NGC banner

Guideline Summary NGC-7233

Guideline Title

Folic acid for the prevention of neural tube defects: U.S. Preventive Services Task Force recommendation statement.

Bibliographic Source(s)

U.S. Preventive Services Task Force. Folic acid for the prevention of neural tube defects: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2009 May 5;150(9):626-31. PubMed

Guideline Status

This is the current release of the guideline.

This release updates a previously published guideline: U.S. Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore (MD): Williams & Wilkins; 1996. Chapter 42, Screening for neural tube defects - including folic acid/folate prophylaxis. p. 467-84. [111 references]

Scope

Disease/Condition(s)

Neural tube defects, including spina bifida and anencephaly

Guideline Category

Prevention

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

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 (USPSTF) recommendations and supporting evidence on folic acid supplementation to prevent neural tube defects
- To update the 1996 USPSTF recommendations on folic acid supplementation to prevent neural tube defects

Target Population

Women planning a pregnancy or capable of becoming pregnant

Note: This guideline does not apply to women who have had a previous pregnancy affected by neural tube defects or women taking certain anti-seizure medicines.

Interventions and Practices Considered

Folic acid supplementation

Major Outcomes Considered

Key Question 1: Does folic acid supplementation in women of childbearing age reduce the risk for a pregnancy affected by a neural tube defect?

Key Question 2: Does folic acid supplementation in women of childbearing age increase the risk for any harmful outcomes for either the woman or the infant?

Methodology

Methods Used to Collect/Select the 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 systematic review of the literature was prepared by Agency for Healthcare Research and Quality (AHRQ) staff for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Sources and Searches

AHRQ staff performed a systematic search in MEDLINE for English-language articles published between January 1995 and December 2008 by using the terms *neural tube defects*, *folic acid*, *pregnancy*, *twinning*, and *twins*. They identified additional studies by searching the Cochrane Central Register of Controlled Trials, having discussions with experts, and hand-searching reference lists from included studies and major review articles and studies.

Study Selection

Two reviewers independently reviewed the titles and abstracts and selected articles for inclusion on the basis of predetermined inclusion and exclusion criteria. In general, they selected randomized, controlled trials (RCTs); case–control studies; cohort studies; and systematic reviews that reported an overall effect on reduction of neural tube defects (NTDs) or an effect on harms associated with folic acid–containing supplements and provided new evidence that was not in the 1996 USPSTF report. They excluded studies that did not include new evidence since the 1996 review; did not report outcome data on NTDs or harms associated with folic acid supplementation; did not report on the effect of supplements separate from dietary effects; were letters, editorials, or nonsystematic reviews; were performed in special or high-risk populations; or were performed in a country or population with widespread malnutrition or that was otherwise not generalizable to the United States. The Appendix of the Systematic Review (see the "Availability of Companions Documents" field) provides more details on search terms and inclusion and exclusion criteria. The reviewers discussed and settled disagreements about inclusion of an article by consensus; if necessary, they involved a third reviewer for disagreements.

Number of Source Documents

1083 articles were identified, of which 4 met inclusion criteria for benefits and 1 for harms.

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Rating Scheme for the Strength of the Evidence

Not applicable

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 systematic review of the literature was prepared by Agency for Healthcare Research and Quality (AHRQ) staff for use by the U.S. Preventive Services Task Force (USPSTF) (see the "Availability of Companion Documents" field).

Data Extraction and Quality Assessment

For all citations that met initial eligibility criteria, 2 reviewers reviewed, abstracted, and independently quality-rated the full articles. Studies that were rated fair or good on the basis of USPSTF criteria were ultimately included. Consensus about article abstraction data and quality was achieved through discussion by the 2 reviewers, and disagreements were resolved by involving a third reviewer. Data was extracted from included studies on the following items: methods; exposure assessment; case ascertainment; selection of participants; dose of folic acid; sample size; size of effect on neural tube defects (NTDs), other congenital abnormalities, and twinning; and information on confounders. Standard USPSTF methodology on internal and external validity was used to quality-rate the articles for all key questions (KQs). The quality of randomized controlled trials (RCTs) and cohort studies on initial assembly of comparable groups, maintenance of comparable groups, important differential loss to follow-up or overall high loss to follow-up, measurements (equality, reliability, and validity of outcome measurements), clear definition of interventions, and appropriateness of outcomes was evaluated. Systematic reviews and meta-analyses were evaluated on comprehensiveness of sources considered, search strategy, standard appraisal of included studies, validity of conclusions, recency, and relevance. Appendix Table 1 in the systematic review (see the "Availability of Companion Documents" field) lists more complete criteria and definitions for USPSTF quality ratings.

Data Synthesis and Analysis

AHRQ staff qualitatively synthesized data from studies included for KQ1 and KQ2 in tabular and narrative format. Synthesized evidence was organized by key question.

