

PREVENZIONE CARDIOVASCOLARE

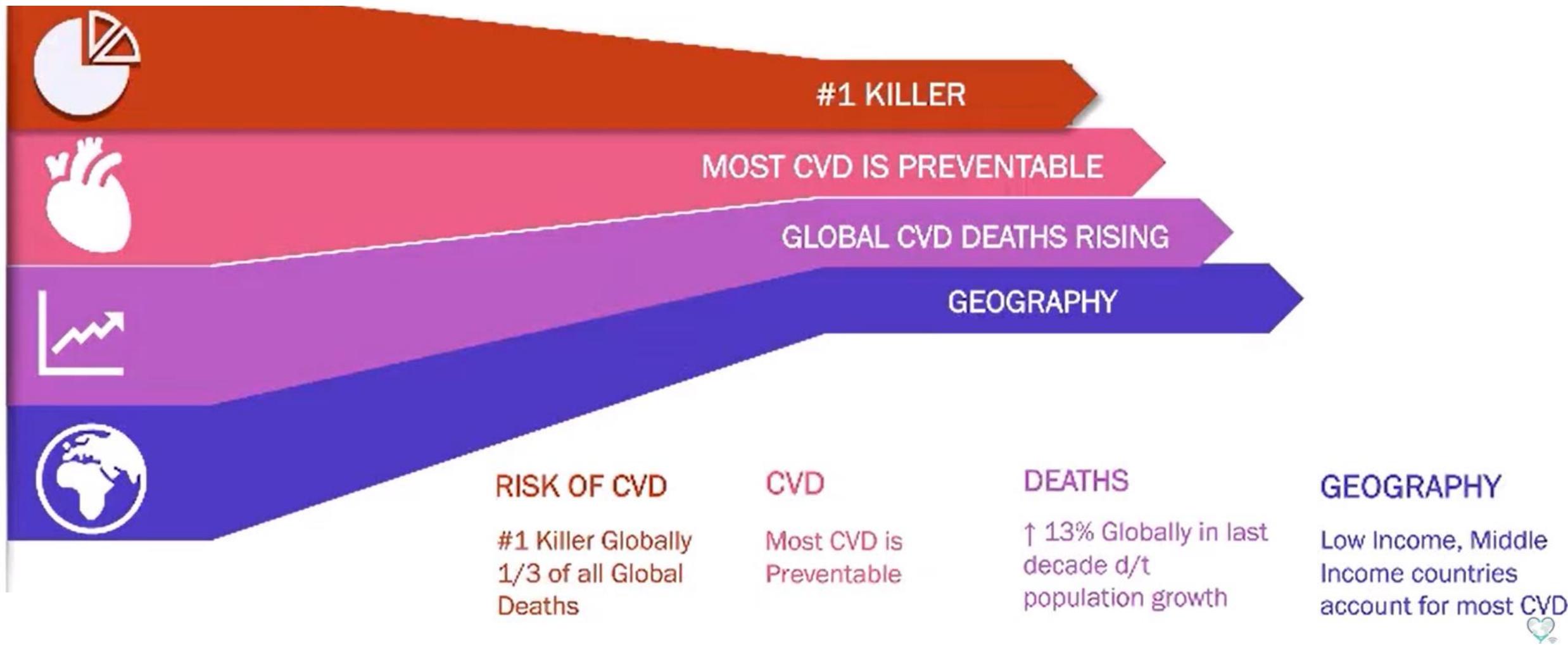
cosa c'è di nuovo?

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Epidemiologia delle malattie cardiovascolari



Epidemiologia delle malattie cardiovascolari



Cause di decesso in italia

Cause di morte (Ordinamento secondo il numero dei decessi nel 2014)	2003			2014			Variazione rango 2003-2014	Variazione % tasso 2003-2014		
	Rango	Numero decessi	% su totale	Tasso	Rango	Numero decessi	% su totale	Tasso		
Malattie ischemiche del cuore	1	82.059	13,9	15,6	1	69.653	11,6	9,8	...	-37,2
Malattie cerebrovascolari	2	68.927	11,7	13,4	2	57.230	9,6	8,0	...	-40,5
Altre malattie del cuore	3	51.017	8,7	10,1	3	49.554	8,3	7,0	...	-30,5
Tumori maligni di trachea, bronchi e polmoni	4	32.264	5,5	5,7	4	33.386	5,6	4,9	...	-13,7
Malattie ipertensive	6	22.325	3,8	4,4	5	30.690	5,1	4,3	↑	-1,3
Demenza e Malattia di Alzheimer	9	14.685	2,5	2,8	6	26.600	4,4	3,7	↑	29,1
Malattie croniche basse vie respiratorie	5	23.325	4,0	4,5	7	20.234	3,4	2,8	↓	-36,8
Diabete mellito	7	19.759	3,4	3,7	8	20.183	3,4	2,8	↓	-23,0
Tumori maligni di colon, retto e ano	8	17.255	2,9	3,1	9	18.671	3,1	2,7	↓	-13,8
Tumori maligni del seno	10	11.589	2,0	2,1	10	12.330	2,1	1,8	...	-13,5
Tumori maligni del pancreas	15	8.777	1,5	1,6	11	11.186	1,9	1,6	↑	3,9
Malattie del rene e dell'uretere	17	8.110	1,4	1,6	12	10.043	1,7	1,4	↑	-9,5
Tumori maligni del fegato	12	9.841	1,7	1,7	13	9.915	1,7	1,4	↓	-17,1
Tumori maligni dello stomaco	11	11.024	1,9	2,0	14	9.557	1,6	1,4	↓	-31,0
Influenza e Polmonite	14	8.878	1,5	1,8	15	9.413	1,6	1,3	↓	-25,6
Tumori non maligni	16	8.127	1,4	1,5	16	8.204	1,4	1,2	...	-22,8
Setticosia	31	2.490	0,4	0,5	17	7.636	1,3	1,1	↑	131,1
Tumori maligni della prostata	18	7.707	1,3	1,4	18	7.174	1,2	1,0	...	-29,8
Leucemia	20	5.561	0,9	1,0	19	6.049	1,0	0,9	↑	-12,3
Cirrosi, fibrosi ed epatite cronica	13	9.742	1,7	1,7	20	6.035	1,0	0,9	↓	-48,7
Tumori maligni della vescica	21	5.116	0,9	0,9	21	5.610	0,9	0,8	...	-14,5
Morbo di Hodgkin e Linfomi	22	4.885	0,8	0,9	22	5.175	0,9	0,8	...	-13,3
Morbo di Parkinson	24	3.391	0,6	0,6	23	5.110	0,9	0,7	↑	10,8
Tumori maligni del cervello e del SNC	25	3.108	0,5	0,5	24	4.237	0,7	0,6	↑	17,6
Suicidio e autolesione intenzionale	23	4.075	0,7	0,7	25	4.147	0,7	0,6	↓	-8,5
Prime 25		444.037	75,4			448.022	74,8			
Altre		144.860	24,6			150.648	25,2			
Totale		588.897	100,0	110,8		598.670	100,0	85,3		-23,0

35,1%

20,1%

CVD RELATED DEATHS

Cardiovascular disease is the leading cause of death worldwide



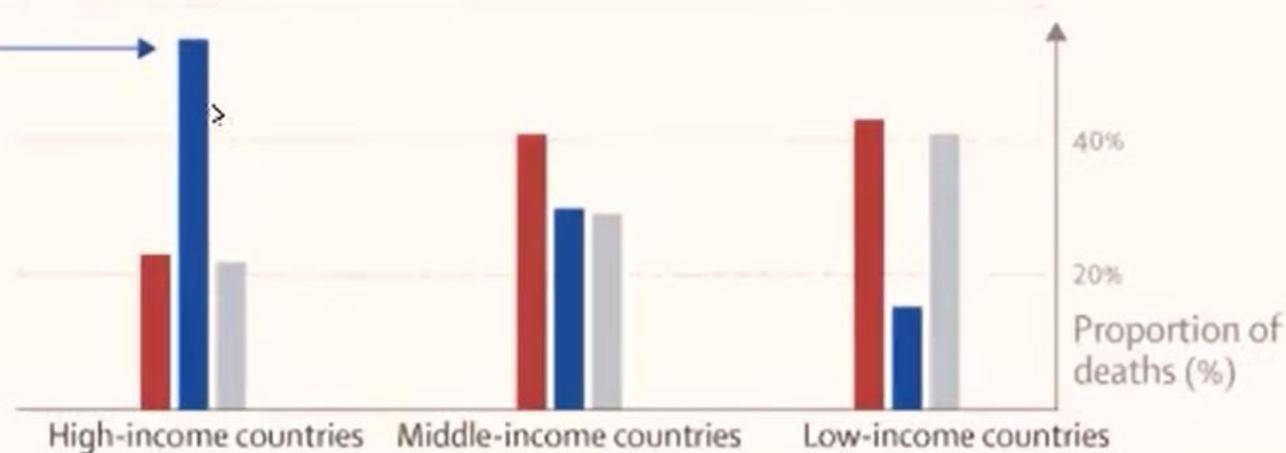
17.7 million deaths

Cancer

All other causes

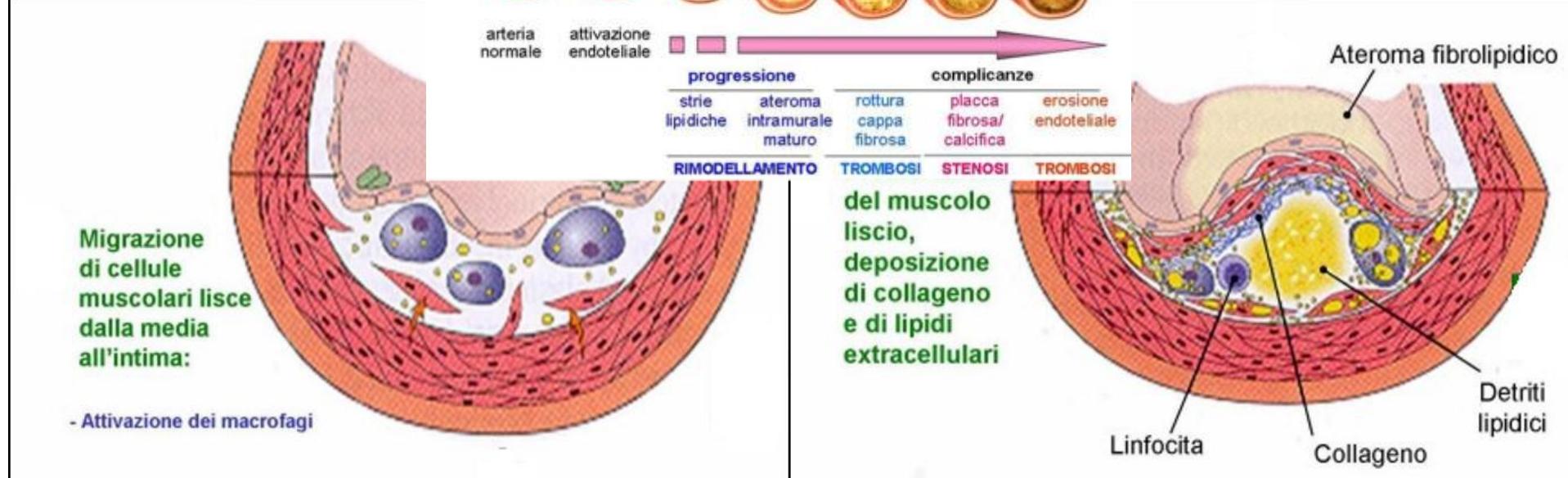
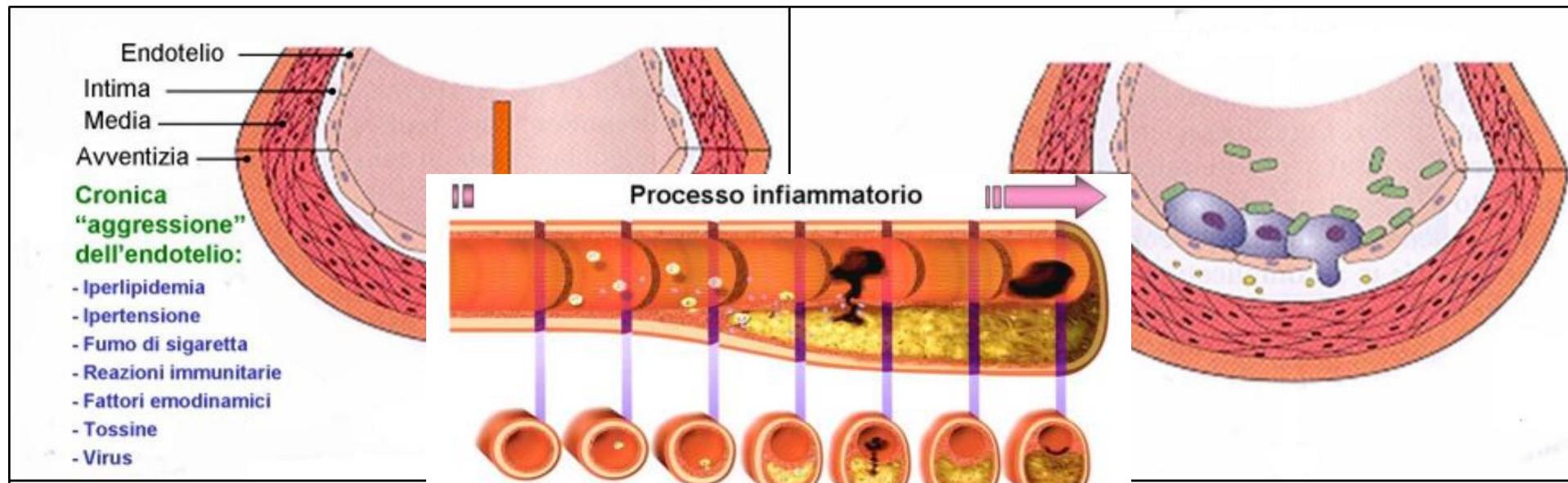
100% of deaths globally

But in high-income countries, **cancer** causes twice as many deaths as **cardiovascular disease**

