

Priorities for America's Health: Capitalizing on Life-Saving, Cost-Effective Preventive Services

Overview

Partnership for Prevention conducted a detailed and careful study of the evidence for ranking the health impact and cost effectiveness of 25 clinical preventive services recommended by two nationally recognized sources: the U.S. Preventive Services Task Force (USPSTF) and Advisory Committee on Immunization Practices (ACIP). The resulting rankings — published in a leading medical journal — identify the most valuable preventive services that can be offered in medical practice and should help decision-makers select which services to emphasize.

This study is an update to Partnership's 2001 rankings of clinical preventive services, with new preventive service recommendations, more sophisticated methods, and the latest data on burden of disease, service effectiveness, use of services, and costs of delivery.

Rationale

The U.S. spends billions on healthcare services of questionable value while basic, evidence-based preventive services are not getting done as often as they should. Yet the time available to deliver healthcare services is limited. Brief clinician office visits must address chronic conditions, acute illness, and preventive care. In this environment, prioritization of healthcare services is occurring, but it is rarely systematic or rational. And the consequences of misplaced priorities are high: people die and





illnesses worsen because the most important preventive services do not get done. Health outcomes in the U.S. could be improved at less expense if the health care system, clinicians, and patients gave priority to services that were most beneficial and offered the greatest value.

Study Structure

Partnership for Prevention asked former U.S. Surgeon General Dr. David Satcher to chair a blue-ribbon National Commission on Prevention Priorities (NCPPP) to guide an update to its 2001 rankings of clinical preventive services. The NCPP — a 24-member panel of decision-makers from health insurance plans, an employer group, academia, clinical practice, and governmental health agencies — met in-person three times between July 2003 and July 2005. Additional meetings to address methods issues were held by conference call. HealthPartners Research Foundation (HPRF) conducted the analytical work. Study sponsors were the Centers for Disease Control and Prevention and the Agency for Healthcare Research and Quality.



This study comprises primary and secondary preventive services offered by healthcare providers in clinical settings, including immunizations, screening tests, counseling, and preventive medications. The NCPP defined the scope specifically as: **1)** twenty-one clinical preventive services recommended by the USPSTF through December 2004 for the general population of asymptomatic people and for people at high-risk of coronary heart disease, and **2)** childhood immunizations as a group and three adult immunizations recommended by the ACIP through December 2004 for the general population.

Methods

The NCPP chose to base the rankings on the same measures used in the previous effort: clinically preventable burden (CPB), which measures the health impact on the relevant population, and the cost-effectiveness (CE) of each service.



The NCPP defined CPB as the disease, injury and premature death that would be prevented if the service were delivered at recommended intervals to a U.S. birth cohort over the years of life that the service is recommended. Partnership/HPRF used several approaches to apply this definition consistently across services, including:

- Measured CPB as quality adjusted life years (QALYs) gained.
- Measured the total potential health benefits from the service among both those who have received the service and those who have not yet received it.
- Assumed that 100% of the target population is offered each service, but that 100% do not comply.

The NCPP defined cost-effectiveness as the average net cost per QALY gained by offering the clinical preventive service at recommended intervals to a U.S. birth cohort over the recommended age range. Partnership/HPRF adhered to the "reference case" methods advocated by the Panel on Cost-Effectiveness in Health and Medicine to ensure consistency across CE estimates:

- Used a 3% discount rate for costs and QALYs in the CE ratios
- Included the value of patients' time associated with receiving the service and needed follow-up in each preventive service's costs.

The NCPP chose to use a scoring system to group services with similar value in order to make distinctions among services without overstating the precision of the CPB and CE estimates. Services that produce the most health benefits received the highest CPB score of 5. Services that are most cost effective received the highest CE score of 5. Scores for CPB and CE were then added to give each service a possible total score between 10 and 2.

In addition to scoring services on total CPB, Partnership/HPRF estimated the marginal CPB of increasing the number of people at the national level who receive selected preventive services. This was done by comparing the difference between QALYs saved among those in the target population who have received the services to the QALYs that could be saved if 90% of the target population received the services.





In summary, the Partnership/HPRF:

- Evaluated 25 evidence-based clinical preventive services
- Conducted a thorough review of the scientific literature
- Used a consistent approach to evaluate each service to ensure comparability among them.

Results

Table 1 provides the rankings of preventive services, including each preventive service's CPB, CE and total scores.

