Future Perspectives in Peripheral Intervention

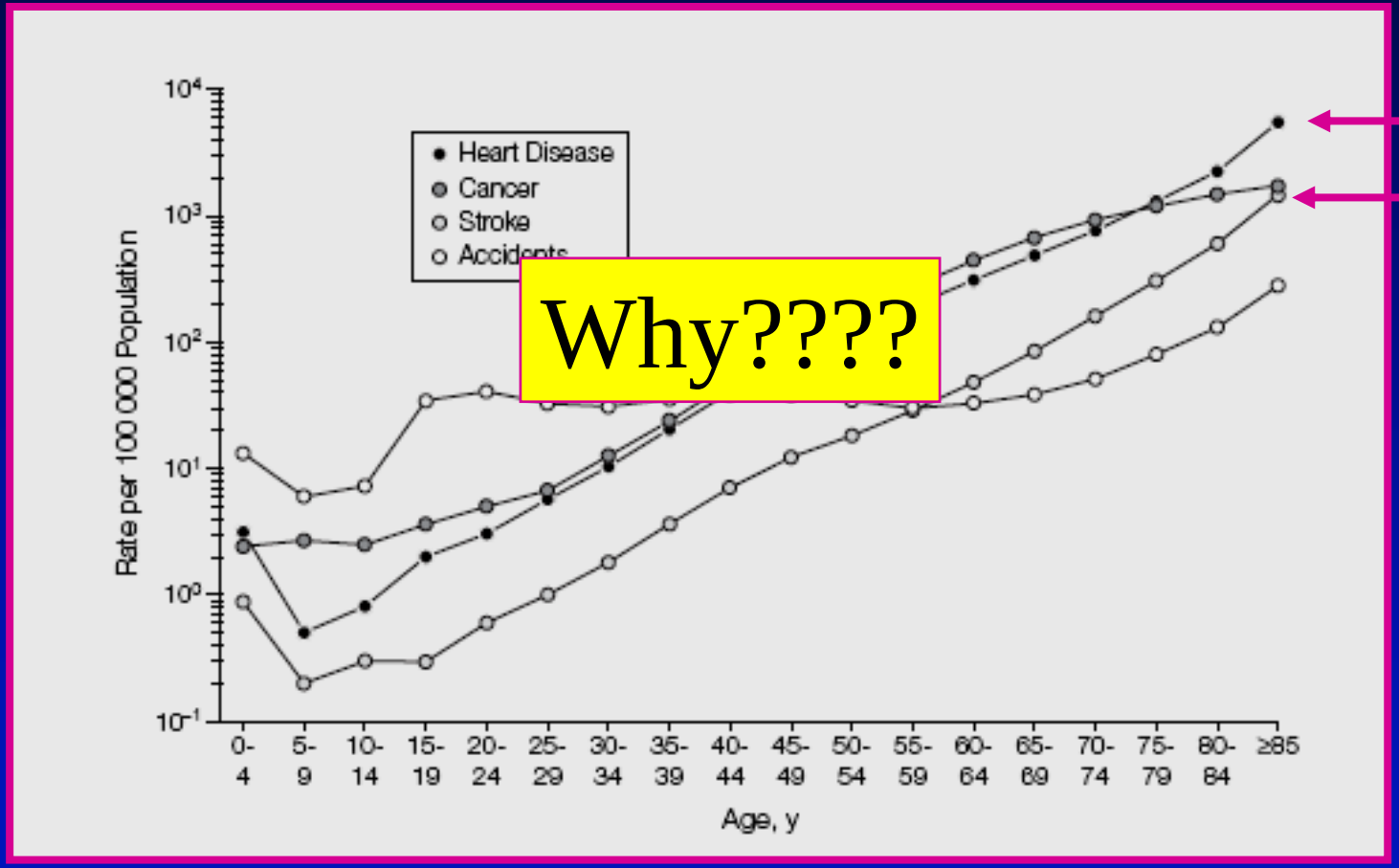
Michael R. Jaff, DO, FACP, FACC
Assistant Professor of Medicine
Harvard Medical School
Director, Vascular Medicine
Massachusetts General Hospital
Boston, Massachusetts, U.S.A.

Michael R. Jaff, DO
Conflicts of Interest

- **Consultant**
  - Cordis Endovascular (Modest)
  - Boston Scientific (Modest)
  - Pathway Medical (Modest)
  - Paragon IP (Modest)
  - Proteon Therapeutics (Modest)
  - X-Tent, Inc (Modest)
  - Harvard Clinical Research Institute (Modest)
  - Bacchus Vascular, Inc (Modest)
- **Equity**
  - Access Closure, Inc (Modest)
  - Square One, Inc (Modest)
  - Vascular Therapies, Inc (Modest)
  - Icon Interventional, Inc (Modest)
  - Setagon (Modest)
- **Speaker's Bureau**
  - Bristol-Myers/Sanofi-Aventis Pharmaceuticals Partnership (Modest)
- **Research Support**
  - Pfizer, Inc.
  - Abbott Vascular
  - Genzyme
  - ActivBiotics

April, 2007

Rate of Deaths Due to Atherosclerosis is Increasing in U.S.

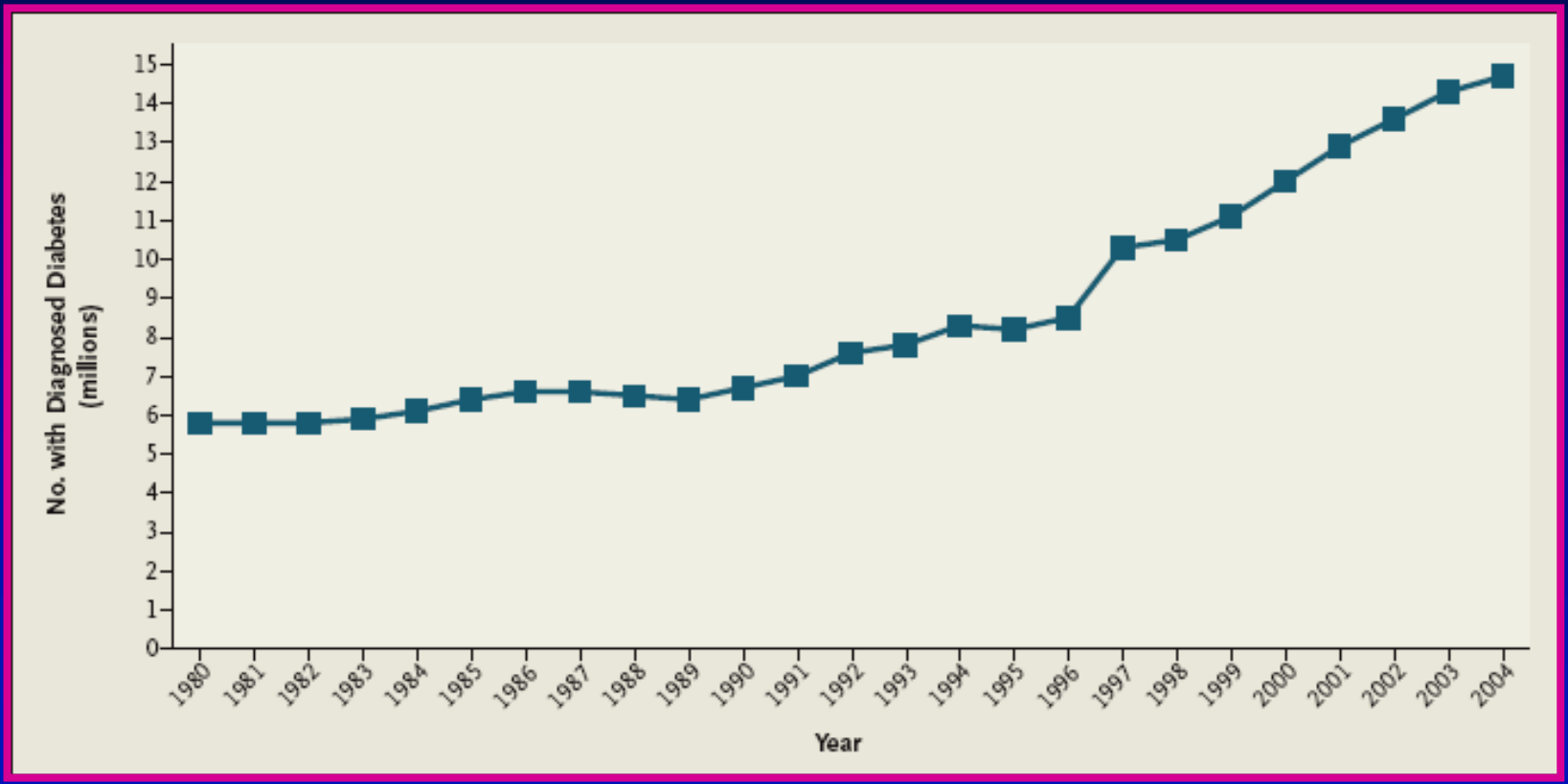


JAMA 2005;294:1255.

