

Surgeon General's Perspectives

FAMILY HEALTH HISTORY: USING THE PAST TO IMPROVE FUTURE HEALTH

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More than a decade after completion of the Human Genome Project,¹ science has made substantial progress in the development of genomic tests for disease diagnosis, prognosis, risk prediction, prevention, and treatment. Yet, the simplest, most readily available, and most affordable genomic tool for disease prevention—the family health history—remains underused. For almost all diseases of public health significance, people with a family history of the disease have a higher risk of developing the disease than people without a family history. Even so, many people do not collect family health history information and share it with relatives² or even with their health-care providers.

The year 2014 marked the 10th anniversary of the Surgeon General's Family Health History Initiative, launched in 2004 by former Surgeon General Dr. Richard Carmona.³ This initiative is a national campaign to help families learn more about their family health history. It provides a free Web-based tool, My Family Health Portrait, to help people collect, organize, and record their family health information. To highlight the importance of this initiative, Dr. Carmona and later Surgeons General have declared Thanksgiving as Family Health History Day.

The collection of family health history information is part of routine health-care interactions and can inform clinical decision making and preventive services. Family health history is a part of many screening and treatment guidelines and, in some cases, can make a big difference in the recommended age for screening. For example, the U.S. Preventive Services Task Force (USPSTF) strongly recommends cholesterol screening beginning at age 35 years for men, but recommends early cholesterol screening beginning at age 20 years for men and women who are at increased risk of cardiovascular disease.⁴ A family history of cardiovascular disease

before 50 years of age in male relatives, or before 60 years of age in female relatives, is one of several factors that are used to define increased risk. Using these recommendations, about 16% of young adults should be screened earlier based solely on the estimated prevalence of family history of early cardiovascular disease among this age group.⁵ Likewise, the USPSTF recommends screening for osteoporosis for women aged 65 years or older, but earlier screening for women aged 50–64 years with certain risk factors that include parental history of fracture.⁶ Thus, a 55-year-old white woman whose parent has had a hip fracture should consider getting screened early because her 10-year risk for major osteoporotic fracture is at least as great as a 65-year-old white woman who has no additional risk factors.

Several other USPSTF recommendations also include family health history information in determining who should be screened or treated and when. For example, the USPSTF recommends that for women with a family history of breast cancer, clinicians consider further breast cancer risk assessment to inform shared decision making regarding chemoprevention.⁷ Likewise, the USPSTF recommends that primary care

providers screen women who have family members with breast, ovarian, and other cancers known to be associated with *BRCA* (BReast CAncer susceptibility genes) mutations using one of several family history-based screening tools to identify those who should receive genetic counseling and, if indicated after counseling, *BRCA* testing.⁸

National public health initiatives based on guidelines and recommendations informed by family health history include Healthy People 2020,⁹ the Diabetes Prevention Program,¹⁰ and the Million Hearts Initiative.¹¹ With more than 70 million additional Americans receiving preventive services covered under the Affordable Care Act beginning in 2010, these recommendations become all the more important.¹²

Most people have a family health history of at least one common disease (e.g., cancer, coronary heart disease, and diabetes) or health condition (e.g., high blood pressure and hypercholesterolemia). Preventive services recommendations that incorporate family health history can improve health outcomes for those at increased risk. A recent study demonstrated that systematic collection of family health history increases the proportion of people identified as having high cardiovascular risk for the purposes of targeted prevention.¹³ Similarly, family health history of diabetes has been shown to have added value for detecting undiagnosed diabetes in the U.S. population when combined with other known risk factors.¹⁴ But even in cases where family history does not alter specific preventive service recommendations (e.g., the USPSTF recommendations for high blood pressure screening of adults aged 18 years or older, regardless of risk factors such as family history),¹⁵ providers who know the patient's family health history can take this knowledge into consideration during clinical care.

Recent national efforts can help improve the collection and use of family health history information. In 2014, the Stage 2 Medicare Meaningful Use measures for electronic health records (EHRs) took effect, and they included incentives to collect family health history information as structured data.¹⁶ In 2008, the Family Health History Multi-Stakeholder Workgroup of the American Health Information Community (AHIC) proposed a core dataset for family health history information and explored approaches to promote the incorporation of such information in EHRs.¹⁷ Clinical decision support tools that incorporate family health history information into risk assessment and prevention plans are becoming available to assist with implementing existing practice guidelines. The Surgeon General's My Family Health Portrait has been continually updated since it was initially developed in 2004, including a

redesign in 2009 to be interoperable with EHRs and to collect information consistent with the AHIC minimum core dataset. In 2014, My Family Health Portrait was updated to include new risk assessment tools for diabetes and colorectal cancer.

With the growing availability of next-generation genome sequencing, current efforts to develop predictive tests for common chronic diseases have moved toward increasing numbers of common and rare genetic variants. But early studies suggest that these tests will likely complement rather than replace family health history.^{18,19} Family health history gives information not only about genes, but also about environmental and behavioral risk factors shared among family members. It therefore can provide a more accurate prediction of disease risk than many genetic tests can alone. During the next decade, research will continue to refine the interconnected roles of family health history and genomic information in screening, treatment, and prevention. In the meantime, enhanced training and education of the public health and clinical workforce is needed to realize the health benefits of these discoveries, and everybody needs to become more aware and savvy about the potential value of family health history.

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