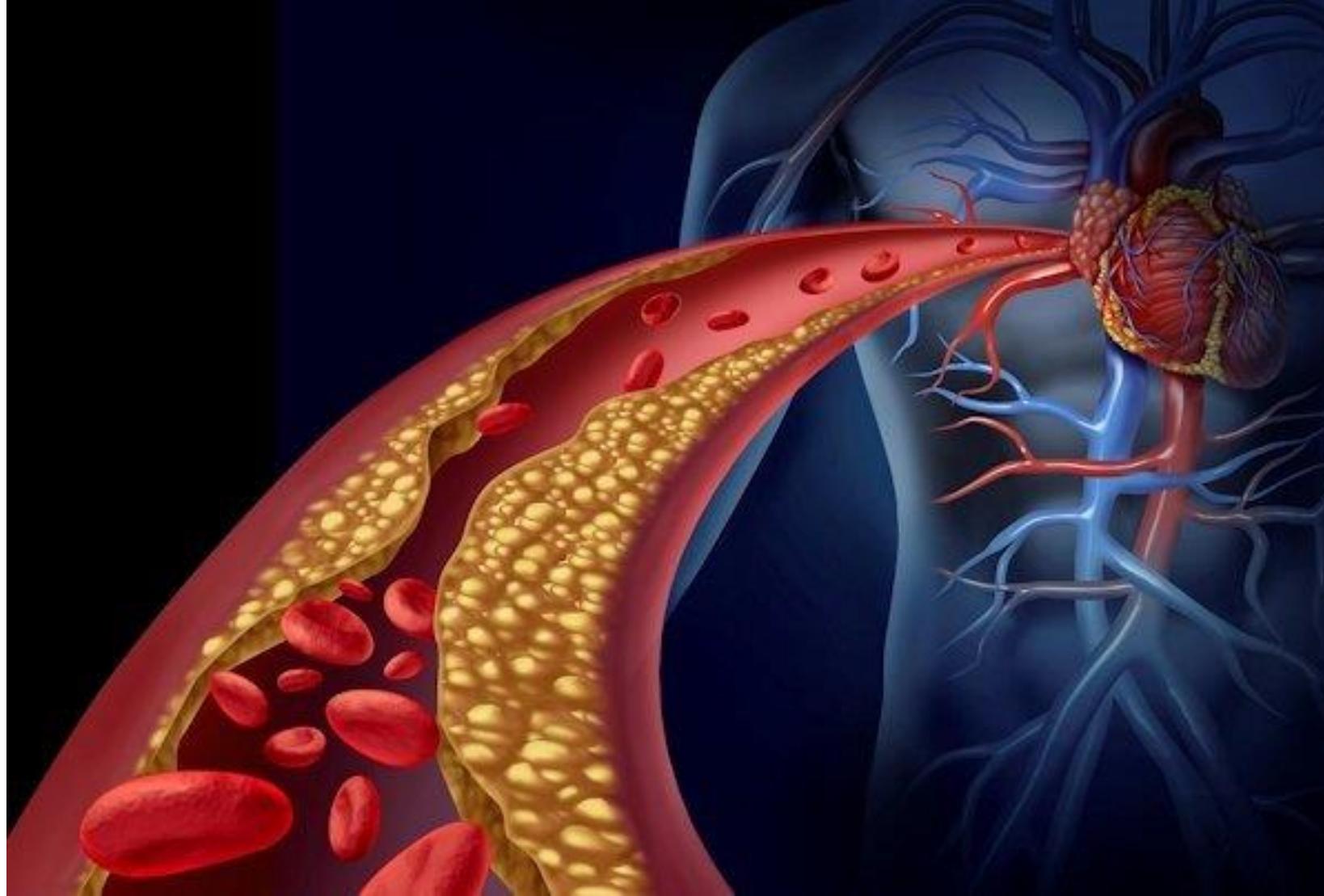


For more, visit www.thelancet.com

- Modifiable risk factors, cardiovascular disease, and mortality in 155 722 individuals from 21 high-income, middle-income, and low-income countries (PURE)
- Variations in common diseases, hospital admissions, and deaths in middle-aged adults in 21 countries from five continents (PURE): a prospective cohort study



ATEROSCLEROSI Coronarica è
PRIMARIA CAUSA DI MORTALITA'
LA PRIMA CAUSA DI MORBIDITA'



ISCHEMIC HEART DISEASE

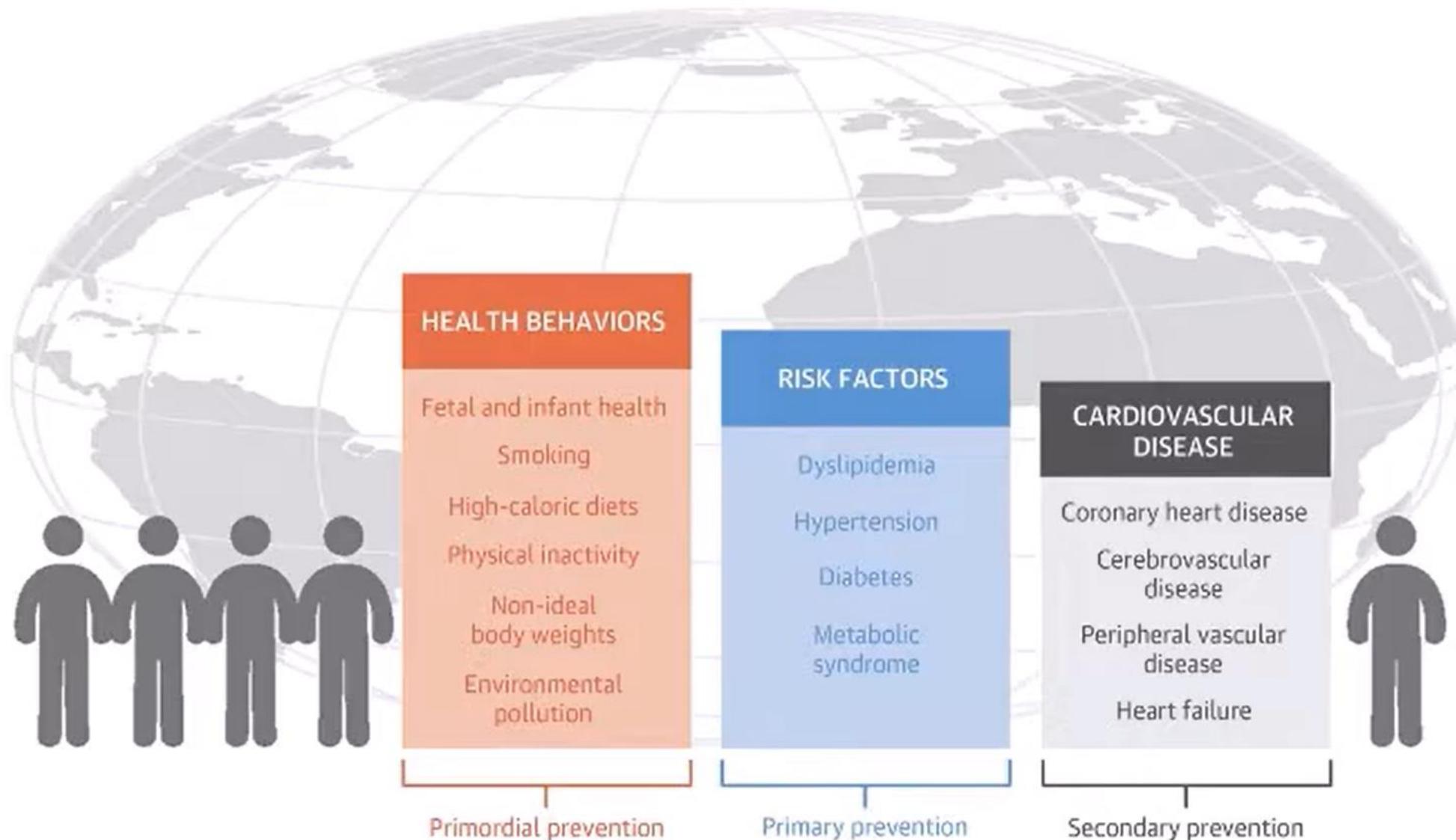


8.92 million

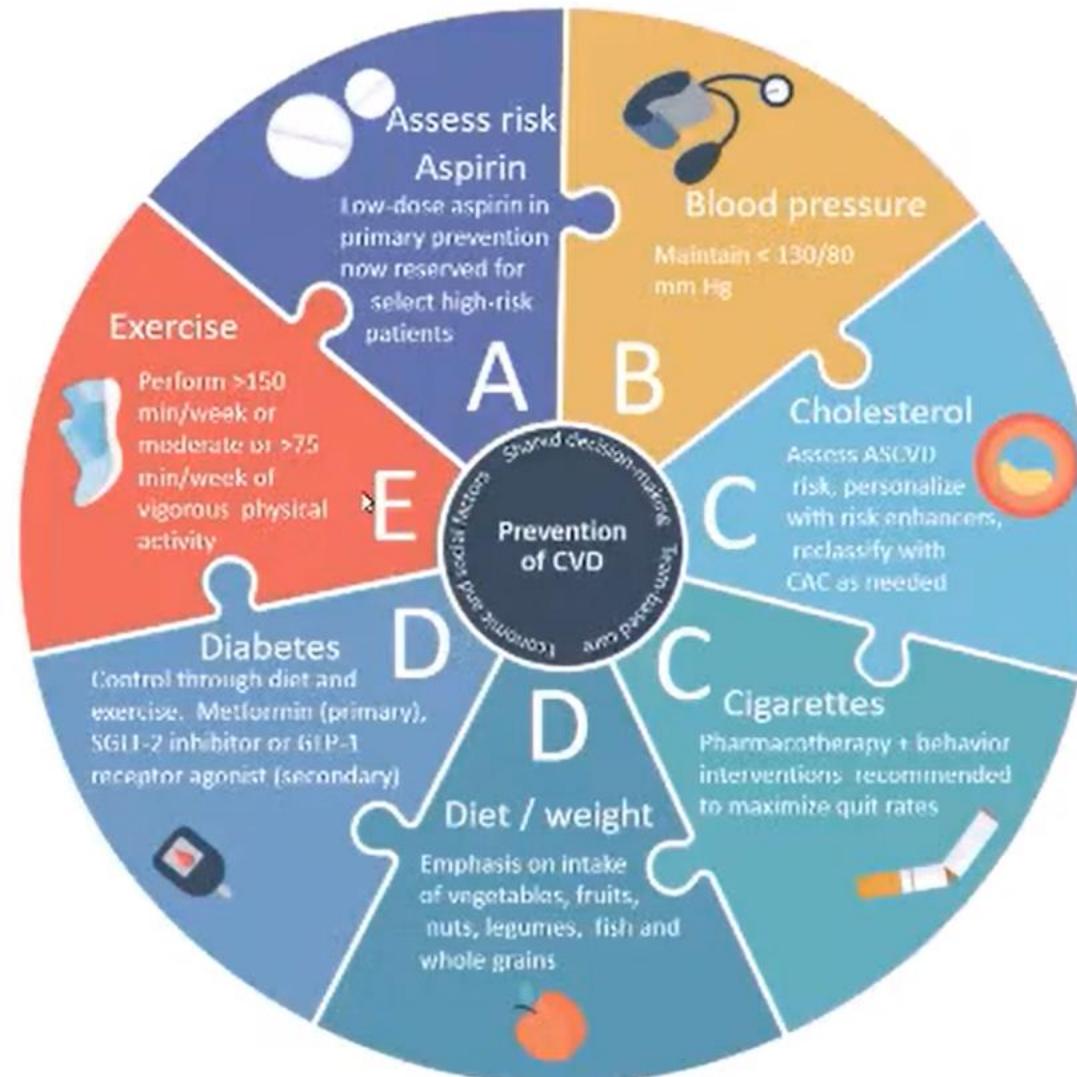
The number of **deaths due to ischemic heart disease (IHD)** in 2015, making it the leading cause of death in the world. The highest IHD death rates were observed in Central Asia and Eastern Europe. IHD was the leading cause of all health loss globally as well as in each world region.



PREVENTION OF CVD



L' ABC (D, E...) della prevenzione primaria



I promotori del rischio («risk enhancers»)

Table 1: ASCVD Risk Enhancers

- Family history of premature ASCVD
- Primary hypercholesterolemia
- Chronic kidney disease
- Metabolic syndrome
- Conditions specific to women (e.g. preeclampsia, premature menopause)
- Chronic inflammatory conditions (especially rheumatoid arthritis, psoriasis, HIV)
- Ethnicity (e.g. south Asian ancestry)

Lipid/Biomarkers:

- Persistently elevated triglycerides (≥ 175 mg/dL)

In selected individuals if measured:

- hsCRP ≥ 2 mg/L
- Lp(a) levels ≥ 50 mg/dL or ≥ 125 nmol/L
- ApoB levels ≥ 130 mg/dL
- Ankle-brachial index < 0.9



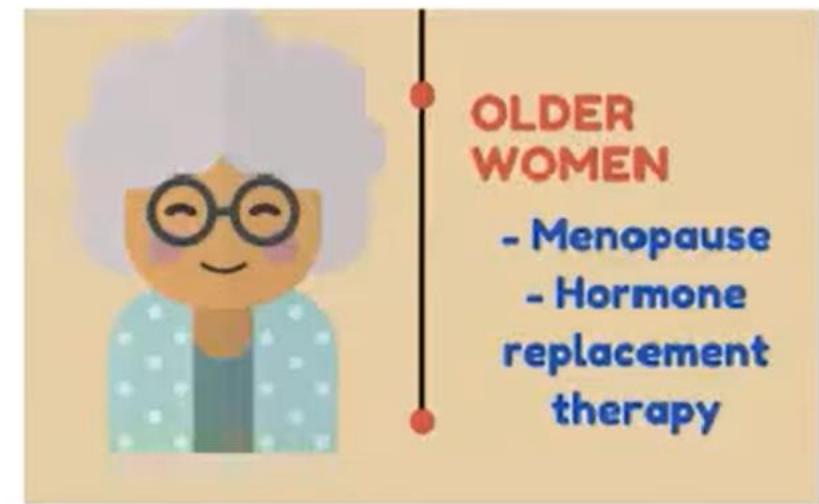
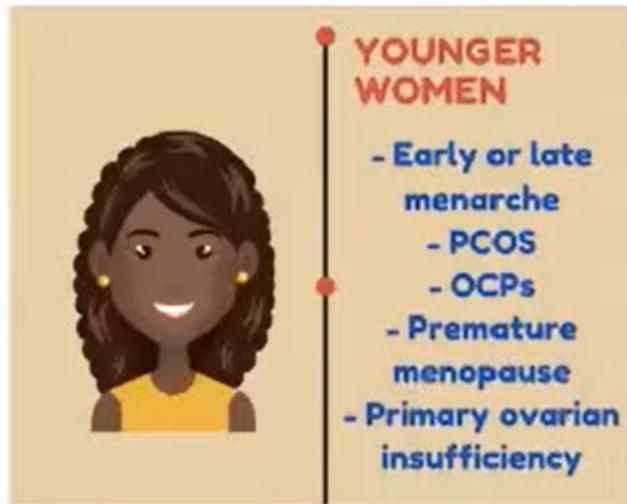
I promotori del rischio («risk enhancers»)

Risk-Enhancing Factors
<ul style="list-style-type: none">• Family history of premature ASCVD (males, age <55 y; females, age <65 y)• Primary hypercholesterolemia (LDL-C 160–189 mg/dL [4.1–4.8 mmol/L]; non-HDL-C 190–219 mg/dL [4.9–5.6 mmol/L])*• Metabolic syndrome (increased waist circumference [by ethnically appropriate cutpoints], elevated triglycerides [>150 mg/dL, nonfasting], elevated blood pressure, elevated glucose, and low HDL-C [<40 mg/dL in men; <50 mg/dL in women] are factors; a tally of 3 makes the diagnosis)• Chronic kidney disease (eGFR 15–59 mL/min/1.73 m² with or without albuminuria; not treated with dialysis or kidney transplantation)• Chronic inflammatory conditions, such as psoriasis, RA, lupus, or HIV/AIDS

ABI indicates ankle-brachial index; AIDS, acquired immunodeficiency syndrome; apoB, apolipoprotein B; ASCVD, atherosclerotic cardiovascular disease; eGFR, estimated glomerular filtration rate; HDL-C, high-density lipoprotein cholesterol; HIV, human immunodeficiency virus; LDL-C, low-density lipoprotein cholesterol; Lp(a), lipoprotein (a); and RA, rheumatoid arthritis.



