Complete Summary

GUIDELINE TITLE

Screening for hemochromatosis: recommendation statement.

BIBLIOGRAPHIC SOURCE(S)

U.S. Preventive Services Task Force. Screening for hemochromatosis: recommendation statement. Ann Intern Med 2006 Aug 1;145(3):204-8. [12 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Hereditary hemochromatosis

GUIDELINE CATEGORY

Prevention
Screening

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Medical Genetics
Nursing

Pediatrics
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To summarize the U.S. Preventive Services Task Force recommendations on screening for hemochromatosis, and the supporting focused evidence review

TARGET POPULATION

Asymptomatic general population

INTERVENTIONS AND PRACTICES CONSIDERED

Genetic screening for hereditary hemochromatosis, specifically C282Y homozygosity

MAJOR OUTCOMES CONSIDERED

- **Key Question 1**: What is the risk of developing clinical hemochromatosis among those with a homozygous C282Y genotype?
- **Key Question 2**: Does earlier therapeutic phlebotomy of individuals with primary iron overload due to hereditary hemochromatosis reduce morbidity and mortality, compared with treatment after diagnosis in routine clinical care?
- **Key Question 3**: Are there groups at increased risk for developing hereditary hemochromatosis that can be readily identified prior to genetic testing?

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): A focused systematic review of the literature was prepared by the Oregon Evidence-based Practice Center (EPC) and Oregon Health & Science University for the Agency for

Healthcare Research and Quality (AHRQ) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Sources

EPC staff developed literature search strategies and terms for each key question and conducted four separate literature searches (for Key Questions 1, 2, 3, and background) in Medline, CINAHL, and the Cochrane Library databases from 1966 through February 2005. Literature searches were supplemented with source material from experts in the field and by examining the bibliographies of included studies. A single investigator reviewed abstracts, and a second reviewer abstracted all excluded abstracts. Interreviewer discrepancies were resolved by consensus.

Study Selection

Using inclusion criteria developed for each key question, EPC staff reviewed 1,886 abstracts for inclusion in all key questions. Literature searches were focused for each key question, but were reviewed with all key questions in mind. Two investigators quality rated all included articles for quality, as well as those excluded for quality-related reasons, using the USPSTF criteria.

NUMBER OF SOURCE DOCUMENTS

Using inclusion criteria developed for each key question, the Oregon Evidence-based Practice Center (EPC) staff reviewed 1,886 abstracts for inclusion in all key questions. Literature searches were focused for each key question, but were reviewed with all key questions in mind. They reviewed 134 full-text articles for Key Question 1, 69 articles for Key Question 2, and 55 articles for Key Question 3.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The U.S. Preventive Services Task Force grades the **quality of the overall evidence** for a service on a 3-point scale (good, fair, poor):

Good

Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair

Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor

Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): A focused systematic review of the literature was prepared by the Oregon Evidence-based Practice Center (EPC) and Oregon Health & Science University for the Agency for Healthcare Research and Quality (AHRQ) for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Companion Documents" field).

Data Extraction and Quality Assessment

To overcome the inconsistent uses of terminology in the literature, EPC staff adopted a set of terms for use in extracting data from studies into tables in a consistent format. They also established a priori screening and diagnostic criteria for elevated iron measures and iron overload due to hereditary hemochromatosis to guide the review and to establish comparability between studies. Data were abstracted into evidence tables by a single reviewer and checked by a second reviewer.

EPC staff critically appraised studies according to USPSTF methods using quality criteria specific to their design. To augment criteria provided for nonrandomized studies of treatment effectiveness, they added criteria from the Cochrane Non-Randomized Studies Methods Group. Any case series or nonrandomized comparative treatment study that used a nonsystematic method of case accrual was eliminated. EPC staff critically evaluated reported results, including the comparability of constructed comparison groups, concerning whether confounding factors (age, sex, alcohol intake, population prevalence of C282Y homozygosity, and comorbid liver disease) and secular trends in disease diagnosis and medical care were adequately considered. Studies with possible serious biases were eliminated.

Data Synthesis

Studies were extremely heterogeneous and could not be easily synthesized quantitatively. To evaluate whether the review identified adequate data to create one or more outcomes tables for illustrating the expected yield from screening, EPC staff used an approach adapted from a previous report. They considered whether there were adequate data for genetic screening of two different screening populations (general population and family-based). Insufficient data were available to create a reliable outcomes table for either screening approach since very few studies reported results for all required measures (genotype, iron

measures, iron overload, and disease) among screening study participants, resulting in extremely small numbers for within-study morbidity estimates. Therefore, they summarized screening data in tables.