The Evolution of America

The Health of America

Persons Diagnosed with DM in US



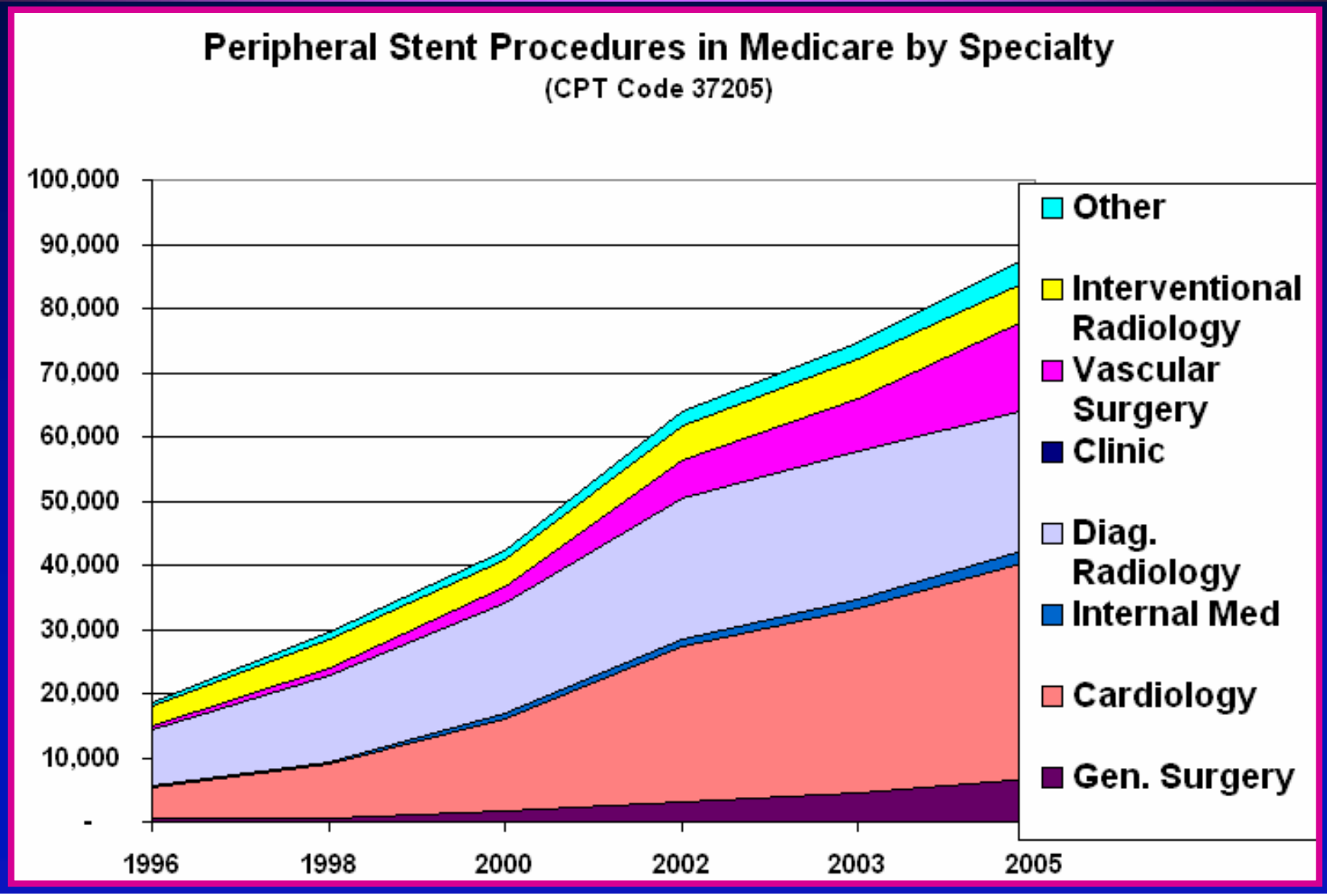
N Engl J Med 2006;354:545.

So, There's Plenty of Work for All…

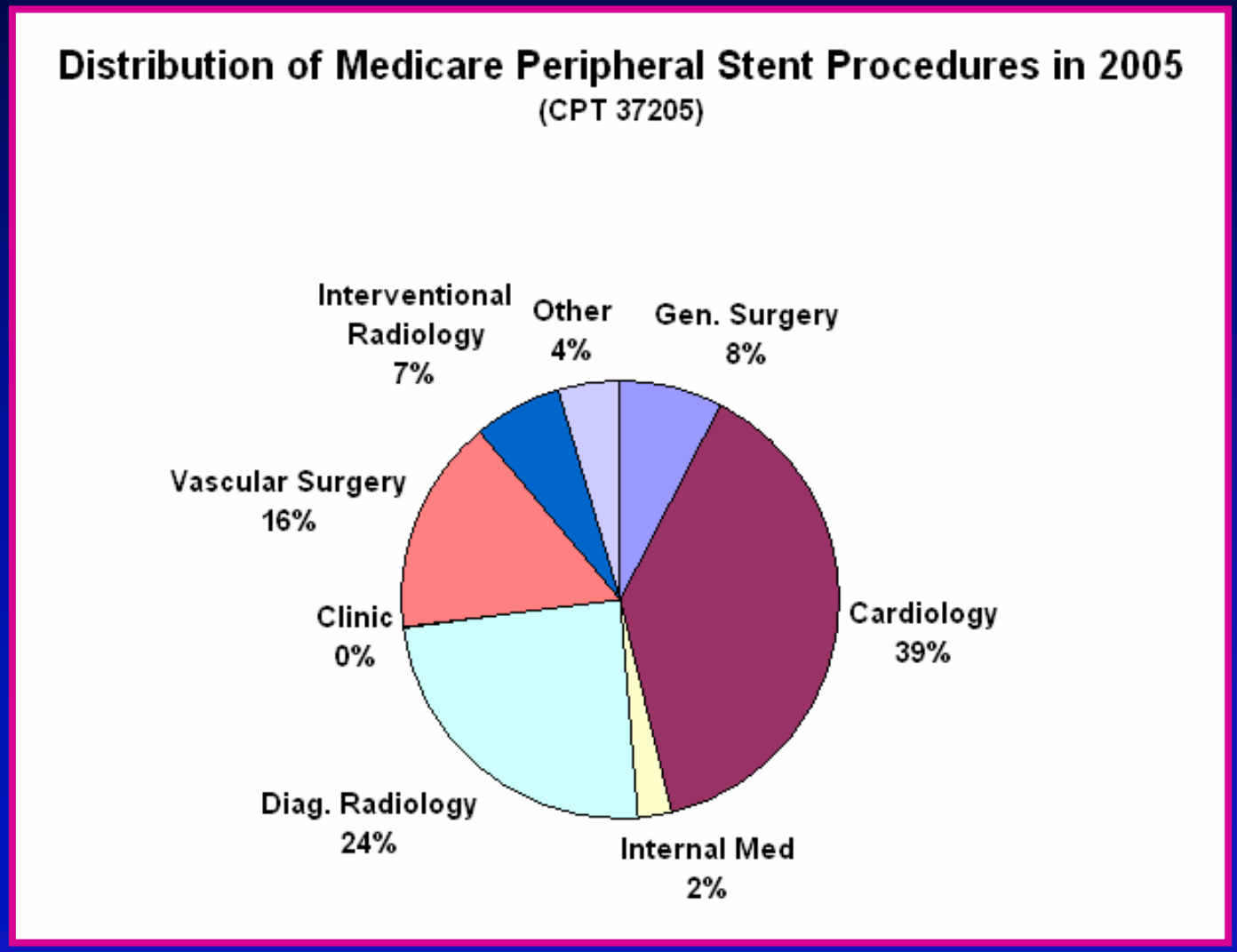
Let each man pass his days in that wherein his skill is greatest…

Sextus Propertius (50-16 BCE), Elegies

But Here is the Reality!



Is There Differential Specialty Procedural Growth?



The Specialties Involved…

Vascular Surgery

Knowledge
Surgical Skills
No endo skills
Low interest in med Rx

Interventional Radiology

Knowledge
Endo Skills
No surg skills
Low interest in med Rx

Cardiology/ Vascular Medicine

No Knowledge
Endo Skills
No surgical skills
Some interest in med Rx

The Public Perception of Physicians

ORIGINAL INVESTIGATION

A Trial of Disclosing Physicians' Financial Incentives to Patients

Steven D. Pearson, MSc, MD; Ken Kleinman, ScD; Donna Rusinak; Wendy Levinson, MD

Arch Intern Med 2006;166:623-628

Medical Researcher Moves to Sever Ties to Companies

By ANDREW POLLACK

Published: January 25, 2005

Doctors Take Stock, Supply Data

Concerns Over Conflict of Interest: Some Physicians Evaluating [redacted] Device Own Options

By Gregory Zuckerman, The Wall Street Journal, 1643 words

Aug 15, 2005

OPERATING PROFITS: Mining Medicare; How One Hospital Benefited From Questionable Surgery

By KURT EICHENWALD

Published: August 12, 2003

PRINT

When Perks Influence the Doctor

Published: October 6, 2002

Clinic executive out

Doctor failed to fully disclose financial ties to device maker

Friday, August 18, 2006

Joel Rutchick

Plain Dealer Reporter

Maybe We Should Have a Randomized Trial of Skills/Management by Each Specialty?

Do You Need a Randomized Trial to Determine
What This Person Should do RIGHT NOW???

So, What Should Be Done About All of These Turf Battles?

We KNOW That a Parachute is the Only Reasonable Option…

Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials

Gordon C S Smith, Jill P Pell

Abstract

Objectives To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.

Conclusions As with many interventions intended to prevent ill health, the effectiveness of parachutes has not been subjected to rigorous evaluation by using randomised controlled trials. Advocates of evidence based medicine have criticised the adoption of interventions evaluated by using only observational data. We think that everyone might benefit if the most radical protagonists of evidence based medicine organised and participated in a double blind, randomised, placebo controlled, crossover trial of the parachute.

We Need Data!

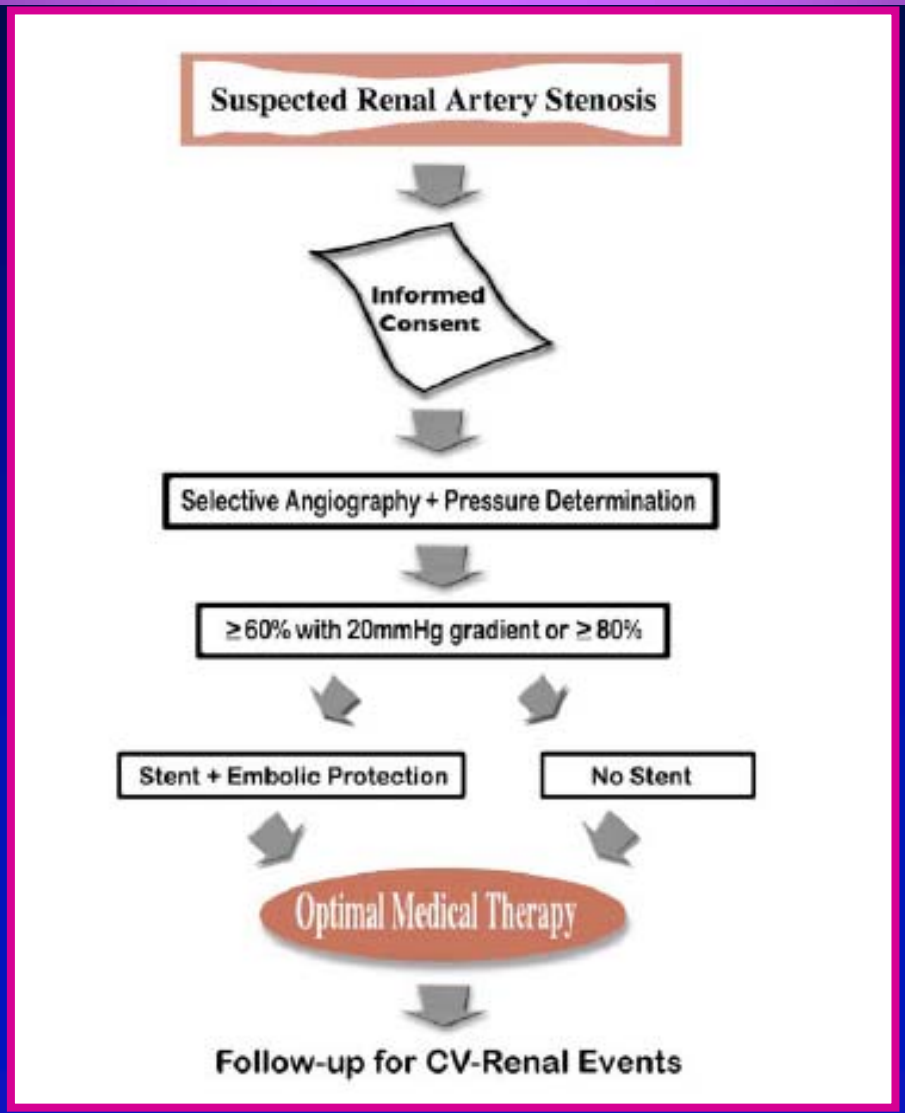
Data on Renal Artery Stenting

Stent revascularization for the prevention of cardiovascular and renal events among patients with renal artery stenosis and systolic hypertension: Rationale and design of the CORAL trial

