

The Evolving Role of Prevention in Health Care: Contributions of the U.S. Preventive Services Task Force

Steven H. Woolf, MD, MPH and David Atkins, MD, MPH

Many of the leading causes of death and disability in the United States can be prevented.¹ *Primary prevention* can prevent or arrest the disease process in its earliest stages by promoting healthier lifestyles or immunizing against infectious disease. *Secondary prevention*, by detecting and treating asymptomatic risk factors or early asymptomatic disease, can substantially reduce subsequent morbidity or mortality. The clinician plays a pivotal role in both primary and secondary prevention. Health professionals deliver vaccinations, screen for modifiable risk factors such as high blood pressure and high cholesterol, counsel patients about smoking and other behavioral risk factors, provide screening tests for early detection of cancer and other chronic conditions, and advise patients about the benefits and risks of preventive therapies such as postmenopausal hormone replacement therapy.

The health care landscape has changed dramatically in the many years since the U.S. Preventive Services Task Force (USPSTF) was first established in 1984 to provide advice about prevention for health professionals. Prevention has become an integral component of primary health care.² Delivery of clinical preventive services such as immunizations, mammograms, and cholesterol screening has risen steadily over the past 2 decades.³ Roughly 90% of employers now include well-child visits, childhood immunizations, screening tests, and adult physical examinations among covered health benefits, compared to less than half that did so in 1988.⁴ Interest in prevention has grown significantly among the public, clinicians, educators, employers and policymakers.⁵ Furthermore, health plans and individual clinicians are increasingly being held

accountable for the quality of the preventive care they provide to their patients.⁶

Substantial gaps in the delivery of effective preventive care in the United States remain, however, because clinicians continue to face many of the same barriers that originally spurred the formation of the first USPSTF.⁷ Identifying effective interventions can be difficult in prevention, where prospective controlled trials are often difficult to conduct. Conflicting recommendations from different organizations, further exacerbated by the advocacy positions of some groups, leave many clinicians uncertain about what to do. Clinicians facing increasing time pressures in practice may question the value of some routine preventive interventions, as may employers and other payers struggling with accelerating health care costs. Although more prevention information is reaching the public, the messages conveyed are often inconsistent and increasingly colored by commercial self-interest. Clinicians may feel compelled to provide unproven or ineffective services because

From Virginia Commonwealth University, Medical College of Virginia (Woolf), Fairfax, Virginia; and Center for Practice and Technology Assessment, Agency for Healthcare Research and Quality (Atkins), Rockville, Maryland.

Address Correspondence to: Steven H. Woolf, MD, MPH, Virginia Commonwealth University, Medical College of Virginia, 3712 Charles Stewart Drive, Fairfax, VA 22033. E-mail: shwoolf@aol.com.

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patients demand them or they fear being sued, but patients may find that insurance coverage for individual preventive services, especially new technologies, is inconsistent.^{4,7}

The importance of clarifying what we know and do not know about the effectiveness of specific preventive services is as important now as it was in 1984. But the experience of the USPSTF illustrates that understanding effectiveness is only one step on a path to improving preventive health care. In this article, we briefly review the history of the USPSTF from its inception in 1984, reflect on the impact of the USPSTF on both preventive care policy and practice and its influence on the contemporary movement of practice guidelines and evidence-based healthcare in general, and comment on future challenges to the work of the USPSTF and other efforts to promote the implementation of effective preventive health care.

Historical Background: The Journey of the U.S. Preventive Services Task Force

Although major groups had advocated annual physical examinations for decades⁸ and promoted routine screening tests such as blood and urine chemistry panels, chest radiographs, and electrocardiograms, a comprehensive review of the scientific evidence to support specific preventive services was lacking in the early 1980s. Doubts grew as critical review articles focused attention on the absence of data for many commonly delivered services.⁹ In 1979, the Canadian Task Force on the Periodic Health Examination published its first report,¹⁰ a seminal work using systematic rules of evidence to support the strength of recommendations for a wide variety of preventive services.

