



ORIGINAL RESEARCH | 3 JULY 2018

Clinical Implications of Revised Pooled Cohort Equations for Estimating Atherosclerotic Cardiovascular Disease Risk

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Background: The 2013 pooled cohort equations (PCEs) are central in prevention guidelines for cardiovascular disease (CVD) but can misestimate CVD risk.

Objective: To improve the clinical accuracy of CVD risk prediction by revising the 2013 PCEs using newer data and statistical methods.

Design: Derivation and validation of risk equations.

Setting: Population-based.

Participants: 26 689 adults aged 40 to 79 years without prior CVD from 6 U.S. cohorts.

Measurements: Nonfatal myocardial infarction, death from coronary heart disease, or fatal or nonfatal stroke.

Results: The 2013 PCEs overestimated 10-year risk for atherosclerotic CVD by an average of 20% across risk groups. Misestimation of risk was particularly prominent among black adults, of whom 3.9 million (33% of eligible black persons) had extreme risk estimates (<70% or >250% those of white adults with

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otherwise-identical risk factor values). Updating these equations improved accuracy among all race and sex subgroups. Approximately 11.8 million U.S. adults previously labeled high-risk (10-year risk $\geq 7.5\%$) by the 2013 PCEs would be relabeled lower-risk by the updated equations.

Limitations: Updating the 2013 PCEs with data from modern cohorts reduced the number of persons considered to be at high risk. Clinicians and patients should consider the potential benefits and harms of reducing the number of persons recommended aspirin, blood pressure, or statin therapy. Our findings also indicate that risk equations will generally become outdated over time and require routine updating.

Conclusion: Revised PCEs can improve the accuracy of CVD risk estimates.

Primary Funding Source: National Institutes of Health.

FULL TEXT



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CITATIONS



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Published: *Ann Intern Med.* 2018;169(1):20-29.

DOI: 10.7326/M17-3011

Published at *www.annals.org* on 5 June 2018

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0 Citations



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