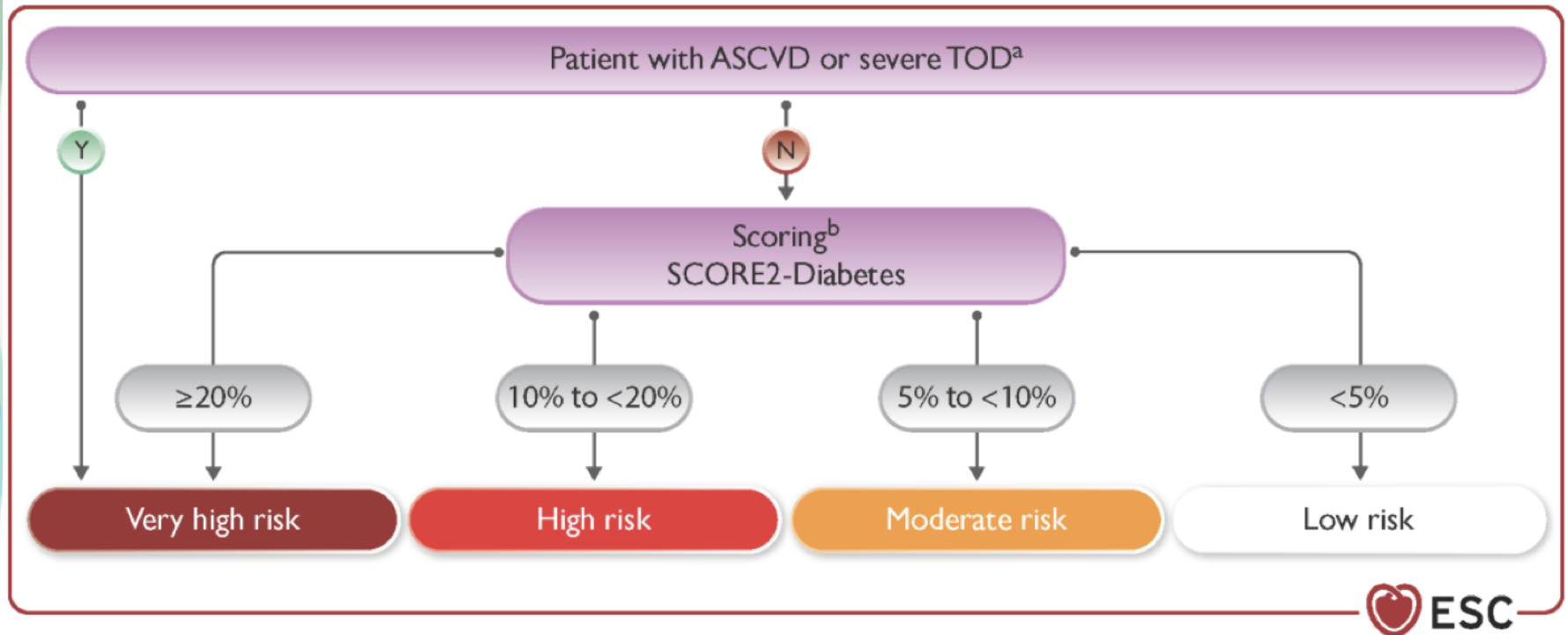
1. In primary prevention with a (Pol)SCORE of >20% (e.g. a 60-year-old man with smoking, systolic blood pressure >160 mmHg, and total cholesterol 6 mmol/L)<sup>a</sup>
2. A history of ACS and other vascular events within the last 2 years
3. After ACS with peripheral vascular disease or polyvascular disease
4. After ACS with concomitant multivessel coronary artery disease
5. After ACS with familial hypercholesterolaemia
6. After ACS with diabetes and at least one additional risk factor [elevated Lp(a) >50 mg/dL or hsCRP >3 mg/L or chronic kidney disease (eGFR <60 mL/min/1.73 m<sup>2</sup>)]



