

**New Cholesterol Guidelines:  
Carte Blanche for Statin  
Overuse**

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**Disclosures & Relevant  
Relationships**

I have nothing to disclose

- No financial conflicts
- Editor, JAMA Internal Medicine
- Medicare Payment Advisory Commissioner
- Chairperson, Medicare Evidence Development and Coverage Advisory Committee

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**2013 ACC/AHA Cholesterol  
Guidelines**

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

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

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## AHA/ACC Guideline on Treatment of Blood Cholesterol

- Persons without known cardiovascular cardiovascular should be treated with statins if their ten year risk of a cardiovascular event (myocardial infarction, stroke or cardiovascular death) exceeds 7.5%
- Risk is assessed using a new Pooled Risk Assessment Equation (from 5 large NIH cohorts), replacing Framingham CHD Risk Score
- Framingham CHD score had been shown to perform well in black and white persons (D'Agostino R et al. JAMA 2001)

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## The New Risk Calculator

- Overestimates risk by 75 - 150%
- Using NHANES data for 40 - 79 years old, the Pooled Cohort Risk Assessment calculator will classify
  - 44.3% of all men (53.1% of black men)
  - 22.5% of all women (33.9% of black women)
  - As having risk at or above the 7.5% cutpoint
- Clinical prediction rules are generally accurate in the cohort in which the rule was developed
- Important next step is to validate the accuracy of the calculator in different cohorts and populations

Grady D. JAMA IM Blog, March 13, 2014

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## How well does the new 10 year calculator work?

- Must be validated in other cohorts than the derivation cohort
  - MESA - 6 year follow up, used data in whites and blacks
  - REGARDS- 4 year follow up, focused on stroke in Southeastern US
  - New risk calculator did not do well (C statistic or the calibration  $\chi^2$ ) in external validation cohorts
- Optimally, use of a risk estimator (compared to non-use) should be proven in a randomized trial to improve outcomes by improving underuse while avoiding overuse of statins

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**Overtreatment**

- It is unclear why a cut-point of 7.5% should be used to determine who should be treated with statins
- The Pooled Cohort Risk Assessment calculator will classify 99% of all persons and 100% of all men over age 70 in the range for treatment with statins
- Absolute vs Relative Risk,
  - Number needed to treat
  - Number needed to harm

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**Application of New Guidelines to a Population Based Sample**

OP-ED CONTRIBUTORS  
**Don't Give More Patients Statins**  
 By JOHN D. ABRAMSON and RITA F. REDBERG  
 Published: November 13, 2013 | 517 Comments

- Used NHANES data for persons aged 40 – 75 years
- The number of US adults receiving or eligible for statins would increase from 43.2 million (38%) to 56 million (48.6%)
- Most of the increase is in **healthy** people

Pencina M ..Peterson E. *NEJM* 2014

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**The Gender Gap**

**Do Statins Work Equally for Men and Women?**  
 Rita Redberg, MD  
 "There are millions of women on a drug with no known benefit and risks that are detrimental to their lifestyle — and no one is talking about it."  
 - Dr. Rita Redberg, *Time Magazine*, March 2010

**Rising Statin Use...**  
 The percentage of people surveyed in the U.S. who said they had their cholesterol in the prior 30 days, by sex and age

Year	Age 45-64	Age 65-74	Age 75-84
2005-06	~15%	~25%	~35%
2009-10	~25%	~35%	~45%
2013-14	~35%	~45%	~55%

**...And Falling Cholesterol Levels**  
 The percentage of people with high serum total cholesterol (LDL mg/dL or higher), by sex and age

Year	Age 45-64	Age 65-74	Age 75-84
2005-06	~45%	~55%	~65%
2009-10	~35%	~45%	~55%
2013-14	~25%	~35%	~45%

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## WSJ Survey 2012

Should healthy people take cholesterol-lowering drugs?