Christopher J. Cooper, MD,[a] Timothy P. Murphy, MD,[b] Alan Matsumoto, MD,[c] Michael Steffes, MD,[d] David J. Cohen, MD,[e] Michael Jaff, DO,[f] Richard Kuntz, MD,[g] Kenneth Jamerson, MD,[h] Diane Reid, MD,[i] Kenneth Rosenfield, MD,[f] John Rundback, MD,[j] Ralph D'Agostino, MD,[k] William Henrich, MD,[l] and Lance Dworkin, MD[b] *Toledo, OH; Providence, RI; Charlottesville, VA; Minneapolis, MN; Boston, MA; Ann Arbor, MI; Bethesda and Baltimore MD; and Teaneck, NJ*

Am H Journal 2006;152:59-66

CORAL Trial Design



Public Policy is in Jeopardy

Conclusions

Effectiveness of Management Strategies for Renal Artery Stenosis: A Systematic Review

Ethan Balk, MD, MPH; Gowri Raman, MD; Mei Chung, MPH; Stanley Ip, MD; Athina Tatsioni, MD; Alvaro Alonso, MD; Priscilla Chew, MPH; Scott J. Gilbert,

Background: A common in an ical treatment

Purpose: To c cularization on sclerotic renal

Data Sources: 2005) and selected reference lists were searched for English-language articles.

Study Selection: The authors selected prospective studies of renal artery revascularization or medical treatment of patients with atherosclerotic renal artery stenosis that reported mortality rates, kidney function, blood pressure, cardiovascular events, or adverse events at 6 months or later after study entry.

Data Extraction: A standardized protocol with predefined criteria was used to extract details on study design, interventions, outcomes, study quality, and applicability. The overall body of evidence was then graded as robust, acceptable, or weak.

Data Synthesis: No study directly compared aggressive medical therapy with angioplasty and stent placement. Two randomized

treatments. met criteria quality and as no robust es in mortal- l revascular- ilar kidney- comes with

angioplasty, particularly in patients with bilateral disease. Improvements in kidney function and cure of hypertension were reported among some patients only in cohort studies of angioplasty. Available evidence did not adequately assess adverse events or baseline characteristics that could predict which intervention would result in better outcomes.

Limitations: The evidence from direct comparisons of interventions is sparse and inadequate to draw robust conclusions.

Conclusions: Available evidence does not clearly support one treatment approach over another for atherosclerotic renal artery stenosis.

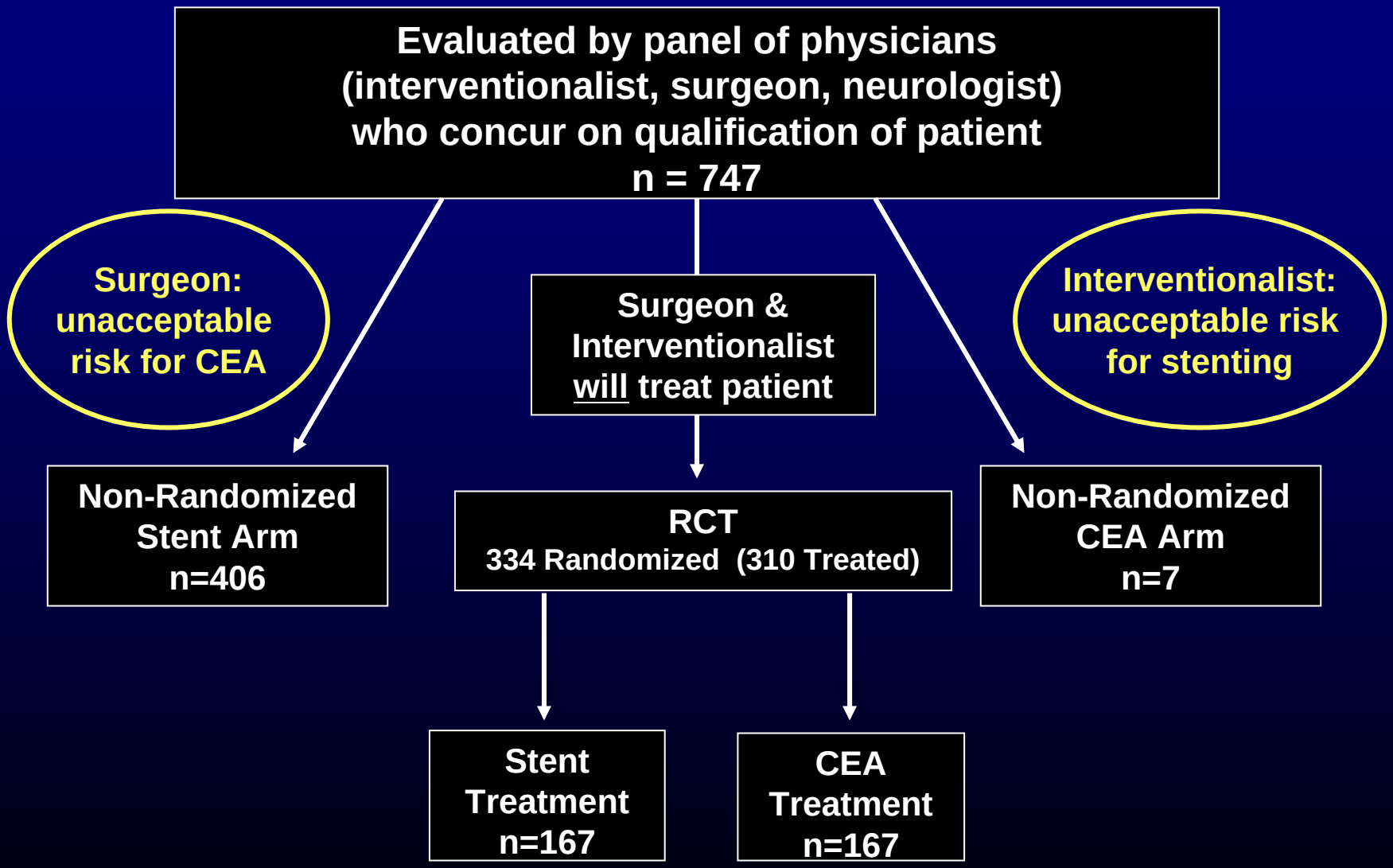
Ann Intern Med. 2006;145:901-912. www.annals.org
For author affiliations, see end of text.

Conclusions: Available evidence does not clearly support one treatment approach over another for atherosclerotic renal artery stenosis.

Ann Intern Med. 2006;145:901-912. www.annals.org
For author affiliations, see end of text.

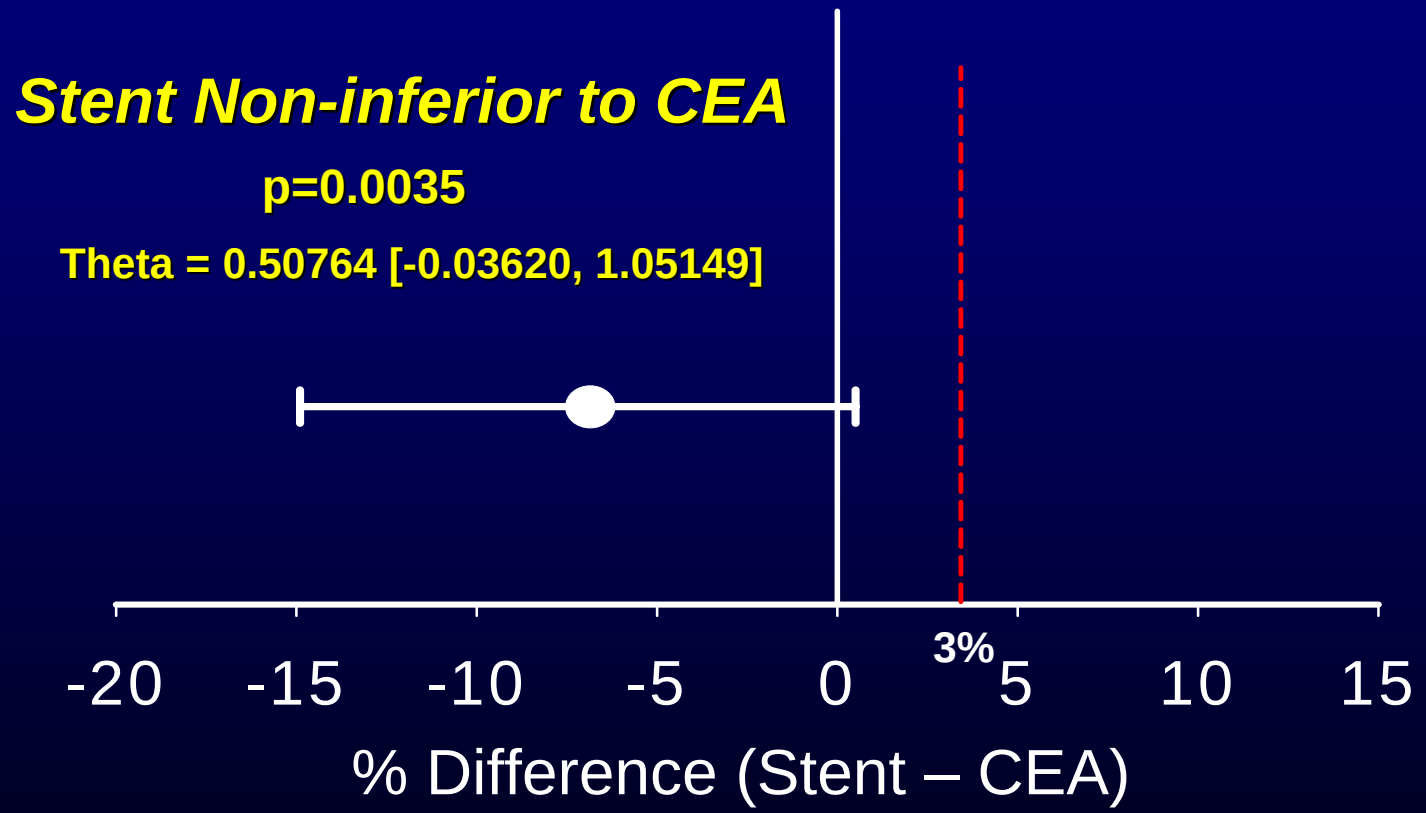
We’ve Got Plenty of Data on Carotid Stenting….Don’t We?