## IDENTIFICARE IL RISCHIO CV: DM

<p><b>Very high risk</b></p>	<p><b>People with any of the following:</b>  <b>Documented CVD, either clinical or unequivocal on imaging.</b></p> <ul style="list-style-type: none"> <li>• <b>Clinical CVD</b> includes; acute myocardial infarction, acute coronary syndrome, coronary or other arterial revascularization, stroke, TIA, aortic aneurysm, PAD.</li> <li>• <b>Unequivocal documented CVD on imaging</b> includes: significant plaque (i.e. <math>\geq 50\%</math> stenosis)</li> </ul> <p><b>Diabetes mellitus with target organ damage</b>, e.g. proteinuria or a with a major risk factor such as grade 3 hypertension or hypercholesterolaemia</p> <p><b>Severe CKD (eGFR <math>&lt; 30</math> mL/min/1.73 m<sup>2</sup>)</b></p> <p><b>A calculated 10-year SCORE of <math>\geq 10\%</math></b></p>
<p><b>High risk</b></p>	<p><b>People with any of the following:</b>  <b>Marked elevation of a single risk factor</b>, particularly cholesterol <math>&gt; 8</math> mmol/L (<math>&gt; 310</math> mg/dL)</p> <p><b>Most other people with diabetes mellitus</b> (except some young people with type 1 diabetes mellitus and without major risk factors, that may be moderate risk)</p> <p><b>Hypertensive LVH</b></p> <p><b>Moderate CKD eGFR 30–59 mL/min/1.73 m<sup>2</sup>)</b></p> <p><b>A calculated 10-year SCORE of 5–10%</b></p>
<p><b>Moderate risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of 1% to <math>&lt; 5\%</math></b>  <b>Grade 2 hypertension</b>  <b>Many middle-aged people</b> belong to this category</p>
<p><b>Low risk</b></p>	<p><b>People with:</b>  <b>A calculated 10-year SCORE of <math>&lt; 1\%</math></b></p>

## DEFINIZIONE DEL RISCHIO CV



- i) eGFR inferiore a 45 mL/min/1.73 m<sup>2</sup> indipendentemente dalla presenza di albuminuria
- ii) eGFR tra 45 e 59 mL/min/1.73 m<sup>2</sup> e microalbuminuria (rapporto albumina/creatinina urinaria [UACR] compreso tra 30 e 300 mg/g; stadio A2)
- iii) Proteinuria (UACR > 300 mg/g; stadio A3),
- iv) Presenza di malattia microvascolare in almeno tre siti diversi (renitopatia, neuropatia, microalbuminuria)



## TERAPIA: MITIGAZIONE DEL RISCHIO CV

- Fumo
- Obesità
- Inattività fisica
- Ipertensione arteriosa
- Diabete Mellito
- Dislipidemia

