

Scores de risque cardio-vasculaire

Colloque du SMPR
30 avril 2014

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Département de Médecine communautaire, de premier recours et des urgences

Mme P. 57 ans

- Obésité légère (IMC=34)
- AF: père ayant fait un infarctus à l'âge de 52 ans
- A arrêté il y a 10 ans (25 UPA)
- TA: 142/93 mmHg (sous Co-Enalapril 20/12.5 1x/j)
- Bilan lipidique:
 - Cholestérol total 5.10 mmol/l
 - HDL 0.83 mmol/l
 - LDL 3.13 mmol/l
 - Triglycérides 0.71 mmol/l

Table 4 Recommendations for lipid profiling in order to assess total CV risk

Condition	Class ^a	Level ^b
Lipid profiling is indicated in subjects with: Type 2 diabetes mellitus	I	C
Established CVD	I	C
Hypertension	I	C
Smoking	I	C
BMI ≥ 30 kg/m ² or waist circumference >94 cm (90 cm ²) for men, >80 cm for women	I	C
Family history of premature CVD	I	C
Chronic inflammatory disease	I	C
Chronic kidney disease	I	C
Family history of familial dyslipidaemia	I	C
Lipid profiling may be considered in men >40 and women >50 years of age	IIb	C

^aClass of recommendation.

^bLevel of evidence.

^cFor Asian males.

BMI = body mass index; CV = cardiovascular; CVD = cardiovascular disease.

Pour évaluer son risque cardio-vasculaire, quels scores pouvons-nous utiliser en cabinet?

FRAMINGHAM HEART STUDY

A Project of the National Heart, Lung and Blood Institute and Boston University

About FHS
Participants
FHS Investigator
Risk Score Profiles
FHS Bibliography
For Researchers

General Cardiovascular Disease (10-year risk)

(based on D'Agostino, Vasan, Pencina, Wolf, Cobain, Massaro, Kannel. 'A General Cardiovascular Risk Profile for Use in Primary Care: The Framingham Heart Study')

Outcome
CVD (coronary death, myocardial infarction, coronary insufficiency, angina, ischemic stroke, hemorrhagic stroke, transient ischemic attack, peripheral artery disease, heart failure)

Duration of follow-up
Maximum of 12 years, 10-year risk prediction

Population of interest
Individuals 30 to 74 years old and without CVD at the baseline examination

Predictors

- Age
- Diabetes
- Smoking
- Treated and untreated Systolic Blood Pressure
- Total cholesterol
- HDL cholesterol
- BMI replacing lipids in a simpler model

Regression Coefficients and Hazard Ratios - Primary Model

Interactive Risk Score Calculator using lipids

Interactive Risk Score Calculator using BMI

- Atrial Fibrillation (10-year risk)
- Cardiovascular Disease (30-year risk)
- Congestive Heart Failure
- Coronary Heart Disease (10-year risk)
- Coronary Heart Disease (2-year risk)
- Diabetes Risk Score
- General Cardiovascular Disease (10-year risk)
- Hard Coronary

Framingham risk score

Estimating Risk of CHD in Men
Wilson, PWF, Circulation 1998;97:1837-1847

Step 1

Age		
Years	LDL Pts	Chol Pts
30-34	-1	[-1]
35-39	0	[0]
40-44	1	[1]
45-49	2	[2]
50-54	3	[3]
55-59	4	[4]
60-64	5	[5]
65-69	6	[6]
70-74	7	[7]

Step 2

LDL-C		
(mg/dl)	(mmol/L)	LDL Pts
<100	<2.59	-3
100-129	2.60-3.36	0
130-159	3.37-4.14	0
160-190	4.15-4.92	1
≥190	≥4.92	2

Cholesterol		
(mg/dl)	(mmol/L)	Chol Pts
<160	<4.14	[-3]
160-199	4.15-5.17	[0]
200-239	5.18-6.21	[1]
240-279	6.22-7.24	[2]
≥280	≥7.25	[3]

Step 3

HDL-C			
(mg/dl)	(mmol/L)	LDL Pts	Chol Pts
<35	<0.90	2	[2]
35-44	0.91-1.16	1	[1]
45-49	1.17-1.29	0	[0]
50-59	1.30-1.55	0	[0]
≥60	≥1.56	-1	[-2]

Key	
Color	Relative Risk
green	Very low
white	Low
yellow	Moderate
rose	High
red	Very high

http://www.framinghamheartstudy.org/risk/coronary.html

Framingham risk score

http://www.framinghamheartstudy.org/risk/coronary.html

Step 4

Blood Pressure				
Systolic (mm Hg)	Diastolic (mm Hg)			
	<80	80-84	85-89	90-99 ≥100
<120	0 [0]pts			
120-129		0 [0]pts		
130-139			1 [1]pts	
140-159				2 [2]pts
≥160				3 [3]pts

*Note: When systolic and diastolic pressures provide different estimates for scores, use the higher number

Step 5

Diabetes		
	LDL Pts	Chol Pts
No	0	[0]
Yes	2	[2]

Step 6

Smoker		
	LDL Pts	Chol Pts
No	0	[0]
Yes	2	[2]

Step 7 (sum from Steps 1-6)

Step 8 (determine CHD risk from point total)

CHD Risk			
LDL Pts Total	10 Yr CHD Risk	Chol Pts Total	10 Yr CHD Risk
<-3	1%		
-2	2%		
-1	2%	<[-1]	[2%]
0	3%	[0]	[3%]
1	4%	[1]	[3%]
2	4%	[2]	[4%]
3	6%	[3]	[5%]
4	7%	[4]	[7%]
5	9%	[5]	[8%]
6	11%	[6]	[10%]
7	14%	[7]	[13%]
8	18%	[8]	[16%]
9	22%	[9]	[20%]
10	27%	[10]	[25%]
11	33%	[11]	[31%]
12	40%	[12]	[37%]
13	47%	[13]	[45%]
≥14	≥56%	≥[14]	≥[53%]

Framingham risk score

http://www.framinghamheartstudy.org/risk/coronary.html

Step 9 (compare to average person your age)

Comparative Risk			
Age (years)	Average 10 Yr CHD Risk	Average 10 Yr Hard* CHD Risk	Low** Risk
30-34	3%	1%	2%
35-39	5%	4%	3%
40-44	7%	4%	4%
45-49	11%	8%	4%
50-54	14%	10%	6%
55-59	16%	13%	7%
60-64	21%	20%	9%
65-69	25%	22%	11%
70-74	30%	25%	14%

Hard Coronary Heart Disease (10-year risk)

(based on The Adult Treatment Panel III, JAMA. 2001)

Outcome

Hard coronary heart disease (HCHD) (myocardial infarction or coronary death)

*Hard CHD events exclude angina pectoris

**Low risk was calculated for a person the same age, optimal blood pressure, LDL-C 100-129mg/dl or cholesterol 160-199 mg/dl, HDL-C 45 mg/dl for men or 55 mg/dl for women, non-smoker, no diabetes.

