
Puget Sound Health Alliance

Prevention Clinical Improvement Team Report



Puget Sound Health Alliance

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The Prevention Clinical Improvement Team Final Report

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Executive Summary

Background: The Puget Sound Health Alliance (the Alliance) identified disease prevention and health promotion as crucial aspects of healthcare delivery for which there is considerable room for improvement. According to statistics compiled by the Commonwealth Fund¹, only 42% of adults over the age of 50 in Washington State have received recommended preventive care, such as screening for colorectal cancer, mammograms, Pap smears, and flu shots, at appropriate ages. With the aim to improve preventive care in the Puget Sound region, the Alliance convened the Prevention Clinical Improvement Team (CIT) to examine evidence-based clinical guidelines for clinical preventive services, and to make recommendations for improvement at the point of care delivery, and in creating a supportive community environment for change.

Topics: The first task of the Prevention CIT was to define the scope of their work. Given the broad nature of the topic of prevention, the CIT members undertook to select areas for discussion for which there was the greatest need for improvement and/or that had the greatest potential impact on healthcare outcomes. The CIT looked to the nationally recognized Partnership for Prevention Rankings of Clinical Preventive Services² for guidance in this process. The Partnership for Prevention examined the U.S. Preventive Services Task Force (USPSTF)³ and Advisory Committee on Immunization Practices (ACIP)⁴ recommendations for clinical preventive services, and ranked them for their cost-effectiveness and clinical preventable burden. The Prevention CIT chose five of the Partnership for Prevention's top eight ranked clinical preventive services. A sixth topic, Physical Activity and Nutrition, was selected for its significant impact on morbidity and mortality in the United States. The six topics chosen for discussion by the Prevention CIT were:

1. Physical Activity and Nutrition.
2. Tobacco use
3. Aspirin chemoprophylaxis
4. Colorectal cancer screening
5. Influenza immunizations
6. Childhood immunizations

The list of selected topics was not intended to be inclusive of all preventive strategies or services, but rather to target areas of high priority that could be useful in developing models and strategies for preventive care in general.

¹ The Commonwealth Fund State Scorecard. 2007.

http://www.commonwealthfund.org/statescorecard/statescorecard_show.htm?doc_id=495876

² Partnership for Prevention Ranking of Clinical Preventive Services. <http://www.prevent.org/content/view/43/71/>

³ U.S. Preventive Services Task Force Guide to Clinical Preventive Services

<http://www.ahcpr.gov/clinic/uspstfix.htm#Recommendations>

⁴ 2007 Advisory Committee on Immunization Practices. Recommendations for Children and Adolescents:

<http://www.cdc.gov/vaccines/recs/schedules/downloads/child/2007/child-schedule-color-print.pdf>

Recommendations of the Prevention CIT:

General recommendations: The Prevention CIT recommends that providers schedule a planned, regularly recurring **preventive care visit** for all patients, on an annual basis or on a schedule that best meets individual patient needs. A regular preventive care visit should augment, rather than replace, preventive care services that are offered in an ongoing opportunistic manner at each visit. Health plans and purchasers should ensure coverage for preventive care visits.

The Prevention CIT also encourages the use of **Health Risk Assessments (HRAs)** by employers and health plans to help consumers understand their personal health risks and develop a plan to improve their health. HRAs should always include mechanisms to calculate Body Mass Index (BMI); assess cardiovascular, diabetes, and depression risk; and to record key biometrics such as blood pressure and cholesterol levels.

Physical Activity and Nutrition: Improving patient lifestyle behaviors, such as physical activity and nutrition, is one of the greatest challenges in healthcare today. Fully one third of adult Americans are obese, a rate higher than any other industrialized nation. Overweight and obesity are linked to many chronic health problems, such as diabetes, hypertension, heart disease, and arthritis, with profound implications for disease burden and economic costs to society. Improving lifestyle behaviors will require cooperative efforts from multiple stakeholders.

