2013 ACC/AHA Guidelines on the Assessment of Atherosclerotic Cardiovascular Risk: Overview and Commentary

The Johns Hopkins Ciccarone Center for the Prevention of Heart Disease

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Expert Panel

- 5-year collaborative effort between a diverse set of expert reviewers

- Reviewers assessed evidence from randomized controlled trials (RCTs), as well as meta-analyses and systematic reviews of RCTs
Highlights of 2013 Guidelines

• New **Pooled Cohort Equations** for atherosclerotic cardiovascular disease (ASCVD) risk assessment
  – Stroke now included in ASCVD risk assessment, in addition to myocardial infarction (MI)
  – Separate equations for nonwhite populations

• **Statin therapy** recommended in 4 groups:
  1. Adults with clinical ASCVD
  2. Adults with LDL-C $\geq 190$ mg/dL
  3. Adults 40 to 75 years of age with diabetes
  4. Adults $\geq 7.5\%$ estimated 10-year risk of ASCVD

• **No** LDL-C or non-HDL-C treatment targets
Pooled Cohort Equations for Risk Assessment

• Equations predict 10-year risk of stroke & myocardial infarction
  – Former guidelines focused only on heart attacks
  – Highlights the large burden of disability from nonfatal events

• Separate equations for nonwhite populations
  – Importance of race/ethnicity in risk of ASCVD
Primary Prevention: Central Role of Statin Therapy

- Statin therapy recommended for primary prevention of ASCVD
- Based on RCTs, statins reduce morbidity and mortality associated with ASCVD
- Cost-effective: many statins are now generic
- Lifestyle modification also critical to primary prevention efforts
  - DASH-like diet: high in fruits, vegetables, fish, and low in sweets, red meat, and sodium
  - Regular moderate to vigorous physical activity
Statin Therapy Recommended in Four Groups

1. Individuals with known ASCVD, without Class II-IV heart failure or receiving hemodialysis
2. Individuals with LDL-C ≥190 mg/dL
3. Individuals 40 to 75 years of age with diabetes and LDL-C 70-189 mg/dL
4. Individuals 40 to 75 years of age with estimated 10-year ASCVD risk ≥7.5% and LDL-C 70-189 mg/dL
Treatment Threshold: 7.5%

- Lowered from former threshold of 20% risk of MI over 10 years or > 10% with multiple risk factors
- Based on NHANES data:
  - Men
    - 50% of all African-American men and 30% white men in 50’s
    - Almost all men in 70’s
  - Women
    - 70% African-American women and 60% white women in 60’s
What about individuals of “intermediate risk” (<7.5% ASCVD risk)?

- Optional additional risk measurement tools to refine predicted risk
  - Family history of premature ASCVD?
  - High-sensitivity CRP
  - Coronary artery calcium
  - Ankle brachial Indices (ABI)
Appropriate intensity of statin therapy is recommended to reduce the risk of ASCVD by lowering LDL-C and non-HDL-C.

“Treat to target” and “lower is best” strategies are no longer advocated.

More clinical trials needed.
Chronologic vs. Health Age

• 2013 guidelines emphasize the importance of chronologic age (based on birth certificate)
• People age differently → health age may not always correlate with chronologic age
• Assessing a person’s health age with a coronary artery calcium scan may allow for a more accurate risk assessment and appropriate management decisions in persons with borderline risk estimates
Algorithm for Risk Assessment: Evaluation of ASCVD Risk

- Medical history, family history
- Symptoms of CVD
- Physical examination, including blood pressure, body mass index (BMI), waist circumference
- Laboratory tests, including cholesterol and glucose measurements
- 2013 Pooled Cohort Equation risk score
Is the Patient at High Risk of ASCVD?

High-risk defined as ≥1 of the following:

- Clinically established coronary heart disease
- Cerebrovascular disease
- Peripheral arterial disease
- Abdominal aortic aneurysm
- Diabetes mellitus
- Chronic kidney disease
- 10-year predicted ASCVD risk ≥7.5% by Pooled Cohort Equation
Yes: Patient is at High-Risk of ASCVD

Implement treatment recommendations:

- A – Aspirin / Antiplatelet therapy
- B – Blood pressure control
- C – Cholesterol control / Cigarette smoking cessation
- D – Diet and weight management / Diabetes and blood sugar control
- E – Exercise
No: Patient is NOT at High-Risk

Is the patient at intermediate risk of ASCVD?

Intermediate-risk defined as 5% to 7.5% 10-year ASCVD risk by Pooled Cohort Equation
Yes: Patient is at Intermediate Risk of ASCVD

Consider additional testing to further assess risk:

- CT scan for coronary artery calcium (CAC) score
- Measure high-sensitivity C-reactive protein (hsCRP)

Do additional tests indicate that patient may benefit from treatment because they are really at higher risk?
Yes: Intermediate-Risk Patient May Benefit from Treatment

Implement treatment recommendations:

• A – Aspirin / Antiplatelet therapy
• B – Blood pressure control
• C – Cholesterol control / Cigarette smoking cessation
• D – Diet and weight management / Diabetes and blood sugar control
• E – Exercise
No: Patient NOT at Intermediate Risk of ASCVD

or

No: Additional Tests Do NOT Indicate Intermediate-Risk Patient May Benefit from Treatment

• Does the patient have a family history of premature heart disease?
• Premature heart disease defined as a first-degree relative <55 years for men and <65 years for women
Yes: Patient Has a Family History of Premature Heart Disease

Implement treatment recommendations:

• **A** – Aspirin / Antiplatelet therapy
• **B** – Blood pressure control
• **C** – Cholesterol control / Cigarette smoking cessation
• **D** – Diet and weight management / Diabetes and blood sugar control
• **E** – exercise
No: Patient Does NOT Have Family History of Premature Heart Disease

Reassess the patient every five years or sooner if he/she has a change in risk factors.
For ALL Patients Regardless of Risk Factors

Implement lifestyle recommendations:

- DASH-like diet
- Physical activity
- Weight management
- Complete smoking cessation
Ciccarone Center for the Prevention of Heart Disease

Mission
Create excellent clinical care for people at risk for developing heart disease.
Educate health care practitioners about how to better identify and care for patients at risk of developing heart disease.
Establish rigorous research programs to study better prevention of heart disease.