

A ciência médica como base de apoio à decisão em saúde

- Na clínica, na gestão, nas políticas -

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Esquema da comunicação

- Os níveis de decisão num SNS moderno
- Uma medida de saúde preventiva a implementar
- Informação para os profissionais de saúde
- Informação para os gestores/administradores das unidade de saúde
- Informação para os decisores políticos
- Informação para os cidadãos
- Um sistema de informação baseado na evidência que é coerente/disponível/actualizável.

Os 4 níveis de decisão em saúde

- **Actividade assistencial** – médicos, farmacêuticos, enfermeiros, etc.
- **Gestão/administração** - Conselhos de Administração e de Gestão de hospitais e ACES, ARSs, etc.
- **Políticas de saúde** - Ministério da Saúde
- **Doentes/pacientes.**

Exemplo de pergunta clínica

- For patients with acute variceal bleeds, does the use of vasoactive agents such as vasopressin, somatostatin, and octreotide improve outcomes?
- 30 studies that compared vasoactive medications with placebo (n=3.111) and 27 studies that compared different vasoactive agents with each other (n=2.293)
- **Sim** (Wells M, Chande N, Adams P, et al. Meta-analysis: vasoactive medications for the management of acute variceal bleeds. Aliment Pharmacol Ther 2012;35(11):1267-1278).

Exemplo de pergunta de gestão clínica

- Is brief counseling to promote a healthful diet and physical activity effective in reducing the incidence of cardiovascular disease in primary care patients?
- 25 healthful diet counseling trials, 30 physical activity counseling trials, and 17 combined lifestyle counseling trials
- **Não** (U.S. Preventive Services Task Force. Behavioral counseling interventions to promote a healthful diet and physical activity for cardiovascular disease prevention in adults: U.S.Preventive Services Task Force recommendation statement. Ann Intern Med 2012;157:367-372)

Exemplo de pergunta de política de saúde

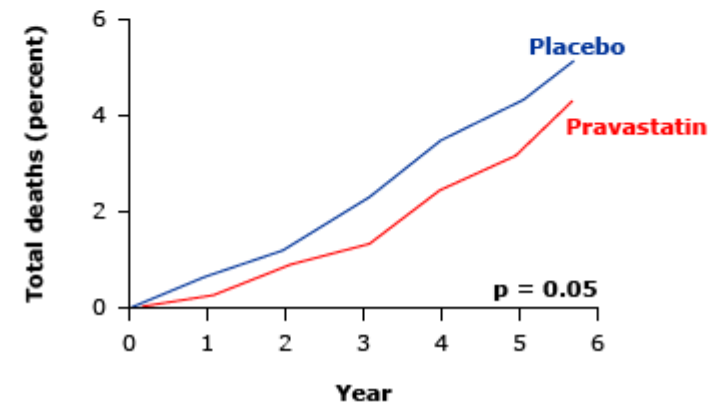
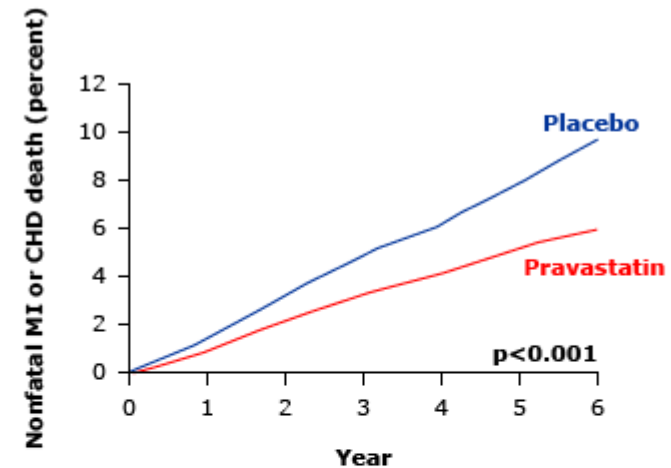
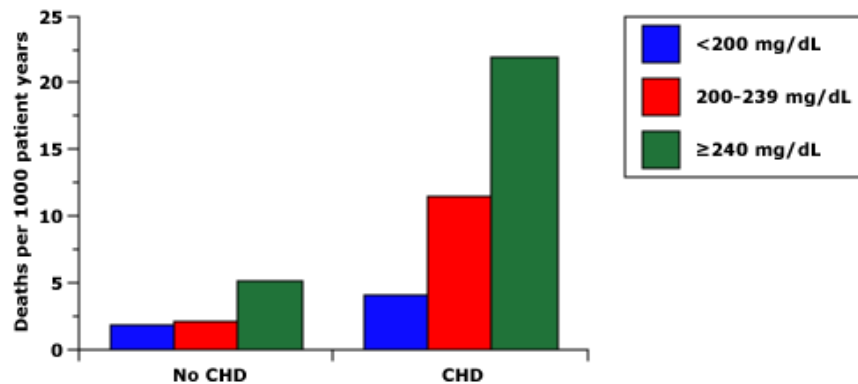
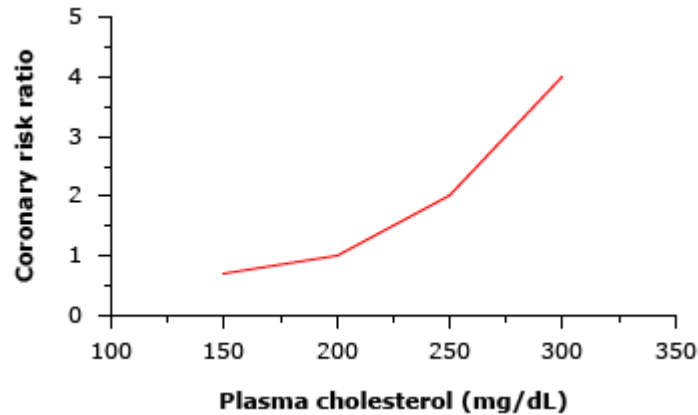
- Should patients be screened and treated for obesity?
- 58 trials: 38 trials (13.495 participants) involved behavioral interventions, 18 trials (11.256 participants) involved orlistat plus behavioral interventions, and 3 trials (2.652 participants) involved metformin plus behavioral interventions
- **Sim**, mas os benefícios são modestos (*U.S. Preventive Services Task Force. Screening for and management of obesity in adults: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2012;157:373-378*).