Risk estimates were derived from the experience of the Framingham Heart Study, a predominantly Caucasian population in Massachusetts, USA.

SCORE 2003- 2011

- Origine des données: pool de cohortes de sujets de 12 régions d'Europe
- Type d'étude: étude observationnelle prospective
- Durée du suivi: 10 ans
- Population: 205 178 personnes
 - 117 098 H et 88 080 F
 - Sans maladie coronarienne connue
 - Age de 19-80 à 43-53 ans
 - Données récoltées de 1967 à 1988
 - Pays à risque
 - Haut: Russie, GB, Norvège, Finlande, Suède,...
 - Bas: France, CH, Italie, Espagne, Suisse

SCORE 2003- 2011

- Données prises en compte
 - Mortalité cardiovasculaire coronarienne
 - Mortalité cardiovasculaire non coronarienne (cérébro-vasculaire et vasculaire périphérique)
- Éléments du score (6):
 - Sexe, âge, TA systolique, chol total, HDL, tabagisme



European Heart Journal (2011) 32, 1769–1818
doi:10.1093/eurheartj/ehr158

ESC/EAS GUIDELINES

ESC/EAS Guidelines for the management of dyslipidaemias

The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS)

Developed with the special contribution of: European Association for Cardiovascular Prevention & Rehabilitation[†]

Authors/Task Force Members: Željko Reiner* (ESC Chairperson) (Croatia), Alberico L. Catapano* (EAS Chairperson)* (Italy), Guy De Backer (Belgium), Ian Graham (Ireland), Marja-Riitta Taskinen (Finland), Olov Wiklund (Sweden), Stefan Agewall (Norway), Eduardo Alegria (Spain), M. John Chapman (France), Paul Durrington (UK), Serap Erdine (Turkey), Julian Halcox (UK), Richard Hobbs (UK), John Kjekshus (Norway), Pasquale Perrone Filardi (Italy), Gabriele Riccardi (Italy), Robert F. Storey (UK), David Wood (UK).

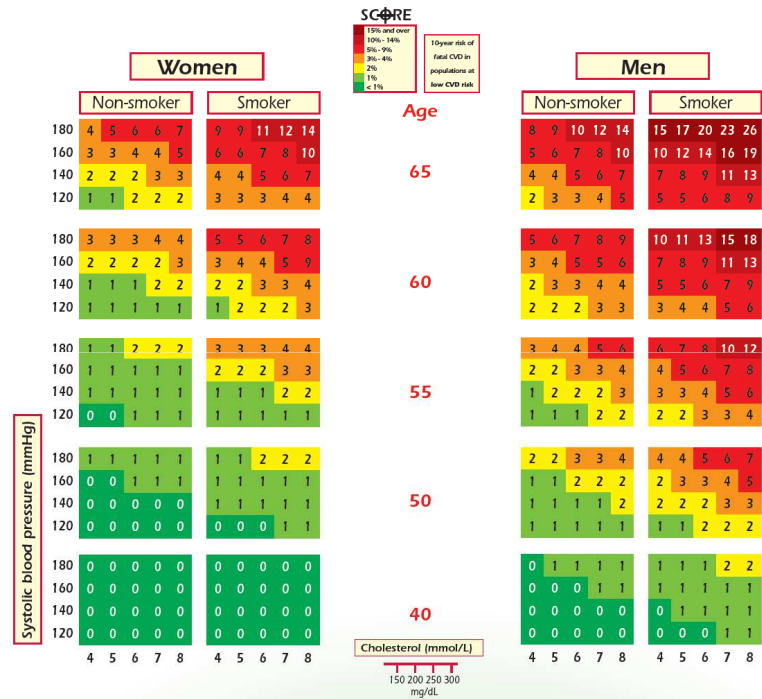
(1) Those with

- known CVD
- type 2 diabetes or type 1 diabetes with microalbuminuria
- very high levels of individual risk factors
- chronic kidney disease (CKD)

are automatically at **VERY HIGH** or **HIGH TOTAL CARDIOVASCULAR RISK** and need active management of all risk factors.

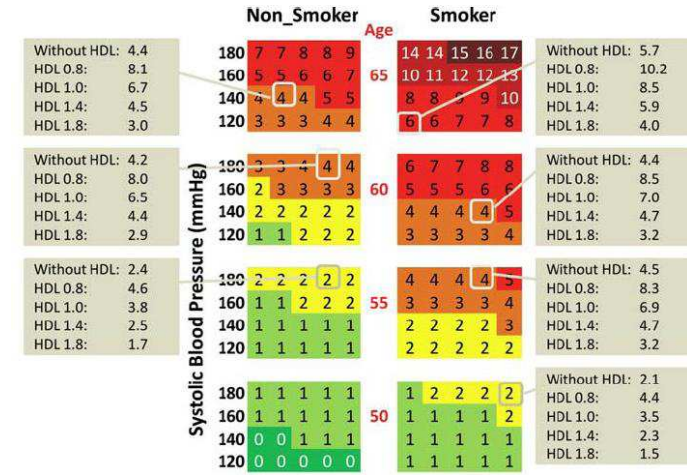
(2) For all other people, the use of a risk estimation system such as SCORE is recommended to estimate total CV risk because many people have several risk factors which, in combination, may result in unexpectedly high levels of total CV risk.