Data was selected from studies that met minimum a priori criteria for three variables: 1) screening positive for elevated iron parameters; 2) documented iron overload; and 3) morbidity due to clinical hemochromatosis. For iron overload and morbidity, EPC staff calculated two proportions (selected and all). Among patients selected for further evaluation, they reported the proportion of positives among those who were actually tested for iron overload or morbidity (maximum penetrance) and, for all, the proportion who screened positive among all those evaluated at the first screening step (minimum penetrance). They then evaluated whether results were similar enough to combine across studies and, when they were, they quantitatively combined study results for each variable to generate a single point estimate for that variable. A range of results for any variable for which individual study results were too different to be meaningfully combined were reported. EPC staff did not include individual study results with 10 or fewer subjects in the denominator to define a range, but they did include these results if they could be combined with other results in a single parameter estimate. Study results were reported as raw numbers for denominators of 10 or fewer.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Balance Sheets
Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

When the overall quality of the evidence is judged to be good or fair, the U.S. Preventive Services Task Force (USPSTF) proceeds to consider the magnitude of net benefit to be expected from implementation of the preventive service. Determining net benefit requires assessing both the magnitude of benefits and the magnitude of harms and weighing the two.

The USPSTF classifies benefits, harms, and net benefits on a 4-point scale: "substantial," "moderate," "small," and "zero/negative."

"Outcomes tables" (similar to "balance sheets") are the USPSTF's standard resource for estimating the magnitude of benefit. These tables, prepared by the topic teams for use at USPSTF meetings, compare the condition specific outcomes expected for a hypothetical primary care population with and without use of the preventive service. These comparisons may be extended to consider only people of specified age or risk groups or other aspects of implementation. Thus, outcomes tables allow the USPSTF to examine directly how the preventive service affects benefits for various groups.

When evidence on harms is available, the topic teams assess its quality in a manner like that for benefits and include adverse events in the outcomes tables. When few harms data are available, the USPSTF does not assume that harms are small or nonexistent. It recognizes a responsibility to consider which harms are likely and judge their potential frequency and the severity that might ensue from

implementing the service. It uses whatever evidence exists to construct a general confidence interval on the 4-point scale (e.g., substantial, moderate, small, and zero/negative).

Value judgments are involved in using the information in an outcomes table to rate either benefits or harms on the USPSTF's 4-point scale. Value judgments are also needed to weigh benefits against harms to arrive at a rating of net benefit.

In making its determinations of net benefit, the USPSTF strives to consider what it believes are the general values of most people. It does this with greater confidence for certain outcomes (e.g., death) about which there is little disagreement about undesirability, but it recognizes that the degree of risk people are willing to accept to avert other outcomes (e.g., cataracts) can vary considerably. When the USPSTF perceives that preferences among individuals vary greatly, and that these variations are sufficient to make the trade-off of benefits and harms a "close-call," then it will often assign a C recommendation (see the "Recommendation Rating Scheme" field). This recommendation indicates the decision is likely to be sensitive to individual patient preferences.

The USPSTF uses its assessment of the evidence and magnitude of net benefit to make recommendations. The general principles the USPSTF follows in making recommendations are outlined in Table 5 of the companion document cited below. The USPSTF liaisons on the topic team compose the first drafts of the recommendations and rationale statements, which the full panel then reviews and edits. Recommendations are based on formal voting procedures that include explicit rules for determining the views of the majority.

From: Harris RP, Helfand M, Woolf SH, Lohr KN, Mulrow, CD, Teutsch SM, Atkins D. Current methods of the U.S. Preventive Services Task Force: a review of the process. Methods Work Group, Third U.S. Preventive Services Task Force. Am J Prev Med 2001 Apr;20(3S):21-35.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

The U.S. Preventive Services Task Force (USPSTF) grades its **recommendations** according to one of five classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms):

A

The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.

B

The USPSTF recommends that clinicians provide [this service] to eligible patients. The USPSTF found at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.

C

The USPSTF makes no recommendation for or against routine provision of [the service]. The USPSTF found at least fair evidence that [the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.