Exemplo de pergunta para o cidadão

- What is the rate of minor and major adverse events following colonoscopy?
- 1. 528 patients at 12 Dutch hospitals
- **1,3%** de complicações major e **32,5%** minor
(de Jonge V, Nicolaas JS, van Baalen O, et al, for the SCoPE consortium. The incidence of 30 day adverse events after colonoscopy among outpatients in the Netherlands. Am J Gastroenterol 2012;107(6):878-884)

O tratamento da
hipercolesterolémia em
pacientes assintomáticos
(prevenção 1ª)
diminui o risco cardiovascular

Relação entre o colesterol e o risco coronário



Que informação de base para os profissionais de saúde?

- Experiência individual
- Padrões de prática local
- Informação fornecida pela IF
- Evidência científica
 - estudos clínicos
 - revisões sistemáticas
- Normas de orientação (*guidelines*).

Relative Importance of Borderline and Elevated Levels of Coronary Heart Disease Risk Factors

Ann Intern Med. 2005;142:393-402.

Ramachandran S. Vasan, MD; Lisa M. Sullivan, PhD; Peter W.F. Wilson, MD; Christopher T. Sempos, PhD; Johan Sundström, MD, PhD; William B. Kannel, MD; Daniel Levy, MD; and Ralph B. D'Agostino, PhD

Table 1. Distribution of Individual CHD Risk Factors in Framingham Heart Study Participants and in the Third National Health and Nutrition Examination Survey*