Donne e malattia cardiovascolare: fattori specifici legati al sesso



Terapia antiaggregante: “CARDIOASPIRIN”



Antiplatelet Therapy

- Aspirin should be used infrequently in the routine primary prevention of ASCVD because of lack of net benefit.

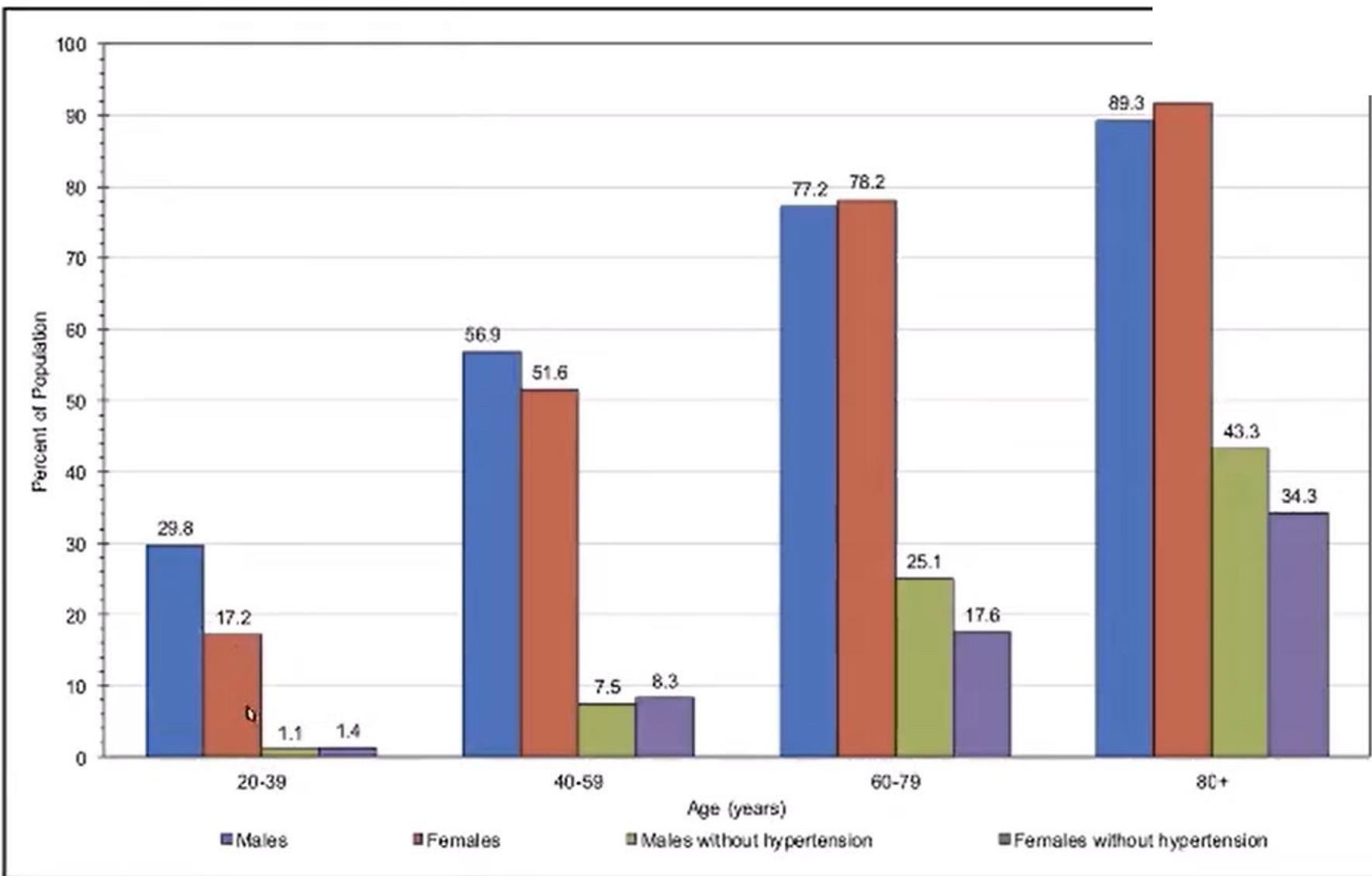


B: IPERTENSIONE ARTERIOSA («BLOOD PRESSURE»)



- Hypertension contributes significantly to ASCVD morbidity and mortality
- Nonpharmacological interventions are recommended for all adults with elevated blood pressure or hypertension. For those requiring pharmacological therapy, the target blood pressure should generally be $<130/80$ mm Hg

Prevalence of
CVD by Sex:
In those with &
without HTN



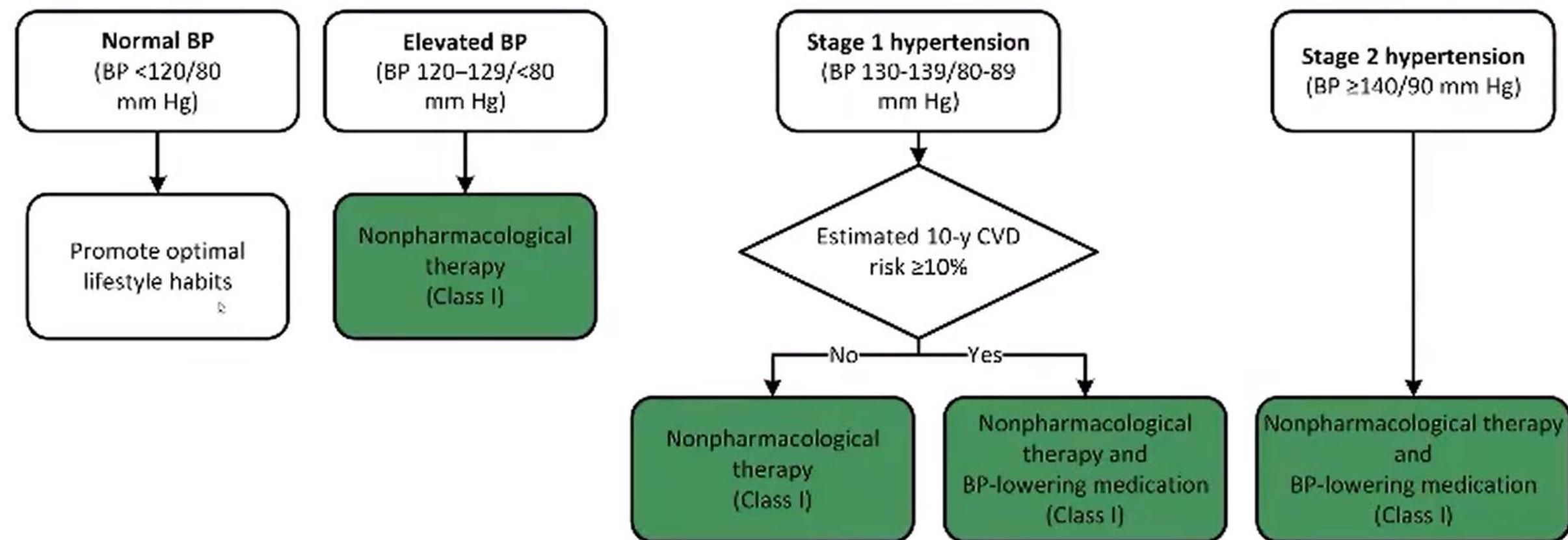
Adults with High Blood Pressure or Hypertension

Recommendations for Adults with High Blood Pressure or Hypertension		
COR	LOE	Recommendations
I	A	<p>1. In adults with elevated blood pressure (BP) or hypertension, including those requiring antihypertensive medications nonpharmacological interventions are recommended to reduce BP. These include:</p> <ul style="list-style-type: none">• weight loss,• a heart-healthy dietary pattern,• sodium reduction,• dietary potassium supplementation,• increased physical activity with a structured exercise program; and• limited alcohol.



Valori di pressione arteriosa

raccomandazioni gestionali



BP indicates blood pressure; and CVD, cardiovascular disease.



INTERVENTI NON FARMACOLOGICI EFFICACI NEL PREVENIRE E TRATTARE L'IPERTENSIONE

	Nonpharmacological Intervention	Goal	Approximate Impact on SBP		
			Hypertension	Normotension	Reference
Weight loss	Weight/body fat	Best goal is ideal body weight, but aim for at least a 1-kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1-kg reduction in body weight.	-5 mm Hg	-2/3 mm Hg	{S4.4-2}
Healthy diet	DASH dietary pattern‡	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat.	-11 mm Hg	-3 mm Hg	{S4.4-7, S4.4-8}
Reduced intake of dietary sodium	Dietary sodium	Optimal goal is <1500 mg/d, but aim for at least a 1000-mg/d reduction in most adults.	-5/6 mm Hg	-2/3 mm Hg	{S4.4-12, S4.4-10}
Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg	{S4.4-14}



DASH diet

6-8

servings per day
of whole grains

4-5

servings per day
of vegetables

4-5

servings per day
of fruits

2-3

servings per day
of fat-free or low-fat dairy

4-5

servings per week
of nuts, seeds, legumes

6

Less than
servings per day of
lean meat, poultry, fish

5

Less than
servings per week
of sweets

2-3

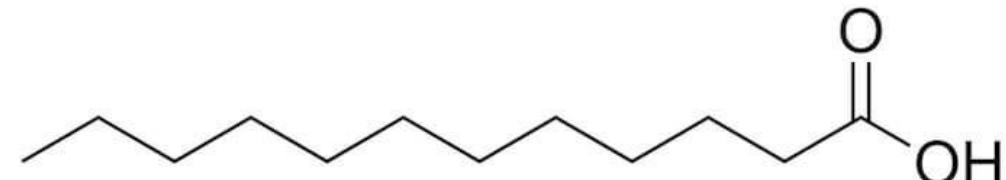
servings per day
of fats and oils





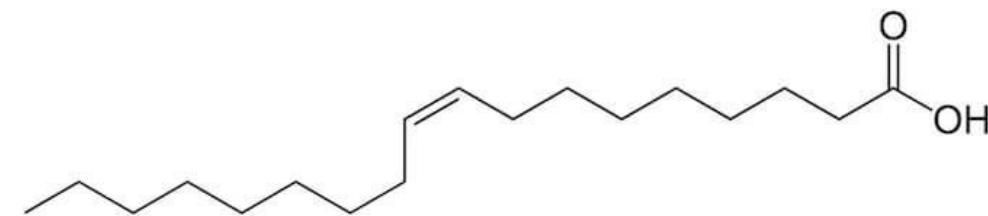
Per una buona salute cardiovascolare:
aumenta il consumo di grassi mono e polinsaturi

limita il consumo di grassi saturi



Schema grasso satturo

I grassi **liquidi** (come l'olio) sono prevalentemente composti da grassi **insaturi**



Schema grasso insatturo

1 doppio legame: mono-insatturo
Più doppi legami: poli-insaturi

I grassi **solidi** (margarina) sono prevalentemente composti da grassi **saturi**

Quantità approssimativa di sodio contenuto in diversi gruppi di alimenti

OBIETTIVO MINIMO:
<1500 mg/die

Meglio < 1 g/die

Alimenti	Contenuto di sodio mg / 100 g
Sale, bicarbonato di sodio, lievito in polvere	38.000
Dadi da brodo, brodi, minestre in polvere, sughi	20.000
Salsa di soia	7.000
Snacks (ad esempio salatini, sbuffi di formaggio, popcorn)	1.500
Pancetta	1.200
Salse e condimenti pronti	1.200
Formaggio da grattugiare	800
Ortaggi trasformati	600
Carne in scatola	500
Margarina	500
Formaggio, morbido	400
Pesce lavorato	400
Cereali e prodotti a base di cereali (Ad esempio, pane, cereali, biscotti, torte, pasticcini)	250
Pesce, crudo o surgelato	100
Uova	80
Latte	50
Carne	50
Ortaggi, freschi o surgelati	10
Burro	7
Frutta, freschi o surgelati	5

- fagioli,
- piselli,
- asparagi,
- patate,
- albicocche, sp. essiccate
- banane,
- cavolfiori,
- spinaci,
- arachidi
- in generale, i frutti, le verdure



INTERVENTI NON FARMACOLOGICI PER PREVENIRE E TRATTARE L'IPERTENSIONE

Physical activity	Aerobic	<ul style="list-style-type: none"> • 90–150 min/wk • 65%–75% heart rate reserve 	-5/8 mm Hg	-2/4 mm Hg	[S4.4-19, S4.4-20]
	Dynamic resistance	<ul style="list-style-type: none"> • 90–150 min/wk • 50%–80% 1 rep maximum • 6 exercises, 3 sets/exercise, 10 repetitions/set 	-4 mm Hg	-2 mm Hg	[S4.4-19]
	Isometric resistance	<ul style="list-style-type: none"> • 4 × 2 min (hand grip), 1 min rest between exercises, 30%–40% maximum voluntary contraction, 3 sessions/wk • 8–10 wk 	-5 mm Hg	-4 mm Hg	[S4.4-21, S4.4-63]
Moderation in alcohol intake	Alcohol consumption	<p>In individuals who drink alcohol, reduce alcohol† to:</p> <ul style="list-style-type: none"> • Men: ≤2 drinks daily • Women: ≤1 drink daily 	-4 mm Hg	-3 mm Hg	[S4.4-20, S4.4-24, S4.4-25]



COLESTEROLO

Statin therapy is first-line treatment for primary prevention of ASCVD in patients with elevated low-density lipoprotein cholesterol levels (≥ 190 mg/dL), those with diabetes mellitus, who are 40 to 75 years of age, and those determined to be at sufficient ASCVD risk after a clinician–patient risk discussion.