- Three services received total scores of 10 and are cost saving: discussing daily aspirin use with high-risk adults, immunizing children, and tobacco use screening and brief intervention.
- Eight services received scores of 7 or higher: two adult vaccines (influenza and pneumococcal), two cancer screenings (cervical and colorectal), and four additional screenings (vision screening among adults 65+ years, hypertension screening, cholesterol screening and problem drinking screening).
- Four services received a score of 6. Among these are two services that have small target populations compared to other services on the list and thus a relatively low CPB, but are very cost effective: screening young women for Chlamydia and screening young children for visual impairments.



Table 2 provides additional information on unmet opportunities by listing the QALYs that would be saved in descending order were the number of people nationally who received selected services increased to 90%.

Conclusions

This study offers a unique tool to help many types of decision-makers choose where to improve utilization rates by indicating which services are most consequential and cost effective. Thoughtful decisions based on a careful review of each score and the underlying data should lead to larger improvements in population health and more efficient allocation of resources in contrast with decisions based on incomplete data, incomparable data or no data at all.

To access the articles about this study published in the July 2006 issue of the *American Journal of Preventive Medicine* go to www.prevent.org/ncpp.



Table 1: Priorities Among Effective Clinical Preventive Services

Services in bold are those with scores of 6+ that have the lowest utilization rates nationally (about 50% or less).

| Services (short name) | Description | CPB | CE | Total |
|--|---|-----|----|-------|
| Aspirin Chemoprophylaxis | Discuss daily aspirin use with men 40+, women 50+, and others at increased risk for heart disease for the prevention of cardiovascular events | 5 | 5 | 10 |
| Childhood Immunization Series | Immunize children: Diphtheria, tetanus, pertussis, measles, mumps, rubella, inactivated polio virus, Haemophilus influenzae type b, Hepatitis B, varicella, pneumococcal conjugate, influenza | 5 | 5 | 10 |
| Tobacco Use Screening and Brief Intervention | Screen adults for tobacco use, provide brief counseling and offer pharmacotherapy | 5 | 5 | 10 |
| Colorectal Cancer Screening | Screen adults 50+ years routinely with FOBT, sigmoidoscopy or colonoscopy | 4 | 4 | 8 |
| Hypertension Screening | Measure blood pressure routinely in all adults and treat with anti-hypertensive medication to prevent the incidence of cardiovascular disease | 5 | 3 | 8 |
| Influenza Immunization | Immunize adults aged 50+ against influenza annually | 4 | 4 | 8 |
| Pneumococcal Immunization | Immunize adults aged 65+ against pneumococcal disease with one dose for most in this population | 3* | 5 | 8 |
| Problem Drinking Screening and Brief Counseling | Screen adults routinely to identify those whose alcohol use places them at increased risk and provide brief counseling with follow-up | 4 | 4* | 8 |
| Vision screening — Adults | Screen adults aged 65+ routinely for diminished visual acuity with the Snellen visual acuity chart | 3 | 5 | 8 |
| Cervical Cancer Screening | Screen women who have been sexually active and have a cervix within 3 years of onset of sexual activity or age 21 routinely with cervical cytology (Pap smears) | 4 | 3 | 7 |
| Cholesterol Screening | Screen routinely for lipid disorders among men aged 35+ and women aged 45+ and treat with lipid-lowering drugs to prevent the incidence of cardiovascular disease | 5* | 2* | 7 |
| Breast Cancer Screening | Screen women aged 50+ routinely with mammography alone or with clinical breast examination and discuss screening with women aged 40-49 to choose an age to initiate screening | 4 | 2 | 6 |
| Chlamydia Screening | Screen sexually active women under age 25 routinely | 2 | 4 | 6 |

CPB, clinically preventable burden; CE, cost effectiveness
*Sensitivity analysis revealed that a change of score of 2 or more is possible.

