

Atherosclerosis in CVD

The RISKY reality!

PROGRAM

Zilele Spitalului Clinic de Recuperare Iași 2021

Editia a XIX-a
22-27 martie

Online Event



Recuperarea
în condiții de pandemie

Operator Conferință
focus
event

www.recuperareiasi.ro



Disclosure

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and travel reimbursement from**

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Ingelheim, Galenica, GSK, MSD, Mylan, Novartis,
Pfizer, Sanofi, Servier, Terapia, Vifor

Joint ESC Guidelines

European Journal of
**Preventive
Cardiology** 
EUROPEAN
SOCIETY OF
CARDIOLOGY®

2016 European Guidelines on cardiovascular disease prevention in clinical practice

European Journal of Preventive
Cardiology
0(00) 1–96
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Cardiology 2016
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**The Sixth Joint Task Force of the European Society of Cardiology
and Other Societies on Cardiovascular Disease Prevention in
Clinical Practice (constituted by representatives of 10 societies
and by invited experts)**

**Developed with the special contribution of the European Association for
Cardiovascular Prevention & Rehabilitation (EACPR)**



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Assessment of Total CV Risk

Systematic Coronary Risk Evaluation (SCORE)

European: 10 year risk for fatal CVD; **high vs. low** risk populations

Very High risk:

>10% or a history of CVD or **DM** or **CKD**

High risk:

5%-10% or a very high level of chol/BP or DM or CKD

Moderate risk: 1%-5%

Low risk: $\leq 1\%$

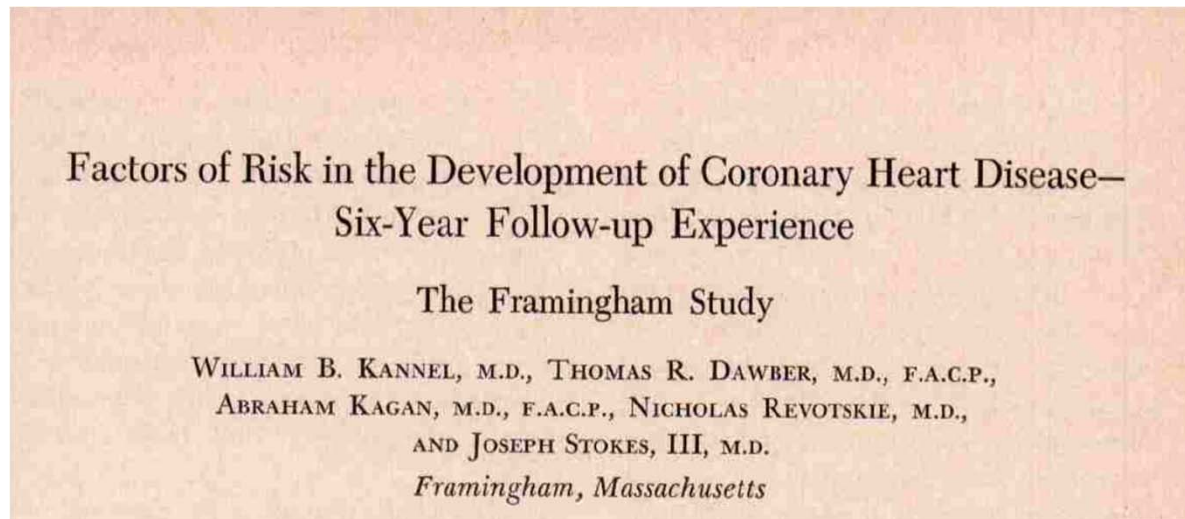
Risk categories

| | |
|-----------------------|--|
| Very high-risk | <p>Subjects with any of the following:</p> <ul style="list-style-type: none"> • Documented CVD, clinical or unequivocal on imaging. Documented clinical CVD includes previous AMI, ACS, coronary revascularization and other arterial revascularization procedures, stroke and TIA, aortic aneurysm and PAD. Unequivocally documented CVD on imaging includes significant plaque on coronary angiography or carotid ultrasound. It does NOT include some increase in continuous imaging parameters such as intima-media thickness of the carotid artery. • DM with target organ damage such as proteinuria or with a major risk factor such as smoking or marked hypercholesterolaemia or marked hypertension. • Severe CKD (GFR <30 mL/min/1.73 m²). • A calculated SCORE ≥10%. |
| High-risk | <p>Subjects with:</p> <ul style="list-style-type: none"> • Markedly elevated single risk factors, in particular cholesterol >8 mmol/L (>310 mg/dL) (e.g. in familial hypercholesterolaemia) or BP ≥180/110 mmHg. • Most other people with DM (with the exception of young people with type 1 DM and without major risk factors that may be at low or moderate risk). • Moderate CKD (GFR 30–59 mL/min/1.73 m²). • A calculated SCORE ≥5% and <10%. |
| Moderate-risk | SCORE is ≥1% and <5% at 10 years. Many middleaged subjects belong to this category. |
| Low-risk | SCORE <1%. |

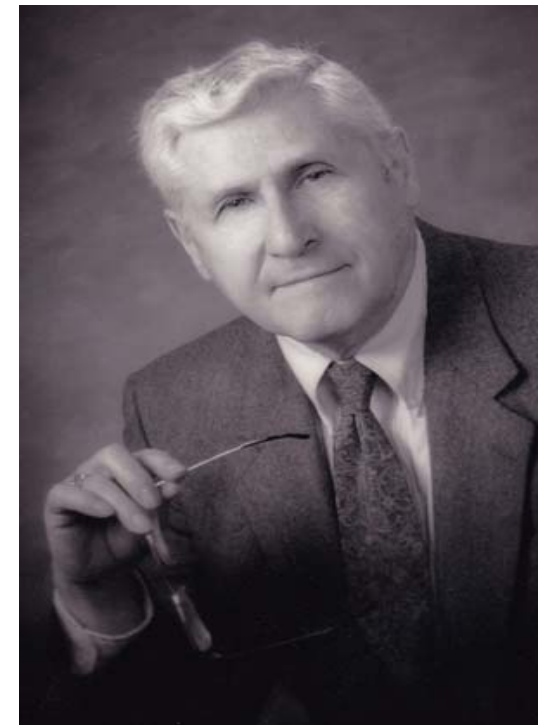
Prevention is defined as a
coordinated set of actions, at
**the population level or targeted at an
individual**,
aimed at
eradicating, eliminating or minimizing
the impact of
CARDIO-METABOLIC
dysfunction and its related disability.

Concept of CV “risk factors”

Kannel et al, Ann Intern Med 1961



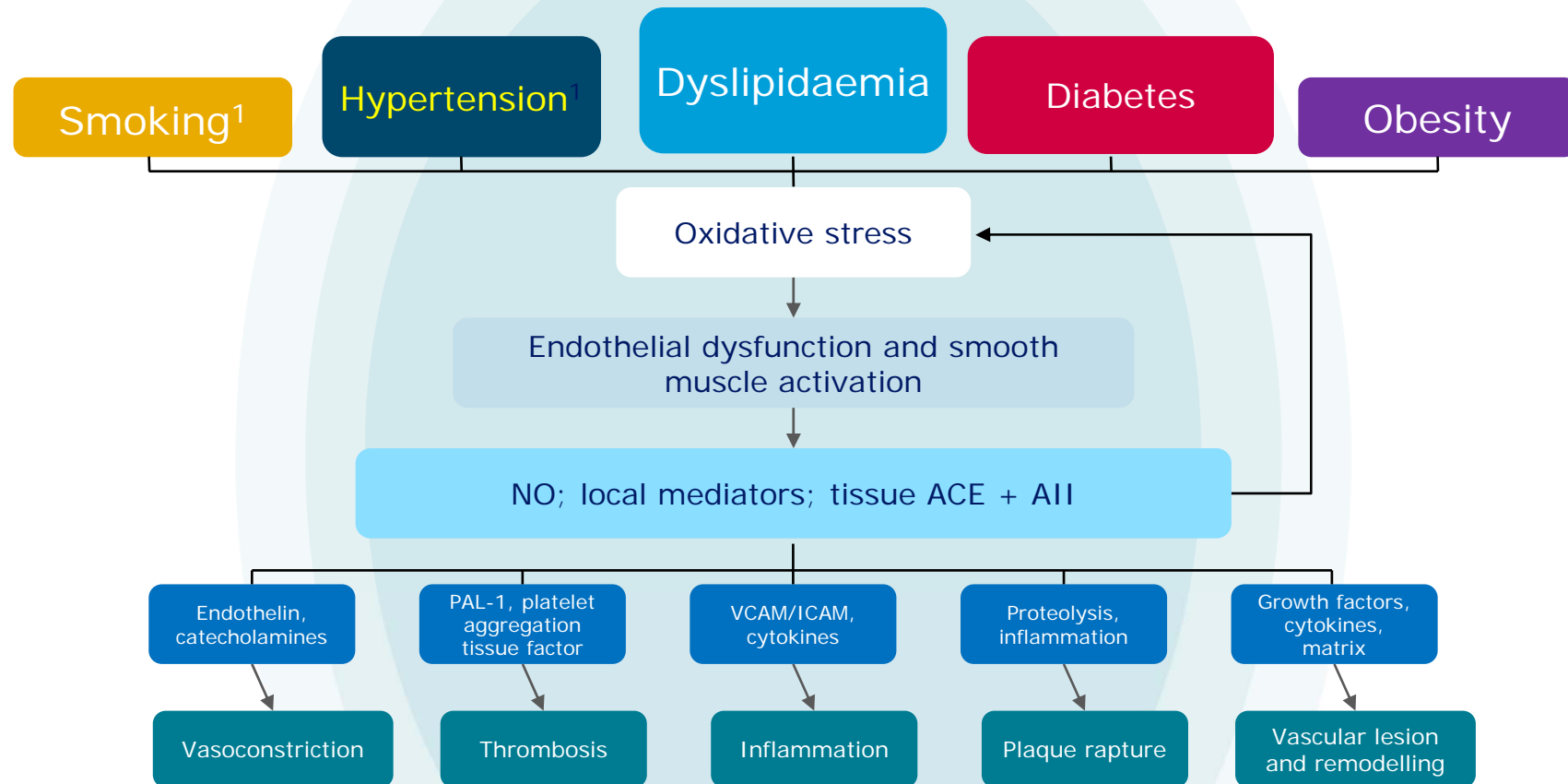
Age, sex, hypertension, hyperlipidemia,
smoking, diabetes, (family history), (obesity)