D

The USPSTF recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

I

The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. Evidence that the [service] is effective is lacking, of poor quality, or conflicting and the balance of benefits and harms cannot be determined.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Peer Review. Before the U.S. Preventive Services Task Force makes its final determinations about recommendations on a given preventive service, the Evidence-based Practice Center and the Agency for Healthcare Research and Quality send a draft systematic evidence review to 4 to 6 external experts and to federal agencies and professional and disease-based health organizations with interests in the topic. They ask the experts to examine the review critically for accuracy and completeness and to respond to a series of specific questions about the document. After assembling these external review comments and documenting the proposed response to key comments, the topic team presents this information to the Task Force in memo form. In this way, the Task Force can consider these external comments and a final version of the systematic review before it votes on its recommendations about the service. Draft recommendations are then circulated for comment from reviewers representing professional societies, voluntary organizations, and Federal agencies. These comments are discussed before the whole U.S. Preventive Services Task Force before final recommendations are confirmed.

Recommendations of Others. Recommendations regarding screening for hereditary hemochromatosis from the following groups were discussed: The Centers for Disease Control and Prevention (CDC); the American College of

Physicians (ACP); the American Association for the Study of Liver Disease (AASLD); the American College of Gastroenterology (ACG); and the American Gastroenterological Association Institute (AGAI).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the U.S. Preventive Services Task Force (USPSTF): The USPSTF is redesigning its recommendation statement in response to feedback from primary care clinicians. The USPSTF plans to release, later in 2006, a new, updated recommendation statement that is easier to read and incorporates advances in USPSTF methodology. The recommendation statement below is an interim version that combines existing language and elements with a new format. Although the definitions of grades remain the same, other elements have been revised.

The U.S. Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and the quality of the overall evidence for a service (good, fair, poor). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of the Recommendation

The USPSTF recommends against routine genetic screening for hereditary hemochromatosis in the asymptomatic general population.

This is a **grade D** recommendation.

Clinical Considerations

This recommendation applies to asymptomatic persons. This recommendation does not include individuals with signs or symptoms that would include hereditary hemochromatosis in the differential diagnosis. Furthermore, it does not include individuals with a family history of clinically detected or screening-detected probands for hereditary hemochromatosis.

Clinically important disease due to hereditary hemochromatosis appears to be rare. Even among individuals with mutations on the hemochromatosis (*HFE*) gene, it appears that only a small subset will develop symptoms of hemochromatosis. An even smaller proportion of these individuals will develop advanced stages of clinical disease.

Clinically recognized hereditary hemochromatosis is primarily associated with the *HFE* mutation C282Y. Although this is a relatively common mutation in the U.S. population, great racial and ethnic variations exist. The frequency of homozygosity is 4.4 per 1000 among white persons, with much lower frequencies among Hispanic persons (0.27 per 1000), black persons (0.14 per 1000), and Asian-American persons (<0.001 per 1000). Screening of family members of probands identifies the highest prevalence of undetected C282Y homozygotes

(23% of all family members tested), particularly among siblings (33% homozygosity).

The natural history of disease due to hereditary hemochromatosis is not well understood but appears to vary considerably among individuals. Clinically recognized hereditary hemochromatosis is about twice as common in men as in women. Iron accumulation and disease expression are modified by environmental factors, including blood loss or donation, alcohol use, diet, and infections such as viral hepatitis. Among C282Y homozygotes newly identified in the general population by genotypic screening, 6% of those undergoing further evaluation had cirrhosis (representing 1.4% of all newly screening-identified C282Y homozygotes). Cirrhosis is a serious, late-stage disease development, and its prevention would be a major goal of screening and treatment.

Individuals with a family member, especially a sibling, who is known to have hereditary hemochromatosis may be more likely to develop symptoms. These individuals should be counseled regarding genotyping, with further diagnostic testing as warranted as part of case-finding.

In addition to genotyping, more common laboratory testing can sometimes identify iron overload. Clinical screening with these laboratory tests, or phenotypic screening, was not included in the evidence synthesis on which this recommendation is based. Genotyping primarily focuses on the identification of the C282Y mutation on *HFE*. While other mutations exist, C282Y homozygosity is most commonly associated with clinical manifestations. Identifying an individual with the genotypic predisposition does not accurately predict the future risk for disease manifestation.