10 year risk of fatal CVD in low risk regions of Europe



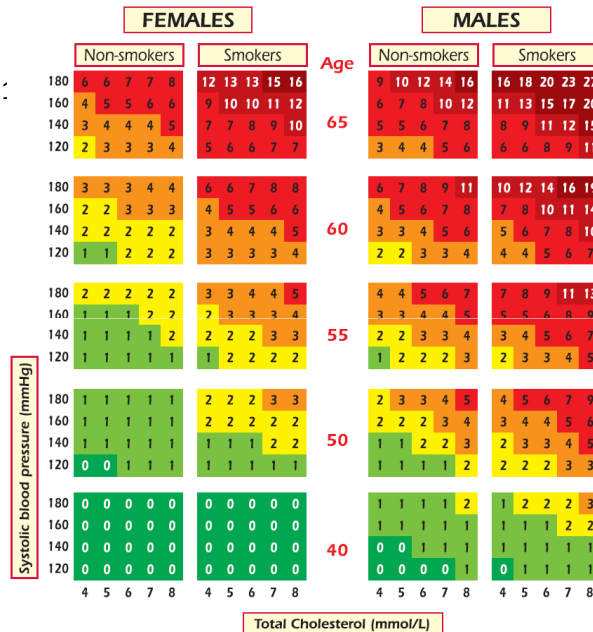
Directives ESC/EAS 2011: inclusion du HDL-C pour la stratification du risque

www.heartscore.org



ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Directives ESC/EAS 2011:
HDL 0.8 mmol/l



ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Procam 2002

- Origine des données: Münster (Allemagne)
- Type d'étude: étude observationnelle prospective
- Durée du suivi: 10 ans
- Population: 5389 hommes
 - Sans maladie coronarienne connue
 - Age: 35 à 65 ans
 - Données récoltées de 1979 à 1985

Procam 2002

- Données prises en compte:
 - Mort cardiaque soudaine
 - Infarctus du myocarde fatal ou non fatal
- Eléments du score (8)
 - Age, TA systolique, AF 1^{er} degré, LDL, HDL, Trigly, tabagisme, diabète

PROCAM

Clinical Investigation and Reports
**Simple Scoring Scheme for Calculating the Risk of Acute Coronary Events
 Based on the 10-Year Follow-Up of the Prospective Cardiovascular
 Münster (PROCAM) Study**
 Gerd Assmann, MD, FRCP; Paul Cullen, MD, FRCP; Helmut Schulte, PhD

[Circulation.](#) 2002 Jan 22;105(3):310-5

Directives GSLA: adaptées de l'étude PROCAM 2002 Définition des patients à très haut risque

RECOMMANDATIONS DE L'IAS 2003 modifiées et actualisées pour la Suisse 2012

Catégories de risque cardio-vasculaire

Risque très élevé*

- ▶ Maladie coronarienne/athérosclérose connue¹
- ▶ Diabète de type 2 ou de type 1 avec atteinte des organes cible telle que microalbuminurie
- ▶ Débit de filtration glomérulaire < 60 ml/min/1.73 m²

¹ Prouvé par des tests invasifs ou non-invasifs; IM dans l'anamnèse, SCA, revascularisations coronariennes/artérielles, apoplexie ischémique, artériopathie oblitérante périphérique
² Risque absolu (en %) de subir un événement coronarien mortel ou un infarctus du myocarde non mortel en l'espace de 10 ans.

Recommandations selon IAS/ AGLA

Score de risque du GSLA					
1) Nombre de points par facteur de risque, en fonction du degré de sévérité	Pression artérielle systolique (mmHg)	LDL-cholestérol (mmol/l)	2) Addition des points de tous les facteurs de risque		
	■ < 120	0	■ < 2.59	0	
▶ Age (ans)	■ 120-129	2	■ 2.59-3.36	5	
■ 35-39	0	■ 130-139	3	■ 3.37-4.13	10
■ 40-44	6	■ 140-159	5	■ 4.14-4.91	14
■ 45-49	11	■ ≥ 160	8	■ ≥ 4.91	20
■ 50-54	16	▶ Diabète			
■ 55-59	21	■ Non	0		
■ 60-65	26	■ Oui	6	▶ Triglycérides (mmol/l)	
				■ < 1.14	0
▶ Antécédents familiaux	▶ HDL-cholestérol (mmol/l)		■ 1.14-1.70	2	
■ Non	0	■ < 0.91	11	■ 1.71-2.27	3
■ Oui	4	■ 0.91-1.16	8	■ ≥ 2.28	4
▶ Fumeur	■ 1.17-1.41	5			
■ Non	0	■ ≥ 1.42	0		
■ Oui	8				

3) Risque absolu d'événement coronarien aigu en l'espace de 10 ans, compte tenu du nombre total de points	Risque sur 10 ans pour la Suisse en %*
■ 0-24 points	< 1
■ 25-31 points	1-2
■ 32-41 points	2-5
■ 42-49 points	5-10
■ 50-58 points	10-20
■ > 58 points	> 20

Calculateur de risque du GSLA



- Explications sur le calculateur de risque du GSLA
- Calculateur de risque du GSLA et score du GSLA: comparaison

Données d'ordre général

Age (en années)

(20-75 ans)

 ans

PA systolique en mmHg

(100-225 mmHg)

 mmHg

Sexe

- Homme
 Femme

Lipides sanguins

LDL

(1.94-6.47 mmol/l)

 mmol/l

HDL

(0.65-1.94 mmol/l)

 mmol/l

TG

(0.57-4.52 mmol/l)

 mmol/l

Autres données

Fumeur

- Oui
 Non

Diabète

- Oui
 Non

Infarctus du myocarde chez parents, grands-parents ou frères et sœurs avant 60 ans

- Oui
 Non

Calculer

Effacer les données

En résumé...

Score de Framingham avec:

- Age
- Sexe
- Status tabagique
- Tension artérielle
- Cholestérol total
- HDL-cholestérol
- Triglycérides
- Traitement contre l'hypertension

SCORE européen avec:

- Age
- Sexe
- Status tabagique
- Tension artérielle
- Cholestérol total
- Cholestérol HDL

Score de PROCAM avec:

- Age
- Sexe
- Status tabagique
- Tension artérielle
- HDL-cholestérol
- LDL-cholestérol
- Triglycérides
- Antécédents familiaux

FRAMINGHAM 2008 :

2 scores : morbidité cardiovasculaire totale ou coronarienne seule
Validé chez les femmes; prédiction en Europe du Sud problématique

SCORE 2003 - 2011 = mortalité cardiovasculaire totale.

Validé chez les femmes; prédiction en Europe excellente

PROCAM 2002 = accident coronarien aigu, fatal ou non

Non validé chez les femmes (estimation à ¼ du risque des hommes) mais score 2007 incluant les femmes. Prédiction chez non ménopausées ?