In 1984, the U.S. Public Health Service, part of the U.S. Department of Health and Human Services, established the USPSTF to extend the approach of the Canadian Task Force to address a comprehensive set of clinical preventive services.

The USPSTF was charged with systematically reviewing the scientific evidence for individual clinical preventive services and making recommendations for practitioners about what services should be routinely offered. The 20-member panel of nonfederal experts included 14 physicians, a dentist, a nurse, a health services researcher, a health educator, an economist, and a sociologist. In contrast to many other disease-specific guideline panels,¹¹ the USPSTF consisted of generalists with expertise in research methodology and prevention, allowing it to address a wide range of topics. Broad expertise also lessened the potential for conflict of interest on a given issue. Following publication of a series of journal articles on individual services, the USPSTF released the first *Guide to Clinical Preventive Services*¹² in 1989. The *Guide* reviewed the evidence for 169 screening tests, counseling interventions, immunizations, and chemopreventive regimens, grading the recommendations on a 5-level (A to E) scale to reflect the quality of the supporting evidence, for age groups ranging from infancy to old age.

The release of the *Guide* had effects both on preventive medicine and on the nascent discipline of evidence-based medicine. The *Guide* represented the first attempt to assess a broad set of services using a consistent approach, with an emphasis on the perspective of the primary care clinician. It provided a single reference to which clinicians and policymakers could turn for the evidence for specific preventive services. The conclusions that the available evidence did not support some services ardently advocated by other medical groups drew heated criticism, but helped establish the credibility of the USPSTF among more skeptical audiences. Casting a spotlight on deficiencies in the evidence also focused attention on the gaps in knowledge and helped guide an agenda for future research needed to establish effectiveness.

The services for which the USPSTF did find compelling evidence—and which typically had wide support from other groups—formed the nucleus of a core set of preventive services advocated by skeptics and enthusiasts alike. This enabled the boundaries of “mainstream” preventive medicine to take form,

something that had not occurred before, which in turn became a strategic tool in leveraging policymakers, insurers, and employers to provide a package of well-supported preventive services to large population groups.

The release of the *Guide* accelerated a growing movement to replace traditional “expert consensus” methods for developing clinical recommendations with a systematic and explicit process for reviewing evidence and of linking clinical practice recommendations directly to the quality of the science.¹³ Early contributors to this movement included David Eddy¹⁴ and the Evidence-based Medicine Working Group.¹⁵ The strict approach taken by the USPSTF drew praise and criticism for eschewing expert opinion as a basis for making recommendations and for taking a neutral position when evidence was lacking. The systems for rating evidence and grading recommendations popularized by the Canadian and U.S. Task Forces were joined by similar schemes used by other groups.¹⁶ The USPSTF formed close collaborations with other groups committed to evidence-based policy, such as the American College of Physicians¹⁷ and American Academy of Family Physicians, staking out similar positions in polarized debates with advocacy organizations using the older opinion-based methods.

Although the USPSTF was disbanded in 1989 with the release of the *Guide*, the need to keep pace with the rapid growth in scientific evidence led to convening a second panel in 1990. The second USPSTF was smaller, with only 10 members, 8 of whom were primary care physicians. It refined the previous group’s methods for reviewing evidence and making recommendations, and expanded the scope of topics. It adopted policies for disclosure of conflicts arising from financial interests, funding sources, or other affiliations. The work of the second USPSTF was marked by strengthened ties with both federal and nongovernmental partners, including primary care subspecialty societies. The work of the second USPSTF culminated in the publication of the second edition of the *Guide*¹⁸ in 1996, which covered over 200 interventions in 70 areas.

The Changing Climate of Prevention

By the time the second edition of the *Guide* appeared, the environment for preventive medicine and evidence-based medicine had changed dramatically. Managed care organizations, which had emerged as a dominant paradigm for delivering and paying for health care, included preventive care among basic covered services more commonly than had traditional fee-for-service insurance.^{4,19,20} At the same time, the heightened competition spurred by managed care brought increased attention to costs and value. Although clinicians were the primary intended audience for the *Guide*, it soon became clear that the recommendations had an even greater impact on practice by reaching a wider audience of purchasers, health plans and policymakers, who valued the objective approach to the evidence. The *Guide* was frequently cited by health plans and systems of care in defending their health maintenance programs and benefits packages, and its recommendations informed many of the Health Plan Employer Data and Information Set (HEDIS)⁶ quality measures developed by the National Committee on Quality Assurance for evaluating health plan performance.