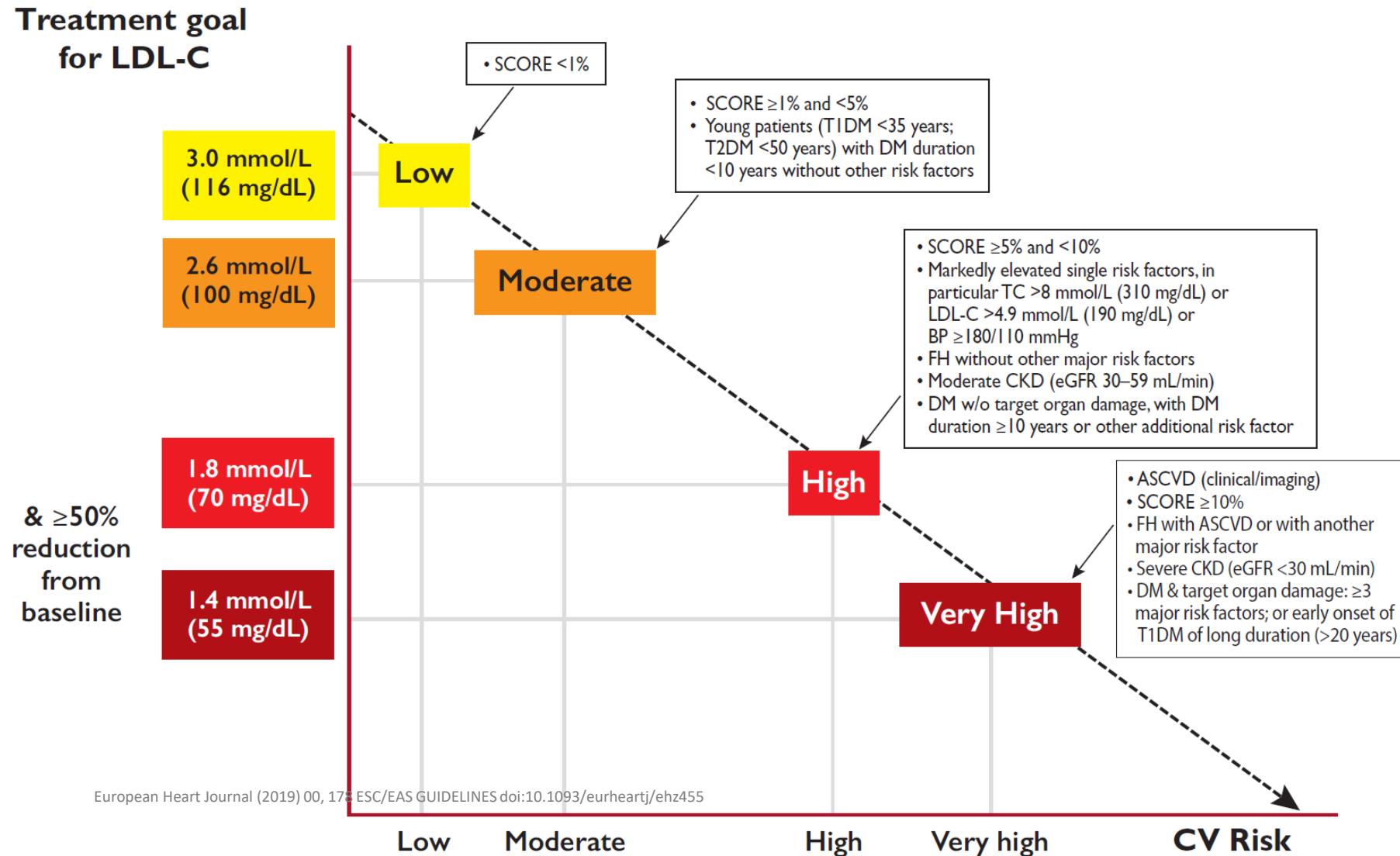


RACCOMANDAZIONI PER ADULTI CON ELEVATA COLESTROLEMIA

Recommendations for Adults with High Blood Cholesterol		
COR	LOE	Recommendations
I	A	<p>3. In adults 40 to 75 years of age with diabetes, regardless of estimated 10-year ASCVD risk, moderate-intensity statin therapy is indicated.</p>
I	B-R	<p>4. In patients 20 to 75 years of age with an LDL-C level of 190 mg/dL (≥ 4.9 mmol/L) or higher, maximally tolerated statin therapy is recommended.</p>

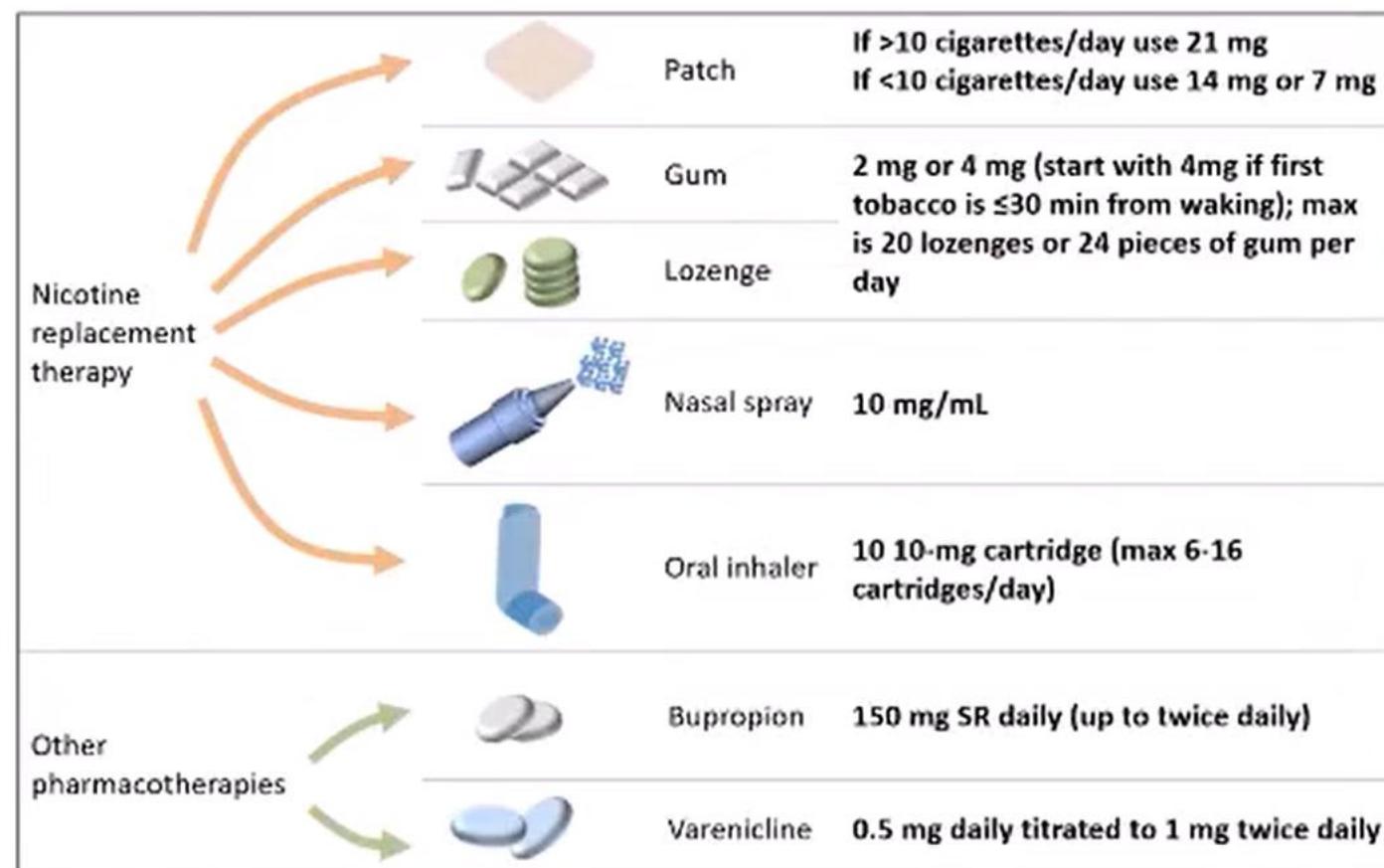


Valori lipidici ottimali: sintesi



ASTENSIONE DAL FUMO DI SIGARETTA

All adults should be assessed at every healthcare visit for tobacco use, and those who use tobacco should be assisted and strongly advised to quit.

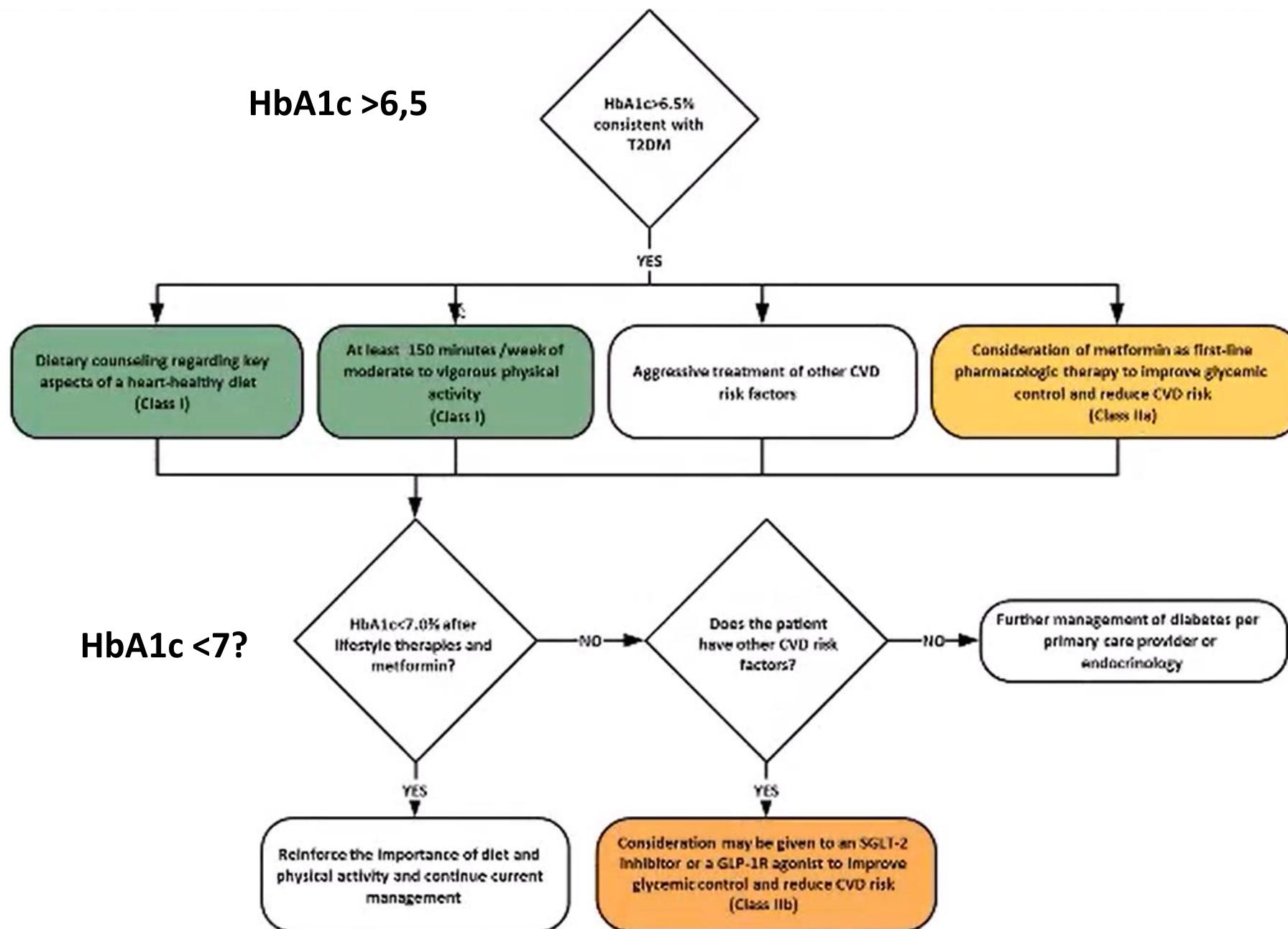


DIABETE

For adults with type 2 diabetes mellitus, lifestyle changes, such as improving dietary habits and achieving exercise recommendations, are crucial. If medication is indicated, metformin is first-line therapy, followed by consideration of a sodium-glucose cotransporter 2 inhibitor or a glucagon-like peptide-1 receptor agonist