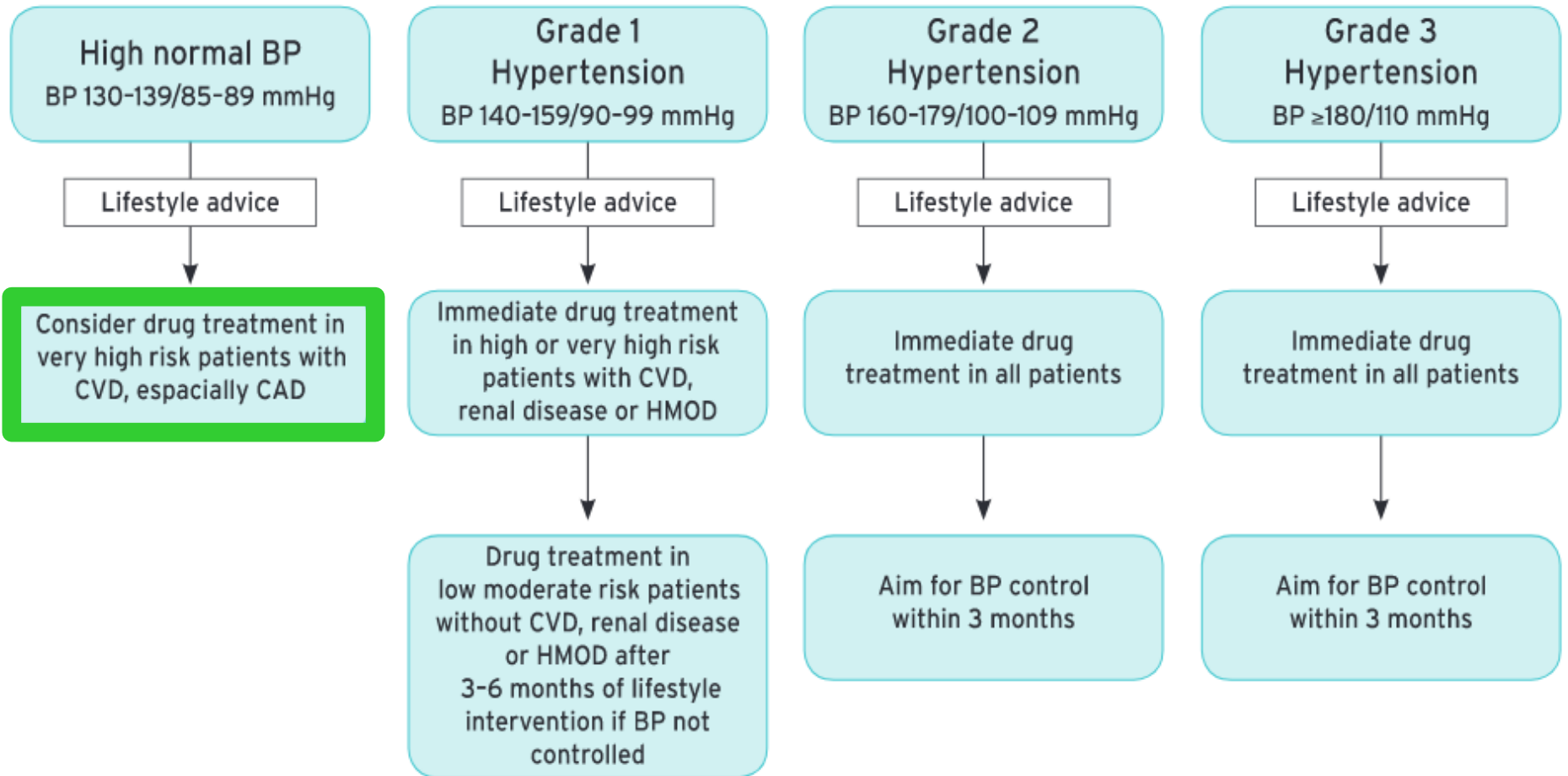


## TERAPIA: MITIGAZIONE DEL RISCHIO CV

- Fumo → **STOP**
- Obesità → **-10% in 1 anno**
- Inattività fisica → **Esercizio fisico**
- Ipertensione arteriosa
- Diabete Mellito
- Dislipidemia