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Risk factors for CVD



1. Dzau VJ *et al.* *Circulation* 2006; 114:2850–2870;

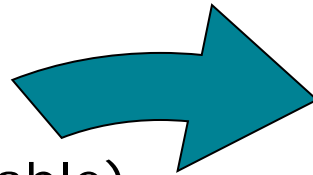
2. Manna P and Jain SK. *Metab Syndr Relat Disord* 2015; 13:423–444.

Assessment of CV Risk

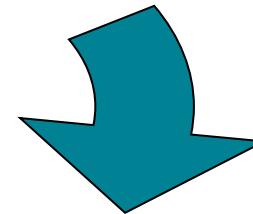
Classic and Emerging Methods



- ID of (vulnerable) plaques
- MR/MSCRT

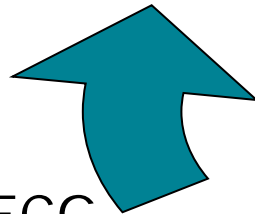


- Case history
- Length/weight
- Waist circumf
- Blood pressure

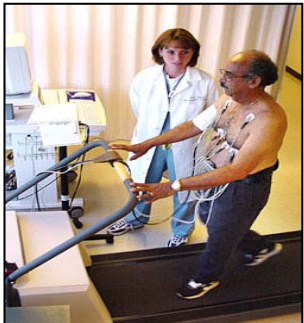


Lab examinations

- Lipids
- Glucose

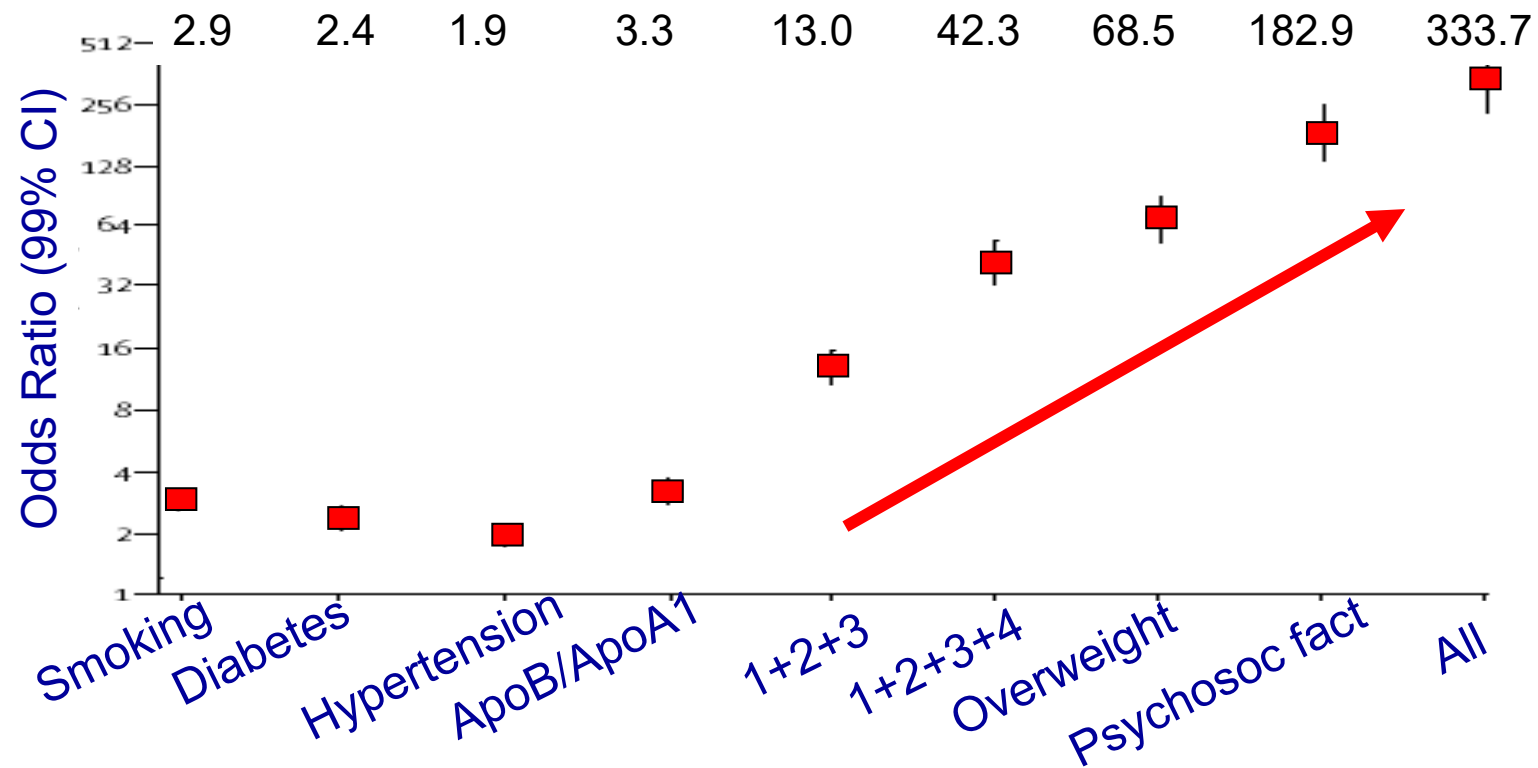


- ECG
- Stress test
- Echocardiogram



Total CV Risk

INTERHEART



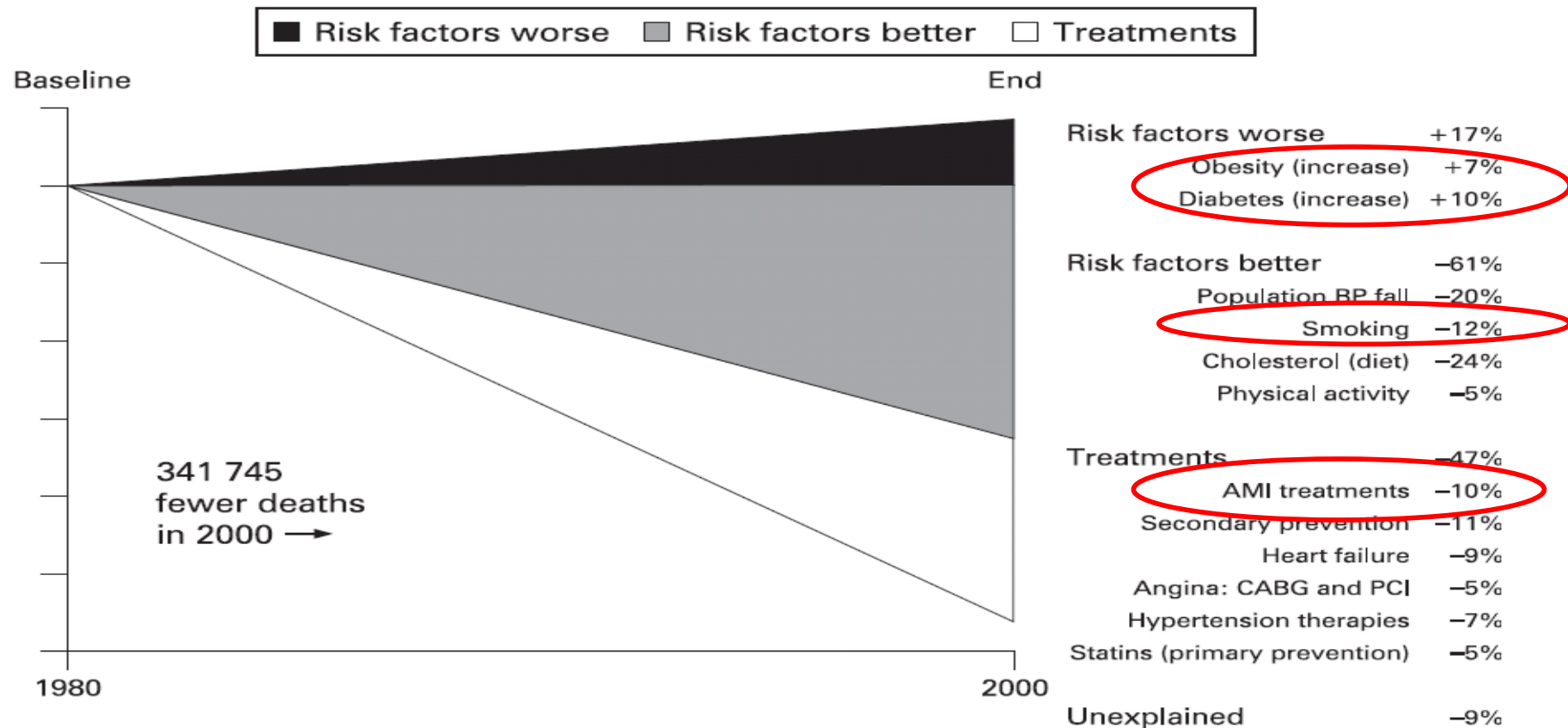
Yusuf S. Lancet 2004; 364:937

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CHD deaths prevented or postponed

by treatments and risk factor changes in the US population, 1980–2000.

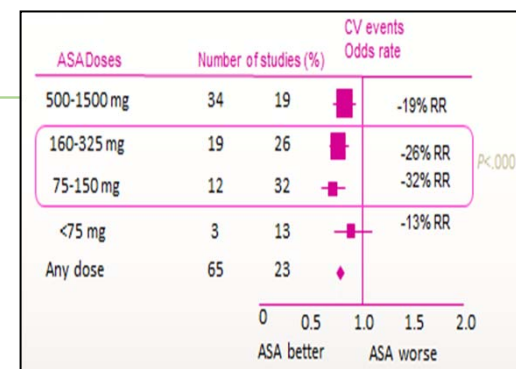


3!

ACETYLSALICYLIC ACID 100mg

- 22% RRR of stroke
- 20% RRR of coronary events

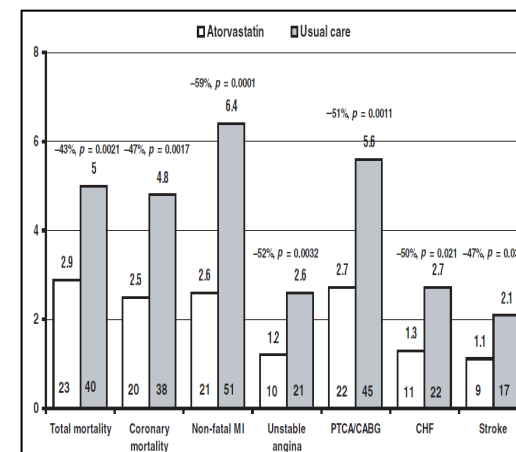
AT trialists collaboration. Bagnent. BMJ 2002;324:71-86



ATORVASTATIN 20mg

- 43% RRR of total mortality
- 52% RRR of non fatal MI
- 47% RRR of coronary mortality
- 47% RRR of stroke

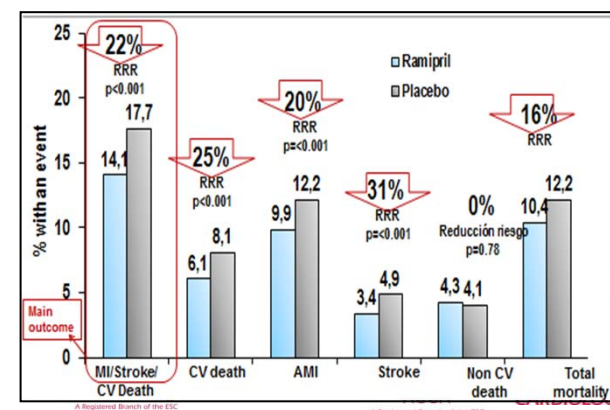
Atorvastatin SmPC. GREACE study. Athyros GV.. Curr Med Res Opinion 2002. 220-228



