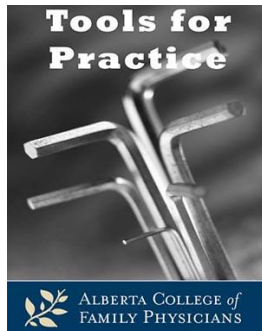


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## **Can I exchange my family because they all have heart attacks?**

### **Clinical Question: What risks do different family histories of cardiovascular disease (CVD) carry?**

**Bottom-line: Family history of CVD modifies future CV risk depending on the number and age of affected first-degree relatives. Siblings of patients with CVD have a ~40% risk increase, while offspring of parents with premature CVD have a 60-75% increased risk. Consistent definitions of premature CVD would allow a better estimate of the true attributable risk.**

#### **Evidence:**

When possible, odds ratios (OR) were converted to relative risks.

- Parental History:
  - 2,302 Framingham male and female offspring were analyzed for parental history of premature CVD (father <55 years, mother <65) and risk of future CVD.<sup>1</sup>
    - After eight years of follow up, CVD increased 75% for paternal and ~60% for maternal history of premature CVD.
- Sibling History:
  - Using the same cohort over eight years, CVD increased ~40% in those with CVD in their siblings.<sup>2</sup>
  - In identical (or monozygotic) twins, the hazard ratio of death from coronary heart disease (CHD) increased by 3.8-15 times if an identical sibling died of CHD before age 75.<sup>3</sup>
    - Three times higher risk for identical than non-identical twins.
    - Greater risk the earlier the other twin died.<sup>3</sup>
- Extended Family History:
  - >49,000 US primarily white males were analyzed for CHD in extended family member (sibling, aunt/uncle, parent, or grandparent) and the risk of future CVD.<sup>4</sup>
    - After 16 years, those with a family history of premature CHD (age <50) had 44% increased risk of CVD mortality.
- Large international case-controlled study<sup>5</sup> found statistically significant increased risk of Myocardial Infarction (MI) if:
  - One parent had MI, OR=1.67.
  - One parent had MI at age <50, OR=2.36.
  - Both parents had MI, OR=2.90.

- Both parents had MI at age <50, OR=6.56.
- Results similar when adjusted for CVD risk factors, across socio-economic status of household or country and for maternal or paternal MI history.

**Context:**

- Current guidelines use different definitions of and adjustments for family history of premature CVD.<sup>6-9</sup>
- Many middle aged patients with first degree relative(s) with premature CVD will have their calculated CV risk increased to level where statin therapy should be considered.

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**Disclosure:**

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**References:**

1. Lloyd-Jones DM, Nam BH, D'Agostino RB Sr, *et al.* Parental Cardiovascular Disease as a Risk Factor for Cardiovascular Disease in Middle-aged Adults A Prospective Study of Parents and Offspring. *JAMA.* 2004; 291:2204-11.
2. Murabito JM, Pencina MJ, Nam BH, *et al.* Sibling Cardiovascular Disease as a Risk Factor for Cardiovascular Disease in Middle-aged Adults. *JAMA.* 2005; 294:3117-23.
3. Marenberg ME, Risch N, Berkman LF, *et al.* Genetic Susceptibility to Death from Coronary Heart Disease in a Study of Twins. *NEJM.* 1994; 330:1041-6.
4. Bachmann JM, Willis BL, Ayers CR, *et al.* Association Between Family History and Coronary Heart Disease Death Across Long-Term Follow-Up in Men: The Cooper Center Longitudinal Study. *Circulation.* 2012; 125:3092-8.
5. Chow CK, Islam S, Bautista L, *et al.* Parental History and Myocardial Infarction Risk Across the World. The INTERHEART Study. *J Am Coll Cardiol.* 2011; 57(5):619-27.
6. Anderson TJ, Grégoire J, Hegele RA, *et al.* 2012 Update of the Canadian Cardiovascular Society Guidelines for the Diagnosis and Treatment of Dyslipidemia for the Prevention of Cardiovascular Disease in the Adult. *Can Journal Cardiol.* 2013; 29:151-67.
7. Goff DC, Lloyd-Jones DM, Bennett G, *et al.* 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk. *Circulation.* 2014; 129(25 Suppl 2):S49-73.
8. The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS) ESC/EAS Guidelines for the management of dyslipidaemias. *European Heart Journal.* 2011; 32:1769-1818.
9. National Institute for Health and Care Excellence. Lipid modification: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. July 2014. Available at <http://www.nice.org.uk/Guidance/CG181>. Accessed May 25, 2014.

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