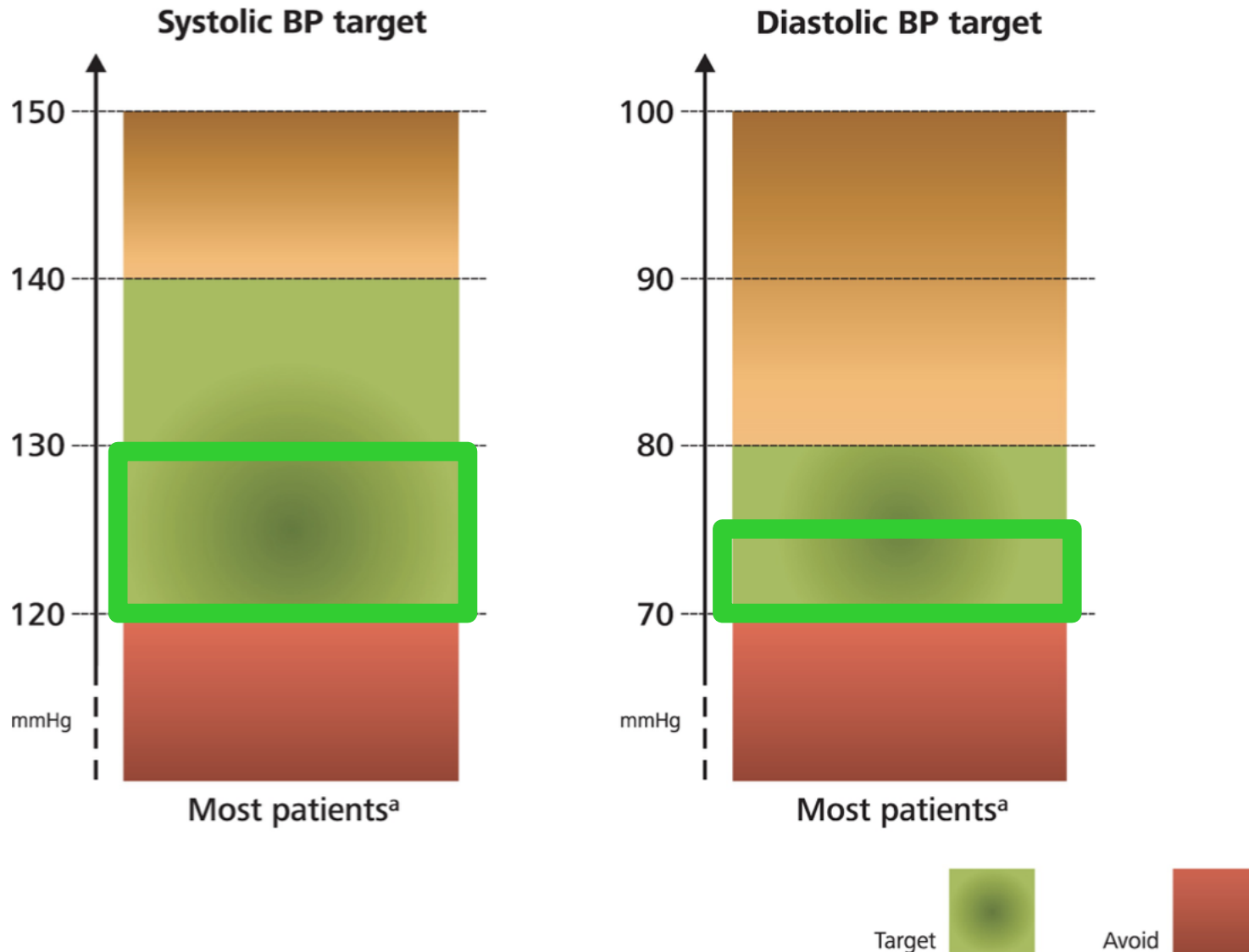
# IPERTENSIONE ARTERIOSA







# IPERTENSIONE ARTERIOSA





# DISLIPIDEMIA

## European Treatment goals for LDL-C across categories of