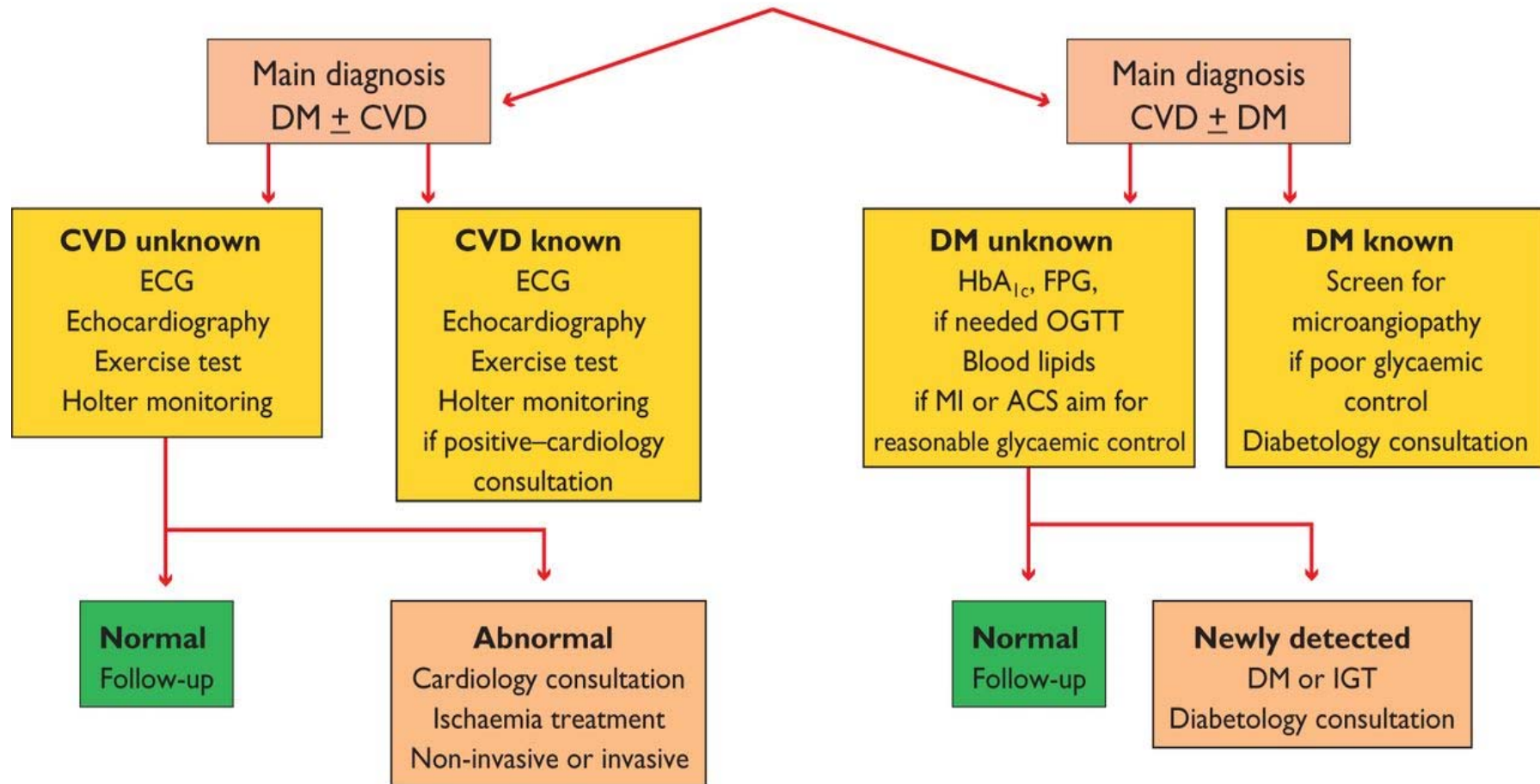
RAMIPRIL 10mg

- 26% RRR of cardiovascular death
- 20% RRR of AMI
- 31% RRR of stroke

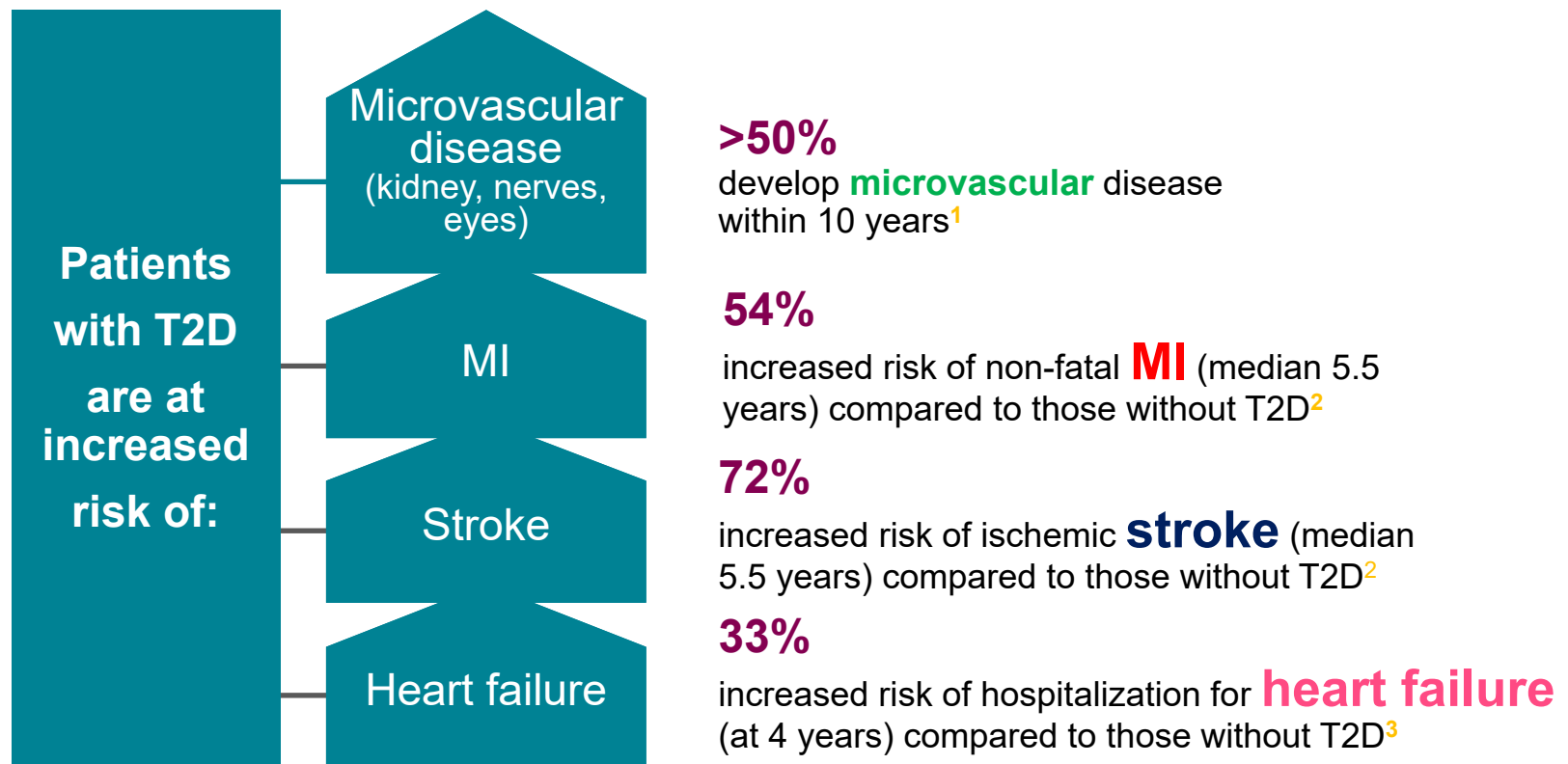
HOPE Yusuf S et al. NEJM 2000;342(3):145-53



Cardiovascular disease (CVD) and Diabetes mellitus (DM)



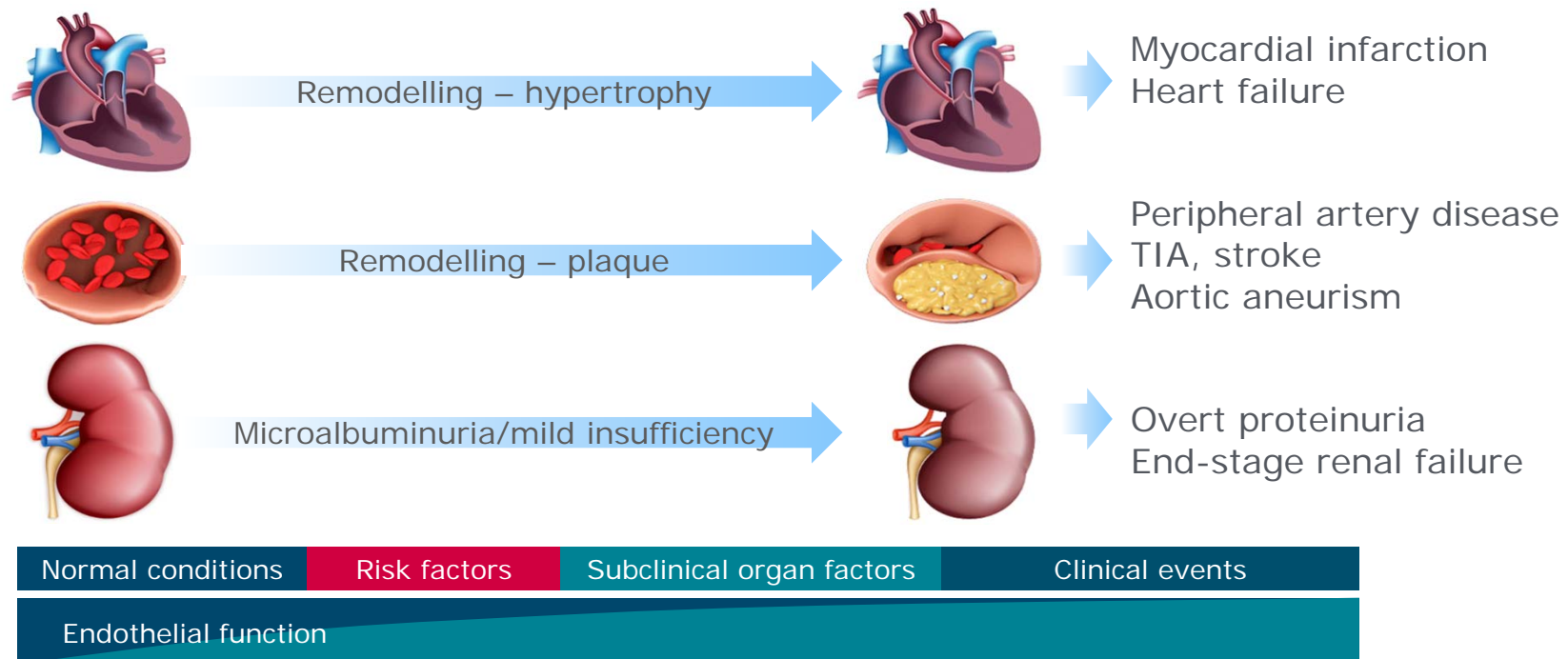
T2D management is more than just HbA1c control!



1. Litwak L et al. *Diabetol Metab Syndr*. 2013;5:57.
2. Shah AD et al. *Lancet Diabetes Endocrinol*. 2015;3:105-113.
3. Cavender MA et al. *Circulation*. 2015;132:923-931.