SAPPHIRE: Study Design



Primary Endpoint: 360-day MAE

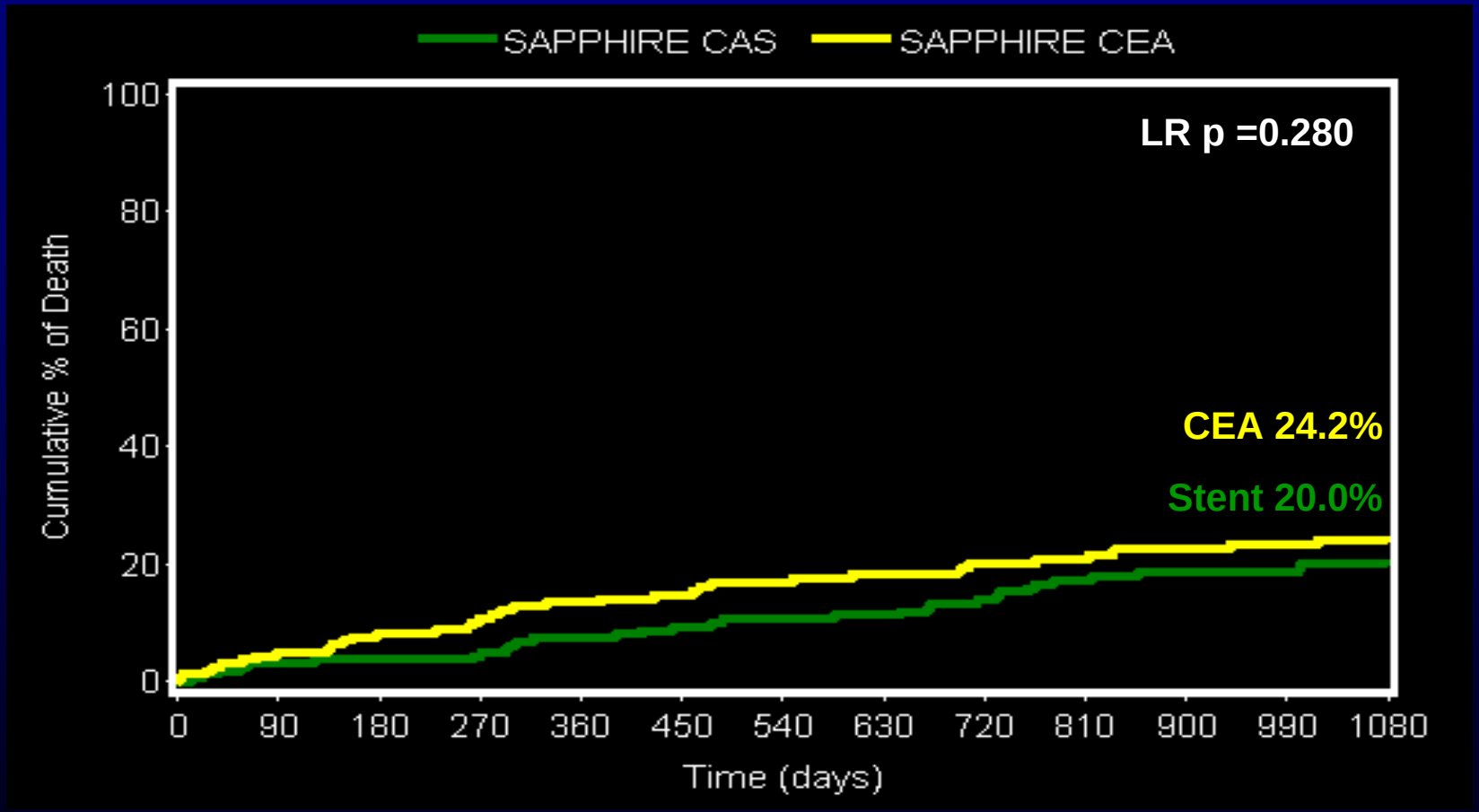
Non-Inferiority Statistics



Stent	CEA	% Difference [95% C.I.]
12.0% (20/167)	19.2% (32/167)	–7.2%[–14.9%, 0.6%]

Cumulative Percentage of Death at 1080 days

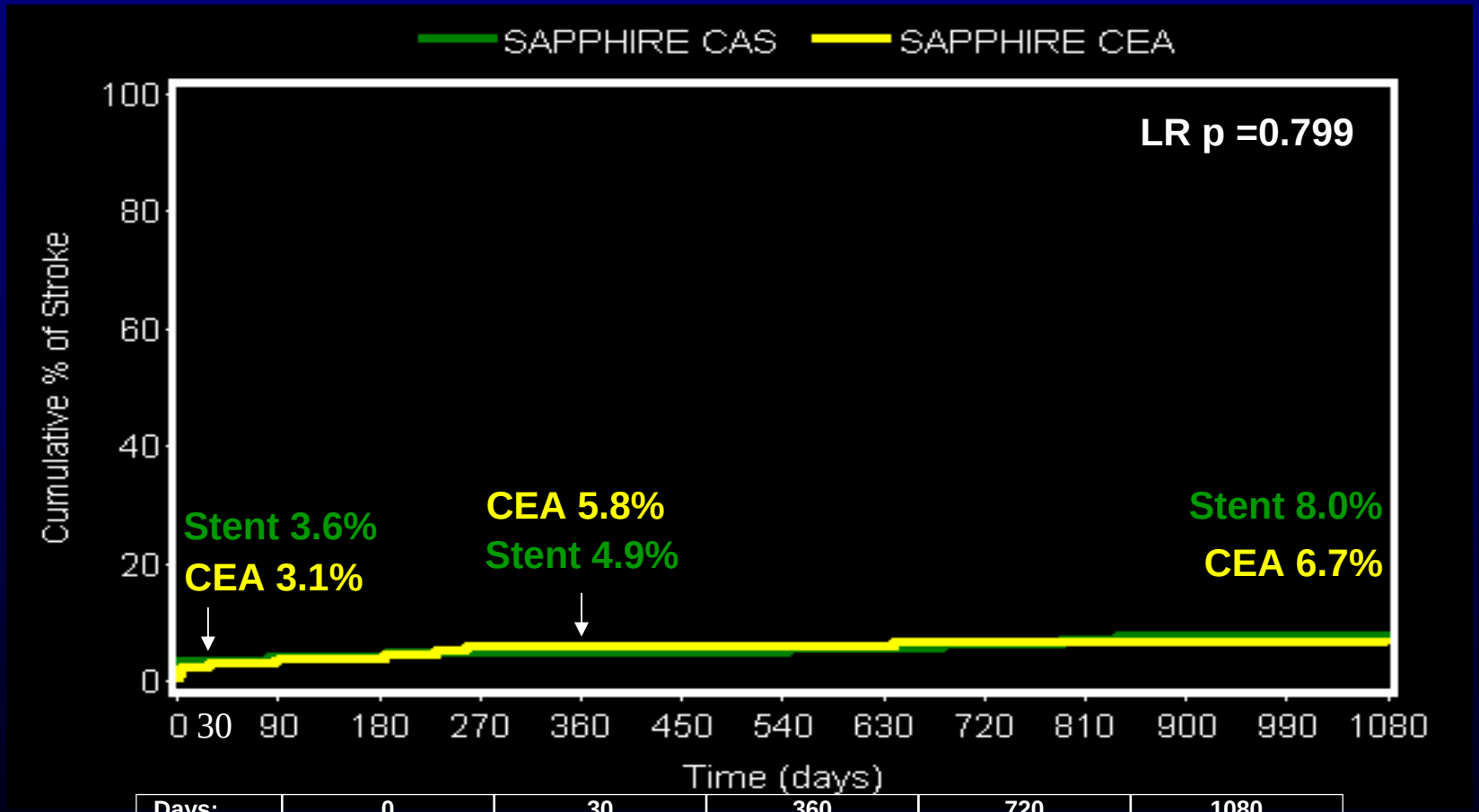
All Randomized Patients



Days:	0	90	360	720	1080
Stent:	167	167	153	136	115
CEA:	167	164	136	108	86

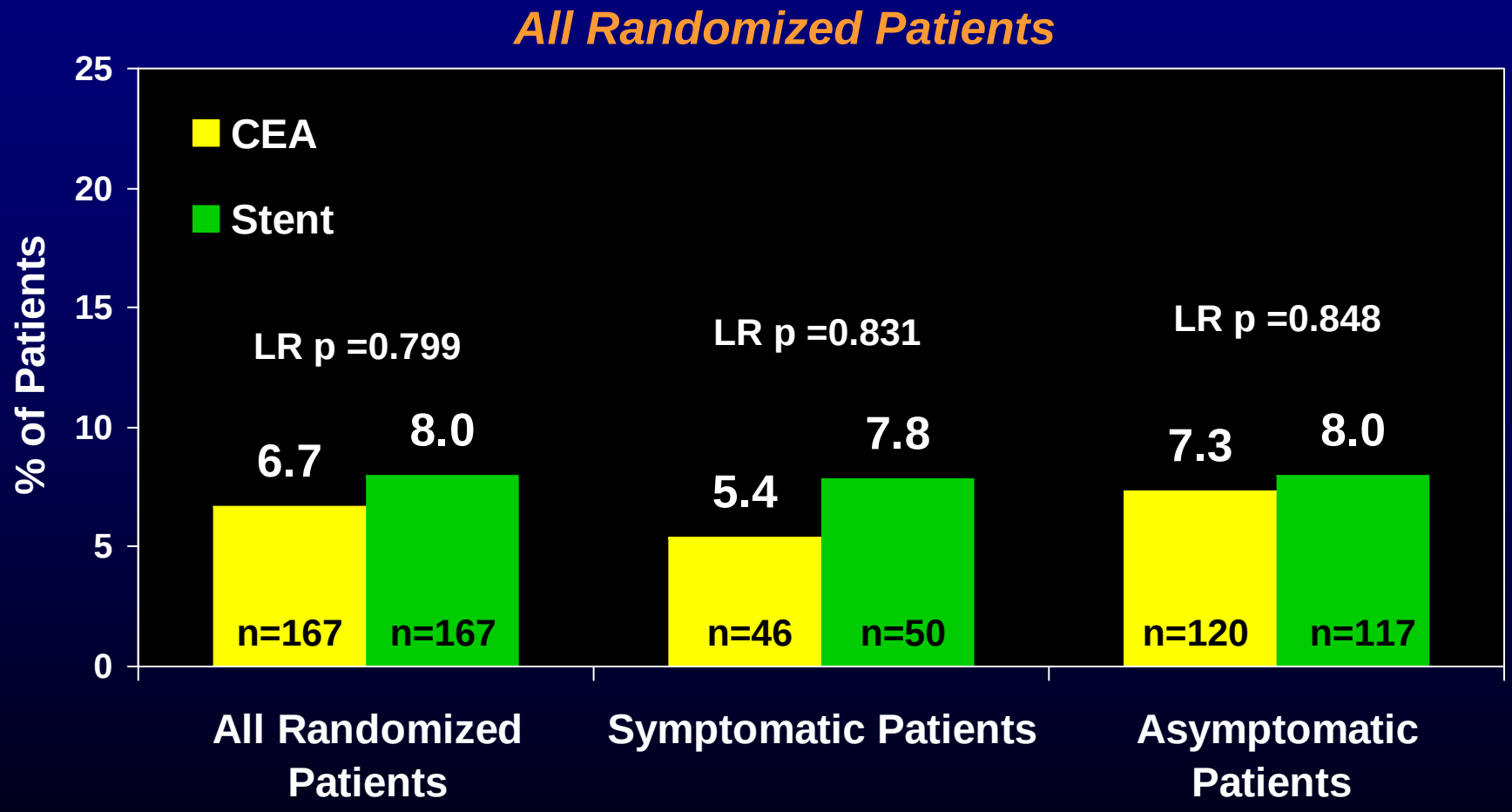
Cumulative Percentage of Stroke to 30 Days & Ipsilateral Stroke from 31-1080 Days