Response	Percentage	Count
Yes	28.7%	157
No	71.3%	375

<http://online.wsj.com/community/groups/doctors-office-240/topics/should-healthy-people-take-cholesterol-lowering>

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## Statins in the News

The New York Times Health  
 Tuesday, October 22, 2013

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORT  
 RESEARCH | FITNESS & NUTRITION | MONEY & INVESTING

The New Old Age

Caring and Coping

October 22, 2013, 3:28 pm | 6 Comments

Controversy Over Statins for Older Patients

By JUDITH GRAHAM

- Federal health officials added new safety alerts to the prescribing information for statins, the cholesterol-reducing medications that are among the most widely prescribed drugs in the world
- Citing rare risks of memory loss, diabetes and muscle pain

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## JC – 68 yr old man

- Self referred from Palm Beach, FL
- No history of CAD
- Non smoker, BP – 132/75
- Placed on statins for “hyperlipidemia”
- LDL – 108, HDL – 44, TC – 173
- Negative exercise SPECT study in FL
- Miserable on statins, unable to exercise due to muscle pains
- Doctor told him he cannot go off statins

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**Cochrane Review of Statins for Primary Prevention**

- 18 articles with total of 56, 9342 patients
- Risk ratio for all cause mortality
  - 0.863 (.79 - .94)
- Data very similar, but conclusions changed
- Now conclude that reductions in all cause mortality , vascular endpoints and revascularizations are found with no excess of adverse events

*Taylor F et al. 2013*

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**What are the harms of statins?**

- Harms can be difficult to assess, as trials often exclude 'real-world' patients
- Statins increase the risk of developing diabetes
- Myalgias, cognitive impairment, and fatigue are all associated with statin use, and are a major reason for discontinuation
- Other adverse events associated with statins include neuropathy, and ALS

Preiss D, Seshasai SR, Welsh P, et al. Risk of incident diabetes with intensive-dose compared with moderate-dose statin therapy: a meta-analysis. JAMA. 2011 Jun 22;305(24):2556-64.

Fernandez G, Spatz ES, Jablcki C, Phillips PS. Statin myopathy: a common dilemma not reflected in clinical trials. Cleve Clin J Med. 2011 Jun;78(6):333-403.

Neurology 2002;58:1333-1337

Drug Safety 2007: 30:515-525

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**Diabetes Risk with Statins**

Figure 4. Effects of statin therapy on incident diabetes in hypothesis-generating and hypothesis-testing placebo controlled trials.

Study	Statin	HR (95% CI)
WOSCOPS (Hypothesis Generating Trial)	Pravastatin	0.70 (0.50-0.99)
HPS	Simvastatin	1.20 (0.98-1.35)
ASCOT-LLA	Atorvastatin	1.20 (0.91-1.44)
PROVE-IT	Atorvastatin vs Pravastatin	1.11 (0.67-1.65)
CORONA	Rosuvastatin	1.13 (0.86-1.50)
JUPITER (Hypothesis Testing Trials)	Rosuvastatin	1.25 (1.05-1.54)
		1.17 (1.04-1.30)

Ridker P M Circ Cardiovasc Qual Outcomes 2009;2:279-285 Copyright© American Heart Association

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**Statin Use and Incident DM in WHI**

**Background:** This study investigates whether the prevalence of new-onset diabetes mellitus (DM) is associated with statin use among postmenopausal women participating in the Women's Health Initiative (WHI).

**Methods:** The WHI recruited 161,808 postmenopausal women aged 50 to 79 years at 40 clinical centers across the United States from 1992 to 1998 with ongoing follow-up. The current analysis includes data through 2005. Statin use was captured at enrollment and year 8. Incident DM status was determined annually from enrollment. Cox proportional hazards models were used to estimate the risk of DM by statin use, with adjustments for prospective baseline and other potential confounding factors. Subgroup analyses by race/ethnicity, obesity status, and age group were conducted to uncover effect modification.