The Prevention CIT follows the guidelines of the USPSTF in their recommendations for clinical preventive services, recommending that clinicians screen all adult patients for obesity using Body Mass Index (BMI), and offer intensive counseling or referral on lifestyle changes for those patients who are obese. Furthermore, clinicians should incorporate counseling or referral on lifestyle changes into disease management strategies for all patients with lifestyle-related chronic diseases such as diabetes, heart disease, stroke, hypertension and hyperlipidemia. In addition to these specific recommendations, clinicians should act as catalysts for change in helping patients improve lifestyle behaviors, using simple and consistent messaging to patients on diet and exercise. The Prevention CIT recommends the USDA Food Pyramid⁵ and Dietary Guidelines for Adults 2005⁶ as sources of recommendations for both healthy eating and physical activity.

Consumers and patients should take an active role in making healthy lifestyle choices by completing a health risk assessment (HRA) through their health plan, employer, provider office or online to help identify lifestyle factors that pose a health risk, and then work collaboratively with their providers to set realistic and achievable self-management goals for improving those behaviors. The CIT provides numerous references and resources for patients and providers to aid in improving nutrition and increasing physical activity levels.

The Prevention CIT recognizes that while the clinician may provide a powerful impetus for initiating patient behavior change, much of the work on improving lifestyle choices will come from sources in addition to the clinical setting, such as workplace wellness programs, community-based programs, individual lifestyle coaches, dietitians and exercise specialists. Employers can play an important role in this effort by creating a positive “culture of wellness” in

⁵ USDA Food Pyramid www.mypyramid.gov

⁶ Dietary Guidelines for Adults 2005 www.health.gov/dietaryguidelines/dga2005/recommendations.htm

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the workplace, by offering wellness programs, healthy food choices in the workplace, and providing opportunities and venues for physical activity. Such actions have been shown to produce positive returns on investment in terms of both reduced healthcare expenditures and improved productivity and absenteeism in the work force.

Health plans should offer coverage for recommended preventive services, including nutrition counseling for obese patients and for those with lifestyle-related chronic diseases.

Decreasing tobacco use: Tobacco use causes significant disease burden and economic costs in the United States. Smoking accounts for 90% of tobacco use, and 21% percent of Americans and 17.3% of Washington State adults are smokers. Annually, 440,000 Americans die of smoking-attributable causes, with 18.1 % of total deaths in 2000 attributable to smoking. Preventive strategies have been shown to be effective in reducing smoking and other forms of tobacco use. The U.S. Preventive Services Task Force (USPSTF) recommends tobacco screening and brief intervention for all adults. Tobacco cessation programs are actually cost-saving, in that they result in greater healthcare savings than they cost to administer.

The Prevention CIT recommends that clinicians screen all adults for tobacco use at each visit, and offer tobacco cessation counseling to smokers and other users of tobacco products. An effective counseling strategy is the “5-A’s” approach: **Ask** about tobacco use during every office visit; **Advise** all users to quit; **Assess** the patient's willingness to quit; **Assist** the patient in his or her attempt to quit; **Arrange** follow-up contact. Given time constraints in routine office visit, providers should consider scheduling visits devoted entirely to smoking cessation counseling and follow-up, while not missing opportunities to discuss smoking cessation at every visit.

It is important that consumers hear repeated and consistent messaging on the dangers of tobacco use and the strategies available for quitting. The Prevention CIT provides numerous references to resource materials for patients interested in quitting smoking, including the Washington State Department of Health sponsored tobacco quit line, 1-800-QUIT-NOW.

Smoking cessation programs are cost-savings to employers, and the Prevention CIT recommends that employers offer these programs at the worksite and/or provide comprehensive smoking cessation benefits to all employees. In addition, employers can send a powerful message by banning smoking in the workplace, both indoors and out.

The Prevention CIT recommends that health plans offer comprehensive smoking cessation benefits (visits, counseling, telephone support, nicotine replacement therapy and prescription medications) to all members; provide members with information about their smoking cessation benefits; and reimburse providers for smoking cessation visits.