All Randomized Patients



Days:	0	30	360	720	1080
Stent:	167	159	147	130	107
CEA:	167	154	131	104	82

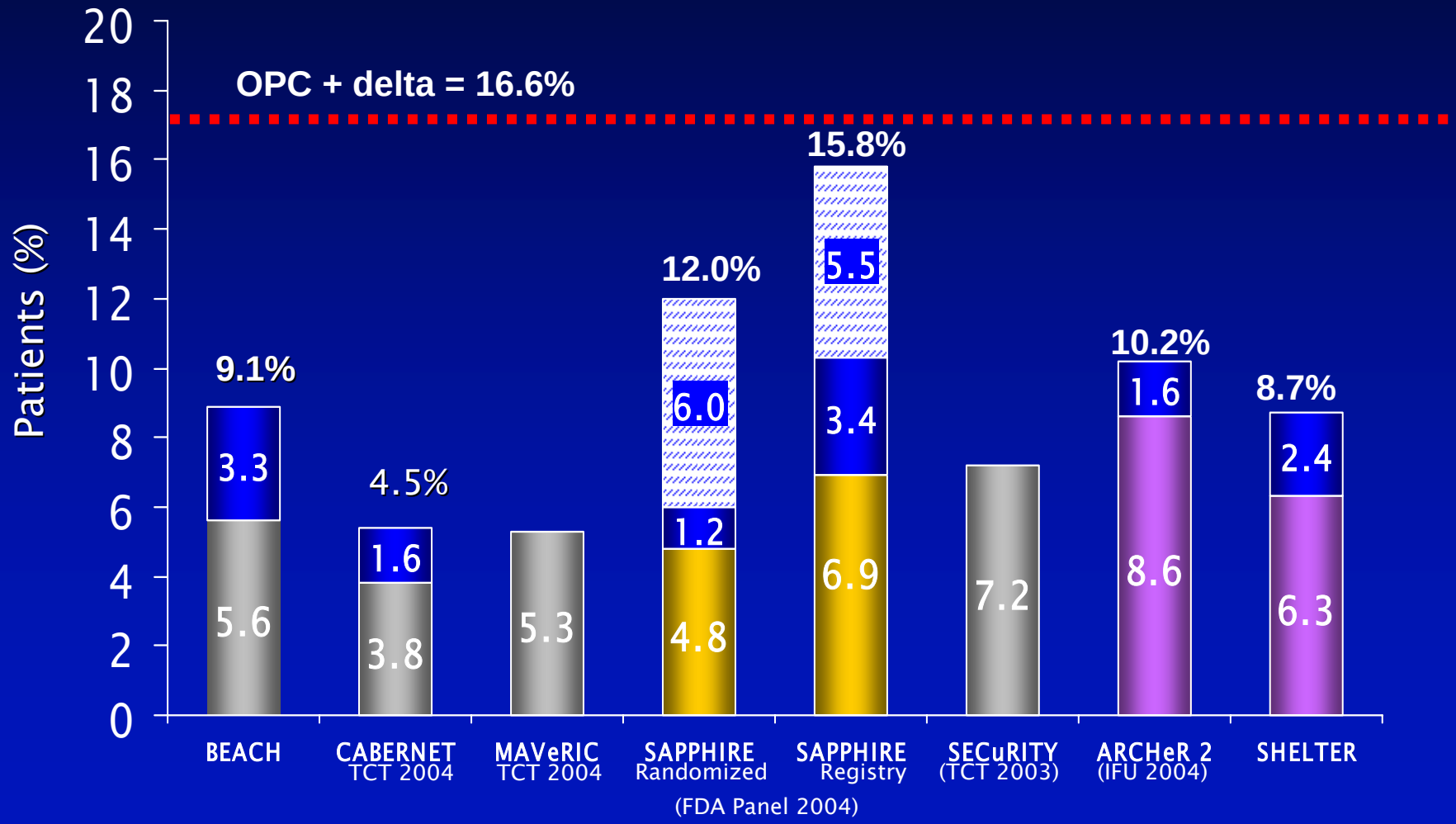
Cumulative Percentage of Stroke to 30 Days & Ipsilateral Stroke from 31-1080 Days



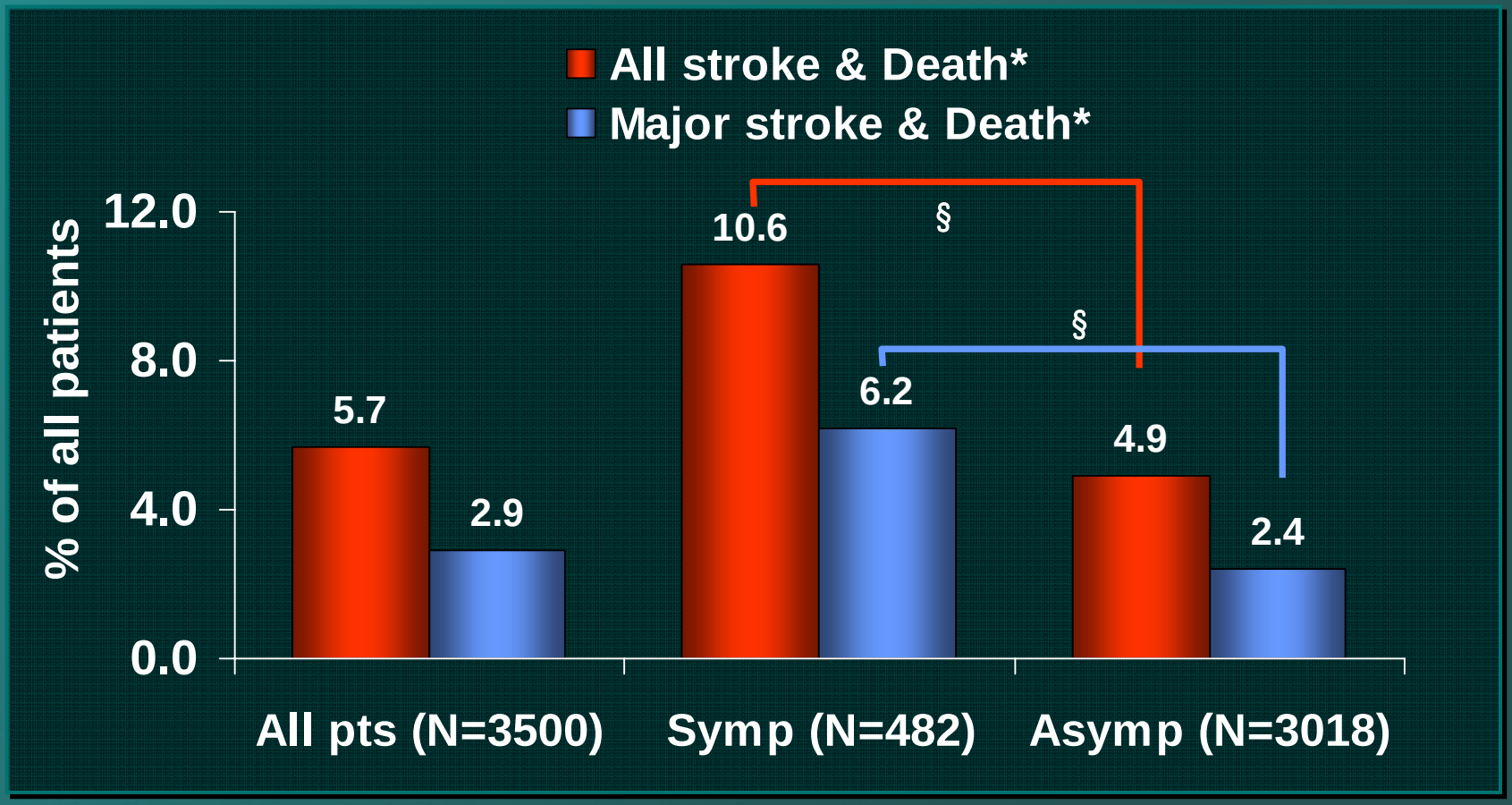
3-year results based on Kaplan-Meier analysis