Risque + élevé si

- Précarité socio-économique
- Sédentarité

Et si votre patient avait 80 ans ?

Tableau I. Résumé des études sur les hypolipémiants ayant inclus un grand nombre de patients > 65 ans

Caractéristiques des études incluant des patients > 65 ans	Intervention	Age intervalle (moyenne)	Nombre de patients	Critères d'inclusion/type de prévention	Durée de suivi (moyenne)	LDL initial (mmol/l)	LDL atteint (% de baisse)	Risque relatif (IC 95%) pour les événements CV ^b	Réduction du risque absolu pour les événements CV ^b
Prévention primaire									
AFCAPS/ TexCAPS (1998)⁵	Lovastatine 20-40 mg vs placebo	45-73 (58)	6605	Prévention primaire	5,2 ans	3,89	2,96 (-25%)	0,63 (0,5-0,79)	3,9%
PROSPER (2002)¹⁷	Pravastatine 40 mg vs placebo	70-82 (75,3)	5804	Prévention primaire ou maladie vasculaire ^d	3,2 ans	3,8	2,5 (-34%)	0,85 (0,74-0,97)	2,1%
ASCOT-LLA (2003)⁶	Atorvastatine 10 mg vs placebo	40-79 (63,15)	10305	Prévention primaire, patients avec HTA et 3 autres FRCV ^d	3,3 ans	3,4	2,32 (-31%)	Total: 0,79 (0,69-0,9) > 60 ans: 0,64 (0,47-0,86)	1,07%
CARDS (2004)²⁵	Atorvastatine 10 mg vs placebo	65-75 (69)	1129 ^a	Diabétiques en prévention primaire ^d	3,9 ans	3,06	1,8 (-41%)	0,62 (0,42-0,92)	3,9%
JUPITER (2009)⁷	Rosuvastatine 20 mg vs placebo	60-71 (66)	15548	Prévention primaire avec LDL < 3,4 mmol/l	Max 5 ans (médiane 1,9 an)	2,8	1,42 (-49%)	0,45 (0,34-0,6)	1,22%
SEAS (2008)²⁴	Simvastatine 40 mg + Ezétimibe 10 mg vs placebo	47-78 (67,4)	1873	Prévention primaire en présence d'une sténose aortique modérée/sévère	4,35 ans	3,63	1,7 (-53,8%)	0,96 (0,83-1,12)	NA

Rev Med Suisse 2009; 5: 2211-8

N. Doser Joz-Roland
C. Büla
N. Rodondi

1. Les données sur les bénéfices et le coût-bénéfice des traitements de prévention primaire sont plus faibles chez les > 80 ans et inexistantes chez les > 85 ans.
2. La mortalité toutes causes confondues n'est probablement pas ou peu réduite.
3. L'apparition d'effets secondaires des statines est plus élevée avec l'âge, la présence de maladies chroniques (particulièrement insuffisance rénale et hépatique chronique).

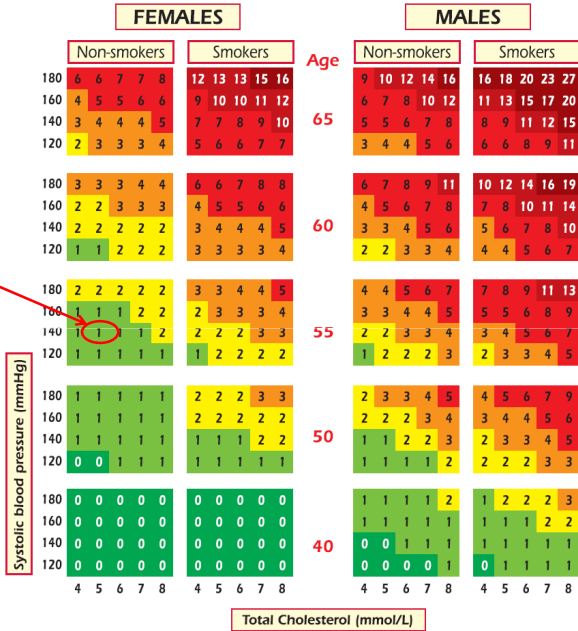
4. Toutefois, un patient âgé, en bonne santé et indépendant ne devrait pas être pénalisé du fait de son âge uniquement.
5. La décision d'instaurer un traitement médicamenteux en prévention primaire doit être discutée avec le patient, en prenant en compte son espérance de vie, son état fonctionnel et cognitif, ses comorbidités et ses autres médicaments.

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- TA: 142/93 mmHg (sous Co-Enalapril 20/12.5 1x/j)
- Bilan lipidique:
 - Cholestérol total 5.10 mmol/l
 - HDL 0.89 mmol/l
 - LDL 3.13 mmol/l
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New ESC/ EAS guidelines – young people

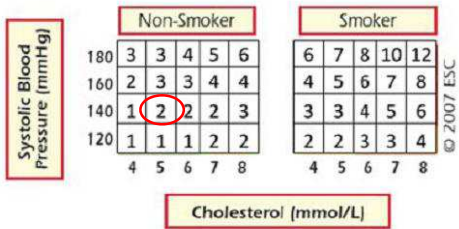
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ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Relative Risk Chart

This chart may be used to show younger people at low absolute risk that, relative to others in their age group, their risk may be many times higher than necessary. This may help to motivate decisions about avoidance of smoking, healthy nutrition and exercise, as well as flagging those who may become candidates for medication



Please note that this chart shows RELATIVE not absolute risk. The risks are RELATIVE to 1 in the bottom left. Thus a person in the top right hand box has a risk that is 12 times higher than a person in the bottom left

ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final Report

Table III.1-6. 10-Year Risk Estimates for Women (Framingham Point Scores)

Age	Points	Total Cholesterol	Points at Ages 20–39	Points at Ages 40–49	Points at Ages 50–59	Points at Ages 60–69	Points at Ages 70–79
20–34	-7	<160	0	0	0	0	0
35–39	-3	160–199	4	3	2	1	1
40–44	0	200–239	8	6	4	2	1
45–49	3	240–279	11	8	5	3	2
50–54	6	≥280	13	10	7	4	2
55–59	8						
60–64	10						
65–69	12						
70–74	14						
75–79	16						
			Points at Ages 20–39	Points at Ages 40–49	Points at Ages 50–59	Points at Ages 60–69	Points at Ages 70–79
		Nonsmoker	0	0	0	0	0
		Smoker	9	7	4	2	1