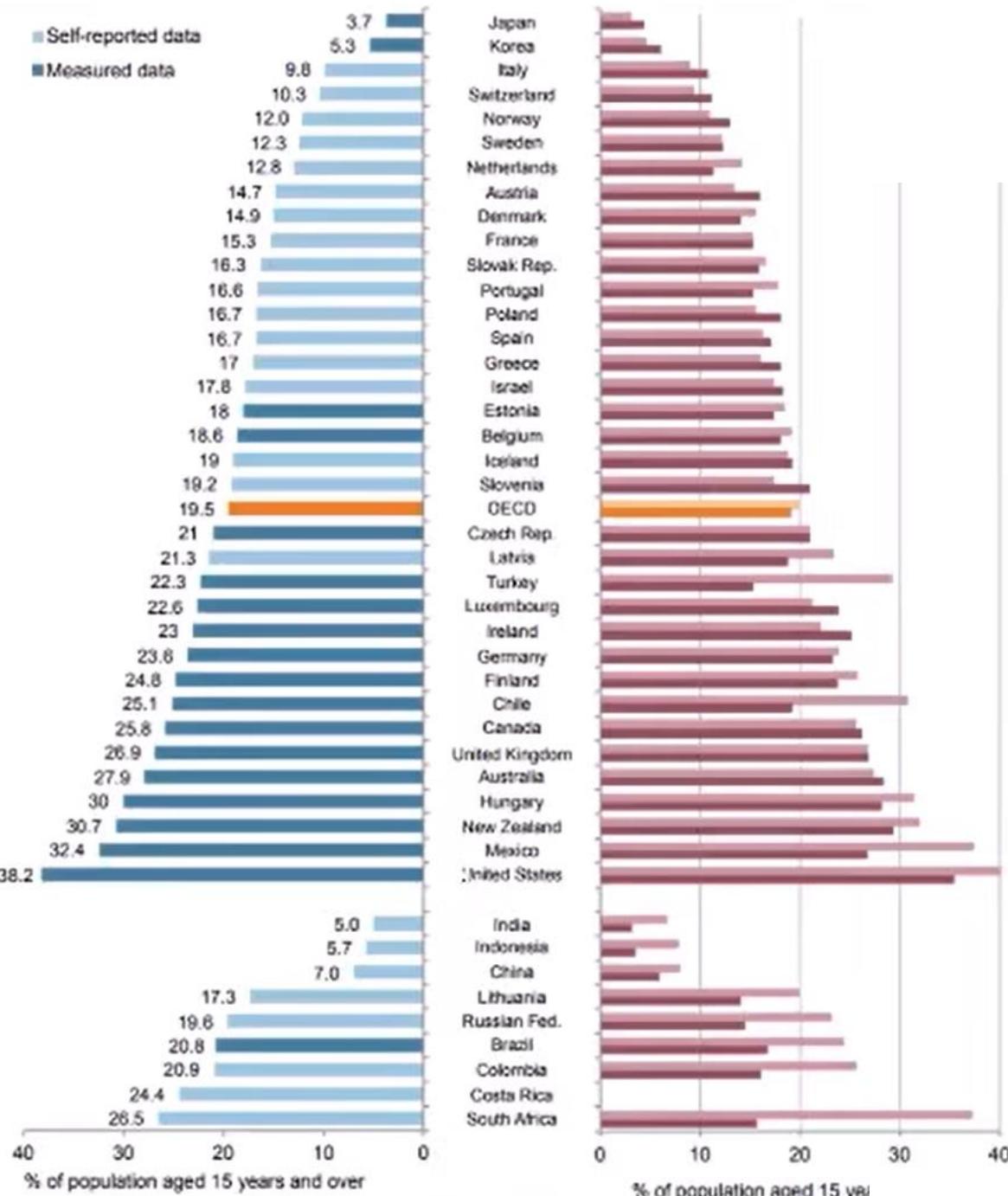


APPROCCIO AL DIABETE PER LA PREVENZIONE DELLE MALATTIE CARDIOVASCOLARI



OBESITY IS A GROWING PROBLEM

1.9 Billion Adults obese worldwide (WHO 2020)



Where Obesity Places The Biggest Burden On Healthcare

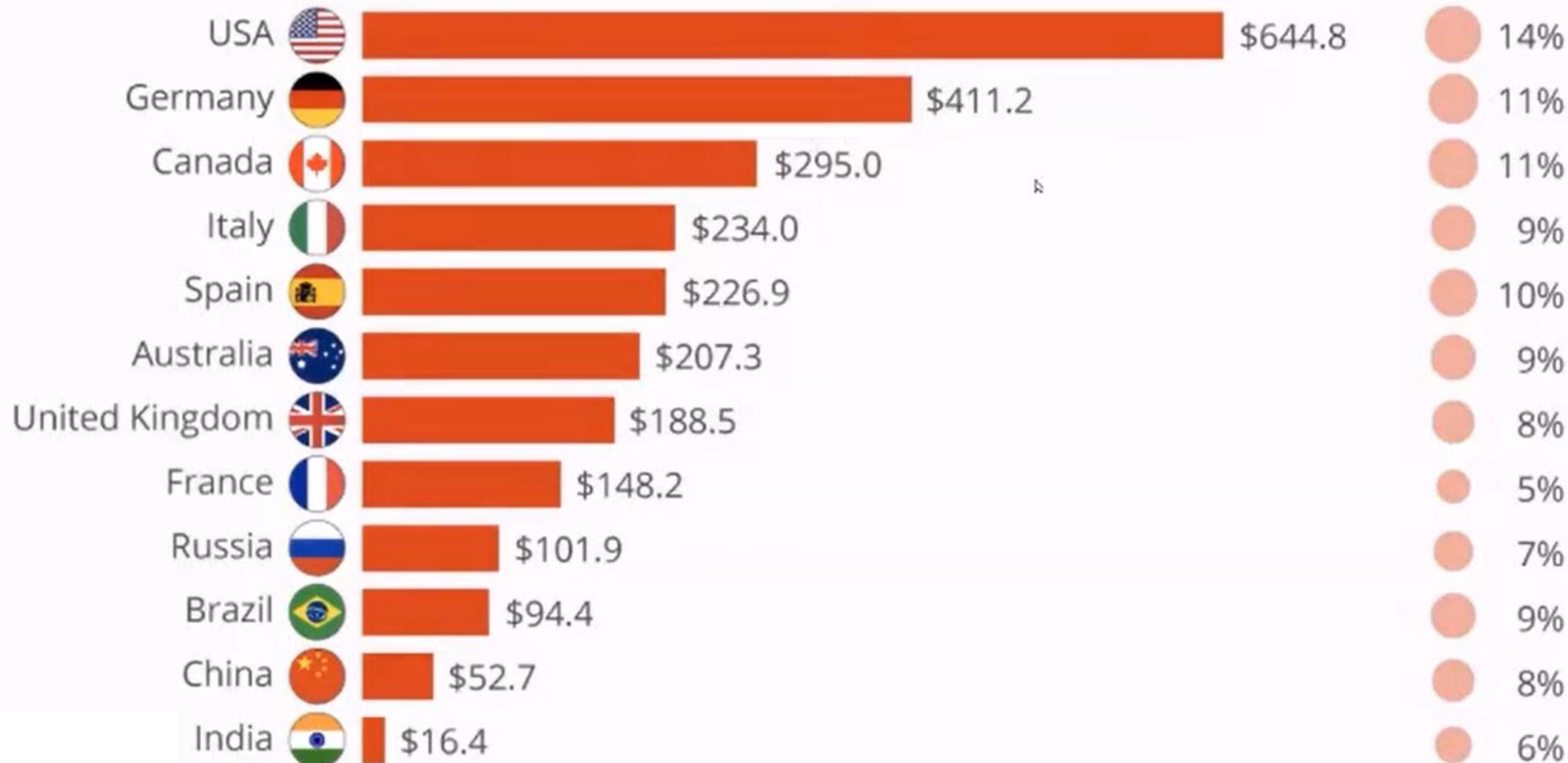
Average annual health expenditure per capita due to obesity from 2020-2050*



Expenditure per capita



% of total health expenditure



$$\text{IMC} = \frac{\text{Peso (in KG)}}{\text{Altezza (in metri)}^2}$$

Adults with Overweight and Obesity (cont'd)

Recommendations for Adults with Overweight and Obesity			
COR	LOE	Recommendations	
I	C-EO	3. Calculating body mass index (BMI) is recommended annually or more frequently to identify adults with overweight and obesity for weight loss considerations.	
IIa	B-NR	4. It is reasonable to measure waist circumference to identify those at higher cardiometabolic risk.	



ATTIVITA' FISICA: 150 min/sett

Recommendation:

Adults should engage in at least 150 minutes per week of accumulated moderate-intensity physical activity or 75 minutes per week of vigorous-intensity physical activity.



Exercise and Physical Activity

Recommendations for Exercise and Physical Activity		
COR	LOE	Recommendations
I	B-R	<ol style="list-style-type: none">1. Adults should be routinely counseled in healthcare visits to optimize a physically active lifestyle.
I	B-NR	<ol style="list-style-type: none">2. Adults should engage in at least 150 minutes per week of accumulated moderate-intensity or 75 minutes per week of vigorous-intensity aerobic physical activity (or an equivalent combination of moderate and vigorous activity) to reduce ASCVD risk.



INTENSITÀ DI VARIE ATTIVITÀ FISICHE

Intensity	METs	Examples
Sedentary behavior*	1–1.5	Sitting, reclining, or lying; watching television
Light	1.6–2.9	Walking slowly, cooking, light housework
Moderate	3.0 –5.9	Brisk walking (2.4–4 mph), biking (5–9 mph), ballroom dancing, active yoga, recreational swimming
Vigorous	≥6	Jogging/running, biking (≥ 10 mph), singles tennis, swimming laps

9 mph =
15 Km/h

**Sedentary behavior* is defined as any waking behavior characterized by an energy expenditure ≤ 1.5 METs while in a sitting, reclining, or lying posture. Standing is a sedentary activity in that it involves ≤ 1.5 METs, but it is not considered a component of sedentary behavior.

T indicates metabolic equivalent; mph, miles per hour.



FATTORI ECONOMICI E SOCIALI

The social determinants of health are the conditions in which we are born, we grow and age, and in which we live and work. The factors below impact on our health and wellbeing.



Childhood
experiences



Housing



Education



Social support



Family income



Employment



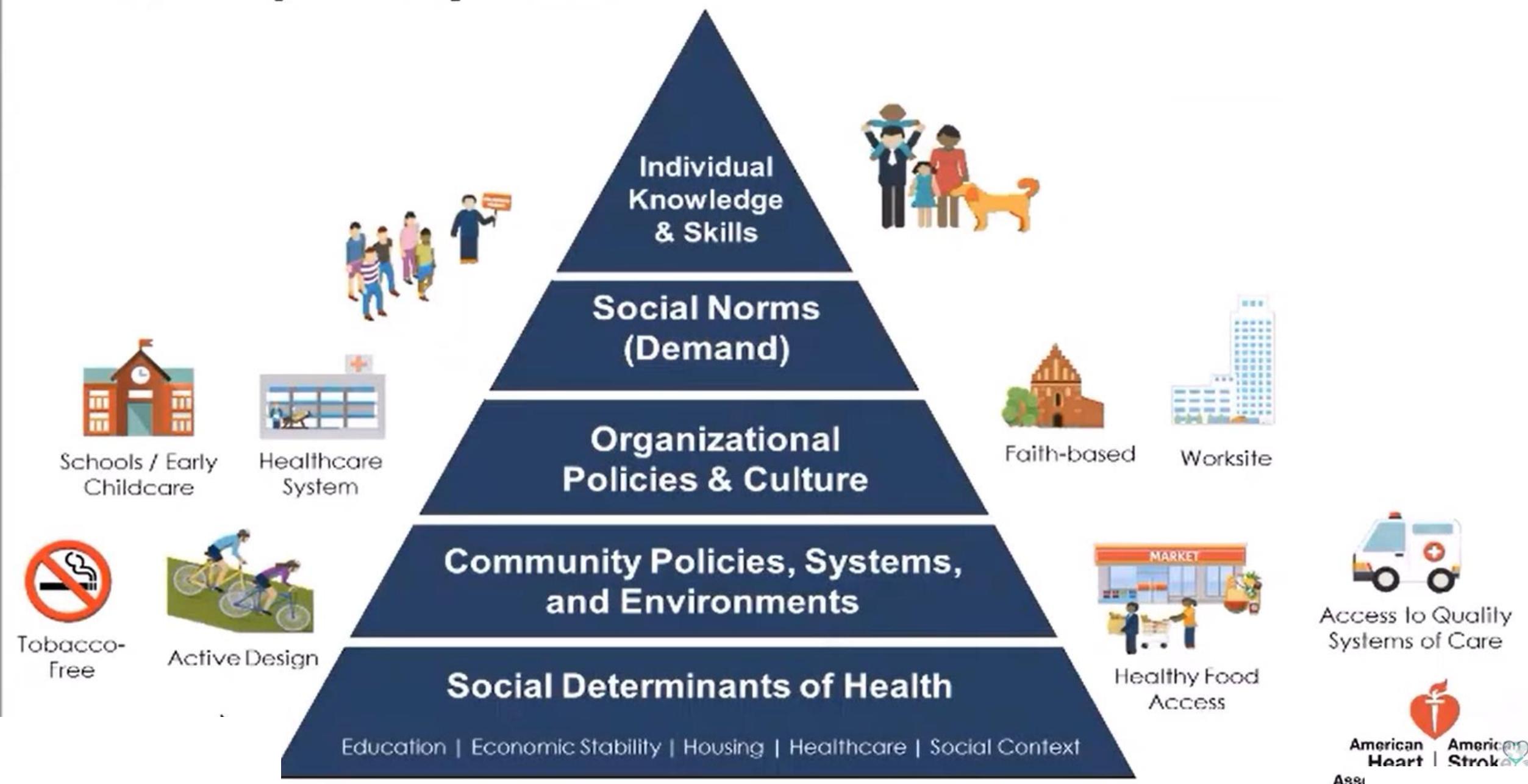
Our communities



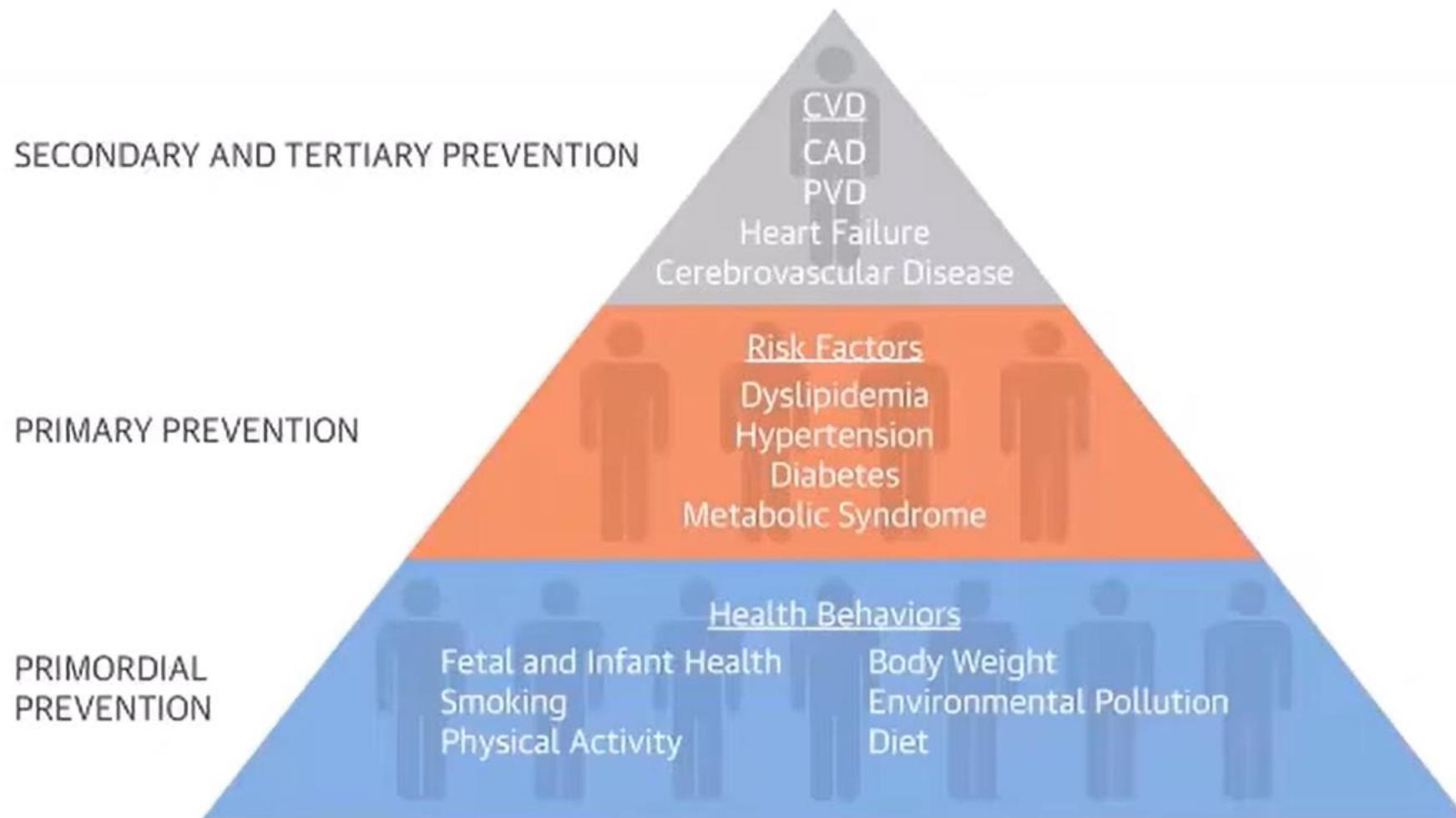
Access to health
services



Health Impact Pyramid



CENTRAL ILLUSTRATION: Cardiovascular Disease Prevention and Health Promotion



Hong, K.N. et al. J Am Coll Cardiol. 2017;70(17):2171-85.