1 Year Composite MAE Endpoint

Carotid Stenting Trials



CAPTURE 3500:
30 Day Outcomes by Symptomatic Status

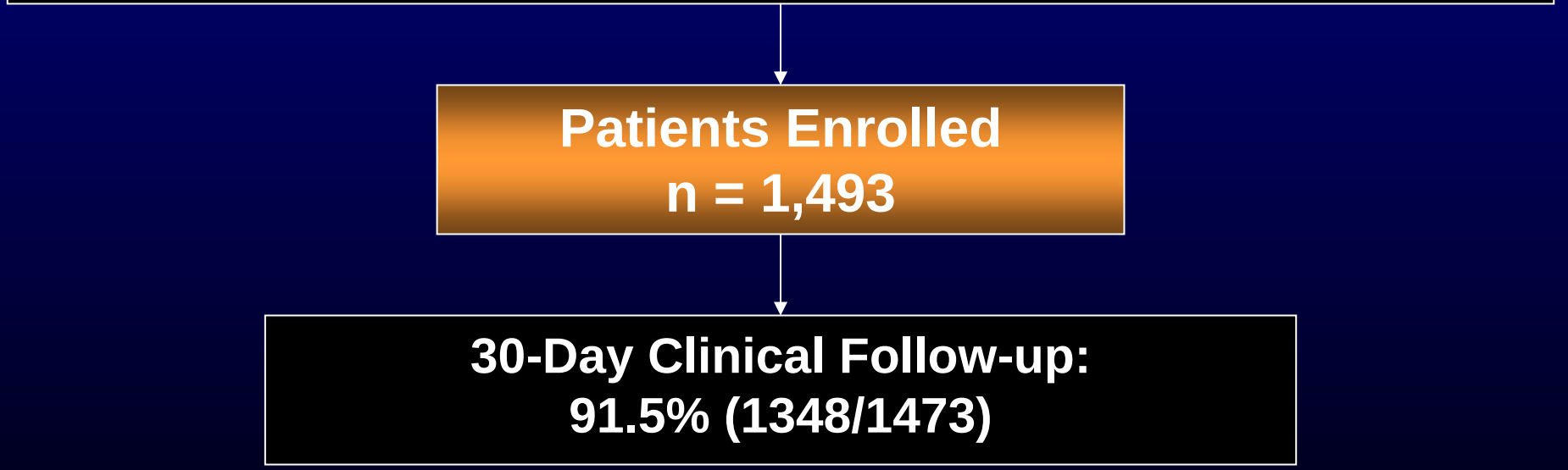


§ Denotes statistically significant difference at the 0.05 level

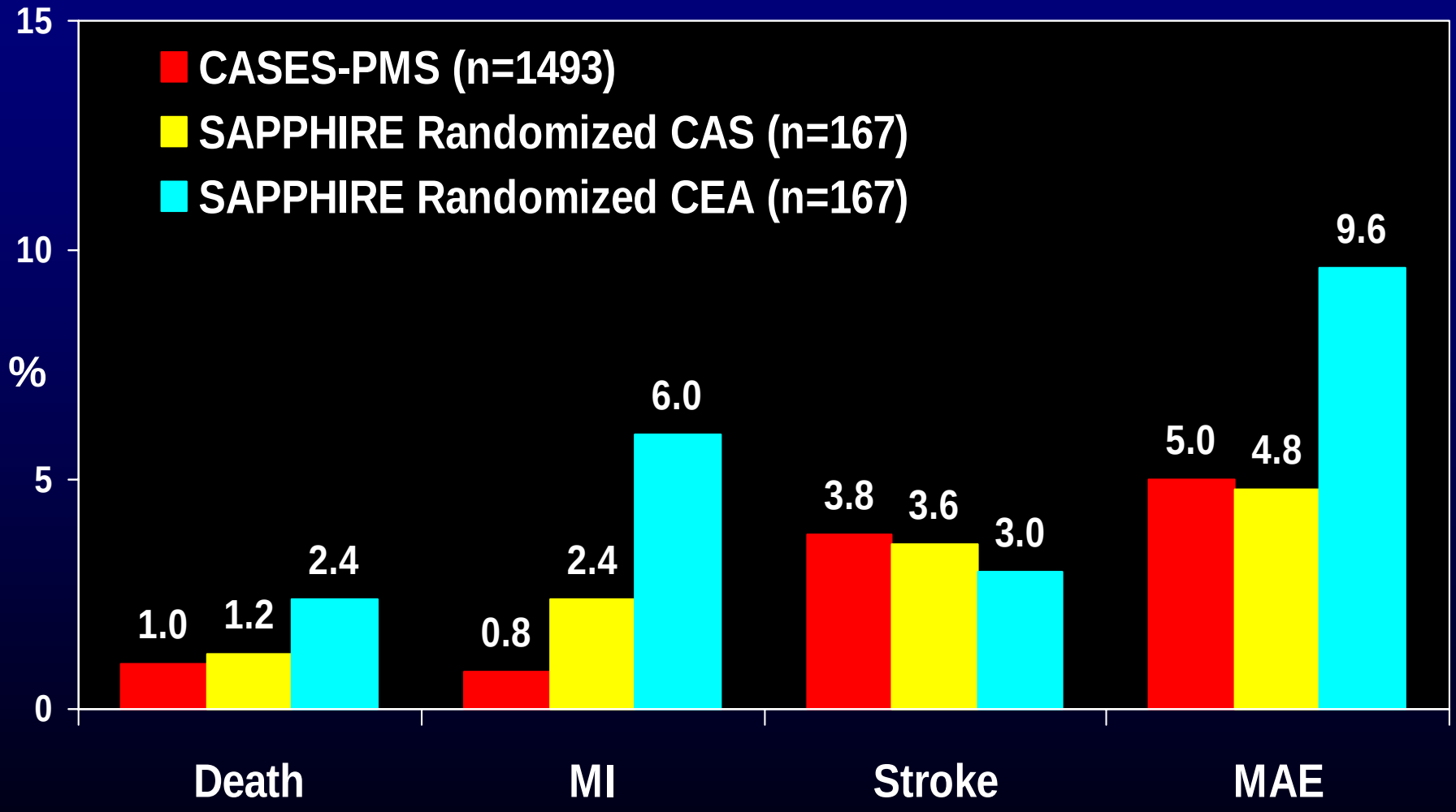
* Hierarchical Events – Includes only the most serious event for each patient and includes only each patient first occurrence of each event.

Study Design

Prospective, multicenter (73 sites), single arm, open-label study
August 2003 – October 2005
Primary Endpoint:
30-day composite of major adverse events (MAE) including all death, stroke, and/or myocardial infarction



30-Day Events Compared with SAPPHIRE



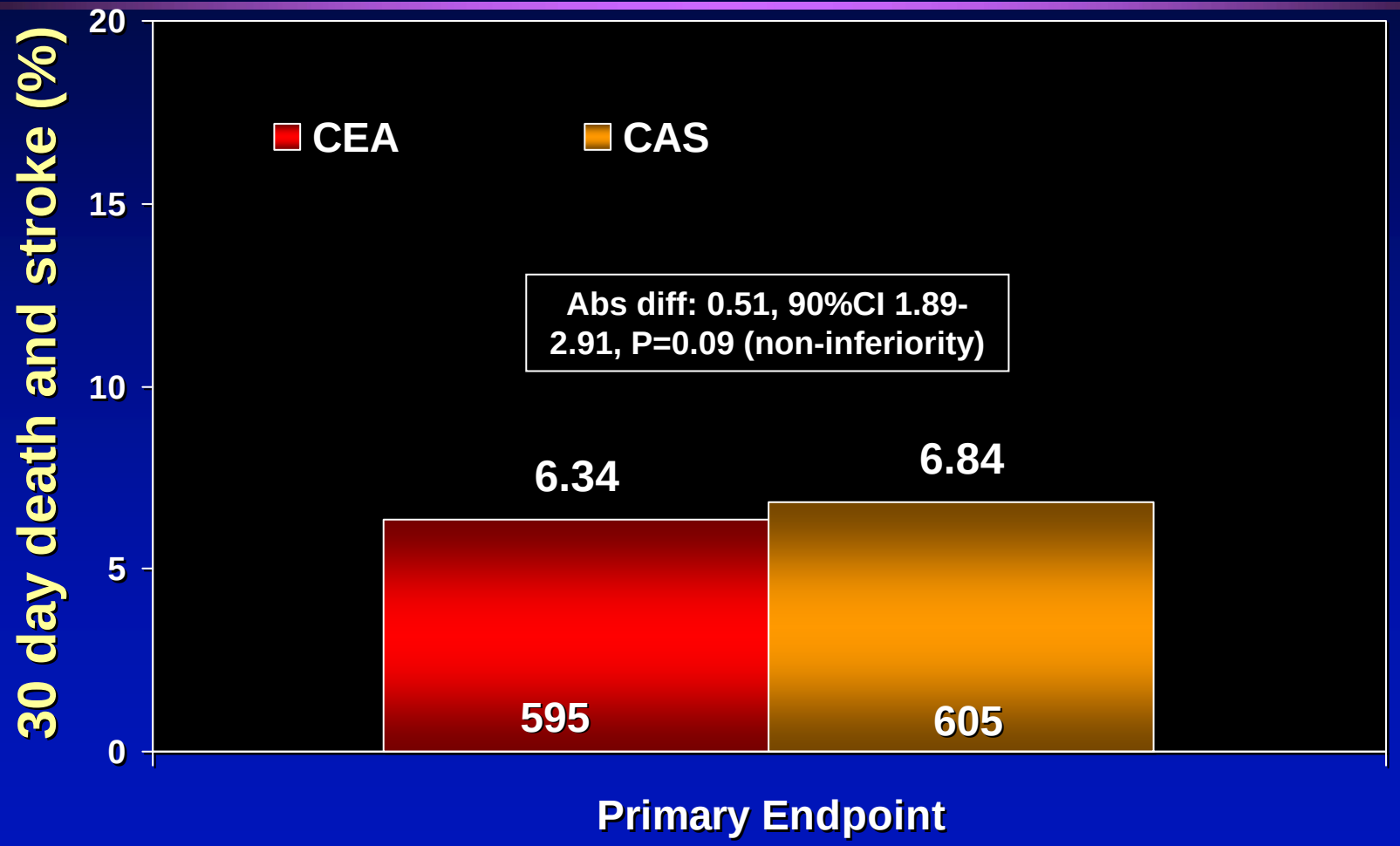
Lancet 2006;368:1239-47

30 day results from the SPACE trial of stent-protected angioplasty versus carotid endarterectomy in symptomatic patients: a randomised non-inferiority trial