Endothelial Dysfunction

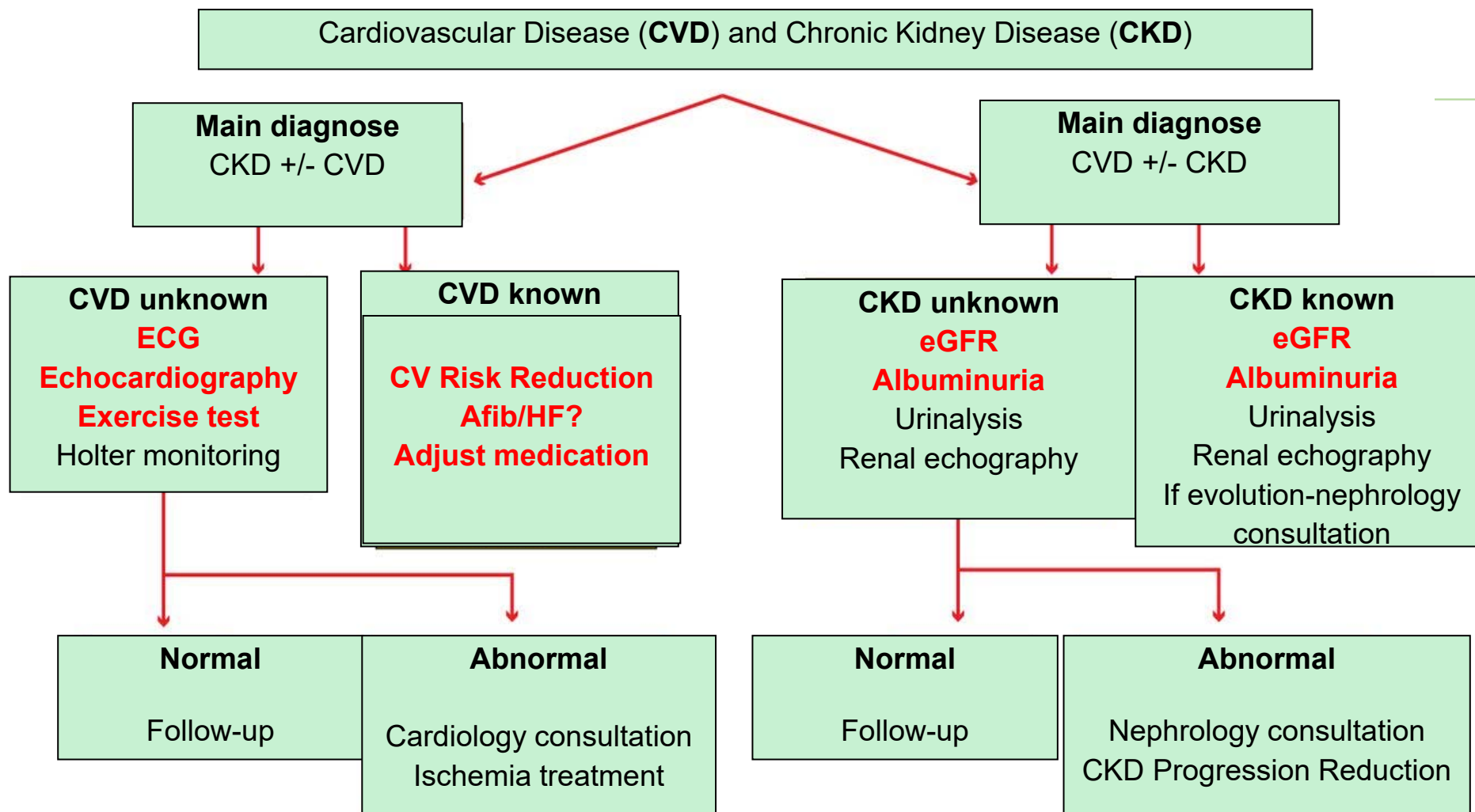
is common to microvascular & macrovascular events



Versari et al. Diabetes Care 2009; 32(suppl 2):S314-321.

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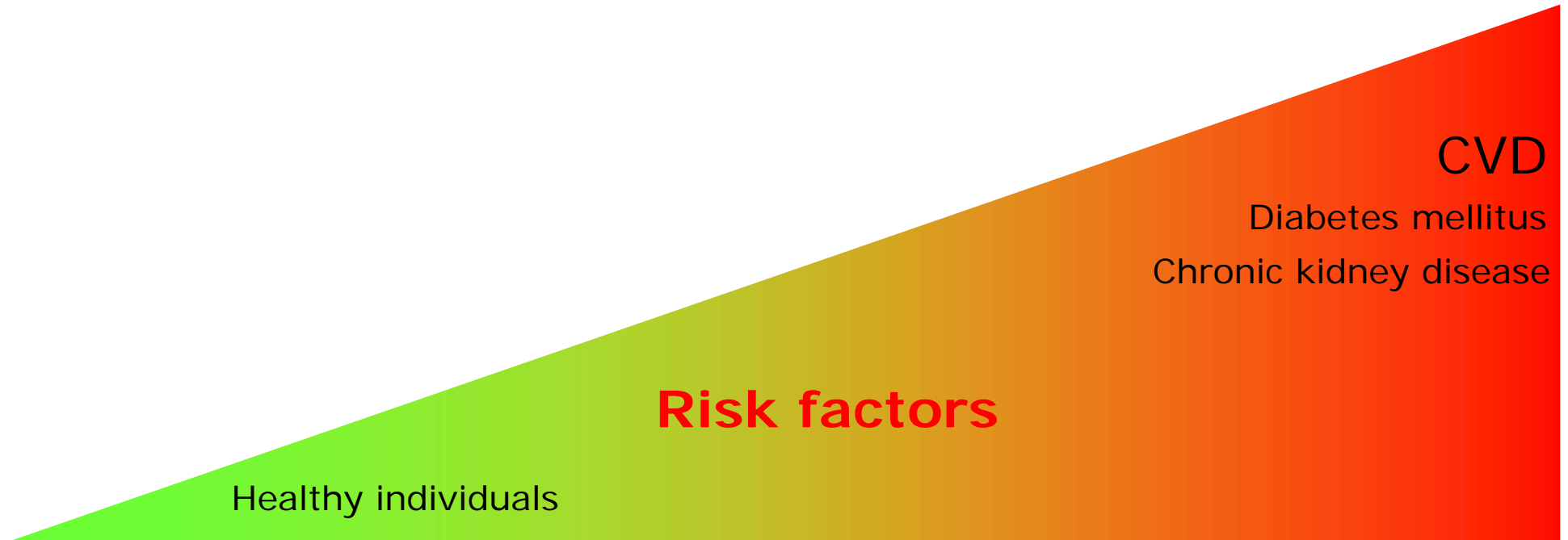


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CVD risk continuum



Large population at risk

High risk individuals



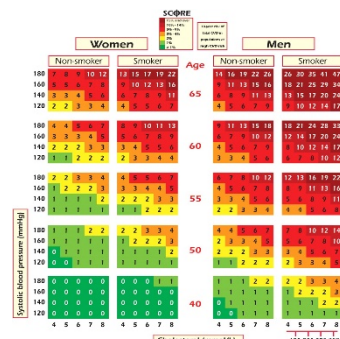
Clinical dichotomy



*Population
prevention*

<1%

Risk factors



≥5%

*Clinical
prevention*

ASCVD – LIFETIME RISK

- 10-Year ASCVD Risk (**only from 40 yo**)
- calculated risk ...
- risk with optimal risk factors* ...
- Lifetime ASCVD Risk
- calculated risk...
- risk with optimal risk factors* ...

*Optimal risk factors include:

Total cholesterol of **170** mg/dL, HDL-cholesterol of **50** mg/dL,

Systolic BP of **110** mm Hg,

Not taking medications for hypertension, Not a diabetic, Not a smoker

PREVENTION

1. EARLY

2. TAILORED

3. Life long (risk...)

DO NOT...

1. Harm...

2. “Loose” money...