total cardiovascular disease risk

LDL-C goal +  $\geq 50\%$   
reduction from baseline

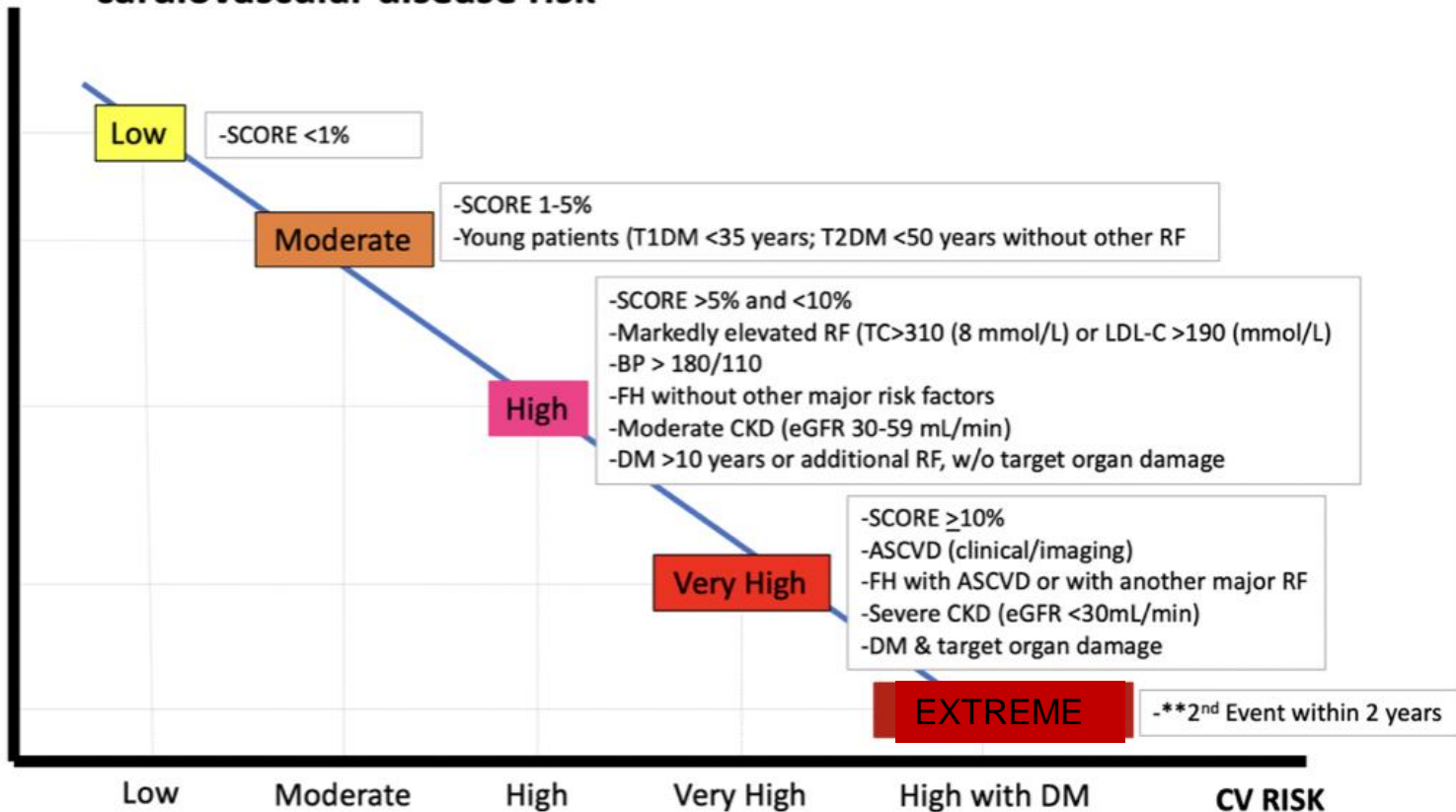
116 mg/dL  
(3.0 mmol/L)

100 mg/dL  
(2.6 mmol/L)