These developments occurred against a backdrop of greater interest in health promotion and healthy lifestyles on the part of the American people. Public education campaigns and commercial advertising had spurred interest in low-fat diets, exercise, and weight management. The emergence of new screening technologies and the promotion of specific tests by celebrities and national organizations made patient requests for screening a common occurrence in clinicians’ offices. With the advent of the Internet and other information technologies, many patients grew more knowledgeable about options for preventive care and newly released guidelines. Access to information was accompanied by a greater sense of empowerment among patients, including a desire to be more informed consumers and to take a more active role in making health care choices. Health plans, in turn, recognized that including comprehensive health promotion and disease prevention was a valuable marketing tool for attracting patients.

The attention the *Guide* brought to clinical preventive services also highlighted the importance of health promotion and disease prevention efforts outside of the clinician's office. For some health problems (eg, teenage smoking), the potential impact of the individual clinician was much smaller than that of other community-based interventions. In 1996, the U.S. Centers for Disease Control and Prevention impaneled the Task Force on Community Preventive Services, modeled on the USPSTF, to create the *Guide to Community Preventive Services*, to address a broad range of interventions targeting communities and health care systems rather than individual patients. Recommendations in the *Community Guide* are targeted at people involved in planning, funding, and implementing population-based services at the state and local levels. The first products of the *Community Guide* effort, including a systematic review of interventions to increase vaccination coverage in children and adults, were published in a January 2000 supplement to the *American Journal of Preventive Medicine*.²¹

Continuing Evolution of Guidelines and Evidence-Based Health Care

By 1996, the enthusiasm for clinical practice guidelines and for evidence-based medicine had been tempered by a realization of their attendant practical and political challenges.²² At its inception, the U.S. Congress authorized the Agency for Health Care Policy and Research (AHCPR; renamed the Agency for Healthcare Research and Quality [AHRQ] in 1999) to develop practice guidelines as part of its twin goals of improving quality and reducing unnecessary costs. By 1995, however, controversies sparked by several guidelines led to a re-examination of the appropriate role of AHCPR in developing clinical practice policies. At the same time, specialty societies and professional organizations that had reorganized and invested in the early 1990s to establish their own practice guideline programs soon found their efforts eclipsed by guidelines developed by commercial vendors and sold to health plans and hospital systems with the promise of lower health

care costs and lengths of stay. Moreover, as experience with evidence-based guidelines grew, observers gained a more mature appreciation of their limitations: a recognition that the critical appraisal of evidence involved more than assigning letter codes; that evidence was lacking for much of medicine; that waiting for better data from controlled trials was often unrealistic or unethical; and that evidence-based guidelines and policies, however well-intentioned, could cause unintended harm to patients, health professionals, and the health care system at large.²³

Notwithstanding these difficulties, the evidence-based perspective gained its footing in health care. Entire journals, and sections of other major journals, are now devoted to the critical appraisal of individual studies, and articles and websites detail the methods for conducting such reviews. Systematic reviews following an explicit methodology²⁴ and meta-analyses of multiple studies, popularized by the Cochrane Collaboration's Cochrane Library,^{25,26} appear regularly in most medical journals and offer a more rigorous alternative to the traditional review paper reflecting the opinions of a single expert. Evidence-based guidelines, founded on systematic reviews, are produced throughout the world²³ and the AHRQ National Guideline Clearinghouse™ (www.guideline.gov), established in 1998, provides access to a steadily growing number of guidelines (over 500 as of October 2000). Software tools to facilitate evidence-based decision making at the bedside are increasingly popular.²⁷ Policymakers, payers, and legislators are becoming increasingly aware that evidence-based health policy is a tool for quality improvement and for confronting the unrelenting rise in the costs of health care.