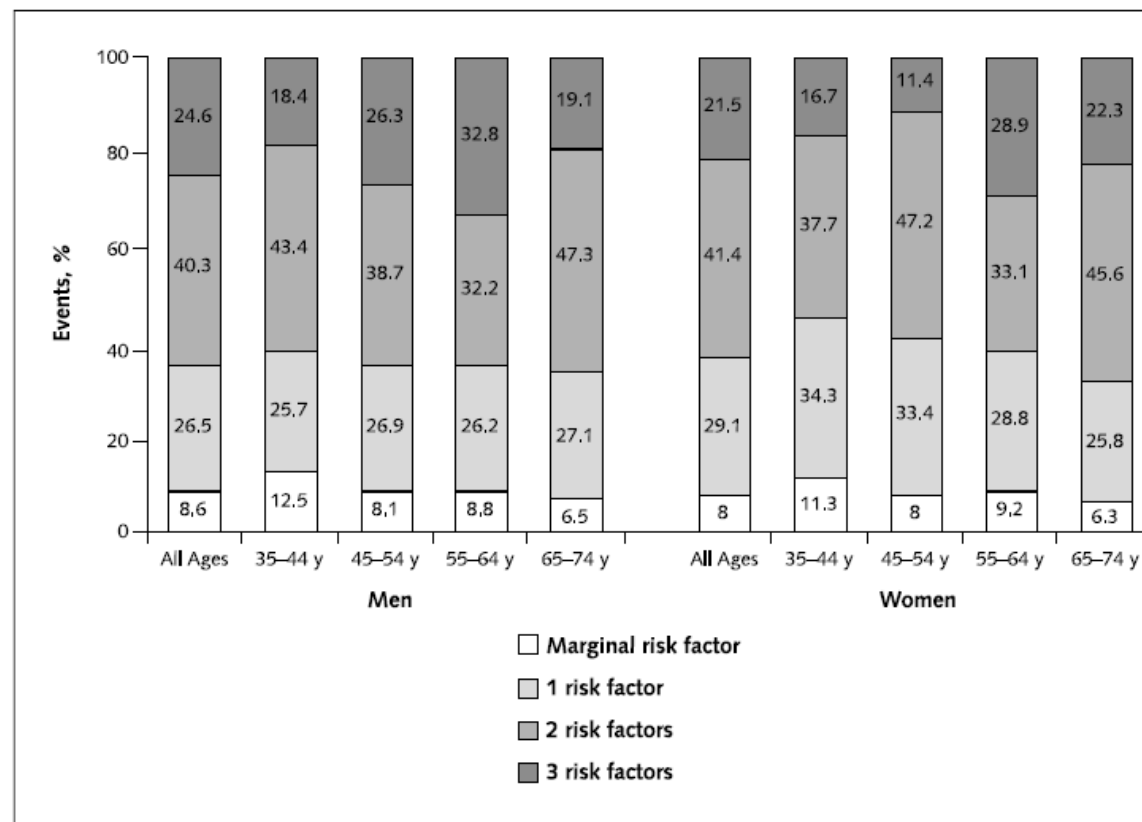
Risk Factors	Definitions	Framingham Heart Study		NHANES III†	
		Men (n = 3418)	Women (n = 3973)	Men (n = 681)	Women (n = 807)
Mean age, y		50.2	51.1	50.3	51.5
Blood pressure, %					
Optimal	Systolic < 120 mm Hg; diastolic < 80 mm Hg	19	31	31	48
Borderline	Systolic 120–139 mm Hg or diastolic 80–89 mm Hg	43	36	43	27
High	Systolic ≥140 mm Hg, diastolic ≥90 mm Hg, or treatment for hypertension	38	33	26	25
Serum LDL cholesterol level, %					
Optimal	<2.59 mmol/L (<100 mg/dL)	12	16	14	22
Borderline	2.59–4.12 mmol/L (100–159 mg/dL)	62	57	60	58
High	4.12 mmol/L (>159 mg/dL)	26	27	26	20
Serum HDL cholesterol level, %					
Optimal	>1.53 mmol/L (>59 mg/dL)	11	41	10	34
Borderline	1.04–1.53 mmol/L (40–59 mg/dL)	53	49	50	53
Low	<1.04 mmol/L (<40 mg/dL)	36	10	40	13
Glucose tolerance, %					
Optimal	Fasting glucose level < 6.11 mmol/L (<110 mg/dL) or 2-h glucose level < 7.77 mmol/L (<140 mg/dL)	81	90	82	87
Borderline	Fasting glucose level 6.11–6.94 mmol/L (110–125 mg/dL) or 2-h glucose level 7.77–11.04 mmol/L (140–199 mg/dL)	13	6	10	7
High	Known diabetes or fasting glucose level > 6.94 mmol/L (>125 mg/dL) or 2-h glucose level >11.04 mmol/L (>199 mg/dL)	6	4	8	6
Smoking, %					
Optimal	Never	26	42	30	50
Borderline	Former	39	25	42	30
High	Current	35	33	28	20

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Figure 2. Estimated proportion of hard coronary heart disease (CHD) events according to numbers of borderline and elevated risk factors for all ages pooled and within age groups for men and women.