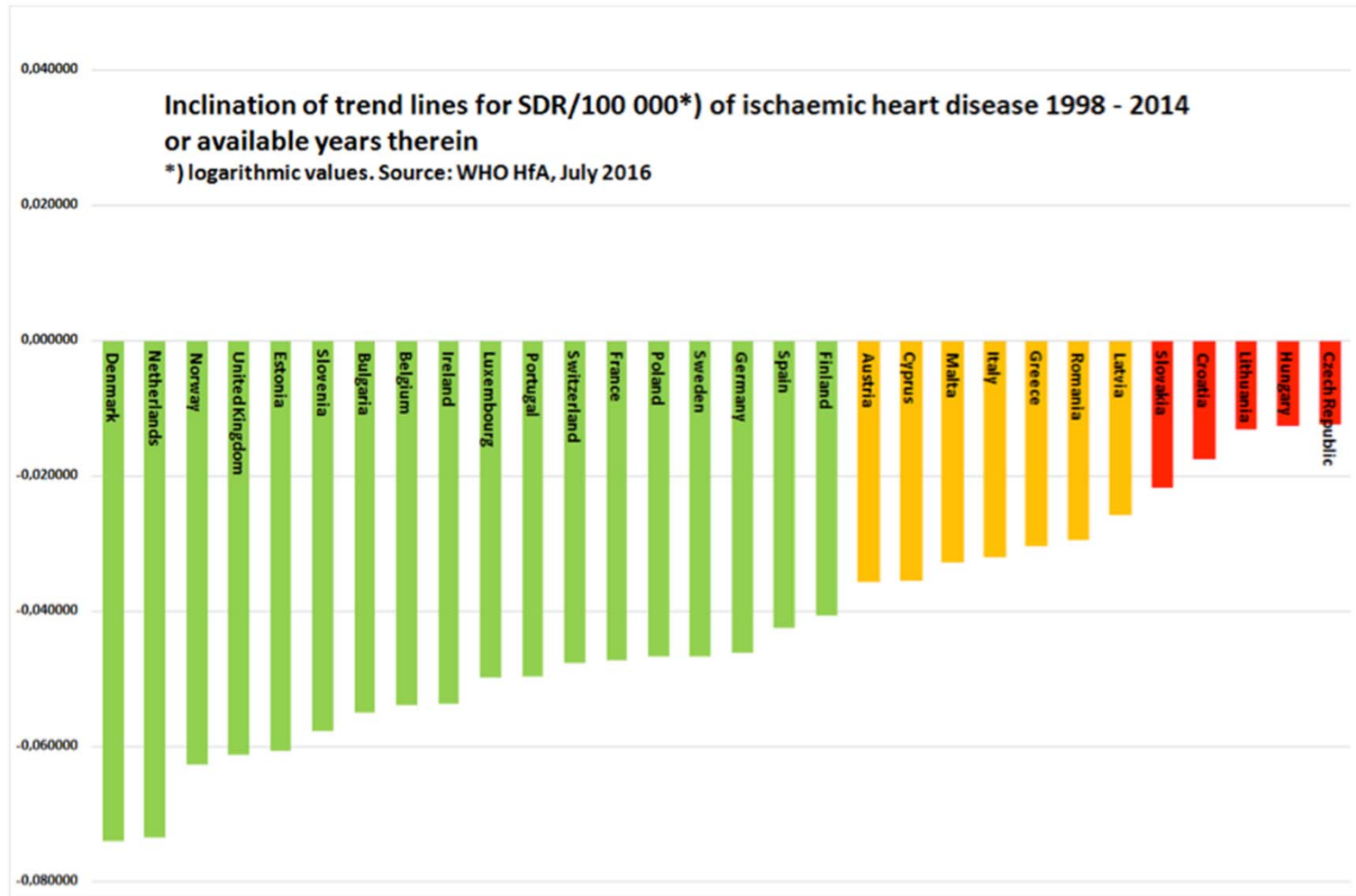
3. ...be (too)defensive...

Assessment (money)

Registry (logistic)

Repeat it (...)

Prevention = Civilization



Euro Heart Index 2016

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Early intervention

- Unhealthy diets begin to influence CV markers early in life - dyslipidemia, high blood pressure, impaired glucose tolerance, as well as obesity and metabolic syndrome may become rooted as early as **3 to 5 years of age**, increasing the risk of development of atherosclerosis in adolescence and early adulthood.
- **Education (Knowledge)** can include such topics as how the body and heart work, healthy food habits, physical activity, and emotional habits to avoid addictions.
- The optimal period of time to motivate behavior in favor of health is between the age of 3 to 5 years - evolving evidence that our behavior as adults has its roots in the environment that we live in from age 3 to 5 years.

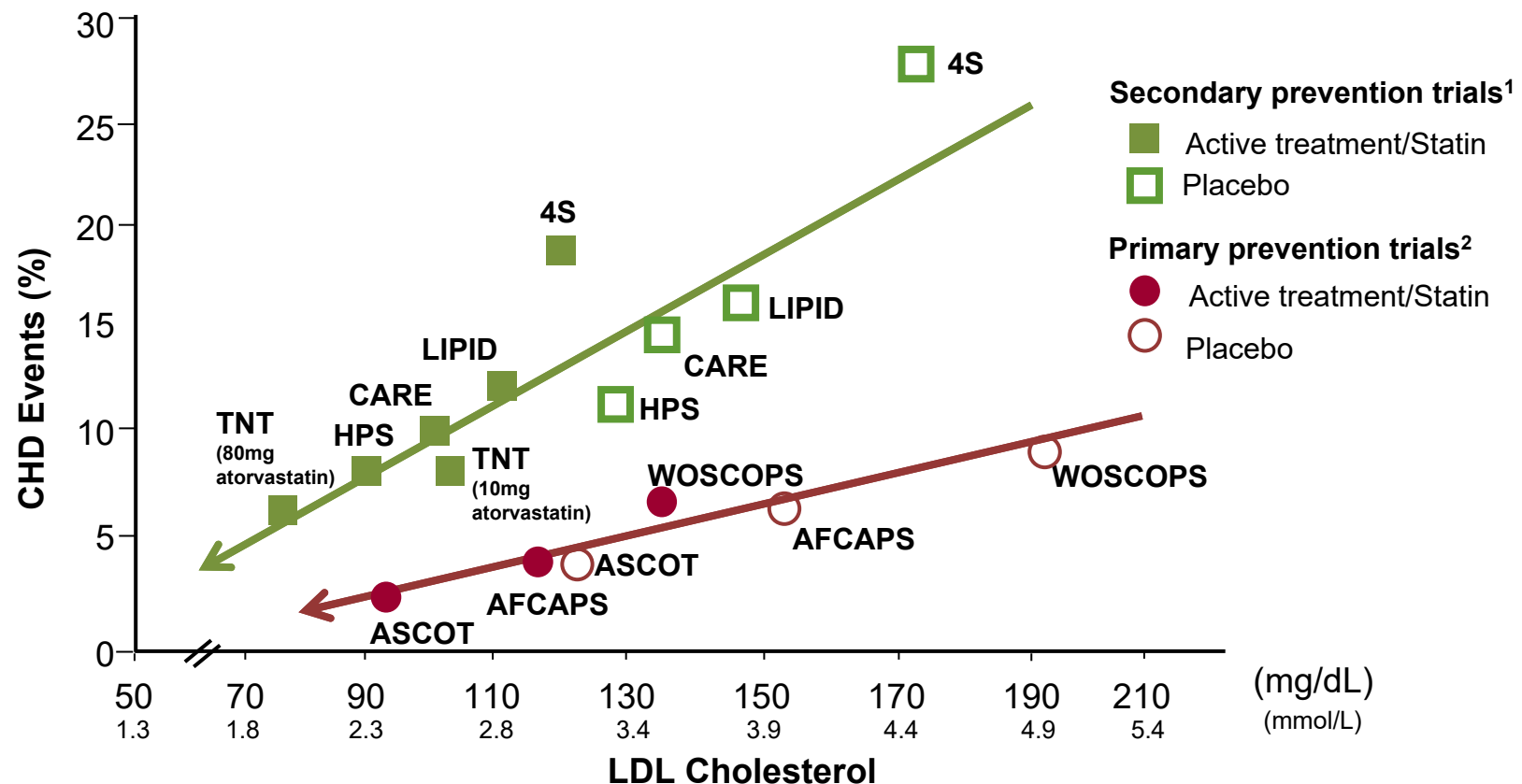
Fuster V. et al. J Am Coll Cardiol. 2015 Oct 6; 66(14):1627-9

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Carotid plaque
hs-TnI
ABI
CAC Score

Lowering LDL-C Levels With **Statins** in Patients With or Without Prior CV Events Has Been Shown to Improve CV Outcomes!!!