2021 ESC Guidelines on cardiovascular disease prevention in clinical practice

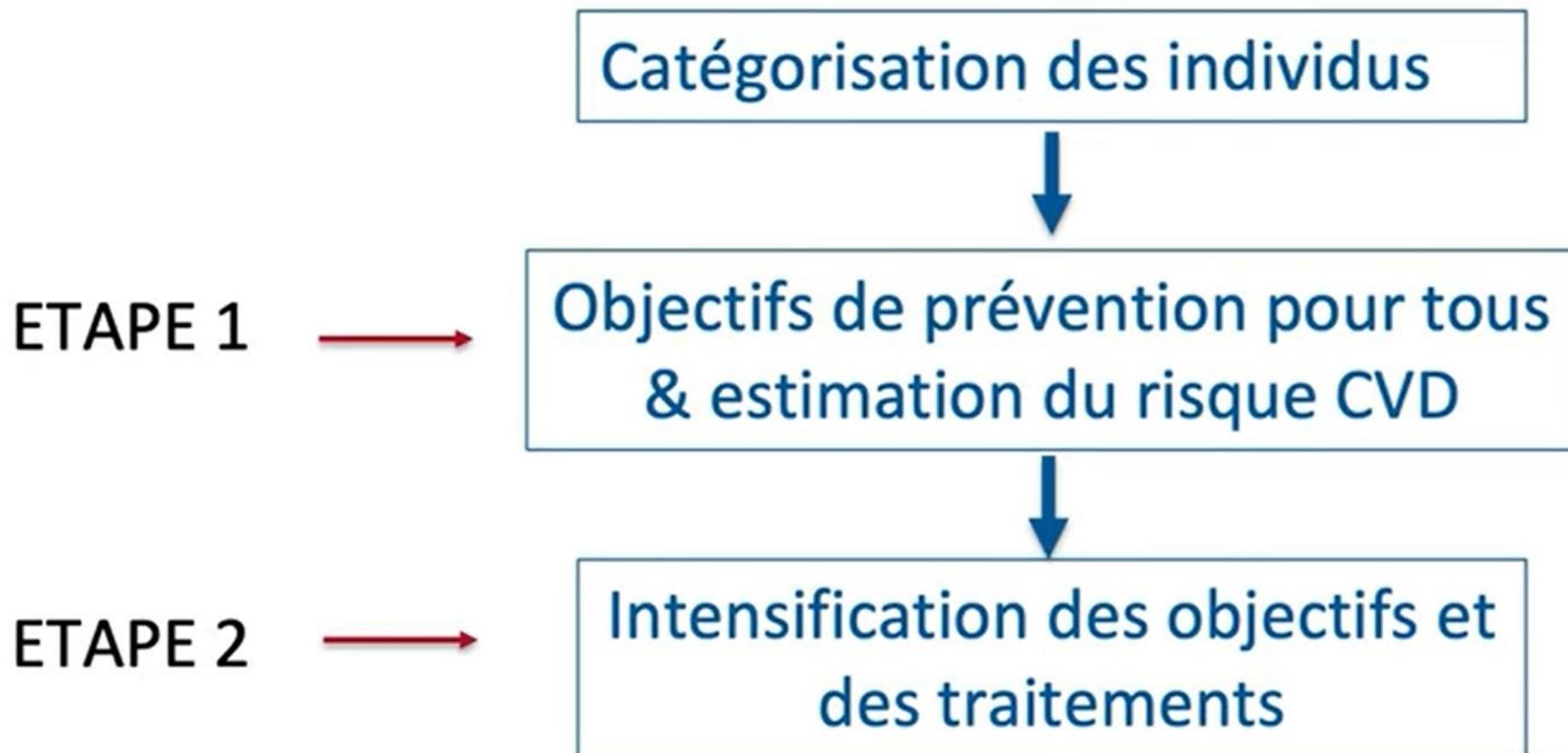
Developed by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies

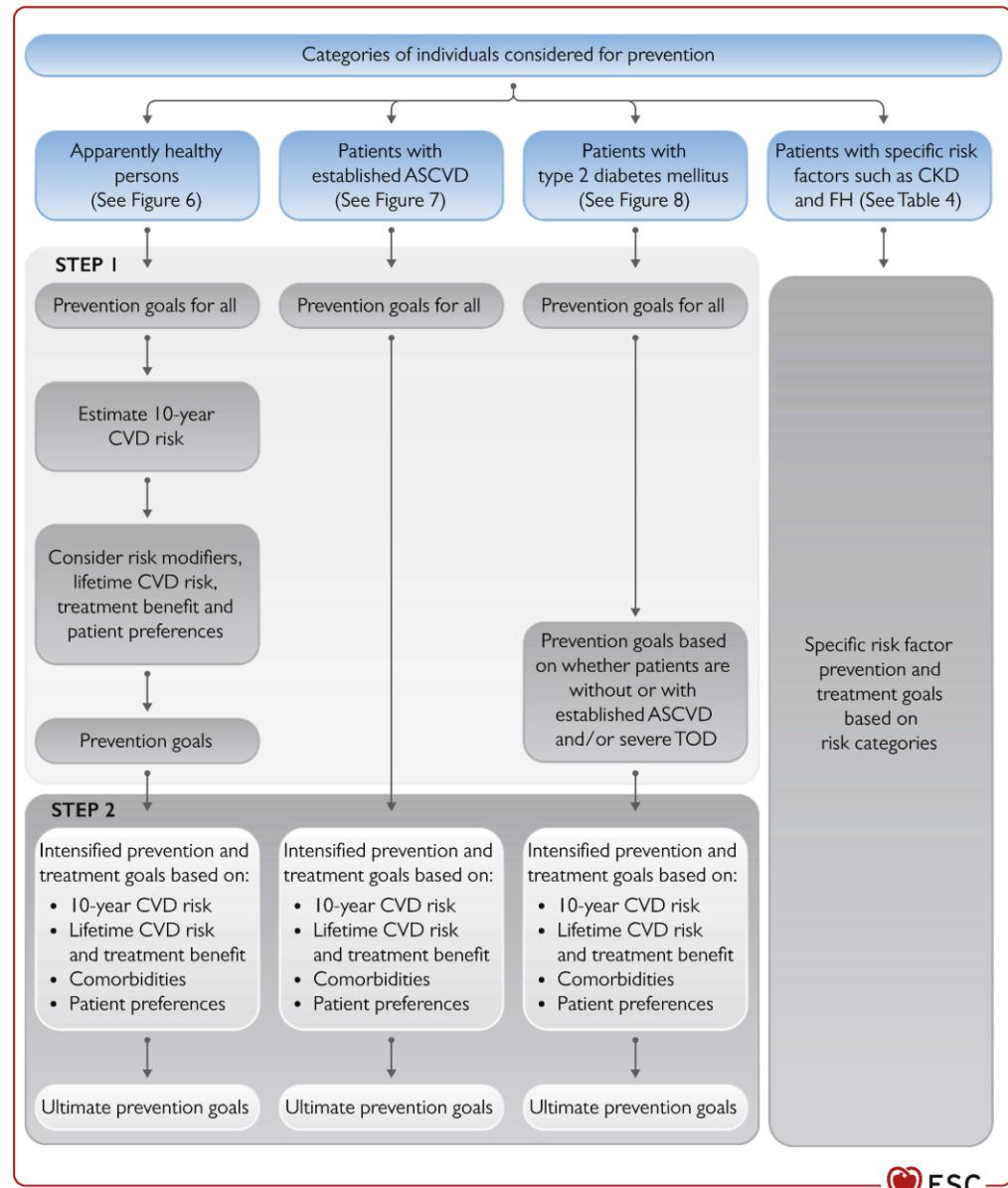
With the special contribution of the European Association of Preventive Cardiology (EAPC)

Authors/Task Force Members: Frank L.J. Visseren* (Chairperson) (Netherlands), François Mach* (Chairperson) (Switzerland), Yvo M. Smulders[†] (Task Force Coordinator) (Netherlands), David Carballo[†] (Task Force Coordinator)

Qu'est ce qui est nouveau en 2021

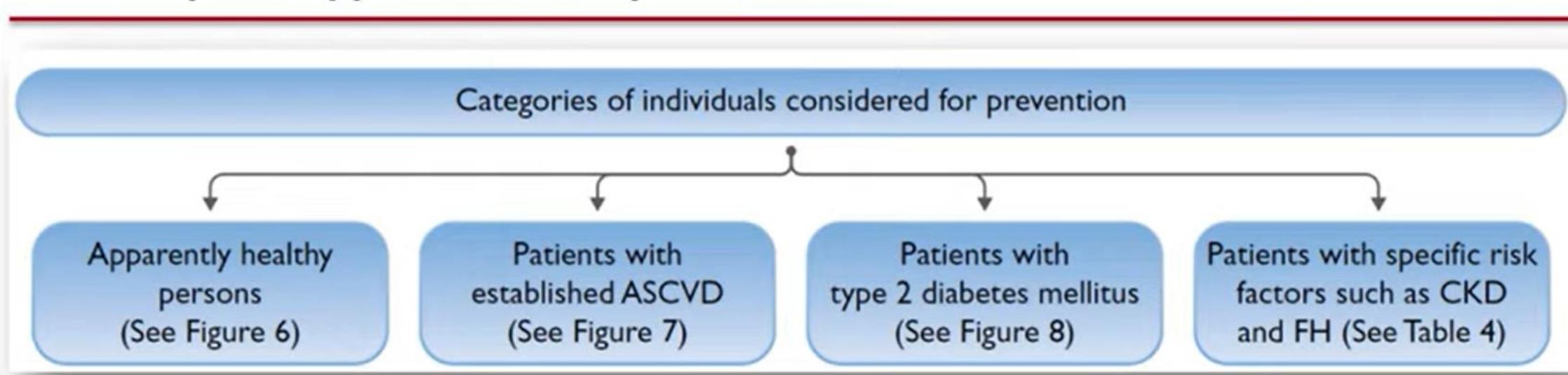
- Il est maintenant proposé une approche individualisé « pas à pas »
- ...avec l'inclusion des nouveaux scores de prédition de risque SCORE2 et SCORE2-OP calibrés pour 4 régions géographiques
- ...avec des seuils de risques basés sur l'âge pour les personnes apparemment en bonne santé
- ...et l'introduction de l'estimation du risque sur la durée de vie ainsi que sur es bénéfices potentiels d'une prise en charge