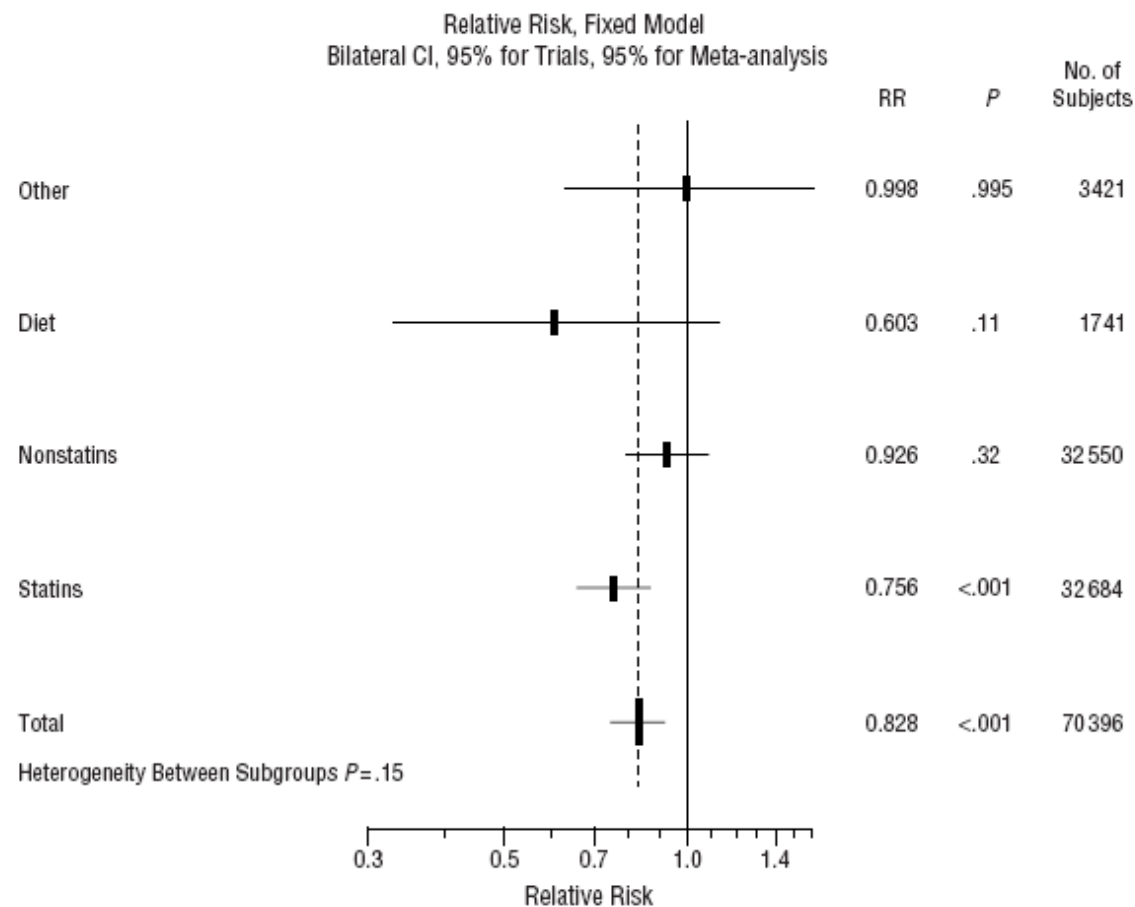


Differential Effects of Lipid-Lowering Therapies on Stroke Prevention

A Meta-analysis of Randomized Trials

Arch Intern Med. 2003;163:669-676

Jean-Christophe Corvol, MD; Anissa Bouzamondo, MD; Marc Sirol, MD;
Jean-Sébastien Hulot, MD; Paola Sanchez, MD; Philippe Lechat, MD, PhD