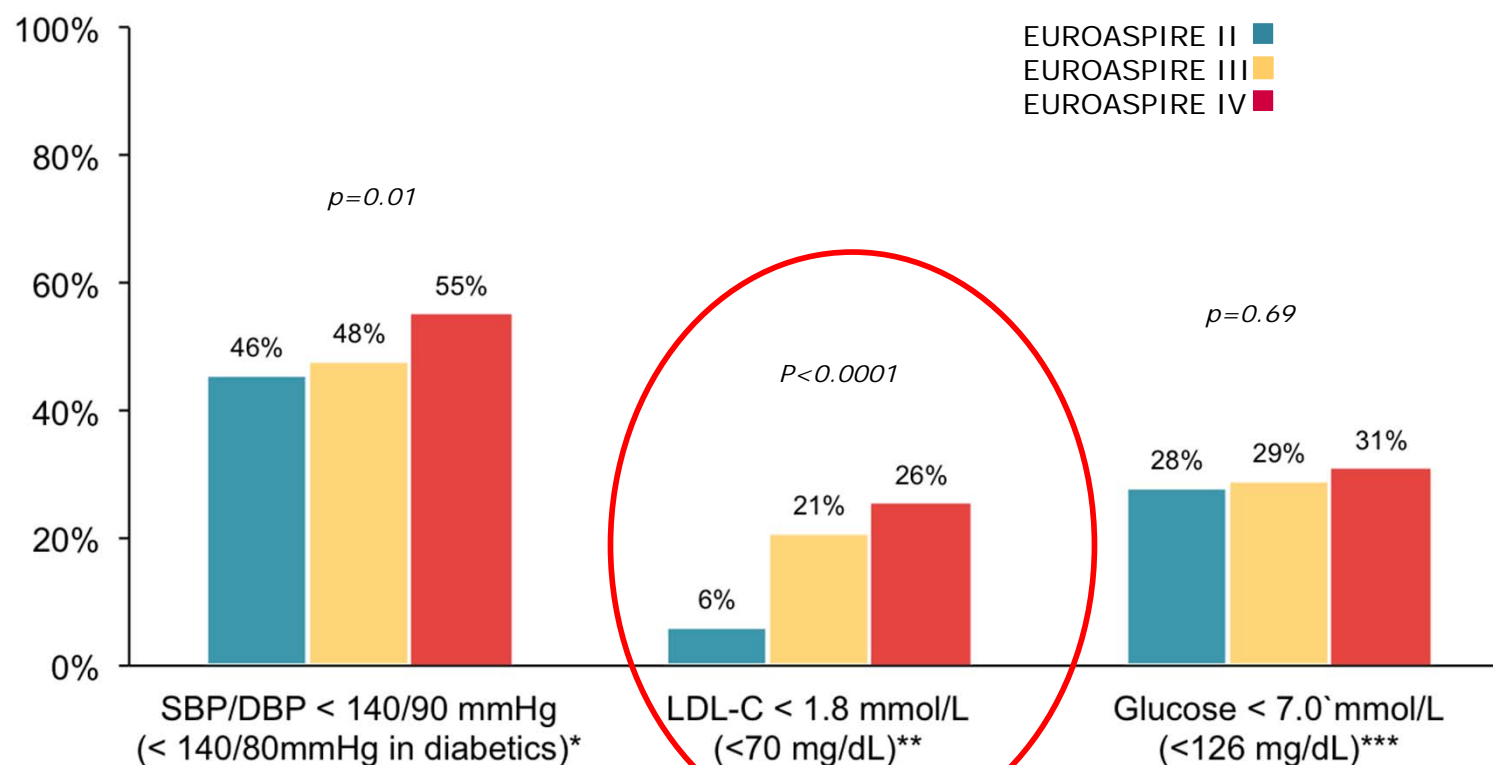


1. LaRosa JC, et al. *N Engl J Med*. 2005;352:1425-1435.
2. O'Keefe J, et al. *J Am Coll Cardiol*. 2004;43:2142-2146.

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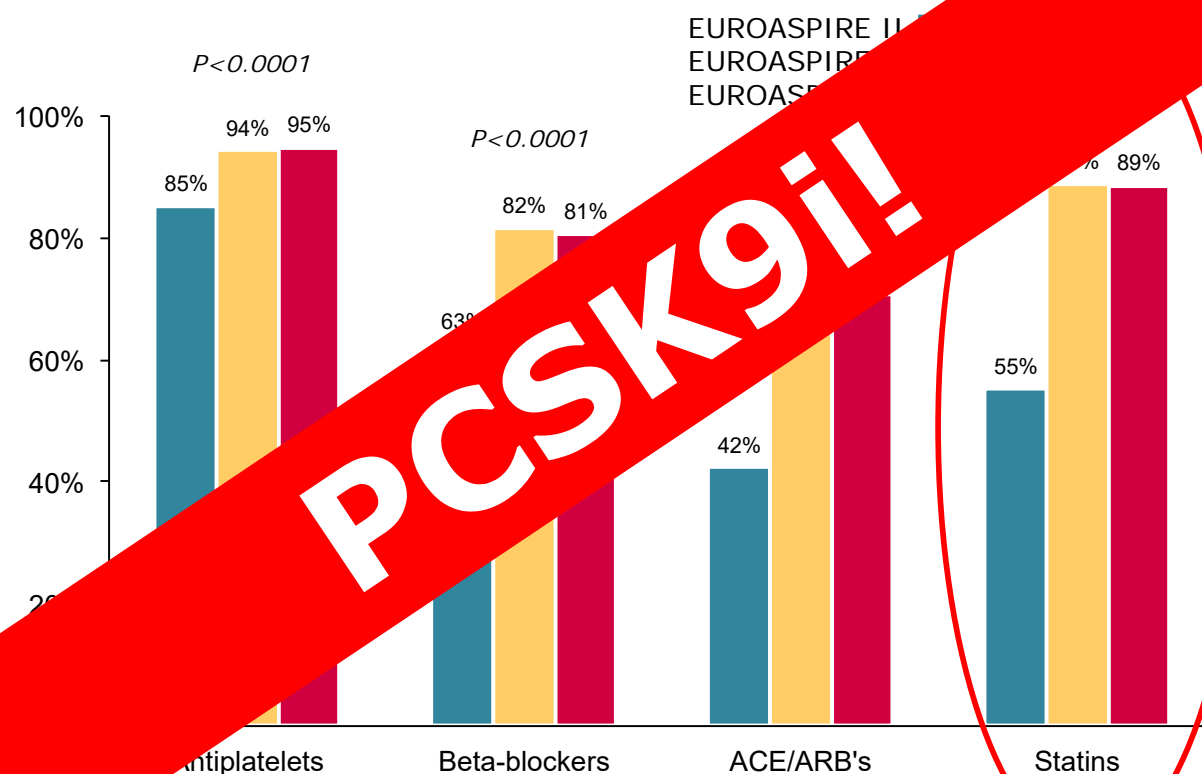