Methods Used to Formulate the Recommendations

Balance Sheets

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The U.S. Preventive Services Task Force (USPSTF) systematically reviews the evidence concerning both the benefits and harms of widespread implementation of a preventive service. It then assesses the certainty of the evidence and the magnitude of the benefits and harms. On the basis of this assessment, the USPSTF assigns a letter grade to each preventive service signifying its recommendation about provision of the service (see Table below). An important, but often challenging, step is determining the balance between benefits and harms to estimate "net benefit" (that is, benefits minus harms).

Table 1. U.S. Preventive Services Task Force Recommendation Grid*

Certainty of Net Benefit	Magnitude of Net Benefit			
	Substantial	Moderate	Small	Zero / Negative
High	A	B	C	D
Moderate	B	B	C	D
Low	Insufficient			

**A*, *B*, *C*, *D*, and *I (Insufficient)* represent the letter grades of recommendation or statement of insufficient evidence assigned by the U.S. Preventive Services Task Force after assessing certainty and magnitude of net benefit of the service (see the "Rating Scheme for the Strength of the Recommendations" field).

The overarching question that the Task Force seeks to answer for every preventive service is whether evidence suggests that provision of the service would improve health outcomes if implemented in a general primary care population. For screening topics, this standard could be met by a large randomized, controlled trial (RCT) in a representative asymptomatic population with follow-up of all members of both the group "invited for screening" and the group "not invited for screening."

Direct RCT evidence about screening is often unavailable, so the Task Force considers indirect evidence. To guide its selection of indirect evidence, the Task Force constructs a "chain of evidence" within an analytic framework. For each key question, the body of pertinent literature is critically appraised, focusing on the following 6 questions:

1. Do the studies have the appropriate research design to answer the key question(s)?
2. To what extent are the existing studies of high quality? (i.e., what is the internal validity?)
3. To what extent are the results of the studies generalizable to the general U.S. primary care population and situation? (i.e., what is the external validity?)
4. How many studies have been conducted that address the key question(s)? How large are the studies? (i.e., what is the precision of the evidence?)
5. How consistent are the results of the studies?
6. Are there additional factors that assist us in drawing conclusions (e.g., presence or absence of dose–response effects, fit within a biologic model)?

The next step in the Task Force process is to use the evidence from the key questions to assess whether there would be net benefit if the service were implemented. In 2001, the USPSTF published an article that documented its systematic processes of evidence evaluation and recommendation development. At that time, the Task Force's overall assessment of evidence was described as good, fair, or poor. The Task Force realized that this rating seemed to apply only to how well studies were conducted and did not fully capture all of the issues that go into an overall assessment of the evidence about net benefit. To avoid confusion, the USPSTF has changed its terminology. Whereas individual study quality will continue to be characterized as good, fair, or poor, the term *certainty* will now be used to describe the Task Force's assessment of the overall body of evidence about net benefit of a preventive service and the likelihood that the assessment is correct. Certainty will be determined by considering all 6 questions listed above; the judgment about certainty will be described as high, moderate, or low.

In making its assessment of certainty about net benefit, the evaluation of the evidence from each key question plays a primary role. It is important to note that the Task Force makes recommendations for real-world medical practice in the United States and must determine to what extent the evidence for each key question—even evidence from screening RCTs or treatment RCTs—can be applied to the general primary care population. Frequently, studies are conducted in highly selected populations under special conditions. The Task Force must consider differences between the general primary care population and the populations studied in RCTs and make judgments about the likelihood of observing the same effect in actual practice.

It is also important to note that 1 of the key questions in the analytic framework refers to the potential harms of the preventive service. The Task Force considers the evidence about the benefits and harms of preventive services separately and equally. Data about harms are often obtained from observational studies because harms observed in RCTs may not be representative of those found in usual practice and because some harms are not completely measured and reported in RCTs.

Putting the body of evidence for all key questions together as a chain, the Task Force assesses the certainty of net benefit of a preventive service by asking the 6 major questions listed above. The Task Force would rate a body of convincing evidence about the benefits of a service that, for example, derives from several RCTs of screening in which the estimate of benefits can be generalized to the general primary care population as "high" certainty (see the "Rating Scheme for the Strength of Recommendations" field). The Task Force would rate a body of evidence that was not clearly applicable to general practice or has other defects in quality, research design, or consistency of studies as "moderate" certainty. Certainty is "low" when, for example, there are gaps in the evidence linking parts of the analytic framework, when evidence to determine the harms of treatment is unavailable, or when evidence about the benefits of treatment is insufficient. Table 4 in the methodology document listed below (see "Availability of Companion Documents" field) summarizes the current terminology used by the Task Force to describe the critical assessment of evidence at all 3 levels: individual studies, key questions, and overall certainty of net benefit of the preventive service.