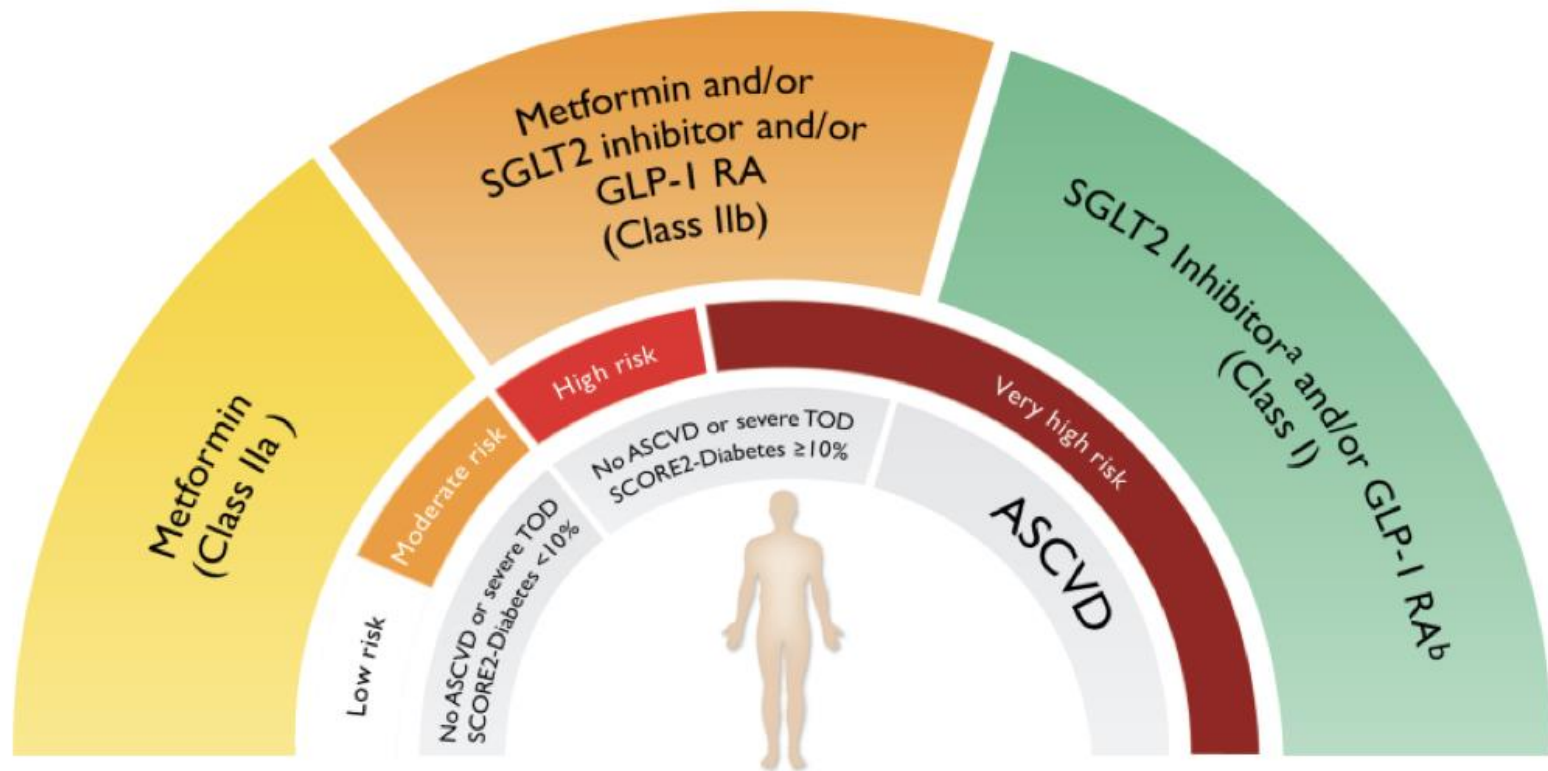
70 mg/dL  
(1.8 mmol/L)

55 mg/dL  
(1.4 mmol/L)

40 mg/dL  
(1.0 mmol/L)



# DIABETE MELLITO



Risk assessment for patients with type 2 diabetes based on the presence of ASCVD/severe TOD and 10-year CVD risk estimation via SCORE2-Diabetes