Examples of a stepwise approach to risk stratification and treatment options

Stepwise approach to CVD prevention



→ Objectifs de prévention pour tous

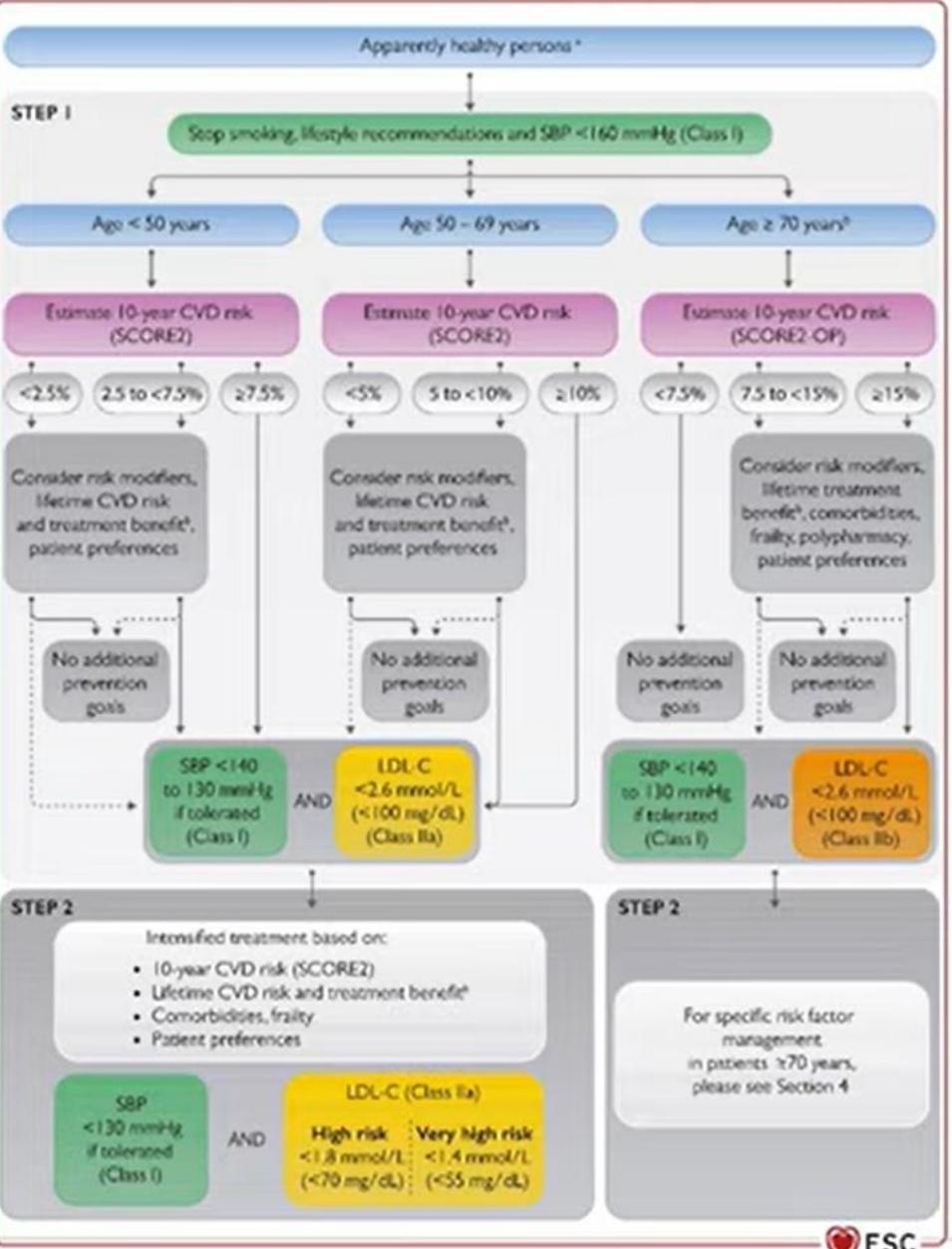
→ ETAPE 1

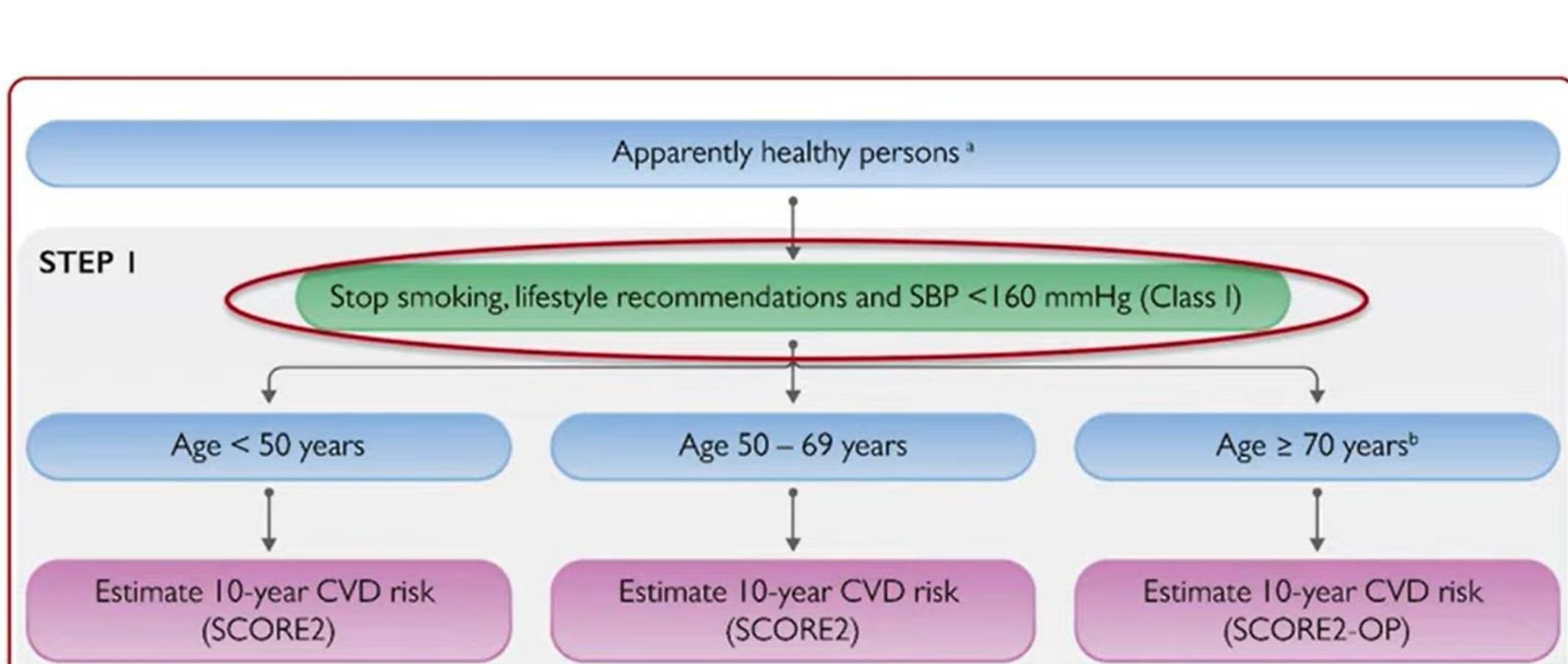
→ ETAPE 2 (objectifs de prevention et de traitement intensifiés)

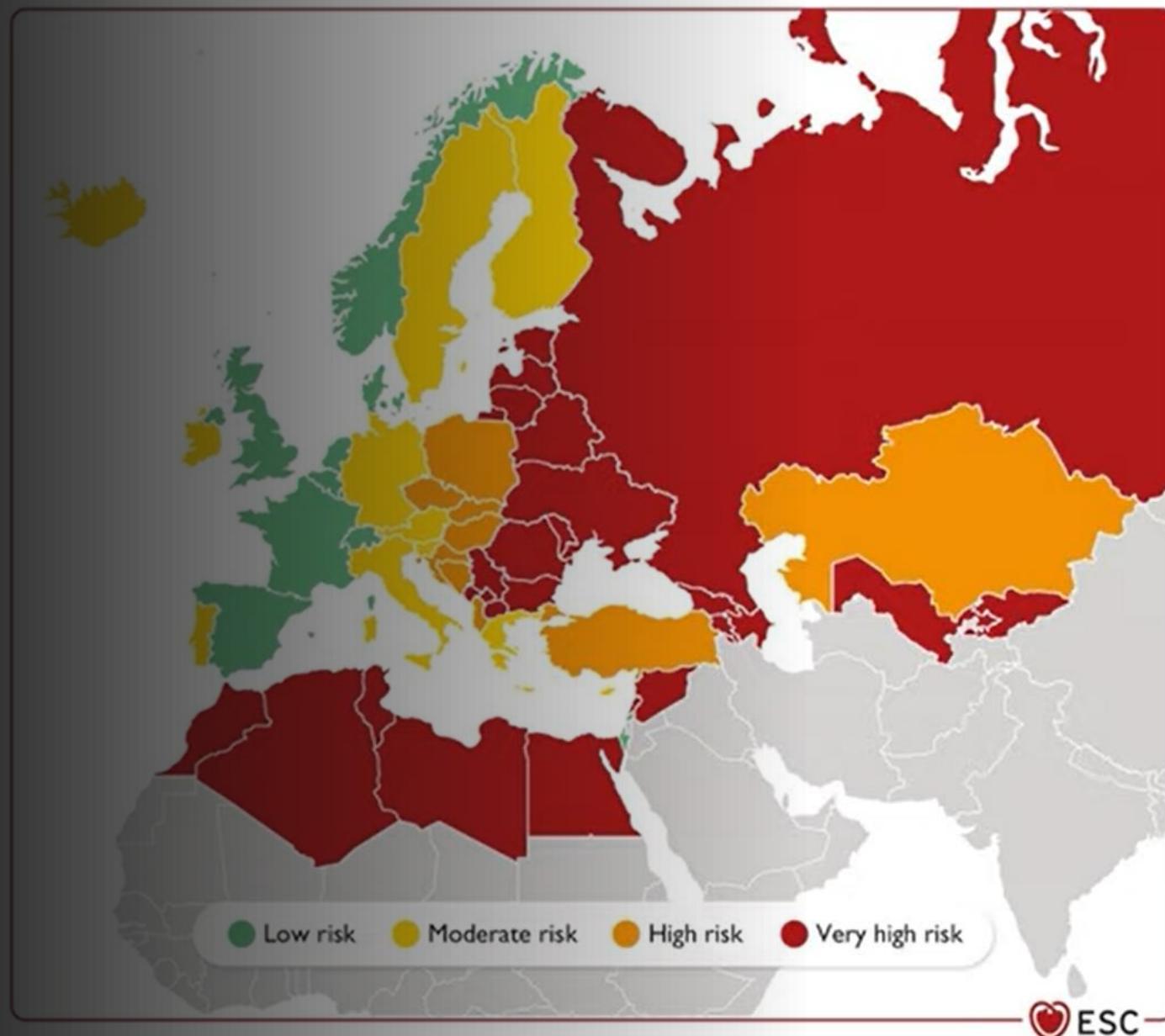
Cardiovascular risk and risk factor treatment in apparently healthy persons:

Persons without:

- Established ASCVD (event or plaque)**
- Chronic Kidney Disease**
- Familial Hypercholesterolemia**
- Diabetes**





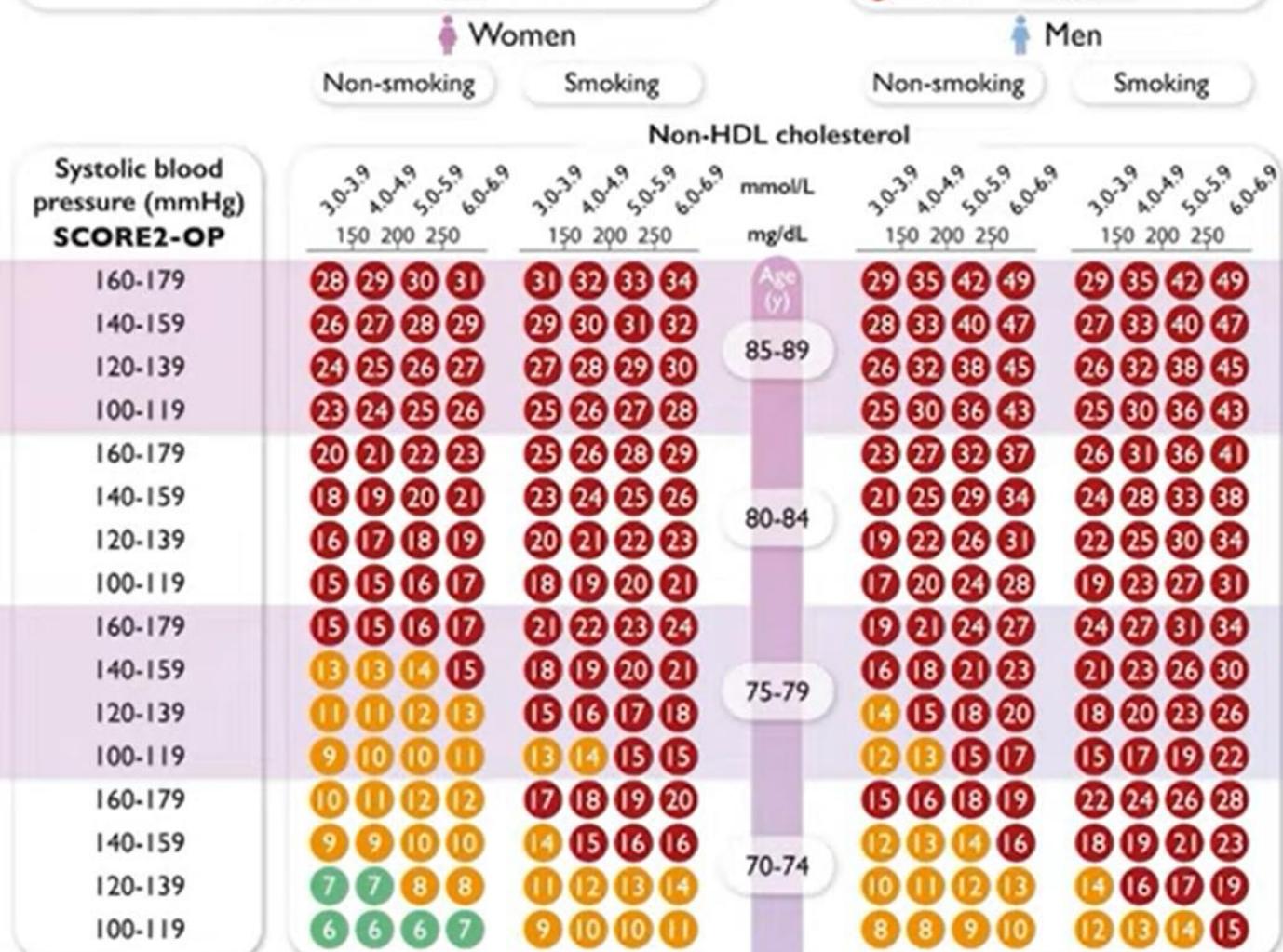


Risk regions based on World Health Organization cardiovascular mortality rates

Ces scores de prédition
sont maintenant calibrés
pour 4 zones de risques
basé sur des taux de
mortalité rapportés

SCORE2 & SCORE2-OP
10-year risk of (fatal and non-fatal) CV events in populations at low CVD risk

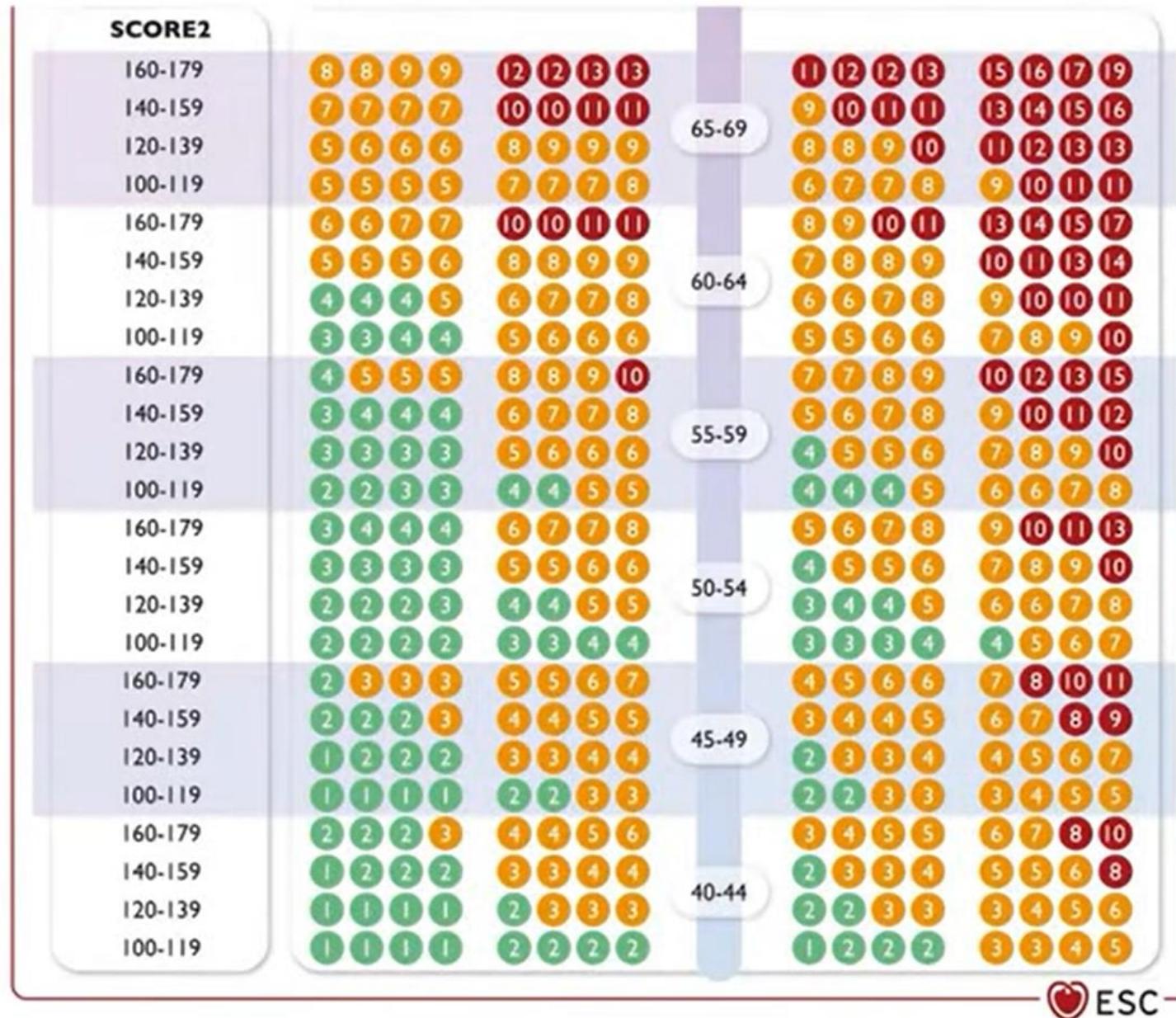
<50 years	50-69 years	≥70 years
<2.5%	<5%	<7.5%
2.5 to <7.5%	5 to <10%	7.5 to <15%
≥7.5%	≥10%	≥15%