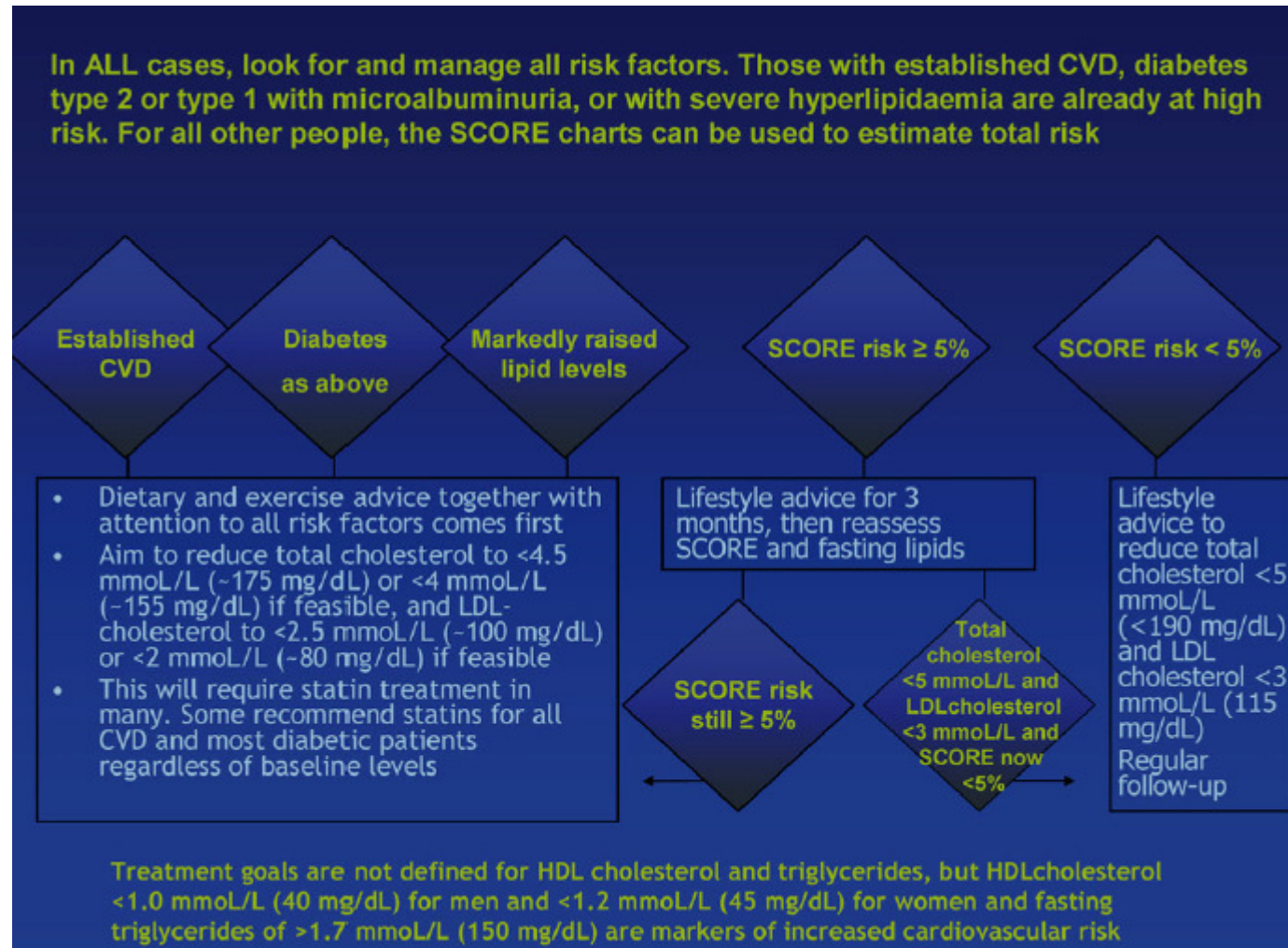
European guidelines on cardiovascular disease prevention in clinical practice: executive summary

Fourth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (Constituted by representatives of nine societies and by invited experts)

Online publish-ahead-of-print 28 August 2007

Authors/Task Force Members: Ian Graham^{1*}, Chairperson, Dan Atar¹, Oslo (Norway), Knut Borch-Johnsen^{2,3}, Gentofte (Denmark), Gudrun Boysen⁴, Copenhagen (Denmark), Gunilla Burell⁵, Uppsala (Sweden), Renata Cifkova⁶, Praha (Czech Republic), Jean Dallongeville¹, Lille (France), Guy De Backer¹, Gent (Belgium), Shah Ebrahim¹, London (UK), Bjørn Gjelvik⁷, Oslo (Norway), Christoph Herrmann-Lingen⁵, Marburg (Germany), Arno Hoes⁷, Utrecht (The Netherlands), Steve Humphries¹, London (UK), Mike Knapton⁸, London (UK), Joep Perk¹, Oskarshamn (Sweden), Silvia G. Priori¹, Pavia (Italy), Kalevi Pyörälä¹, Kuopio (Finland), Zeljko Reiner⁹, Zagreb (Croatia), Luis Ruilope¹, Madrid (Spain), Susana Sans-Menendez¹, Barcelona (Spain), Wilma Scholte op Reimer¹, Rotterdam (The Netherlands), Peter Weissberg⁸, London (UK), David Wood¹, London (UK), John Yarnell¹, Belfast (UK), Jose Luis Zamorano¹, Madrid (Spain)

European guidelines on cardiovascular disease prevention in clinical practice: executive summary



Schupf N, Costa R, Luchsinger J, Tang MX, Lee JH, Mayeux R. Relationship between plasma lipids and all-cause mortality in nondemented elderly.