The Current USPSTF

It is in this context that the current USPSTF was convened in 1998 to update the recommendations of the previous USPSTF. Following the release of the second edition of the *Guide*, responsibility for the work of the USPSTF and the related Put Prevention Into Practice²⁸ initiative (www.ahrq.gov/clinic/prevenix.htm) were transferred

to AHRQ as part of its commitment to supporting evidence-based practice. Task Force members (including 4 returning members) were selected from a pool of over 70 individuals nominated by national organizations and experts (see Table 1). Recognizing the need for a broader interdisciplinary approach, the current USPSTF has added members with expertise in nursing, behavioral medicine, adolescent medicine, and cost-effectiveness.

Changes are also apparent in the organization of the scientific support to the USPSTF process. Congressional reauthorization of AHRQ in 1999 made federal support for the USPSTF explicit. It also redirected AHRQ from sponsoring guideline development to supporting the production of evidence syntheses for use by outside partners such as professional societies, who could in turn develop guidelines and policies more appropriate for their settings and populations. To this end, AHRQ established a network of 12 Evidence-based Practice Centers (EPCs) in universities and private research organizations with expertise in research synthesis and systematic review. Two of these centers (Oregon Health & Science University and a collaboration between Research Triangle Institute and the University of North Carolina at Chapel Hill) provide ongoing support for the USPSTF. Research staff members consult with the USPSTF, conduct systematic reviews, and produce detailed technical reports summarizing the evidence of effectiveness of specific interventions. These reports, which undergo outside review and revision, serve as the foundation for briefer summaries of evidence and for the USPSTF to formulate its recommendations. The centers and their sponsor focus on the science, leaving the formulation of policy and practice recommendations to the independent USPSTF.

Accordingly, the USPSTF process produces 3 types of documents: a detailed systematic evidence review, written largely by EPC staff with input from the USPSTF; a shorter summary of the evidence, suitable for publication in journals and on the Internet; and a “recommendation and rationale” statement authored by the USPSTF, containing the clinical conclusions derived by the USPSTF. These recommendations represent the independent positions of the USPSTF and do not reflect the

policies of its sponsor (AHRQ) or the U.S. Public Health Service. Included in this incremental release are the first products resulting from this program. An EPC-authored summary of the evidence and a USPSTF-authored recommendation statement appear for each of the preventive services discussed in this incremental release. The full details of the technical reports are available online (www.ahrq.gov/clinic/uspstfix.htm).

This new model of collaboration among the USPSTF, AHRQ, and the academic EPCs offers new opportunities and challenges. The resources provided by the independent, AHRQ-supported centers allow for more detailed reviews than were possible with a small internal staff. Similarly, separating the processes of reviewing evidence and developing recommendations helps ensure that the assessment of the evidence is insulated from policy or political considerations. Clarifying the independence of the USPSTF, and explaining situations in which the conclusions of the USPSTF diverge from that of other federal agencies, will remain ongoing challenges.

Despite its independence, the USPSTF continues to benefit from close relationships with federal health agencies and primary care professional organizations, which regularly attend USPSTF meetings and provide peer review of draft documents (see Table 2). These collaborations help to ensure that the evidence that serves as the basis for USPSTF recommendations is complete and accurate, that USPSTF recommendations are clear and credible to practitioners and policymakers, and that consensus is achieved when the position is supported by evidence. In addition, representatives of the USPSTF, Canadian Task Force on Preventive Health Care, and the Community Guide Task Force routinely attend each other’s meetings and contribute to methods and manuscripts.