Sawaya GF, et al. Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147:871-875 [5 references].

Rating Scheme for the Strength of the Recommendations

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer or provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice • Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

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 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 before it votes on its recommendations about the service. Draft recommendation statements are then circulated for comment from reviewers representing professional societies, voluntary organizations and Federal agencies. These comments are discussed before the final recommendations are confirmed.

Comparison with Guidelines from Other Groups. Recommendations for folic acid supplementation from the following

groups were discussed: American College of Obstetrics and Gynecology (ACOG), American Academy of Family Physicians (AAFP), American Academy of Pediatrics, and American Academy of Neurology.

Recommendations

Major Recommendations

The US Preventive Services Task Force (USPSTF) grades its recommendations (A, B, C, D, or I) and identifies the Levels of Certainty regarding Net Benefit (High, Moderate, and Low). The definitions of these grades can be found at the end of the "Major Recommendations" field.

Summary of Recommendation and Evidence

The USPSTF recommends that all women planning or capable of pregnancy take a daily supplement containing 0.4 to 0.8 mg (400 to 800 micrograms) of folic acid. **This is a grade A recommendation**.

Clinical Considerations

Patient Population Under Consideration

This recommendation applies to women who are planning or capable of pregnancy, but it does not apply to women who have had a previous pregnancy affected by neural tube defects or women taking certain antiseizure medicines. Most organizations recommend that these women take higher doses of folic acid.

Assessment of Risk

The use of certain antiseizure medicines and a personal or family history of neural tube defects are well-established risk factors. Other reported risk factors include mutations in folate-related enzymes, maternal diabetes, and obesity.

Timing

Most studies indicate the need to start folic acid supplementation at least 1 month before conception and to continue daily supplements through the first 2 to 3 months of pregnancy. Studies also indicate that 50% of pregnancies in the United States are unplanned, and therefore, clinicians should advise all women who are capable of pregnancy to take folic acid supplements.

Dosage

Good evidence from randomized trials in settings without fortification of food suggests that a multivitamin with 0.8 mg (800 micrograms) of folic acid reduces the risk for neural tube defects. Observational studies done before fortification report a reduction of neural tube defects in women taking a supplement with 0.4 mg (400 micrograms) of folic acid (the generally available dose). Evidence indicates that most women in the United States are not ingesting fortified foods at a level thought to provide optimal benefit. In a setting in which food is fortified with folic acid, the effective amount of additional folic acid supplementation is unclear.

Definitions:

What the United States Preventive Services Task Force (USPSTF) Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
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C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer or provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read "Clinical Considerations" section of USPSTF Recommendation Statement (see "Major Recommendations" field). If offered, patients should understand the uncertainty about the balance of benefits and harms.

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as "likelihood that the USPSTF assessment of the net benefit of a preventive service is correct." The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: • The number, size, or quality of individual studies • Inconsistency of findings across individual studies • Limited generalizability of findings to routine primary care practice

	• Lack of coherence in the chain of evidence As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: • The limited number or size of studies • Important flaws in study design or methods • Inconsistency of findings across individual studies • Gaps in the chain of evidence • Findings not generalizable to routine primary care practice • A lack of information on important health outcomes More information may allow an estimation of effects on health outcomes.

Clinical Algorithm(s)

None available

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is not specifically stated for each recommendation.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Benefits of Preventive Medication

The U.S. Preventive Services Task Force (USPSTF) found convincing evidence that supplements containing 0.4 to 0.8 mg (400 to 800 micrograms) of folic acid in the periconceptional period reduce the risk for neural tube defects.

Potential Harms

Harms of Preventive Medication

Adequate evidence suggests that folic acid from supplementation at usual doses is not associated with serious harms.

Qualifying Statements

Qualifying Statements

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about preventive care services for patients without recognized signs or symptoms of the target condition.
- Recommendations are based on a systematic review of the evidence of the benefits and harms and an assessment of the net benefit of the service.
- The USPSTF recognizes that clinical or policy decisions involve more considerations than this body of evidence alone. Clinicians and policy-makers should understand the evidence but individualize decision making to the specific patient or situation.