J Am Geriatr Soc 2005;53:219-26

Low cholesterol predicts death in elderly

Question Does a low cholesterol level predict mortality in elderly people?

Synopsis These authors identified a random sample of 2277 non-demented Medicare recipients living in northern Manhattan. Each patient underwent blood testing, a health interview, assessment of functional capacity, medical history, physical and neurological examination, and a neuropsychological evaluation. The investigators evaluated the patients at 18 month intervals. The team also used the national death index to determine each patient's vital status. At the start of the study, the patients' average age was 76 years (range 65-98 years); they were mostly women (66%) and were of mixed ethnicity (30% white, 31% black, 38% Hispanic). After an average of three years of follow-up, 291 patients had died. The patients in the lowest fourth of total cholesterol, non-high density lipoprotein cholesterol, and low density lipoprotein cholesterol were almost twice as likely to die as those in the highest fourth, after adjustment for age, sex, ethnic group, level of education, body mass index, apolipoprotein E genotype, diabetes mellitus, heart disease, hypertension, stroke, diagnosis of cancer, current smoking status, or demographic variables.

Bottom line In elderly people, low cholesterol levels are significantly associated with higher mortality. This association could reflect frailty, malnutrition, or subclinical disease.

Level of evidence 1b (see www.infopoems.com/levels.html). Individual randomised controlled trials (with narrow confidence interval).

Que informação de base para os gestores e administradores das unidades de saúde?

- Auditorias locais (indicadores)
- Avaliação pelos profissionais
- Avaliação pelos doentes
- Normas de orientação clínica
- Evidência científica
 - *estudos clínicos (EAC, RS, MA)*
 - *estudos observacionais (HOR, HSR)*
 - *estudos económicos.*

Comparative effectiveness of angiotensin-converting-enzyme inhibitors: Is an ACE always an ace?

Adrian F. Hernandez MD MHS, Robert A. Harrington MD

CMAJ 2008;178:1316-19

Table 1: Example characteristics of select angiotensin-converting-enzyme (ACE) inhibitors

Drug*	Drug characteristics	Study	No. of patients	Length of follow-up	Group; event rate, %		p value
					Treatment	Placebo	
Captopril	Sulfhydryl-binding group; not a prodrug; mild lipophilicity; half-life 2 h; renal route of elimination	ISIS-4 ⁶	58 050	1 mo	7.2	7.7	0.01
		CCS-1 ⁷	13 634	1 mo	9.1	9.6	0.20
		SAVE ⁸	2 231	1 yr	10.3	11.6	0.01
Enalapril	Carboxyl-binding group; prodrug; moderate lipophilicity; half-life 11 h; renal route of elimination	CONSENSUS II ⁹	6 090	6 mo	11.0	10.2	> 0.26
		SOLVD ¹⁰	2 569	4 yr	35.2	39.7	0.004
Fosinopril	Phosphinyl-binding group; prodrug; greatest lipophilicity; half-life 12 h; 50% renal and 50% hepatic route of elimination						
Lisinopril	Carboxyl-binding group; not a prodrug; no lipophilicity; half-life 13 h; renal route of elimination	GISSI-3 ¹¹	19 394	6 wk	9.1	9.6	0.01
Perindopril	Carboxyl-binding group; prodrug; mild lipophilicity; half-life 9 h; renal route of elimination	EUROPA ¹²	12 218	4 yr	8.0†	9.9†	0.003
Quinapril	Carboxyl-binding group; prodrug; moderate lipophilicity; half-life 3 h; renal route of elimination						
Ramipril	Carboxyl-binding group; prodrug; mild lipophilicity; half-life 12 h; 70% renal and 30% hepatic route of elimination	HOPE ^{13†}	4 892	5 yr	16.3§	20.9§	< 0.01
		AIRE ¹⁴	1 986	1 yr	15.0	19.0	0.01
Trandolapril	Carboxyl-binding group; prodrug; moderate lipophilicity; half-life 6 h; hepatic route of elimination; primarily metabolized in the liver	TRACE ¹⁵	1 749	24-50 mo	34.7	42.3	0.001
		PEACE ¹⁶	8 290	5 yr	21.9¶	22.5¶	0.43

Incremental Benefit and Cost-Effectiveness of High-Dose Statin Therapy in High-Risk Patients With Coronary Artery Disease *(Circulation. 2007;115:2398-2409.)*