Implementation: The Final Frontier of Preventive Medicine

The experiences of the first and second 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.^{29,30} 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,³¹ adopting standing orders, and auditing and giving feedback to clinicians about their compliance with recommended practice.³⁰

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.^{32,33}

Failure to deal adequately with these challenges is a likely explanation for continuing gaps between USPSTF recommendations and clinical practice. Studies suggest that primary care physicians have variable but generally low awareness of and compliance with USPSTF guidelines.³⁴⁻³⁶ USPSTF recommendations have also had less influence on prevention-related legislation and policy than the highly visible efforts of advocacy groups.³⁷ Under the Balanced Budget Act of 1997, Congress added several preventive services under Medicare, but only one of these (colorectal cancer screening) was recommended for routine use by the USPSTF.³⁸ Similarly, a recent survey of state legislation regarding cancer screening³⁹ shows many more examples of state-mandated coverage of prostate cancer screening (not recommended by the USPSTF) than of colorectal cancer screening. A recent Institute of Medicine report acknowledged these issues when it recommended a more objective and systematic approach to expanding Medicare

coverage of preventive services recommended by the USPSTF.³⁸ While the USPSTF and AHRQ will work to make their products more relevant to policymakers, these examples also illustrate that factors other than scientific evidence continue to shape policies in both the public and private sectors.

Neither the resources nor the composition of the USPSTF equip it to address these numerous implementation challenges, but a number of related efforts seek to increase the impact of future USPSTF reports. The USPSTF convened representatives from the various audiences for the *Guide*—clinicians, consumers and policymakers from health plans, national organizations and Congressional staff—about how to modify the content and format of its products to address their needs. With funding from the Robert Wood Johnson Foundation, the USPSTF and Community Guide Task Force conducted an audience analysis to further explore implementation needs. The Put Prevention into Practice^{28,40} initiative at AHRQ has developed office tools such as patient booklets, posters, and handheld patient mini-records, and a new implementation guide for state health departments.⁴¹

Dissemination strategies have also changed dramatically in this age of electronic information. While recognizing the continuing value of journals and other print formats for dissemination, AHRQ will make all USPSTF products available through its website (www.ahrq.gov/cinic/uspstfix.htm). The combination of electronic access and extensive material in the public domain should make it easier for a broad audience of users to access USPSTF materials and adapt them for their local needs. Online access to USPSTF products also opens new possibilities for the appearance of the third edition of the *Guide to Clinical Preventive Services*. Freed from having to serve as the primary repository for all USPSTF work, the next *Guide* may be much slimmer than the almost 1000 pages of the second edition.

National efforts such as the USPSTF face inherent limitations in trying to influence practice in individual physicians' offices. 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.⁴² 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.^{31,43} Information systems remain a major challenge for individual clinician's 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.

Future Challenges

The USPSTF faces continuing challenges in its attempts to distill evidence and produce clinical recommendations (see the accompanying paper on USPSTF methods).⁴⁴ Increasing explicitness of USPSTF methods cannot completely remove the subjective element involved in making recommendations based on inferences from imperfect evidence on complex issues. Nonetheless, the USPSTF continues to adhere to the general principle that it is appropriate to set a high standard of evidence for preventive care. Premature promotion of services that may be ineffective not only wastes time and money, but could also harm healthy patients, divert attention from more important issues, and undermine efforts to determine what really works.

Over time, the principal question of interest to the USPSTF in the past—does the preventive service work?—has matured into more sophisticated questions about the magnitude of benefit, the trade-off between benefits and harms, and the influence of individual preferences on those trade-offs. The USPSTF is developing principles for incorporating “shared decision-making” into recommendations involving important trade-offs (eg, tamoxifen to prevent breast cancer, which carries potential benefits and risks), as discussed below. As detailed

in the accompanying article about methods, setting the threshold for what constitutes good evidence remains a formidable challenge.

There are inevitable tensions in translating conclusions about the evidence into recommendations that may be widely applied by clinicians in a variety of settings. One approach is simply to describe the quality of the supporting evidence for specific outcomes, leaving it to others to translate that into recommendations appropriate to their practices. This approach recognizes that decisionmakers—whether clinicians, legislators, payers, or patients—confront different constraints and priorities in their individual settings. Conversely, blanket recommendations offer clearer guidance but impose the value judgments of the committee and give little account to other determinants of appropriateness (expert opinion, prior experience, standards of care, costs, resources, patient expectations, available services, insurance coverage, medical-legal liability, and ethics). Feedback from a variety of users has clearly indicated a desire for explicit recommendations from the USPSTF, but the group will continue to struggle with its dual duties to describe the evidence and advise on practice policy.