ATP III. Circulation 2002;106:3143

HDL	Points	Systolic BP	If Untreated	If Treated
≥60	-1	<120	0	0
50–59	0	120–129	1	3
40–49	1	130–139	2	4
<40	2	140–159	3	5
		≥160	4	6

Point Total	10-Year Risk	Point Total	10-Year Risk
<9	<1%	20	11%
9	1%	21	14%
10	1%	22	17%
11	1%	23	22%
12	1%	24	27%
13	2%	≥25	≥30%
14	2%		
15	3%		
16	4%		
17	5%		
18	6%		
19	8%		

Recommandations selon IAS/ AGLA

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1) Nombre de points par facteur de risque, en fonction du degré de sévérité	Pression artérielle systolique (mmHg)	LDL-cholestérol (mmol/l)	2) Addition des points de tous les facteurs de risque	
▶ Âge (ans)	■ < 120	0	■ < 2.59	0
■ 35–39	■ 120–129	2	■ 2.59–3.36	5
■ 40–44	■ 130–139	3	■ 3.37–4.13	10
■ 45–49	■ 140–159	5	■ 4.14–4.91	14
■ 50–54	■ ≥ 160	8	■ ≥ 4.91	20
■ 55–59	▶ Diabète	▶ Triglycérides (mmol/l)	3) Risque absolu d'événement coronarien aigu en l'espace de 10 ans, compte tenu du nombre total de points	
■ 60–65	■ Non	0	▶ Risque sur 10 ans pour la Suisse en %*	
▶ Antécédents familiaux	■ Oui	6	■ < 1.14	0
■ Non	▶ HDL-cholestérol (mmol/l)	11	■ 1.14–1.70	2
■ Oui	■ < 0.91	8	■ 1.71–2.27	3
▶ Fumeur	■ 0.91–1.16	5	■ ≥ 2.28	4
■ Non	■ 1.17–1.41	0	■ 0–24 points < 1	
■ Oui	■ ≥ 1.42	0	■ 25–31 points 1–2	
			■ 32–41 points 2–5	
			■ 42–49 points 5–10	
			■ 50–58 points 10–20	
			■ > 58 points > 20	

1 Prévention de l'athérosclérose. Vue d'ensemble relative aux recommandations de l'IAS et de l'ESC. Éditeur: Groupe de travail lipides et athérosclérose (AGLA) de la Société Suisse de Cardiologie (SSC); 2012.

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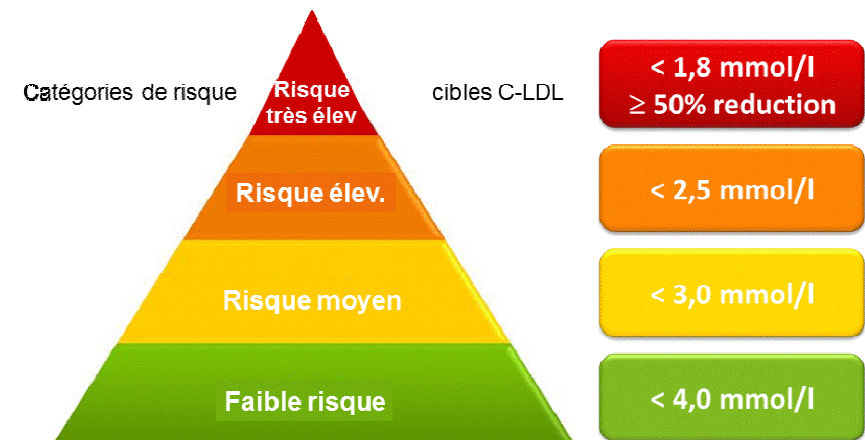
GSLA= 7.5 % Score= 1-2 % Framingham 2008= 14.8% dont 9% mal.coro

Directives ESC/EAS 2011: nouvelle définition de catégories de risque

- Risque très élevé:** patients avec
 - MCV
 - Diabète de type 2, diabète de type 1 avec lésion d'un organe cible
 - IRC de modérée à sévère (GFR <60 mL/min/1,73 m²).
 - Risque calculé à 10 ans SCORE ≥10%
- Risque élevé:** patients avec
 - Facteurs de risques isolés nettement élevés tels que dyslipidémie familiale et hypertension sévère
 - Risque calculé à 10 ans SCORE ≥5% et <10%
- Risque moyen:** patients avec
 - Risque calculé à 10 ans SCORE ≥1% et <5%
- Faible risque:** patients avec
 - Risque calculé à 10 ans SCORE <1%

Directives ESC/EAS 2011: nouvelles catégories de risque et cibles C-LDL

Nouvelle cible C-LDL < 1,8 mmol/l pour des patients à risque très élevé avec MCV, MRC et diabète



ESC Guidelines 2011: Intervention Strategies

Table 3 Intervention strategies as a function of total CV risk and LDL-C level

Total CV risk (SCORE) %	LDL-C levels				
	<70 mg/dL <1.8 mmol/L	70 to <100 mg/dL 1.8 to <2.5 mmol/L	100 to <155 mg/dL 2.5 to <4.0 mmol/L	155 to <190 mg/dL 4.0 to <4.9 mmol/L	>190 mg/dL >4.9 mmol/L
<1	No lipid intervention	No lipid intervention	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	I/C	I/C	Ia/A
≥1 to <5	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	Ia/A	Ia/A	I/A
>5 to <10, or high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	Ia/A	I/A	I/A
≥10 or very high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	I/A	I/A	I/A

ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Mme P. 57 ans

- Obésité légère (IMC=34)
- AF: père ayant fait un infarctus à l'âge de 52 ans
- A arrêté de fumer il y a 10 ans (25 UPA)
- TA: 142/93 mmHg (sous Co-Enalapril 20/12.5 1x/j)
- Bilan lipidique:
 - Cholestérol total 5.10 mmol/l
 - HDL 0.89 mmol/l
 - LDL 3.13 mmol/l
 - Triglycérides 0.71 mmol/l