*The SPACE Collaborative Group**

SPACE

Randomized CEA vs. CAS symptomatic patients



SPACE collaborators. Lancet 2006;368:1239-47

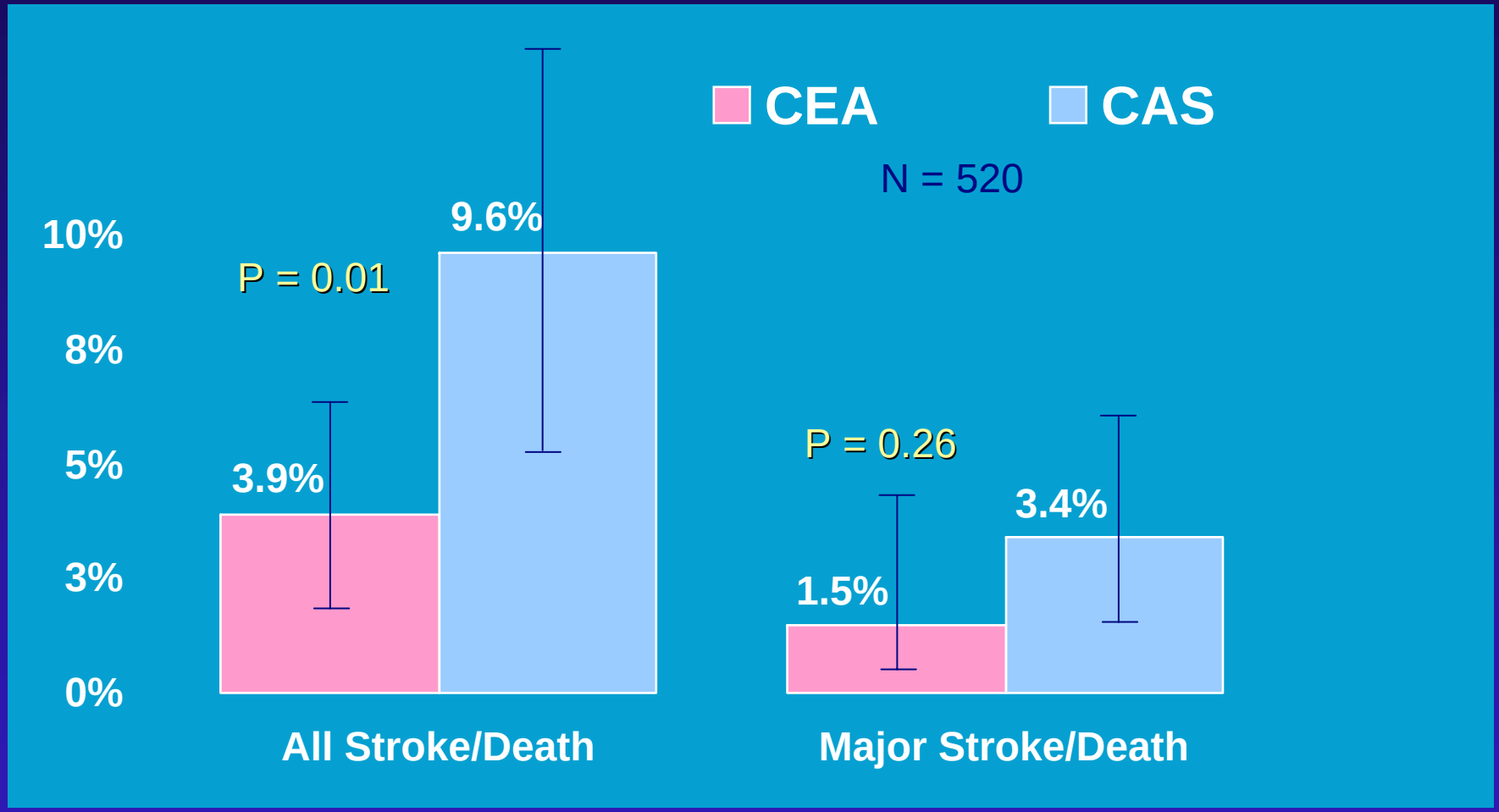
N Engl J Med 2006;355:1660-71

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Endarterectomy versus Stenting in Patients with Symptomatic Severe Carotid Stenosis

EVA-3S



Mas J-L, et al. NEJM 2006;355:1660-71

Asymptomatic carotid stenosis: what to do

Jessica N. Redgrave and Peter M. Rothwell

Curr Opin Neurol 2007;20:58-64

Recent findings

Optimal medical treatment is the most important aspect of management of patients with asymptomatic carotid stenosis. On the basis of previous trials, endarterectomy is only of overall benefit in men, and this benefit may now be obviated by improved medical treatment. There is insufficient evidence to advocate the routine use of carotid angioplasty or stenting in patients with asymptomatic stenosis. Inaccuracy in the measurement of carotid stenosis may contribute to conflicting estimates of stroke risk in relation to the degree of asymptomatic stenosis. Advances in noninvasive imaging of plaque morphology and inflammation and the detection of microembolic signals may help to risk stratify patients but data on clinical usefulness are lacking.

And What About Peripheral Arterial Disease…Plenty of Data Here…Right?

The Prevalence of P.A.D. Increases with Age

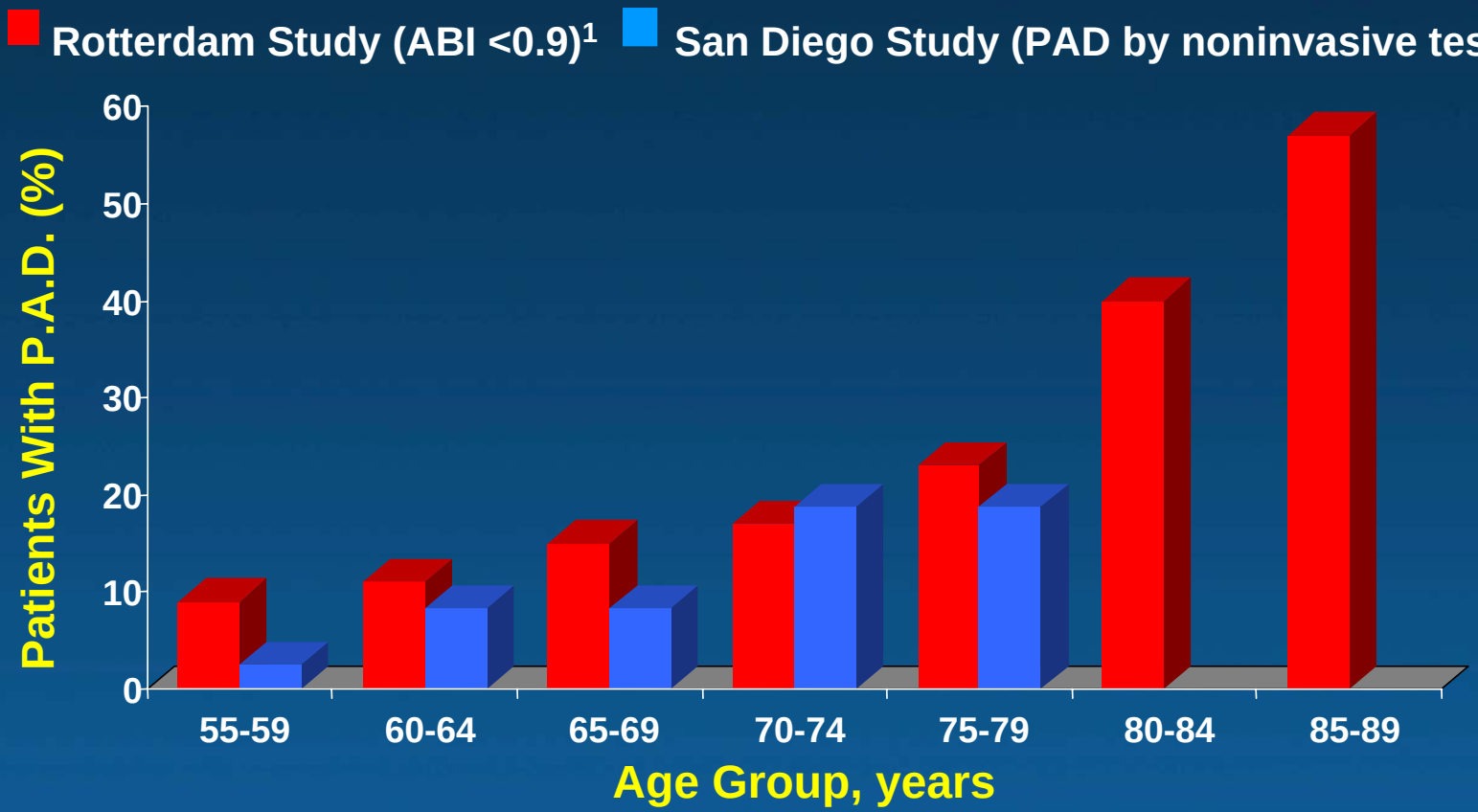


Figure adapted from Golomb BA, Criqui MH, Bundens WP. Epidemiology of peripheral arterial disease. In: Creager MA, ed. *Management of Peripheral Arterial Disease: Medical, Surgical and Interventional Aspects*. London: ReMEDICA Publishing; 2000:1-18.

1. Meijer WT, et al. *Arterioscler Thromb Vasc Biol*. 1998;18:185-192.
2. Criqui MH, et al. *Circulation*. 1985;71:510-515.

Peripheral Arterial Disease:
Why Care about P.A.D.?

A "Call to Action" to
Recognize, Diagnose, and Treat P.A.D.

- Major cause of acute and chronic disability
- Limits functional capacity
- Impairs quality of life
- Major cause of limb amputation
- Marked increased risk of nonfatal cardiovascular ischemic events (MI and stroke) and death
- Early detection and treatment decreases risk of MI, stroke and death

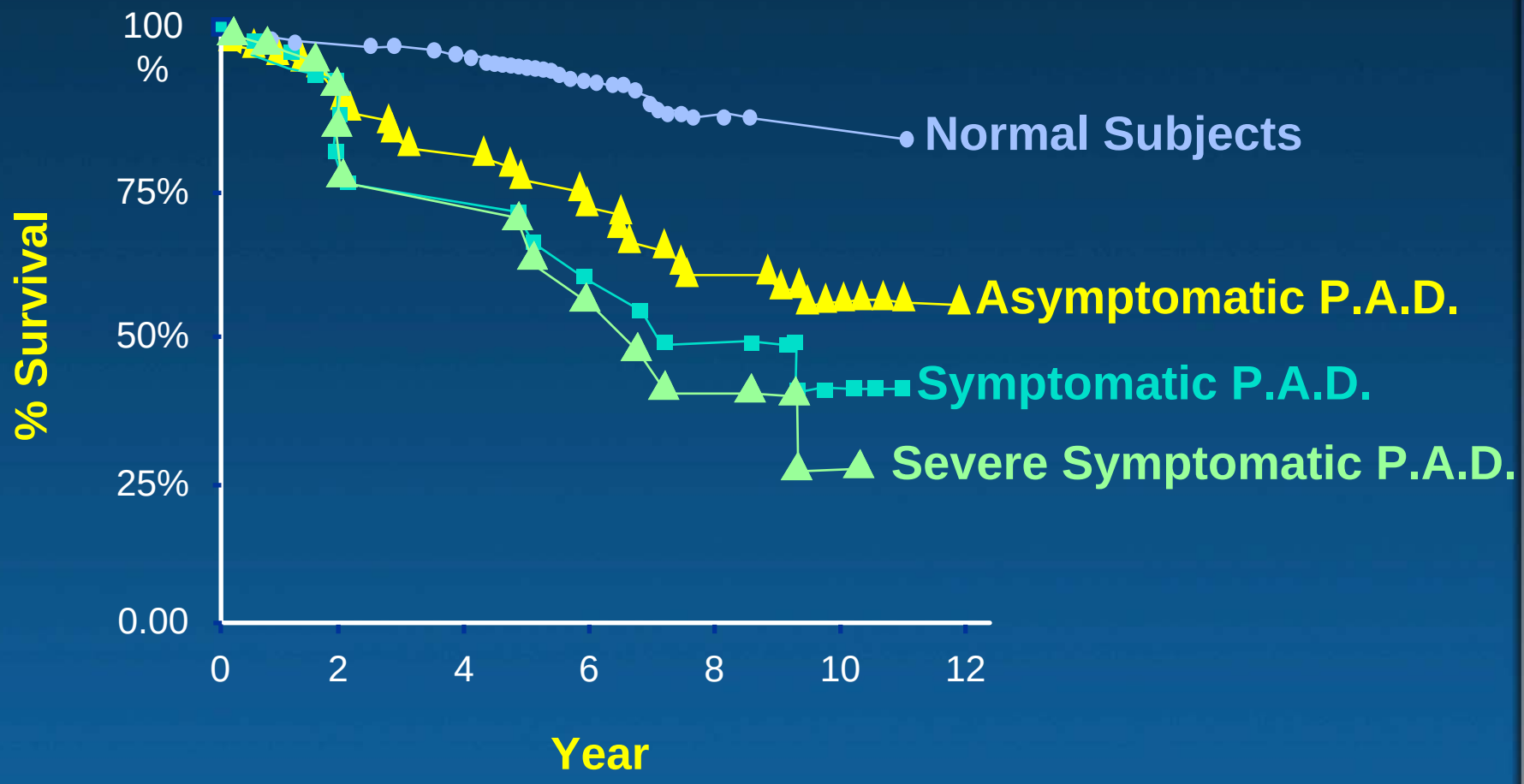
Belch J et al. Arch Int Med 2003;163:884-892