Paul S. Chan, MD, MSc; Brahmajee K. Nallamothu, MD, MPH; Hitinder S. Gurm, MD;
Rodney A. Hayward, MD; Sandeep Vijan, MD, MSc

Variables	ACS	Stable CAD
Intensive statin cost (\$1040 to \$1720)	\$300 to \$25 500	Dominant† to \$84 000
Conventional statin cost (\$650 to \$1090)	\$4200 to \$21 700	Dominant† to \$148 400
Baseline annual risk		
All to cause mortality*	...	\$32 800 to \$33 900
Myocardial infarction*	...	\$29 100 to \$38 400
Stroke*	...	\$28 400 to \$39 600
Revascularization*	...	\$28 400 to \$38 300
Rehospitalization*	...	\$33 100 to \$33 500
RR with intensive statin		
All to cause mortality	\$8800 to \$17 100	\$10 300 to dominated‡
Myocardial infarction	\$11 100 to \$15 100	\$23 800 to \$46 700
Stroke	\$10 900 to \$15 700	\$21 100 to \$64 400
Revascularization	\$11 300 to \$14 700	\$26 700 to \$41 200
Rehospitalization	\$12 800 to \$13 000	\$32 800 to \$34 300
Utility		
Myocardial infarction (0.81 to 1.00)*	...	\$26 000 to \$48 500
Stroke, mild disability (0.60 to 1.00)*	...	\$29 900 to \$40 400
Stroke, severe disability (0.00 to 1.00)*	...	\$27 300 to \$51 300
Baseline well health (0.90 to 1.00)	\$12 100 to \$16 000	\$29 700 to \$51 200
Discount rate (0% to 5%)	\$11 200 to \$14 200	\$26 400 to \$38 600

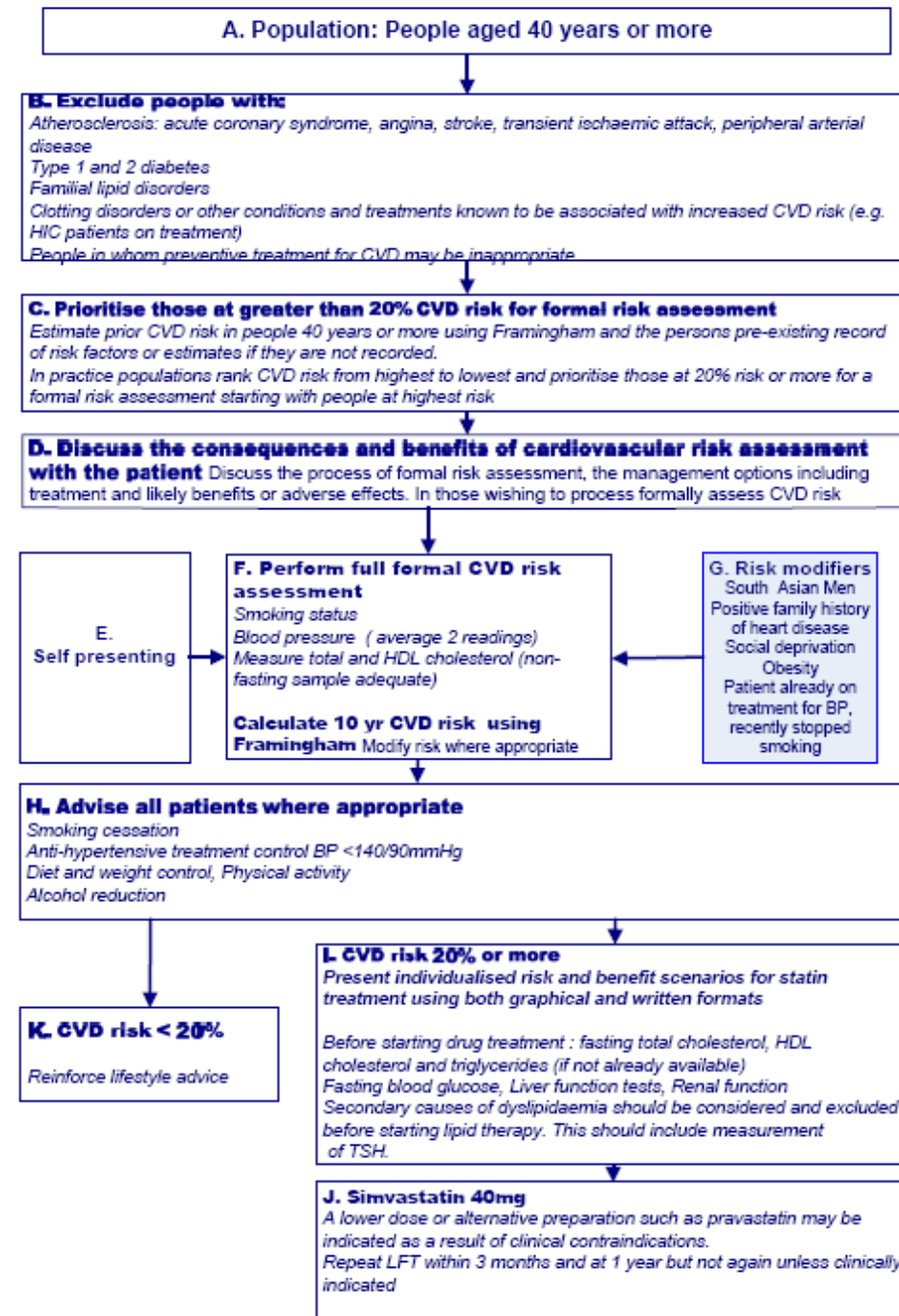
Que informação de base para os decisores políticos?