Therapeutic control of blood pressure*, **LDL-C**** and diabetes***

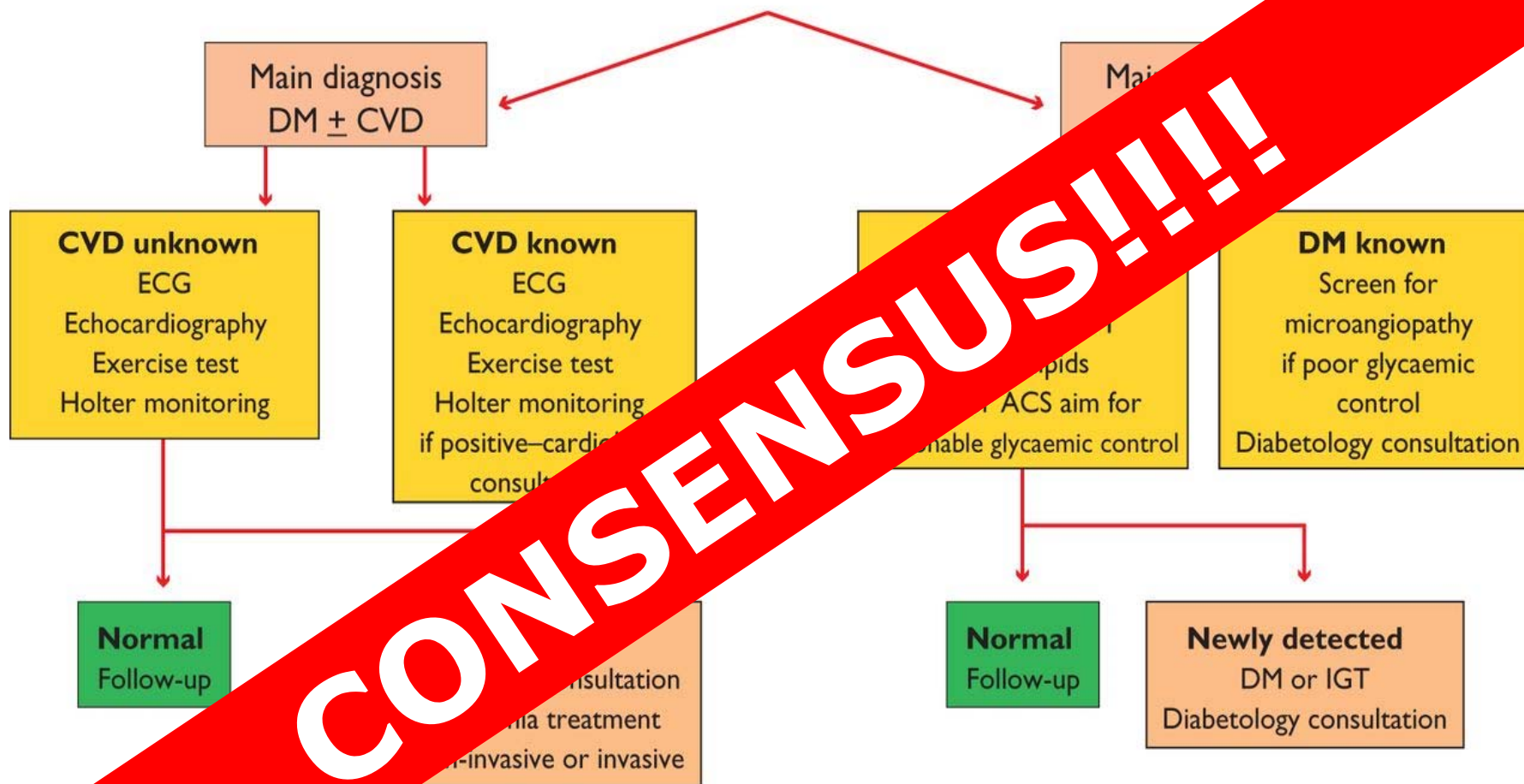


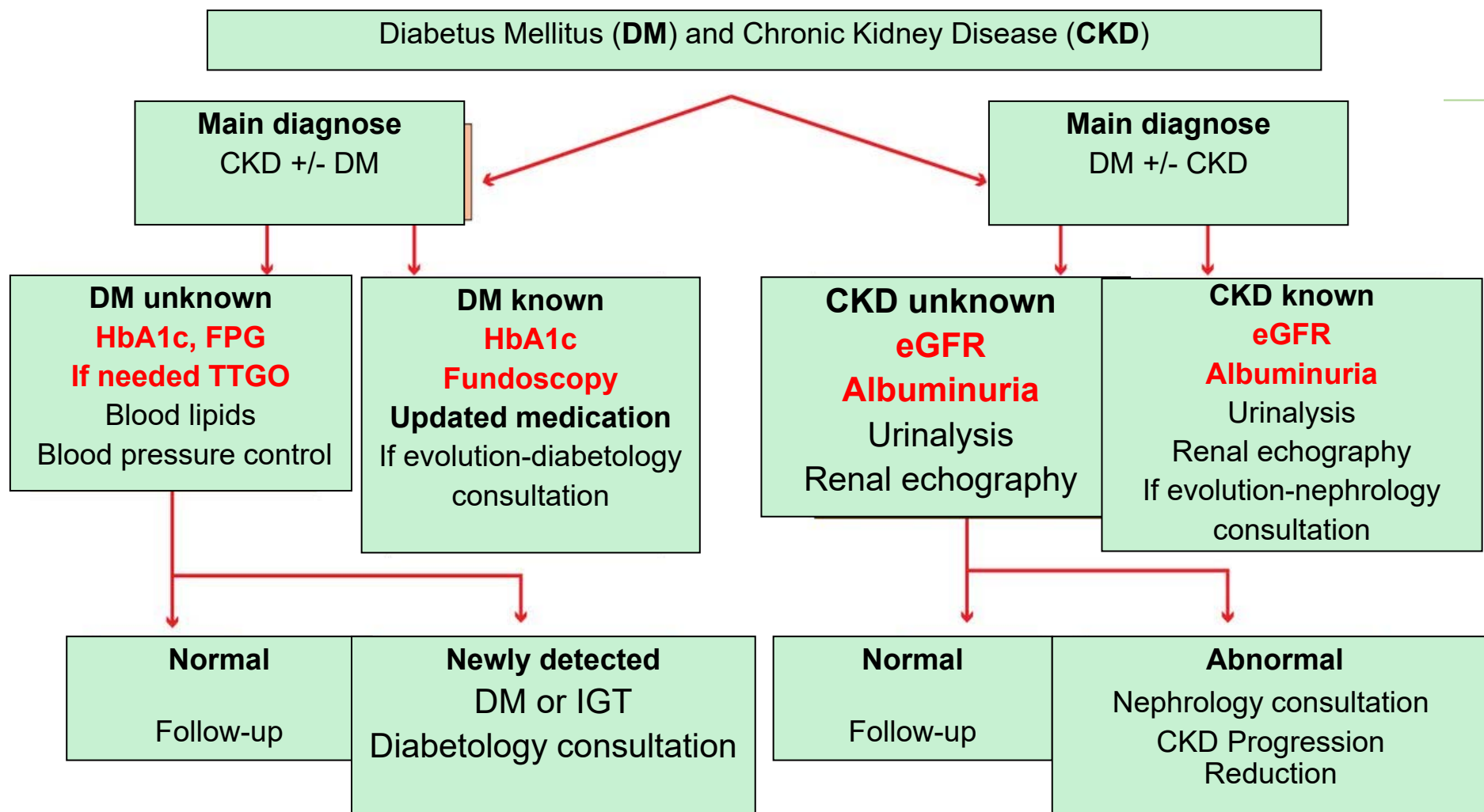
*In patients on BP lowering drugs; **In patients on lipid-lowering drugs; *** In patients with known diabetes

CV protective drug therapies



Cardiovascular disease (CVD) and Diabetes mellitus (DM)