continued



Table 1: Priorities Among Effective Clinical Preventive Services (continued)

| Services (short name) | Description | CPB | CE | Total |
|---------------------------------|--|-----|----|-------|
| Calcium Chemoprophylaxis | Counsel adolescent and adult women to use calcium supplements to prevent fractures | 3* | 3* | 6 |
| Vision Screening—Children | Screen children less than age 5 routinely to detect amblyopia, strabismus, and defects in visual acuity | 2 | 4* | 6 |
| Folic Acid Chemoprophylaxis | Counsel women of childbearing age routinely on the use of folic acid supplements to prevent birth defects | 2 | 3 | 5 |
| Obesity Screening | Screen all adult patients routinely for obesity and offer obese patients high-intensity counseling about diet, exercise or both together with behavioral interventions for at least one year | 3 | 2 | 5 |
| Depression Screening | Screen adults for depression in clinical practices that have systems in place to assure accurate diagnosis, treatment and follow-up | 3 | 1 | 4 |
| Hearing Screening | Screen for hearing impairment in adults aged 65+ and make referrals to specialists | 2 | 2 | 4 |
| Injury Prevention Counseling | Assess the safety practices of parents of children less than age 5 and provide counseling on child safety seats, window/stair guards, pool fence, poison control, hot water temperature and bicycle helmets | 1 | 3* | 4 |
| Osteoporosis Screening | Screen women aged 65+ and women aged 60+ at increased risk routinely for osteoporosis and discuss the benefits and harms of treatment options | 2 | 2 | 4 |
| Cholesterol Screening—High Risk | Screen men aged 20 to 35 and women aged 20 to 45 routinely for lipid disorders if they have other risk factors for coronary heart disease and treat with lipid-lowering drugs to prevent the incidence of cardiovascular disease | 1 | 1* | 2 |
| Diabetes Screening | Screen for diabetes in adults with high cholesterol or hypertension and treat with a goal of lowering levels below conventional target values | 1 | 1 | 2 |
| Diet Counseling | Offer intensive behavioral dietary counseling to adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease | 1 | 1 | 2 |
| Tetanus-diphtheria Booster | Immunize adults every 10 years | 1 | 1 | 2 |

CPB, clinically preventable burden; CE, cost effectiveness

*Sensitivity analysis revealed that a change of score of 2 or more is possible.



TABLE 2. Additional QALYs Saved if Current % Receiving Services Increased

| Services (short name) ^a | Current % Receiving Services Nationally | Additional QALYs saved if Current % Receiving Services Increased to 90% ^b |
|--|--|--|
| Tobacco Use Screening and Brief Intervention | 35% ^c | 1,300,000 |
| Colorectal Cancer Screening | 35% ^d | 310,000 |
| Influenza Vaccine—Adults | 36% ^e among adults 50-64 yrs 65% ^e among adults 65+ yrs | 110,000 |
| Breast Cancer Screening | 68% ^f | 91,000 |
| Cervical Cancer Screening | 79% ^f | 29,000 |
| Chlamydia Screening | 40% ^g | 19,000 |
| Pneumococcal Vaccine—Adults | 56% ^e | 16,000 |
| Cholesterol Screening | 87% ^f | 12,000 |
| Hypertension Screening | 90% ^f | 0 |

Based on limited available data, utilization rates of 50% were assigned to the following services:

| | | |
|---|-----|---------|
| Aspirin Chemoprophylaxis | 50% | 590,000 |
| Problem Drinking Screening and Brief Counseling | 50% | 71,000 |
| Vision Screening—Adults | 50% | 31,000 |

a See Table 1 for a description of each service. Childhood immunizations were omitted from the table due to high utilization rates and low prevalence of vaccine-preventable disease.

b Indicates additional lifetime QALYs saved if 90% of a cohort of 4 million were offered the service as recommended.

c The National Health Interview Survey (2001) and HEDIS performance data (2004) indicate that about 68% of smokers who visited a health-care provider in the past year received advice to quit. However, only about 35% of smokers enrolled in commercial and Medicaid health plans reporting HEDIS performance data received brief counseling that involved discussion of medication and cessation strategies as recommended by the USPSTF (see The State of Healthcare Quality 2005, http://www.ncqa.org/Docs/SOHCQ_2005.pdf, last accessed November 17, 2005).

d Based on use for screening purposes only of FOBT in last 2 years, sigmoidoscopy in last 5 years and colonoscopy in last 10 years from National Health Interview Survey 2003 Public Use Data Set, www.cdc.gov/nchs/nhis.htm.

e National Health Interview Survey. Early Release of Selected Estimates Based on Data from January to March 2005, www.cdc.gov/nchs/nhis.htm, last accessed November 17, 2005.

f Behavioral Risk Factor Surveillance Survey 2002, www.cdc.gov/brfss/index.htm, last accessed November 17, 2005.

g Based on 2004 data reported by Medicaid and commercial health plans that reported HEDIS performance data (see The State of Healthcare Quality 2005, http://www.ncqa.org/Docs/SOHCQ_2005.pdf, last accessed November 17, 2005).