GSLA= 7.5 % Score= 1-2 % Framingham 2008= 14.8% dont 9% mal.coro

ESC Guidelines 2011: Intervention Strategies

Table 3 Intervention strategies as a function of total CV risk and LDL-C level

Total CV risk (SCORE) %	LDL-C levels				
	<70 mg/dL <1.8 mmol/L	70 to <100 mg/dL 1.8 to <2.5 mmol/L	100 to <155 mg/dL 2.5 to <4.0 mmol/L	155 to <190 mg/dL 4.0 to <4.9 mmol/L	>190 mg/dL >4.9 mmol/L
<1	No lipid intervention	No lipid intervention	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	I/C	I/C	Ia/A
≥1 to <5	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	Ia/A	Ia/A	I/A
>5 to <10, or high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	Ia/A	I/A	I/A
≥10 or very high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	I/A	I/A	I/A

ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Mme P. 35 ans

- Suisse
- Obésité légère (IMC=32)
- AF: mère ayant fait un AVC à 64 ans
- Non fumeur
- TA: 127/83 mmHg
- Bilan lipidique:
 - Cholestérol total 6.45 mmol/l
 - HDL 0.89 mmol/l
 - LDL 4.5 mmol/l
 - Triglycérides 2.2 mmol/l

Mme P. 35 ans

- Suisse
- Obésité légère (IMC=32)
- AF: mère ayant fait un AVC à 64 ans
- Non fumeur
- TA: 127/83 mmHg
- Bilan lipidique:
 - Cholestérol total 6.45 mmol/l
 - HDL 0.89 mmol/l
 - LDL 4.5 mmol/l
 - Triglycérides 2.2 mmol/l

GSLA= 1-2% Score= 0% Framingham 2008 = 3.5% dont 2% mal. coro

ESC Guidelines 2011: Intervention Strategies

Table 3 Intervention strategies as a function of total CV risk and LDL-C level

Total CV risk (SCORE) %	LDL-C levels				
	<70 mg/dL <1.8 mmol/L	70 to <100 mg/dL 1.8 to <2.5 mmol/L	100 to <155 mg/dL 2.5 to <4.0 mmol/L	155 to <190 mg/dL 4.0 to <4.9 mmol/L	>190 mg/dL >4.9 mmol/L
<1	No lipid intervention	No lipid intervention	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	I/C	I/C	Ila/A
≥1 to <5	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	Ila/A	Ila/A	I/A
>5 to <10, or high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ila/A	Ila/A	Ila/A	I/A	I/A
≥10 or very high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ila/A	Ila/A	I/A	I/A	I/A

ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

M P. 61 ans

- Surpoids (IMC=28)
- AF: AVC chez père à l'âge de 75 ans
- Non tabagique
- Diabète de type I, sans complication micro- ni macro-angiopathique
- HTA: 142/93 mmHg (sous Co-Enalapril 20/12.5 1x/j)
- Bilan lipidique:
 - Cholestérol total 6.3 mmol/l
 - HDL 1.5 mmol/l
 - LDL 4.33 mmol/l
 - Triglycérides 0.6 mmol/l

GSLA= 8.7% Score= 4% Framingham= 40% dont 22% mal. Coro
Si atteinte OC: > 20% >10%

M P. 61 ans

- Surpoids (IMC=28)
- AF: AVC chez père à l'âge de 75 ans
- Non tabagique
- Diabète de type I, sans complication micro- ni macro-angiopathique
- HTA: 142/93 mmHg (sous Co-Enalapril 20/12.5 1x/j)
- Bilan lipidique:
 - Cholestérol total 6.3 mmol/l
 - HDL 1.5 mmol/l
 - LDL 4.33 mmol/l
 - Triglycérides 0.6 mmol/l

ESC Guidelines 2011: Intervention Strategies

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<1	No lipid intervention	No lipid intervention	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	I/C	I/C	Ia/A
≥1 to <5	Lifestyle intervention	Lifestyle intervention	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled	Lifestyle intervention, consider drug if uncontrolled
Class/Level ^b	I/C	I/C	Ia/A	Ia/A	I/A
>5 to <10, or high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	Ia/A	I/A	I/A
≥10 or very high risk	Lifestyle intervention, consider drug ^a	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention	Lifestyle intervention and immediate drug intervention
Class/Level ^b	Ia/A	Ia/A	I/A	I/A	I/A

ESC/EAS guidelines for the management of dyslipidemias. European Heart Journal (2011) 32, 1769–1818

Il s'agit d'une situation de prévention secondaire. Les scores de calcul de risque cardiovasculaire ne s'appliquent pas ici.

Un homme de 55 ans vous consulte pour un contrôle de santé.

Il est connu pour une hypertension artérielle traitée par lisinopril et thiazide. Il y a 2 ans, il a été victime d'un NSTEMI, suivi d'une PTCA de l'IVA

FRCV: Sédentaire. Fumeur actif dès l'âge de 19 ans avec une consommation de 20 cigarettes/jour. BMI = 29.5 kg/m².

Tension artérielle :158/98 mmHg, sous traitement.

Labo : glycémie à jeun=6.5 mM/l, cholestérol total=6.4 mM/l, LDL-cholestérol=4.05 mM/l, HDL-Cholestérol=1.03 mM/l, triglycérides=2.9 mM/l.

Faut-il lui prescrire un hypolipémiant ? Si oui, quelle doit être la valeur cible ?

New definition of risk levels

- very high risk:** patients with
 - CVD
 - type 2 diabetes, type 1 diabetes with target organ damage
 - moderate to severe CKD (GFR <60 mL/min/1.73 m²).
 - calculated 10 year risk SCORE ≥10%
- high risk:** patients with
 - Markedly elevated single risk factors such as familial dyslipidaemias and severe hypertension
 - calculated 10 year risk SCORE ≥5% and <10%
- moderate risk:** patients with
 - calculated 10 year risk SCORE ≥1% und <5%
- low risk:** patients with
 - calculated 10 year risk SCORE <1%

Et si votre patient avait 80 ans ?