Peripheral Arterial Disease:

Consequences of undiagnosed and untreated P.A.D. extend well beyond leg stenosis

The prognosis of patients with lower extremity P.A.D. is characterized by an increased short-term risk for cardiovascular ischemic events due to concomitant coronary artery disease and cerebrovascular disease.

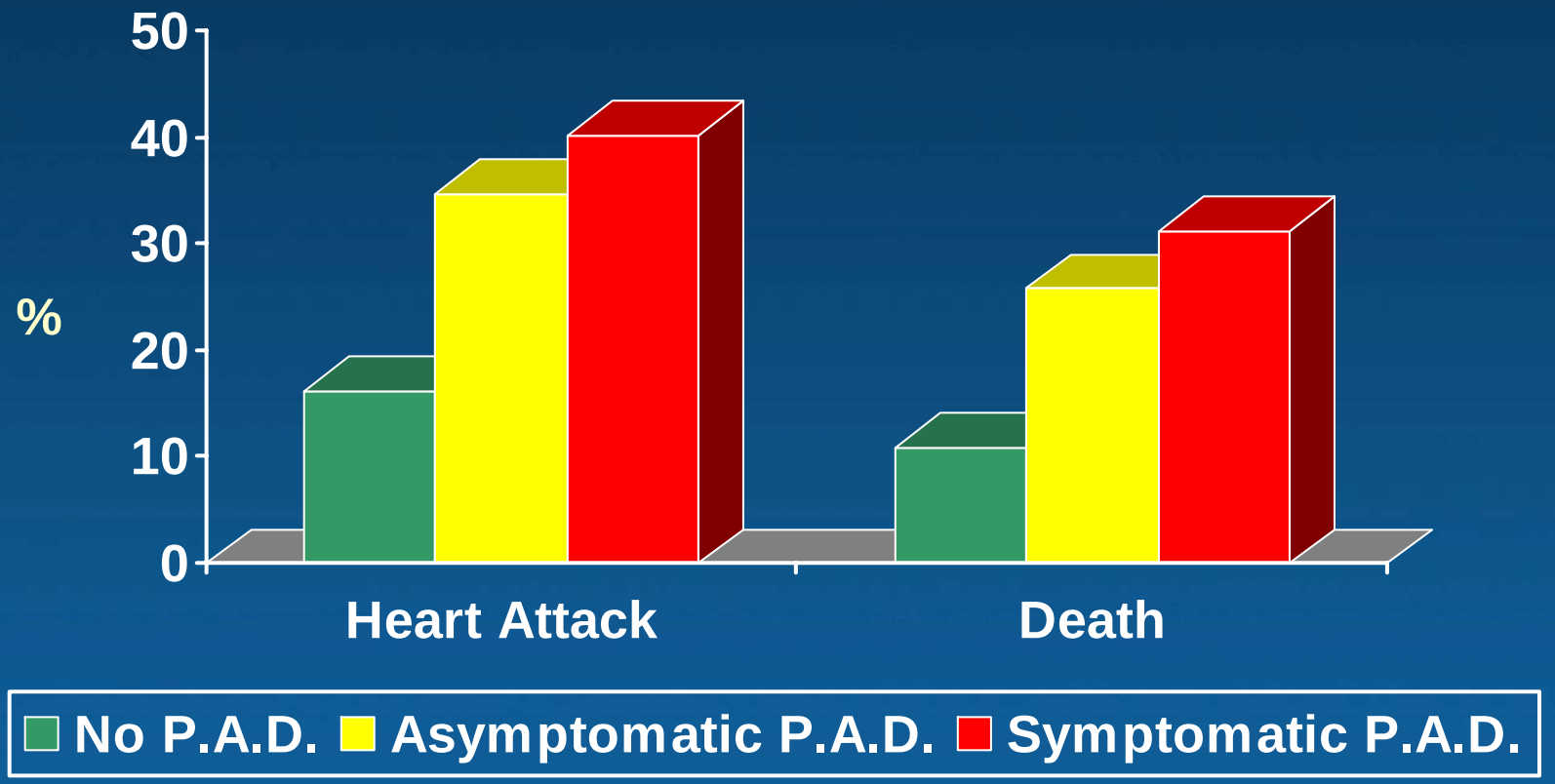
P.A.D. Survival



Criqui MH, et al. *N Engl J Med*. 1992;326:381-386.

Contemporary P.A.D.
Myocardial Infarction and Death

3649 subjects (average age, 64 yrs) followed up for 7.2 years.



Hooi JD, et al. J Clin Epid 2004;57:294–300.

www.preventiveservices.ahrq.gov

Screening for Peripheral Arterial Disease: Recommendation Statement

U.S. Preventive Services Task Force

Summary of Recommendation

The USPSTF recommends against routine screening for peripheral arterial disease. **D recommendation**.

We Cannot Even Agree on Screening for PAD!

Circulation 2006;114:861-6

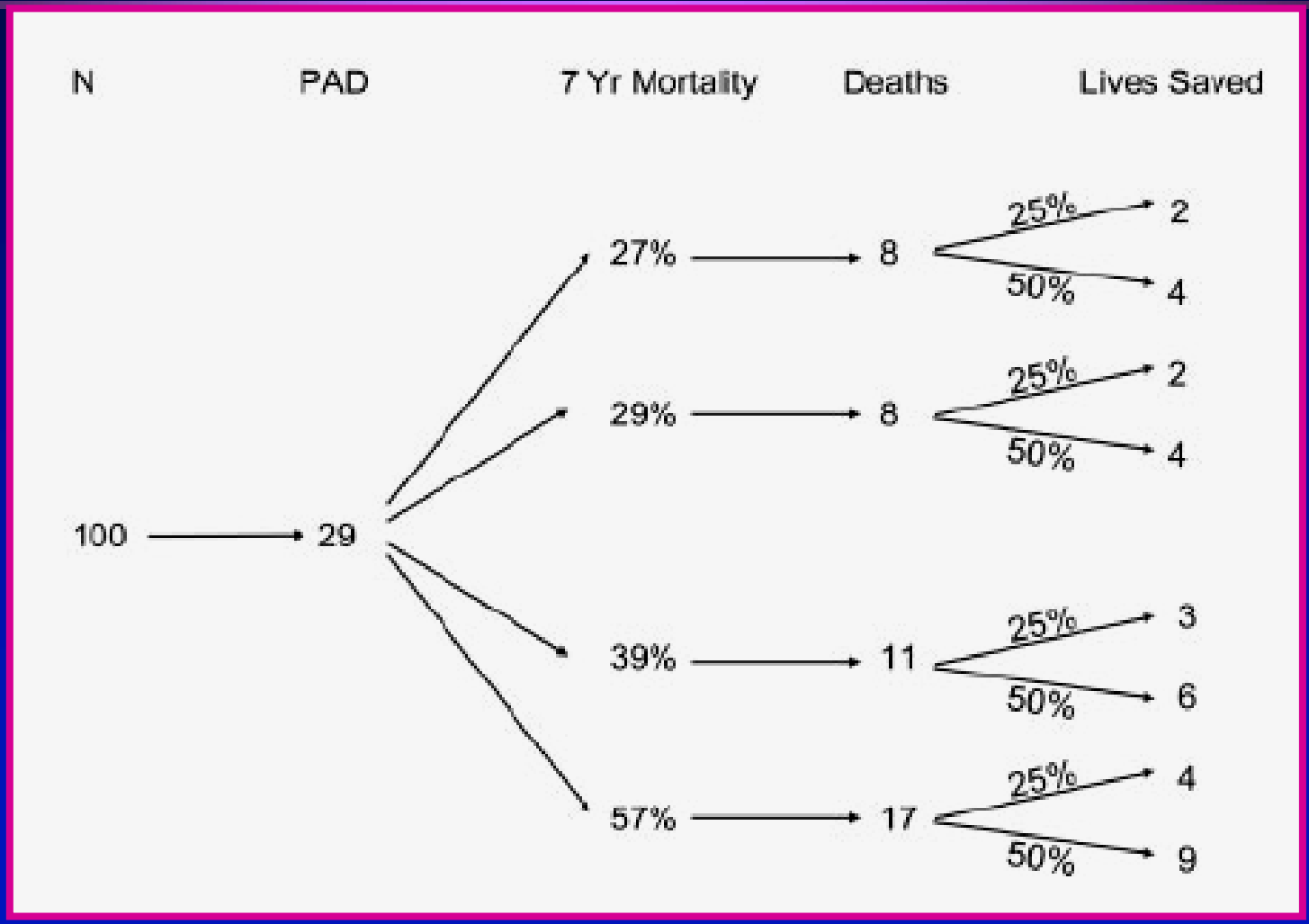
Special Report

The United States Preventive Services Task Force Recommendation Statement on Screening for Peripheral Arterial Disease

More Harm Than Benefit?

Joshua A. Beckman, MD, MS; Michael R. Jaff, DO; Mark A. Creager, MD

Estimated Mortality Reduction with Targeted Screening



Circulation 2006;114:861-6

Future Perspectives?

- We need data!
- **Carotid Stenting**
  - CREST
  - ACT 1
  - COAST
- **Renal Artery Stenting**
  - CORAL
  - ASTRAL
- **Peripheral Arterial Stenting**
  - We need a head to head trial of different technologies for the SFA, Popliteal, Tibial arteries
  - We need proof that screening for PAD results in effective COLY saved