An important challenge is what position to take for the many services reviewed by the USPSTF when available evidence is inadequate to assess the net benefits or harms. Some say the USPSTF should take a neutral position and offer no advice until better evidence becomes available. Others say it should be more permissive, offering such services as “clinical options,” especially if the potential harms or costs are minimal. Doing so recognizes that science is only one consideration in judging appropriateness and that clinicians cannot always await better data to make a decision. Some argue the opposite: In an era in which preventive services of proven benefit are not delivered because of limited time and resources, the USPSTF should actively recommend against use of interventions that have not been adequately studied.

For a growing number of preventive services, available data are sufficiently robust to quantify the

magnitude of benefits and harms for specific population groups, but this precision gives rise to difficult ethical questions about trade-offs.⁴⁵ If a preventive service poses potential benefits and harms, some would recommend that the USPSTF avoid making any generic recommendations and instead uniformly advocate shared decision making, in which the clinician reviews the trade-offs with patients and helps them decide for themselves based on personal preferences. This approach, however, may be impractical and ethically unnecessary except for “close calls” in which judgments about whether benefits outweigh harms fluctuate dramatically based on personal preferences. Even in those cases, a large proportion of patients expects the clinician to give advice.⁴⁶ Perhaps the USPSTF has a duty to proffer what that advice should be.

When the original USPSTF was established in 1984, it received explicit instructions not to consider the economic costs of preventive services. Recommending against an effective service because of its cost was considered unpalatable, econometric methods were immature, and controversy over costs could distract attention from more fundamental questions of effectiveness. Although modern methods of cost-effectiveness analysis still need refinement, it is now much more acceptable (in theory, at least) to consider costs in health policy. Here too, however, the role of the USPSTF continues to evolve. At present, the USPSTF is reviewing published cost-effectiveness studies and subjecting them to critical appraisal according to accepted criteria, but there is interest in conducting its own analyses when published data fail to address questions of interest. Furthermore, questions of when and how the USPSTF might alter recommendations based on cost-effectiveness are not resolved. If economic considerations will influence recommendations, what threshold of cost-effectiveness or cost-utility is considered acceptable? These issues are explored more fully in the accompanying article on cost-effectiveness.⁴⁷

Finally, for the services the USPSTF does recommend, it is clear that clinicians, health care systems, and payers cannot implement everything at once. For priorities to be set in an evidence-based manner, the USPSTF sees the need for providing

users with quantitative information about the relative benefits to individuals and populations. This would require converting the outcomes of preventive services to a common metric, such as quality-adjusted life-years, so that interventions that reduce morbidity or mortality can be compared on a level playing field. Although the USPSTF has decided to include outcomes tables in its reviews with the primary data on which such calculations would be based, views differ on whether it should undertake the additional role of ranking the relative priority of preventive services. The Partnership for Prevention convened a panel to develop methods for prioritizing services. The rankings of the services recommended in 1996 by the second USPSTF were published in the *American Journal of Preventive Medicine* in July 2001 (Volume 21, pages 1-9).⁴⁸

The approach the USPSTF is currently taking in dealing with these issues is addressed more fully in the articles that follow. The details of this process, however, flow from fundamental philosophical choices about the roles and responsibilities outlined above, which will remain matters of discussion, debate, and learning for years. As the USPSTF makes adjustments in its sense of purpose to better serve the needs of patients and providers, its methods and procedures can be expected to develop accordingly.

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Table 1. U.S. Preventive Services Task Force and staff (1998 – 2002)