Tableau 1. Résumé des études sur les hypolipémiants ayant inclus un grand nombre de patients > 65 ans

Carac- téristiques des études incluant des patients > 65 ans	Intervention	Age intervalle (moyenne)	Nombre de patients	Critères d'inclusion/ type de prévention	Durée de suivi (moyenne)	LDL Initial (mmol/l)	LDL atteint (% de baisse)	Risque relatif (IC 95%) pour les événements CV ^b	Réduction du risque absolu pour les événements CV ^b
Prévention secondaire									
4S (1994) ^{8,9}	Simvastatine 20-40 mg vs placebo	65-70 (67)	1021 ^a	Angor/Infarctus	5,4 ans	4,85	2,9 (-39,4%)	0,66 (0,55-0,81)	13,3%
CARE (1997) ¹⁰	Pravastatine 40 mg vs placebo	65-75 (69)	1283 ^a	Infarctus récent	5 ans	3,6	2,56 (-29%)	0,68 (0,64-0,85)	6,7%
LIPID (1998) ¹¹	Pravastatine 40 mg vs placebo	65-75 (NA)	3514 ^a	Maladie coronarienne	6 ans	3,9	3 (-28%)	0,74 (0,6-0,91)	3,3%
HPS (2002) ¹²	Simvastatine 40 mg vs placebo	40-80 ^c (NA)	5963	Maladies CV ou diabète, 15% en prévention primaire	4,8 ans	3,2	2,3 (-28%)	0,76 (0,7-0,87)	3,1% ^c
TNT (2005) ^{16,37}	Atorvastatine 80 mg vs 10 mg	65-75 (69,9)	3809 ^a	Maladie coronarienne stable	4,9 ans	2,5	80 mg: 1,9 (-24%) 10 mg: 2,5	0,81 (0,67-0,98)	2,3%
SAGE (2007) ¹³	Pravastatine 40 mg, Atorvastatine 80 mg	65-85 (72,5)	893	Maladie coronarienne	1 an	3,8	Pravastatine 2,6 (-32%) Atorvastatine 1,71 (-55%)	0,71 (0,46-1,09)	2,9%

Rev Med Suisse 2009; 5: 2211-8

**N. Doser Joz-
Roland
C. Büla
N. Rodondi**

Ces études ont inclus une majorité d'adultes d'âge moyen, même si l'âge d'enrôlement est allé jusqu'à 80 ans dans certaines études (85 ans dans SAGE).

Ces résultats doivent être appliqués avec réserve aux patients > 80 ans.

Intervention intervals

Although the optimal timing and frequency of discussions related to prevention are unknown, a reasonable option might be every 5 years in middle age and later and also whenever other cardiovascular risk factors are detected

Stone NJ, et al.
2013 ACC/AHA Blood Cholesterol Guideline

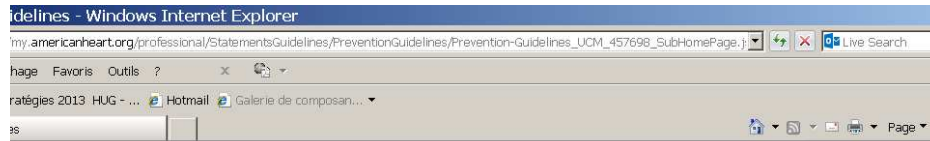
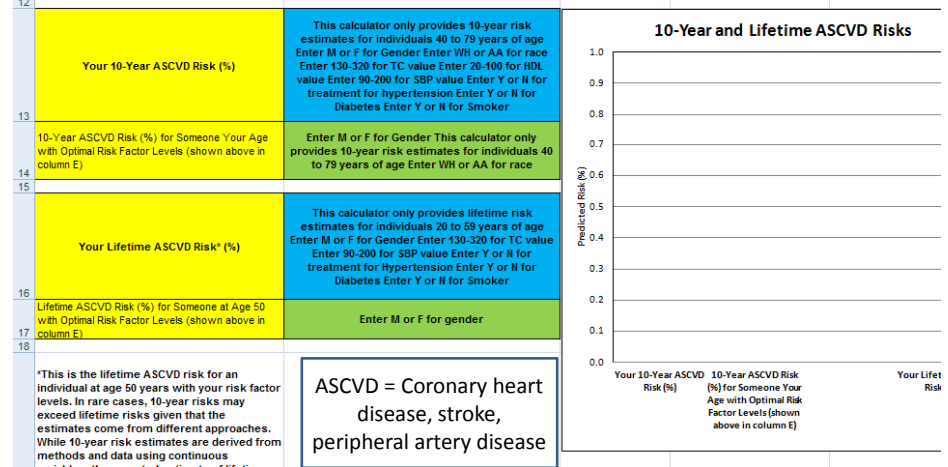
2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults

10.1016/j.jacc.2013.11.002

A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, American Pharmacists Association, American Society for Preventive Cardiology, Association of Black Cardiologists, Preventive Cardiovascular Nurses Association, and WomenHeart: The National Coalition for Women with Heart Disease

	A	B	C	D	E
1			Enter patient values in this column		
2	Risk Factor	Units	Value	Acceptable range of values	Optimal values
3	Sex	M (for males) or F (for females)		M or F	
4	Age	years		20-79	
5	Race	AA (for African Americans) or WH (for whites or others)		AA or WH	
6	Total Cholesterol	mg/dL		130-320	170
7	HDL-Cholesterol	mg/dL		20-100	50
8	Systolic Blood Pressure	mm Hg		90-200	110
9	Treatment for High Blood Pressure	Y (for yes) or N (for no)		Y or N	N
10	Diabetes	Y (for yes) or N (for no)		Y or N	N
11	Smoker	Y (for yes) or N (for no)		Y or N	N



2013 Prevention Guidelines Tools CV RISK CALCULATOR

This downloadable spreadsheet is a companion tool to the 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk. The spreadsheet enables health care providers and patients to estimate 10-year and lifetime risks for atherosclerotic cardiovascular disease (ASCVD), defined as coronary death or nonfatal myocardial infarction, or fatal or nonfatal stroke, based on the Pooled Cohort Equations and the work of Lloyd-Jones, et al., respectively. The information required to estimate ASCVD risk includes age, sex, race, total cholesterol, HDL cholesterol, systolic blood pressure, blood pressure lowering medication use, diabetes status, and smoking status.

Estimates of 10-year risk for ASCVD are based on data from multiple community-based populations and are applicable to African-American and non-Hispanic white men and women 40 through 79 years of age. For other ethnic groups, we recommend use of the equations for non-Hispanic whites, though these estimates may underestimate the risk for persons from some race/ethnic groups, especially American Indians, some Asian Americans (e.g., of South Asian ancestry), and some Hispanics (e.g., Puerto Ricans), and may overestimate the risk for others, including some Asian Americans (e.g., of East Asian ancestry) and some Hispanics (e.g., Mexican Americans).