**Results:** This investigation included 123,870 women without DM and no missing data at baseline. At baseline, 7,078 reported taking statin medication. There was

*Statin use at baseline associated with HR = 1.71 increased risk of DM. Multivariate analyses found increased risk of DM with HR= 1.48*

*Arch Intern Med 2012;172(2):144-152*

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**JC – 68 yr old man**

- Framingham Risk Score – 14%
- Do “benefits “ of statins exceed the benefits of good quality of life and being able to exercise and enjoy yourself
- No way!
- I stopped his statins
- He is now back to Cross Fit and feels great!

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**Shared Decision Making**

- Inform patients of benefits and risks
- Number needed to treat
  - Use pictorial representation (Montori)
- Essential to consider baseline risk of patient
  - Many patients currently taking statins are low risk for CVD and are more likely to experience harm than benefit

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**Number Needed to Treat**

- For those who took statins for 5 years
  - 98% saw no benefit
  - 0 were helped by being saved from death
  - 1.6% were helped by preventing a heart attack
  - 0.4% were helped by preventing a stroke
  - 0.6% were harmed by developing diabetes
  - ?% were harmed by developing muscle weakness
  - ?% were harmed by developing memory loss

[www.thennt.com/statins-for-heart-disease-prevention-without-prior-heart-disease](http://www.thennt.com/statins-for-heart-disease-prevention-without-prior-heart-disease)

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**Harms and (lack of) Benefit**

**the NNT** Home Reviews Learn More Blog Contact Us

**Statin Drugs Given for 5 Years for Heart Disease Prevention (Without Known Heart Disease)**  
©2010 the NNT

In Summary, for those who took the statin for 5 years:

Benefits in Percentage	Harms in Percentage
<ul style="list-style-type: none"> <li>98% saw no benefit</li> <li>0% were helped by being saved from death</li> <li>1.6% were helped by preventing a heart attack</li> <li>0.4% were helped by preventing a stroke</li> </ul>	<ul style="list-style-type: none"> <li>0.6% were harmed by developing diabetes**</li> <li>0.2% were harmed by muscle damage</li> </ul>

<http://www.thennt.com/nnt/statins-for-heart-disease-prevention-without-prior-heart-disease/>

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**Statin Choice Decision Aid**

*Montori VM et al. Knowledge and Encounter Research Unit, Mayo Clinic*

**What is my risk of having a heart attack in the next 10 years?**

The risk for 100 people like you who **DO NOT** take statins.

**NO STATIN**

90 people **DO NOT** have a heart attack (green)

10 people **DO** have a heart attack (red)

The risk for 100 people like you who **DO** take statins.

**YES STATIN**

90 people **still DO NOT** have a heart attack (green)

2 people **AVOIDED** a heart attack (yellow)

8 people **still DO** have a heart attack (red)

98 people experienced **NO BENEFIT** from taking statins

● had a heart attack  
● avoided a heart attack  
● didn't have a heart attack

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## Summary

- Statins confer a small reduction in the risk of heart attacks and in some studies of dying of heart disease in those with established disease.
- The benefit is less in women than men.
- They confer much less benefit in men without disease and none at all in healthy women.
- Healthy lifestyle, including the Mediterranean Diet is more effective than statins in lowering risk, WITHOUT SIDE EFFECTS.

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## The Bottom Line to prevent heart disease

*Eat food. Not a lot. Mostly plants.*



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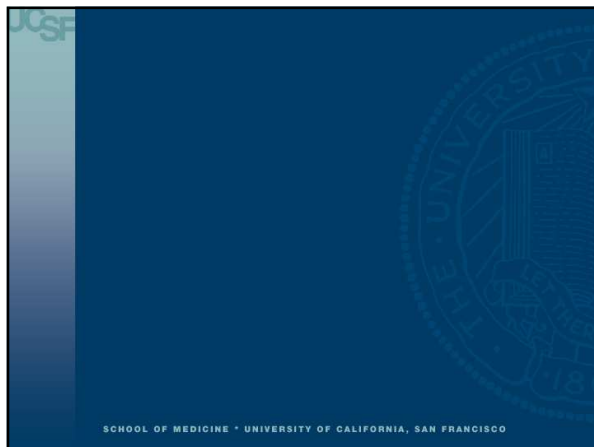
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