Therapeutic phlebotomy is the primary treatment for hemochromatosis. Treated individuals report inconsistent improvement of their signs and symptoms. It is uncertain whether cirrhosis at diagnosis confers a worse prognosis based on the potential lack of reversibility of liver damage. Recent research reports survival rates in treated individuals with or without cirrhosis that are similar to rates in healthy controls. The degree to which clinically important manifestations can be averted remains uncertain, as does the optimal time for early treatment.

Definitions:

Strength of Recommendations

The USPSTF grades its **recommendations** according to one of five classifications (A, B, C, D, I) reflecting the strength of evidence and magnitude of net benefit (benefits minus harms):

A

The USPSTF strongly recommends that clinicians provide [the service] to eligible patients. The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.

B

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The USPSTF makes no recommendation for or against routine provision of [the service]. The USPSTF found at least fair evidence that [the service] can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.

D

The USPSTF recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

I

The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing [the service]. Evidence that the [service] is effective is lacking, of poor quality, or conflicting and the balance of benefits and harms cannot be determined.

Strength of Evidence

The USPSTF grades the **quality of the overall evidence** for a service on a 3-point scale (good, fair, poor):

Good

Evidence includes consistent results from well-designed, well-conducted studies in representative populations that directly assess effects on health outcomes.

Fair

Evidence is sufficient to determine effects on health outcomes, but the strength of the evidence is limited by the number, quality, or consistency of the individual studies, generalizability to routine practice, or indirect nature of the evidence on health outcomes.

Poor

Evidence is insufficient to assess the effects on health outcomes because of limited number or power of studies, important flaws in their design or conduct, gaps in the chain of evidence, or lack of information on important health outcomes.

CLINICAL ALGORITHM(S)

None available

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is identified in the "Major Recommendations" field.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate screening for hereditary hemochromatosis in primary care settings

POTENTIAL HARMS

Harms of Detection and Early Treatment

Screening could lead to identification of a large number of individuals who possess the high-risk genotype but may never manifest the clinical disease. This may result in unnecessary surveillance, labeling, unnecessary invasive work-up, anxiety, and, potentially, unnecessary treatments.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Recommendations made by the U.S. Preventive Services Task Force are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality (AHRQ) or the U.S. Department of Health and Human Services.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The experiences of the U.S. Preventive Services Task Force (USPSTF), as well as that of other evidence-based guideline efforts, have highlighted the importance of identifying effective ways to implement clinical recommendations. Practice guidelines are relatively weak tools for changing clinical practice when used in isolation. To effect change, guidelines must be coupled with strategies to improve their acceptance and feasibility. Such strategies include enlisting the support of local opinion leaders, using reminder systems for clinicians and patients, adopting standing orders, and audit and feedback of information to clinicians about their compliance with recommended practice.

In the case of preventive services guidelines, implementation needs to go beyond traditional dissemination and promotion efforts to recognize the added patient and

clinician barriers that affect preventive care. These include clinicians' ambivalence about whether preventive medicine is part of their job, the psychological and practical challenges that patients face in changing behaviors, lack of access to health care or of insurance coverage for preventive services for some patients, competing pressures within the context of shorter office visits, and the lack of organized systems in most practices to ensure the delivery of recommended preventive care.

Dissemination strategies have changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, the Agency for Healthcare Research and Quality makes all U.S. Preventive Services Task Force (USPSTF) products available through its Web site. The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access U.S. Preventive Services Task Force materials and adapt them for their local needs. Online access to U.S. Preventive Services Task Force products also opens up new possibilities for the appearance of the annual, pocket-size *Guide to Clinical Preventive Services*.

To be successful, approaches for implementing prevention have to be tailored to the local level and deal with the specific barriers at a given site, typically requiring the redesign of systems of care. Such a systems approach to prevention has had notable success in established staff-model health maintenance organizations, by addressing organization of care, emphasizing a philosophy of prevention, and altering the training and incentives for clinicians. Staff-model plans also benefit from integrated information systems that can track the use of needed services and generate automatic reminders aimed at patients and clinicians, some of the most consistently successful interventions. Information systems remain a major challenge for individual clinicians' offices, however, as well as for looser affiliations of practices in network-model managed care and independent practice associations, where data on patient visits, referrals, and test results are not always centralized.