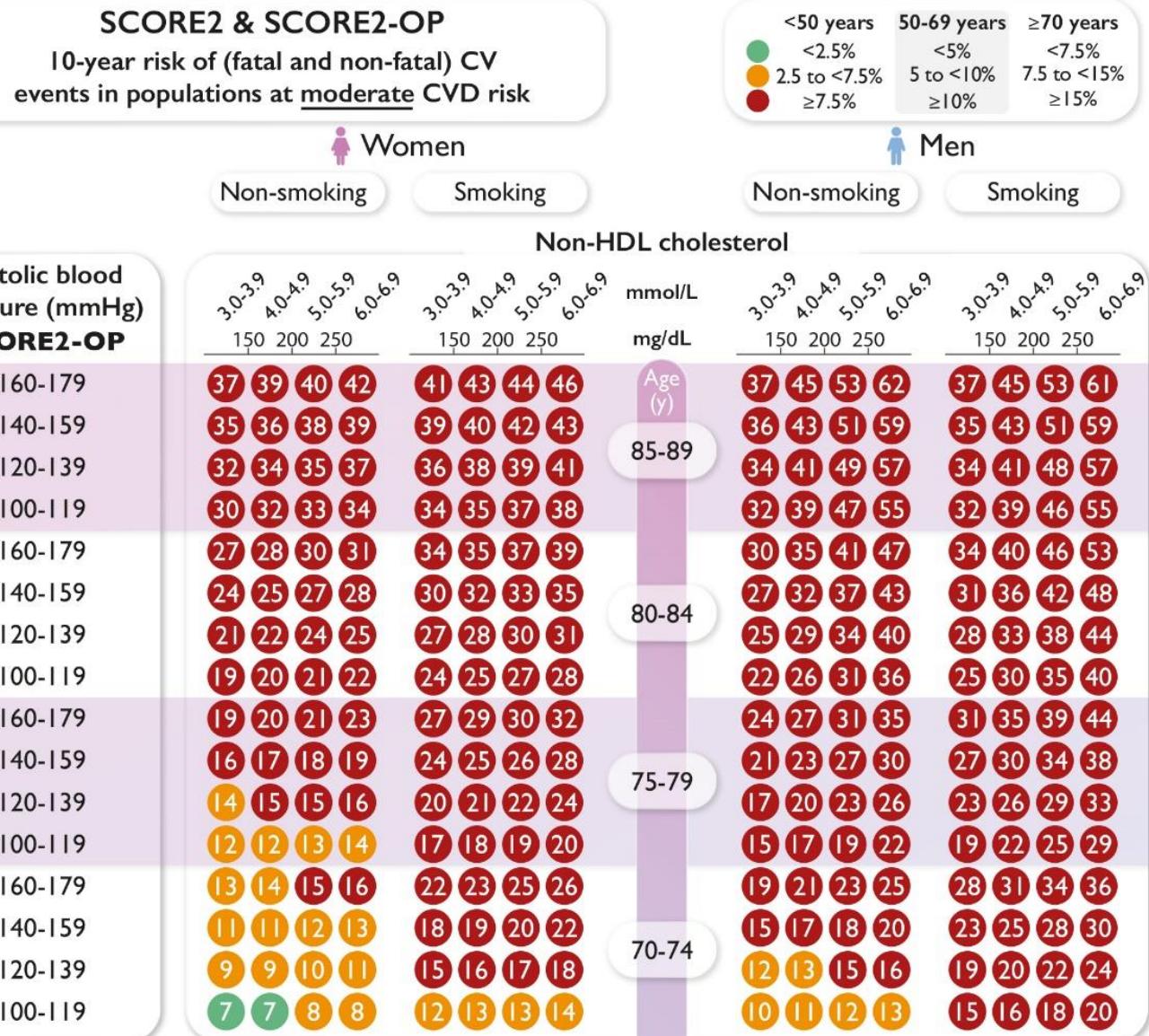


SCORE2 and SCORE2-OP risk chart for fatal and non-fatal (MI, stroke) ASCVD

Low CVD Risk (1)

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





SCORE2 and SCORE2-OP risk chart for fatal and non-fatal (MI, stroke) ASCVD Moderate CVD Risk (1)

SCORE2

160-179

10 10 11 12 15 16 17 18

140-159

8 9 9 9 13 13 14 15

120-139

7 7 7 8 10 11 12 12

100-119

5 6 6 6 9 9 9 10

160-179

7 8 8 9 12 13 14 15

140-159

6 6 7 7 10 11 11 12

120-139

5 5 5 6 8 9 9 10

100-119

4 4 4 5 6 7 7 8

160-179

5 6 6 7 10 11 11 12

140-159

4 4 5 5 8 8 9 10

120-139

3 3 4 4 6 7 7 8

100-119

3 3 3 3 5 5 6 6

160-179

4 4 5 5 8 8 9 10

140-159

3 3 4 4 6 6 7 8

120-139

2 2 3 3 5 5 6 6

100-119

2 2 2 2 3 4 4 5

160-179

3 3 3 4 6 7 8 9

140-159

2 2 3 3 5 5 6 6

120-139

2 2 2 2 3 4 4 5

100-119

1 1 1 2 3 3 3 4

160-179

2 2 3 3 5 5 6 7

140-159

1 2 2 2 3 4 5 5

120-139

1 1 1 2 3 3 3 4

100-119

1 1 1 1 2 2 2 3

65-69

60-64

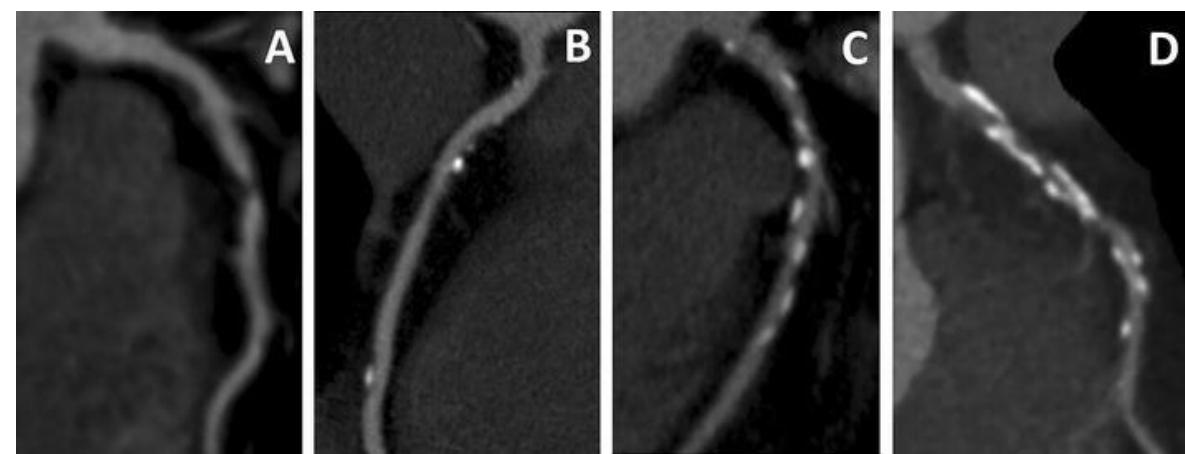
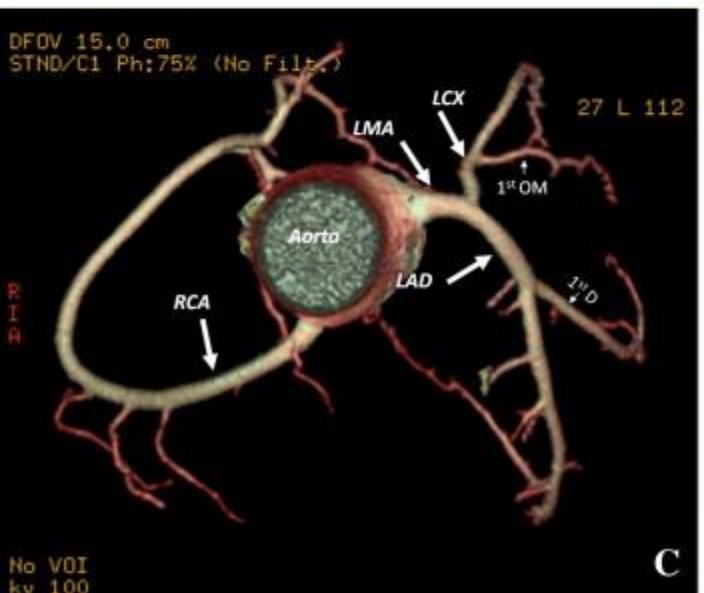
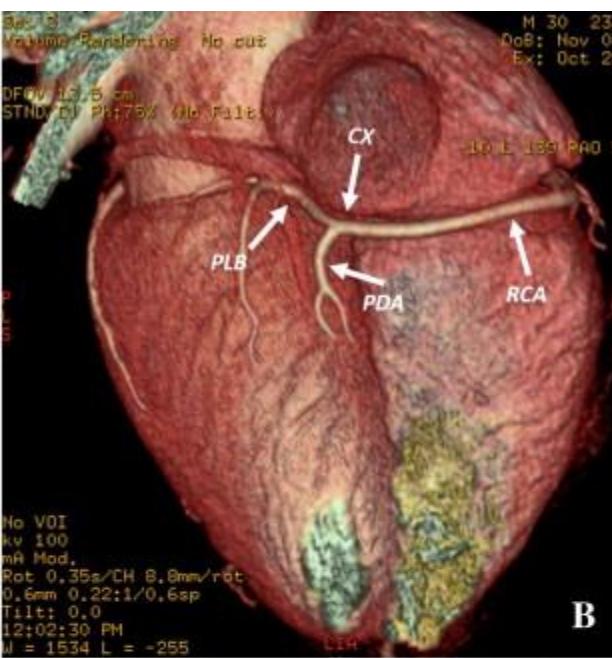
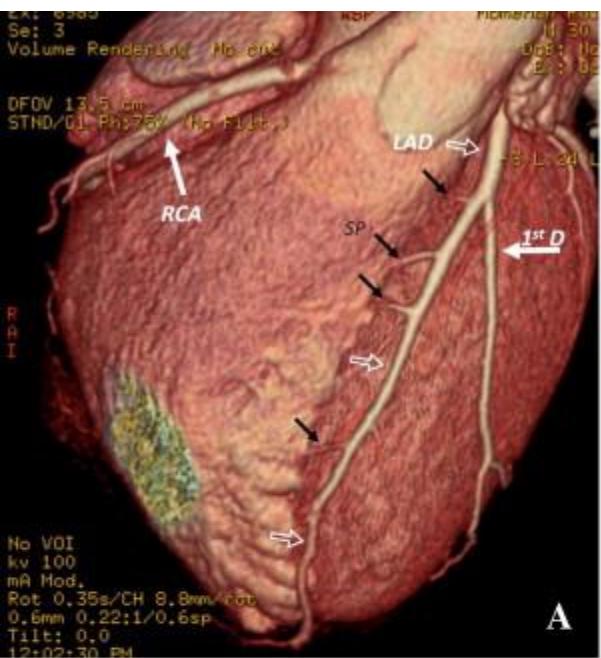
55-59

50-54

45-49

40-44

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



Patients with established ASCVD^aSTEP 1^b

Stop smoking
and lifestyle
recommendations
(Class I)

LDL-C
≥50% reduction and
<1.8 mmol/L (<70 mg/dL)
(Class I)

AND

SBP <140
to 130 mmHg
if tolerated
(Class I)

Antithrombotic
Therapy
(Class I)

Among the lipid recommendations ...

Recommendations	Class	Level
If the goals are not achieved with the maximum tolerated dose of a statin, combination with ezetimibe is recommended.	I	B
For primary prevention patients at very high risk, but without FH, if the LDL-C goal is not achieved on a maximum tolerated dose of a statin and ezetimibe, combination therapy including a PCSK9 inhibitor may be considered.	IIb	C
...		

Recommendations for pharmacological LDL cholesterol lowering



Recommendations	Class	Level
In patients with established ASCVD, lipid-lowering treatment with an ultimate LDL-C goal of $\geq 50\%$ reduction vs baseline and an LDL-C of $< 1.4 \text{ mmol/L}$ ($< 55 \text{ mg/dL}$) is recommended.	I	A
If the goals are not achieved with the maximum tolerated dose of a statin, combination with ezetimibe is recommended.	I	B
For secondary prevention patients not achieving their goals on a maximum tolerated dose of a statin and ezetimibe, combination therapy including a PCSK9 inhibitor is recommended.	I	A

Recommendation for anti-inflammatory therapy

Recommendations	Class	Level
Low-dose colchicine (0.5 mg o.d.) may be considered in secondary prevention of CVD, particularly if other risk factors are insufficiently controlled or if recurrent CVD events occur under optimal therapy.	IIb	A

Recommendations for policy interventions at the population level



Recommendations	Class	Level
Policies and population approaches to PA, diet, smoking and tobacco use, and alcohol in governmental restrictions and mandates, media and education, labelling and information, economic incentives, schools, worksites, and community settings follow different levels of recommendations (see specific tables in the supplementary material for section 5).		

	Level	Actions
Methods	Governmental restrictions and mandates	
	Media and education	
	Labelling and information	
	Economic incentives	
Settings	Schools	
	Worksites	
	Community setting	

Expositions environnementales

- Le contenu nouveau est maintenant l'attention qui a été portée aux expositions environnementales qui augmente spécifiquement le risque de maladie CV.
- Celles-ci comprennent la pollution de l'air et du sol, les niveaux de bruit au-dessus de certains seuils.
- Il a été reconnu que la pollution de l'air contribue à la mortalité et à la morbidité cardiovasculaire.
- Le changement climatique est également reconnu comme une préoccupation majeure de santé publique.

- Recommandations de prévention de la maladie cardiovasculaire
... au niveau de l'individu et de la population
- La pierre angulaire est la promotion d'un mode de vie sain et le contrôle agressif des facteurs de risque cardiovasculaire
- ..avec une prévention plus personnalisée et une attention particulière aux personnes âgées
- Une mise à jour des algorithmes de prédition des risques pour les personnes apparemment en bonne santé (SCORE2, SCORE2-OP)
- Plus d'implication des patients et la promotion d'une prise de décision partagée
- Recommandations sur l'environnement

GRAZIE

PER L' ATTENZIONE