Estimates of lifetime risk for ASCVD are provided for adults 20 through 59 years of age and are shown as the lifetime risk for ASCVD for a 50-year-old without ASCVD who has the risk factor values entered into the spreadsheet. The estimates of lifetime risk are most directly

The American Heart Association and the American College of Cardiology are excited to provide a series of new cardiovascular prevention guidelines for the assessment of cardiovascular risk, lifestyle modifications that reduce risk, management of elevated blood cholesterol, and management of increased body weight in adults. To support the implementation of these guidelines, the new Pooled Cohort Equations CV Risk Calculator and additional Prevention Guideline Tools are available below. Others may be developed and available in the near future.

DOWNLOAD CV RISK CALCULATOR

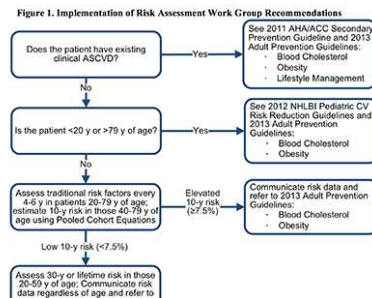
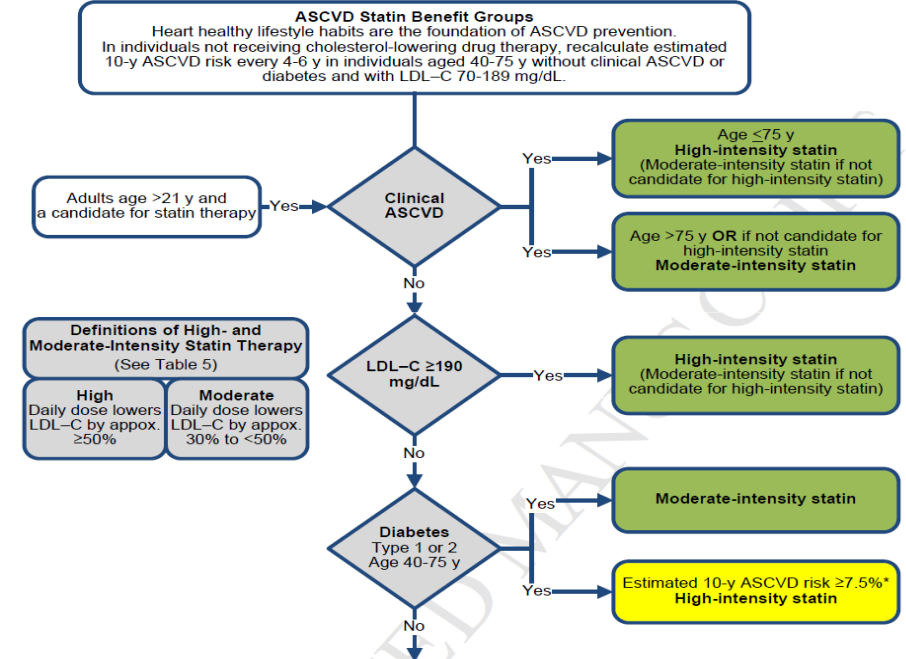


Figure 2. Major recommendations for statin therapy for ASCVD prevention



Aspirin for the prevention of cardiovascular disease: US Preventive Services Task Force recommendation statement

Methods: Review of the literature since 2002, focusing on new evidence on the benefits and harms of aspirin for the primary prevention of cardiovascular disease, including myocardial infarction and stroke. The new evidence was reviewed and synthesized according to sex.

USPSTF. Ann Intern Med 2009;150:396-404.

US Preventive Services Task Force recommendation statement:

men

Variable	Estimated MIs Prevented (per 1000 Men), <i>n</i>		
	Age 45–59 Years	Age 60–69 Years	Age 70–79 Years
10-year CHD risk			
1%	3.2	3.2	3.2
2%	6.4	6.4	6.4
3%	9.6	9.6	9.6
4%	12.8	12.8	12.8
5%	16	16	16
6%	19.2	19.2	19.2
7%	22.4	22.4	22.4
8%	25.6	25.6	25.6
9%	28.8	28.8	28.8
10%	32	32	32
11%	35.2	35.2	35.2
12%	38.4	38.4	38.4
13%	41.6	41.6	41.6
14%	44.8	44.8	44.8
15%	48	48	48
16%	51.2	51.2	51.2
17%	54.4	54.4	54.4
18%	57.6	57.6	57.6
19%	60.8	60.8	60.8
20%	64	64	64
	Estimated Harms, <i>n</i>		
Type of event			
GI bleeding	8	24	36
Hemorrhagic stroke	1	1	1

USPSTF. Ann Intern Med 2009;150:396-404.

US Preventive Services Task Force recommendation statement:

women

Variable	Estimated Strokes Prevented (per 1000 Women), <i>n</i>		
	Age 55–59 Years	Age 60–69 Years	Age 70–79 Years
10-year stroke risk			
1%	1.7	1.7	1.7
2%	3.4	3.4	3.4
3%	5.1	5.1	5.1
4%	6.8	6.8	6.8
5%	8.5	8.5	8.5
6%	10.2	10.2	10.2
7%	11.9	11.9	11.9
8%	13.6	13.6	13.6
9%	15.3	15.3	15.3
10%	17	17	17
11%	18.7	18.7	18.7
12%	20.4	20.4	20.4
13%	22.1	22.1	22.1
14%	23.8	23.8	23.8
15%	25.5	25.5	25.5
16%	27.2	27.2	27.2
17%	28.9	28.9	28.9
18%	30.6	30.6	30.6
19%	32.3	32.3	32.3
20%	34	34	34
	Estimated Harm, <i>n</i>		
Type of event			
GI bleeding	4	12	18

USPSTF. Ann Intern Med 2009;150:396-404.

Recommendations (1)

- **Encourage** men 45-79 years to use aspirin when the potential benefit of a reduction in MIs outweighs the potential harm of an increase in gastrointestinal haemorrhage. (A)
- **Encourage** women 55-79 years to use aspirin when the potential benefit of a reduction in ischaemic strokes outweighs the potential harm of an increase in gastrointestinal haemorrhage. (A)

Recommendations (2)

- **Evidence is insufficient** to assess the balance of benefits and harms of aspirin for CV prevention in men and women age 80 years or older. (I)
- **Do not encourage** aspirin use for CVD prevention in women younger than 55 years and in men younger than 45 years. (D)