Implementation of the Guideline

Description of Implementation Strategy

The experiences of the first and second 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 will make 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

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. Folic acid for the prevention of neural tube defects: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med 2009 May 5;150(9):626-31. PubMed

Adaptation

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

Date Released

1996 (revised 2009)

Guideline Developer(s)

U.S. 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

*Task Force Members**: Ned Calonge, MD, MPH, *Chair*, USPSTF (Colorado Department of Public Health and Environment, Denver, Colorado); Diana B. Petitti, MD, MPH, *Vice-chair*, USPSTF (Arizona State University, Phoenix, Arizona); Thomas G. DeWitt, MD (Children's Hospital Medical Center, Cincinnati, Ohio); Allen J. Dietrich, MD (Dartmouth Medical School, Hanover, New Hampshire); Kimberly D. Gregory, MD, MPH (Cedars-Sinai Medical Center, Los Angeles, California); David Grossman, MD, MPH (Group Health Cooperative, Seattle, Washington); George Isham, MD, MS (HealthPartners Inc., Minneapolis, Minnesota); Michael L. LeFevre, MD, MSPH (University of Missouri School of Medicine, Columbia, MO); Rosanne M. Leipzig, MD, PhD (Mount Sinai School of Medicine, New York, New York); Lucy N. Marion, PhD, RN (School of Nursing, Medical College of Georgia, Augusta, Georgia); Bernadette Melnyk, PhD, RN (Arizona State University College of Nursing & Healthcare Innovation, Phoenix, Arizona): Virginia A. Moyer, MD, MPH (Baylor College of Medicine, Houston, Texas); Judith K. Ockene, PhD (University of Massachusetts Medical School, Worcester, Massachusetts); George F. Sawaya, MD (University of California San Francisco, San Francisco, California); J. Sanford Schwartz, MD

(University of Pennsylvania School of Medicine and The Wharton School, Philadelphia, Pennsylvania); Timothy Wilt, MD, MPH (Minneapolis Veterans Affairs Medical Center, Minneapolis, Minnesota)

**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 a significant financial, professional/business, or intellectual conflict for each topic being discussed. Task Force members with conflicts may be recused from discussing or voting on recommendations about the topic in question.

Guideline Status

This is the current release of the guideline.

This release updates a previously published guideline: U.S. Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore (MD): Williams & Wilkins; 1996. Chapter 42, Screening for neural tube defects - including folic acid/folate prophylaxis. p. 467-84. [111 references]

Guideline Availability

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

Availability of Companion Documents

The following are available:

Evidence Reviews:

- Wolff T, Witkop CT, Miller T. Syed SB. Folic Acid Supplementation for the Prevention of Neural Tube Defects: An Update of the Evidence for the U.S. Preventive Services Task Force. Evidence Synthesis No. 70. AHRQ Publication No. 09-051132-EF-1. Rockville, Maryland: Agency for Healthcare Research and Quality. May 2009. Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site.
- Wolff T, Witkop CT, Miller T. Syed SB. Folic acid supplementation for the prevention of neural tube defects: an update of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med. 2009;150:632-639. Electronic copies: Available from the Annals of Internal Medicine Web site. Also available from the USPSTF Web site.
- Folic acid for the prevention of neural tube defects: clinical summary of a U.S. Preventive Services Task Force recommendation. Rockville (MD): Agency for Healthcare Research and Quality, 2009. Electronic copies: Available from the U.S. Preventive Services Task Force (USPSTF) Web site.

Background Articles:

- Barton M et al. How to read the new recommendation statement: methods update from the U.S. Preventive Services Task Force. Ann Intern Med. 2007;147:123-127.
- Guirguis-Blake J et al. Current processes of the U.S. Preventive Services Task Force: refining evidence-based recommendation development. Ann Intern Med. 2007;147:117-122. [2 references]
- Sawaya GF et al., Update on the methods of the U.S. Preventive Services Task Force: estimating certainty and magnitude of net benefit. Ann Intern Med. 2007;147:871-875. [5 references].
- Petitti DB, Teutsch SM, Barton MB, Sawaya GF, Ockene JK, DeWitt T. Update on the methods of the U.S. Preventive Services Task Force: insufficient evidence. Ann Intern Med. 2009;150:199-205.

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

The following is also available:

- The guide to clinical preventive services, 2008. Recommendations of the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), 2008. 249 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 are available:

- Summaries for patients. Folic acid for the prevention of infant neural tube defects: U.S. Preventive Services Task Force recommendation. Ann Intern Med 2009 150:I-50. Available from the Annals of Internal Medicine Web site.
- Women: stay healthy at any age. Your checklist for health. Rockville (MD): Agency for Healthcare Research and Quality. AHRQ Pub. No. 07-IP005-A. February 2007. Electronic copies: Available from the USPSTF Web site. See the related QualityTool summary on the Health Care Innovations Exchange Web site.

Print copies: Available in English and Spanish 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).

Myhealthfinder is a new tool that provides personalized recommendations for clinical preventive services specific to the user's age, gender, and pregnancy status. It features evidence-based recommendations from the USPSTF and is available at www.healthfinder.gov.

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 summary was completed by ECRI on June 30, 1998. The information was verified by the guideline developer on December 1, 1998. This NGC summary was updated by ECRI Institute on May 18, 2009. The updated information was verified by the guideline developer on June 16, 2009.

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