IMPLEMENTATION TOOLS

Foreign Language Translations
Patient Resources
Personal Digital Assistant (PDA) Downloads
Pocket Guide/Reference Cards
Tool Kits

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

U.S. Preventive Services Task Force. Screening for hemochromatosis: recommendation statement. Ann Intern Med 2006 Aug 1;145(3):204-8. [12 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006

GUIDELINE DEVELOPER(S)

United States Preventive Services Task Force - Independent Expert Panel

GUIDELINE DEVELOPER COMMENT

The U.S. Preventive Services Task Force (USPSTF) is a federally-appointed panel of independent experts. Conclusions of the U.S. Preventive Services Task Force do not necessarily reflect policy of the U.S. Department of Health and Human Services (DHHS) or its agencies.

SOURCE(S) OF FUNDING

United States Government

GUIDELINE COMMITTEE

U.S. Preventive Services Task Force (USPSTF)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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**Members of the Task Force at the time this recommendation was finalized. For a list of current Task Force members, go to www.ahrq.gov/clinic/uspstfab.htm.*

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The U.S. Preventive Services Task Force has an explicit policy concerning conflict of interest. All members disclose at each meeting if they have an important financial conflict for each topic being discussed. Task Force members with conflicts can participate in discussions about evidence, but members abstain from voting on recommendations about the topic in question.

From: Harris RP, Helfand M, Woolf SH, Lohr KN, Mulrow, CD, Teutsch SM, Atkins D. Current methods of the U.S. Preventive Services Task Force: a review of the process. Methods Work Group, Third U.S. Preventive Services Task Force. Am J Prev Med 2001 Apr;20(3S):21-35.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site. Also available from the Annals of Internal Medicine Online.

Print copies: Available from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

Evidence Reviews:

- Whitlock EP, Garlitz BA, Harris EL, Bell TL, Smith PR. Screening for hereditary hemochromatosis: a systematic evidence review for the U.S. Preventive Services Task Force. Ann Intern Med; 2006;145:209-223.

Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site. Also available from the Annals of Internal Medicine Online.

Background Articles:

- Woolf SH, Atkins D. The evolving role of prevention in health care: contributions of the U.S. Preventive Services Task Force. Am J Prev Med 2001 Apr;20(3S):13-20.
- Harris RP, Helfand M, Woolf SH, Lohr KN, Mulrow, CD, Teutsch SM, Atkins D. Current methods of the U.S. Preventive Services Task Force: a review of the process. Methods Work Group, Third U.S. Preventive Services Task Force. Am J Prev Med 2001 Apr;20(3S):21-35.
- Saha S, Hoerger TJ, Pignone MP, Teutsch SM, Helfand M, Mandelblatt JS. The art and science of incorporating cost effectiveness into evidence-based recommendations for clinical preventive services. Cost Work Group of the Third U.S. Preventive Services Task Force. Am J Prev Med 2001 Apr;20(3S):36-43.

Electronic copies: Available from U.S. Preventive Services Task Force (USPSTF) Web site.

The following is also available:

- The guide to clinical preventive services, 2006. Recommendations of the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), 2006. 228 p. Electronic copies available from the AHRQ Web site.
- A step-by-step guide to delivering clinical preventive services: a systems approach. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), 2002 May. 189 p. Electronic copies available from the AHRQ Web site. See the related QualityTool summary on the Health Care Innovations Exchange Web site.

Print copies: Available from the Agency for Healthcare Research and Quality Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

The Electronic Preventive Services Selector (ePSS), available as a PDA application and a web-based tool, is a quick hands-on tool designed to help primary care clinicians identify the screening, counseling, and preventive medication services that are appropriate for their patients. It is based on current recommendations of the USPSTF and can be searched by specific patient characteristics, such as age, sex, and selected behavioral risk factors.

PATIENT RESOURCES

The following is available:

- The Pocket Guide to Good Health for Adults. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2003.

  Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site. Copies also available in Spanish from the USPSTF Web site.

  Print copies: Available from the Agency for Healthcare Research and Quality (AHRQ) Publications Clearinghouse. For more information, go to http://www.ahrq.gov/news/pubsix.htm or call 1-800-358-9295 (U.S. only).

- Screening for hemochromatosis: recommendations from the U.S. Preventive Services Task Force. Ann Intern Med. 2006 Aug 1;145(3):I-18.

  Electronic copies: Available from the Annals of Internal Medicine Online.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on July 26, 2006. The information was verified by the guideline developer on July 28, 2006.

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Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 11/3/2008