| | |
|---|---|
| Alfred O. Berg, MD, MPH. (chair) Department of Family Medicine University of Washington School of Medicine Seattle, Washington | Jeffrey F. Peipert, MD, MPH. Department of Obstetrics and Gynecology Women & Infants Hospital of Rhode Island Providence, Rhode Island |
| Janet D. Allan, PhD, RN (vice-chair) School of Nursing University of Texas Health Science Center at San Antonio San Antonio, Texas | Nola J. Pender, PhD, RN, FAAN School of Nursing University of Michigan Ann Arbor, Michigan |
| Paul S. Frame, MD Tri-County Family Medicine Cohocton, New York | Harold C. Sox, Jr, MD Department of Medicine Dartmouth-Hitchcock Medical Center Lebanon, New Hampshire |
| Charles J. Homer, MD, MPH National Initiative for Children's Healthcare Quality Institute for Healthcare Improvement Boston, Massachusetts | Steven M. Teutsch, MD, MPH Merck & Co., Inc. West Point, Pennsylvania |
| Mark Johnson, MD, MPH Department of Family Medicine UMD-New Jersey Medical School Newark, NJ | Carolyn Westhoff, MD, MSc Department of Obstetrics and Gynecology Columbia University New York, New York |
| Johathan Klein, MD, MMPH Department of Pediatrics and of Preventive and Community Medicine University of Rochester School of Medicine Rochester, NY | Steven H. Woolf, MD, MPH Department of Family Practice Medical College of Virginia Virginia Commonwealth University Fairfax, Virginia |
| Tracy A. Lieu, MD, MPH Department of Ambulatory Care and Prevention Harvard Pilgrim Health Care and Harvard Medical School Boston, Massachusetts | Agency for Healthcare Research and Quality Staff David Atkins, MD, MPH Scientific and Technical Editor, USPSTF |
| Cynthia D. Mulrow, MD, MSc Department of Medicine University of Texas, San Antonio Audie L. Murphy Memorial Veterans Hospital San Antonio, Texas | Dana Best, MD, MPH Assistant Scientific and Technical Editor, USPSTF |
| Carole Tracy Orleans, PhD Robert Wood Johnson Foundation Princeton, New Jersey | Barbara Gordon Program Analyst, USPSTF |
| | Randie A. Siegel, MS Director, Office of Print and Electronic Publishing |
| | Eve N. Shapiro Managing Editor, USPSTF (under contract to AHRQ) |

Oregon Health & Science University Evidence-based Practice Center

Mark Helfand, MD, MS
 Director, OHSU Clinical Prevention Center
 Director, OHSU Evidence-based Practice Center

Kathryn Pyle Krages, AMLS, MA
 Project Manager, OHSU Clinical Prevention Center

Benjamin KS Chan, MS

Petronella Davies, MS

Karen B. Eden, PhD

Jeanne-Marie Guise, MD, MPH

Linda L. Humphrey, MD, MPH

Susan Mahon, MPH

Gary Miranda, MA

Heidi D. Nelson, MD, MPH

Margaret M. Nygren, MA

Evelyn P. Whitlock, MD, MPH

Susan Wingenfeld

Sonya Sutton, BSPH
 Project Manager, RTI-UNC Clinical Prevention Center

Linda Lux, MPA

Sheila White

UNC:

Russell P. Harris, MD, MPH
 Co-Director, RTI-UNC Clinical Prevention Center

Timothy S. Carey, MD, MPH
 Co-Director, RTI-UNC Evidence-based Practice Center

Mark Dowell, BA

Anne Jackman, MSW

Carol Krasnov

Michael Pignone, MD, MPH

Lynn Whitener, DrPH, MSLS

Research Triangle Institute (RTI)/University of North Carolina at Chapel Hill (UNC) Evidence-based Practice Center

RTI:

Kathleen Lohr, PhD
 Co-Director, Evidence-based Practice Center
 Co-Director, RTI-UNC Clinical Prevention Center

Table 2. Liaison organizations to USPSTF

| Private organizations | Federal organizations |
|--|---|
| American Academy of Family Physicians | Centers for Disease Control and Prevention |
| American Academy of Pediatrics | National Institutes of Health |
| American Academy of Physician Assistants | Veterans Administration |
| American College of Obstetricians and Gynecologists | Health Care Financing Administration |
| American College of Physicians/American Society of Internal Medicine | Indian Health Service |
| American College of Preventive Medicine | Health Resources Services Administration |
| Canadian Task Force on Preventive Health Care | United States Navy, Bureau of Medicine and Surgery |
| | United States Air Force, Medical Operations Agency |
| | United States Army, Center for Health Promotion and Preventive Medicine |