- Oportunidade política
- Constrangimentos financeiros
- Opinião pública
- Satisfação de lóbis (emprego, economia)
- Ciência clínica
 - Health Outcomes e Health Services Research
 - *Relatórios de avaliação de tecnologia (com informação clínica e económica)*

LIPID MODIFICATION:
Cardiovascular risk assessment and
the modification of blood lipids for the
primary and secondary prevention of
cardiovascular disease

May 2008

1.7.1 Primary prevention care pathway



Que informação para os cidadãos?

- “Conversa de vizinha”
- Profissionais de saúde
- Media
 - imprensa escrita
 - TV
 - rádio
- Fontes da internet
- *Panfletos com dados técnico-científicos.*

Treatment of High Cholesterol

Cholesterol is a **lipid** (fat) that is necessary for our bodies to function. Higher than normal levels of cholesterol in the blood can cause damage to blood vessels by accumulating in the vessel and forming **plaques** that can obstruct or block blood flow and cause narrowing of the blood vessels. High cholesterol (**hypercholesterolemia**) increases the risk of heart disease and stroke. Other factors that increase risk of heart disease are smoking, high blood pressure, diabetes, being overweight, older age, and having a family member who had a heart attack at a young age. The May 12, 2004, issue of JAMA includes an article about treating high cholesterol levels in women.

High cholesterol itself does not cause any symptoms, so it is important to have your cholesterol level checked. The choice of treatment depends on the level of a person's risk for heart disease in addition to cholesterol level. There are several options for treating high cholesterol that you should discuss with your doctor.

LIFESTYLE MODIFICATIONS

- Eating a diet rich in fruits and vegetables, low in saturated fats, and low in total fat content can help to lower cholesterol to healthful levels.
- Engaging in regular exercise for at least 30 minutes each day lowers cholesterol levels and prevents type 2 diabetes, lowers risk of heart disease, and reduces or maintains weight. Regular physical activity (such as walking) is a cornerstone of treatment for high cholesterol and related health problems.
- Losing excess body weight can lower cholesterol levels. Controlling weight by reducing caloric intake and introducing daily exercise has many beneficial effects, including reducing risk for diabetes, heart attack, and some cancers.
- Stopping smoking is important because tobacco products damage blood vessels, making it easier for cholesterol to form plaques.

STATIN MEDICATIONS

Medications called **statins** work in the liver to block production of cholesterol. These medications are effective in reducing cholesterol levels, but the levels go up again if the medicine is stopped. These medicines can have adverse effects that require attention. Liver damage can occur, as well as muscle damage called **myopathy**. Regular laboratory examinations may be required to check for liver damage. Any muscle pain or weakness that develops while taking a statin medication must be reported immediately to your doctor. Women who are pregnant or nursing should not take statin medications.

OTHER MEDICATIONS

Sequestering medications (also called **binding agents**) combine with bile acids in the intestine. This process makes less cholesterol available to go into the bloodstream.

FOR MORE INFORMATION

- National Heart, Lung, and Blood Institute
www.nhlbi.nih.gov
- American Heart Association
800/242-8721
www.americanheart.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on cholesterol and atherosclerosis was published in the May 16, 2001, issue; one on cholesterol was published in the January 13, 1999, issue; and one on risk factors for heart disease was published in the August 20, 2003, issue.

Sources: National Heart, Lung, and Blood Institute; American Heart Association



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