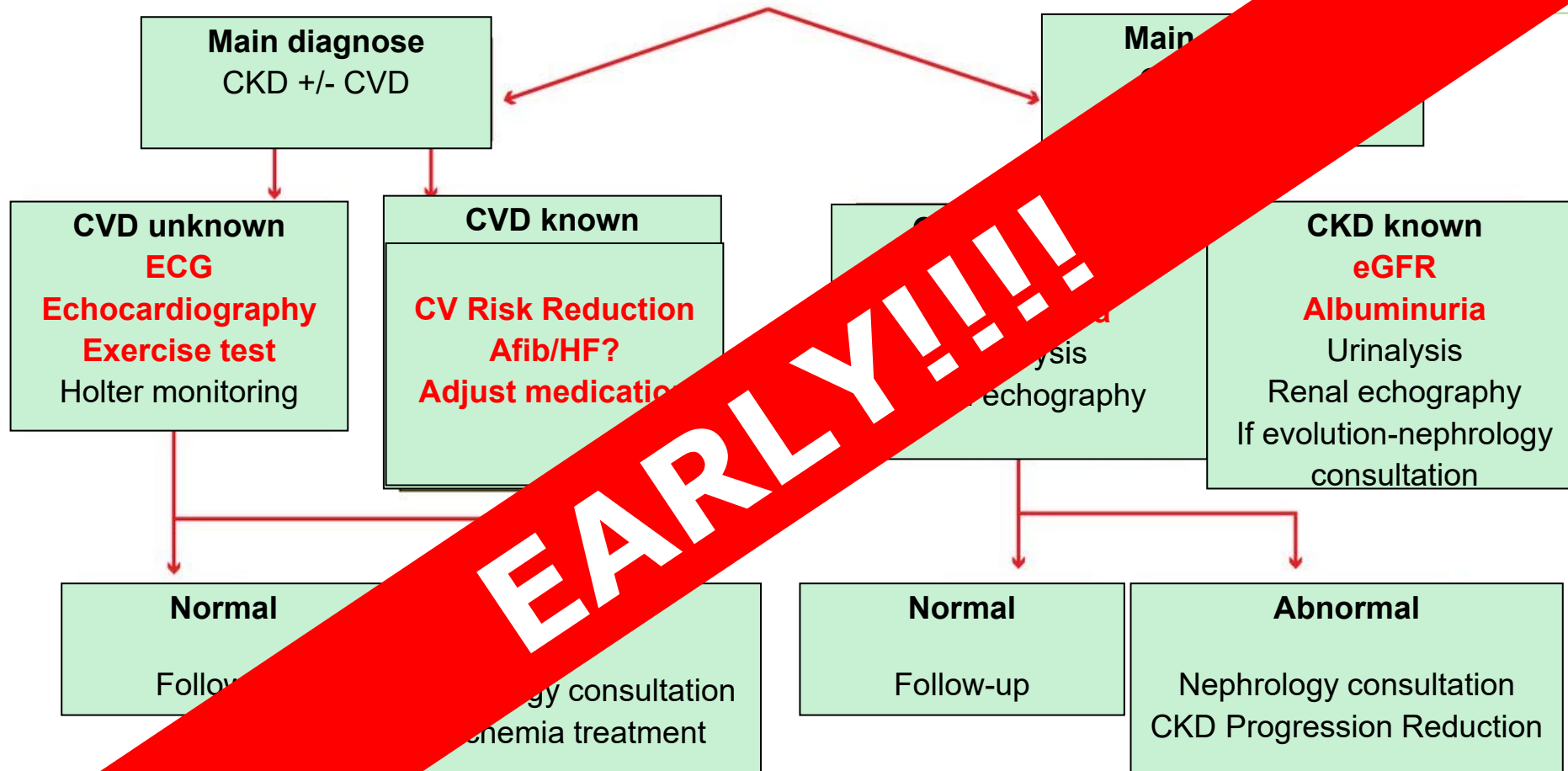


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Cardiovascular Disease (CVD) and Chronic Kidney Disease (CKD)



EARLY!!!!

Timeline!



Adapted from: Sattar N, Diabetologia. 2013 Apr;56(4):686-95.

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