The Prevention CIT also has a message to policy-makers on tobacco use, and recommends an increase the product excise tax on tobacco products, as well as making nicotine replacement therapy available for free through the Washington State tobacco quit line.

Aspirin chemoprophylaxis: One of the most cost-effective and high impact clinical preventive services identified by the Partnership for Prevention is the recommendation to discuss the use of aspirin to prevent heart disease or stroke in patients at risk for these conditions. The value of aspirin prophylaxis is closely linked to an individual’s cardiovascular risk and the discussion of

aspirin use provides a valuable opportunity for patients and providers to assess and discuss individual risk in detail and to determine the most effective preventive strategies.

The Prevention CIT recommends that providers discuss the use of aspirin to prevent heart disease and stroke in men over age 40, post-menopausal women, and anyone at increased risk for cardiovascular disease, and that this discussion be within the context of comprehensive cardiovascular risk assessment and disease prevention. Aspirin is not indicated for everyone, and providers should utilize shared decision-making strategies with patients to ensure that they fully understand the potential for individual benefit and risk.

Patients should be informed consumers, and be aware of their own cardiovascular risk based on age, gender, family history and risk factors. Risk assessment tools are available in print and online, and their use by consumers is encouraged.

Employers and health plans can embed a cardiovascular risk calculator within HRAs to assist in patients' awareness and understanding of their risks.

Colorectal cancer screening: Colorectal cancer is the third most common cancer diagnosed in the United States and the second leading cause of annual cancer deaths. Although effective screening strategies exist for colorectal cancer, screening rates remain low. The Partnership for Prevention estimates that only about one-third of eligible adults are up-to-date on colorectal cancer screening. While there is tremendous room for improvement in colorectal cancer screening, the importance of breast and cervical cancer screening should not be ignored, and strategies discussed for colorectal cancer screening may be applied to these other cancers as well.

The USPSTF recommends that routine colorectal cancer screening be offered to all adults over the age of 50. There are several recommended and effective screening strategies for colorectal cancer,⁷ and the selection of colorectal screening type should be made by shared decision-making between provider and patient, taking into considerations patient overall health and comorbidities, risks, cost, access, local availability of services and patient preference. Lack of ability or desire for one screening strategy should prompt selection of an alternative strategy that is more acceptable to the patient.

All patients over age 50 or with a family history of colon cancer should discuss colorectal cancer screening with their healthcare provider. Patients should ask their provider about the different options for colorectal cancer screening, and adopt a strategy that they can best adhere to. Lack of desire for one strategy should not preclude the adoption of another recommended strategy.

Both employers and health plans should offer full coverage (without co-pays) for all preventive services, including colorectal cancer screening. This includes full coverage for colonoscopy as a screening strategy if selected as appropriate by patient and provider, as well as any secondary diagnostic studies required to confirm or follow-up on initial positive screens.

⁷ The U.S. Preventive Services Task Force (USPSTF) recommends one of several colorectal cancer screening strategies in the general population, including: 1. Fecal occult blood testing (FOBT) every year; 2. Flexible sigmoidoscopy every five years; 3. Fecal occult blood testing every year and flexible sigmoidoscopy every five years; or 4. Colonoscopy every ten years.

Influenza immunizations: An estimated 36,000 people die annually from influenza in the United States, but influenza vaccinations can effectively decrease both the incidence and severity of the flu. Vaccinations are 70-80% effective at preventing the flu entirely, and clinical symptoms are dramatically reduced among people who do become ill after a vaccination.

The Advisory Committee on Immunization Practices (ACIP) identifies high risk groups, (such as adults over 50, children under 5, those with chronic illnesses, pregnant women, and those living in nursing homes) as priority targets for influenza immunizations. However, significant morbidity and loss of school and work days is seen among older children and young adults, and many in the public health sector advocate actively targeting those in the population with the strongest immune responses in order to reduce circulating flu virus. Taking these facts into account, and in the interest of developing a consistent and simple message, the Prevention CIT recommends that the Alliance promote the message that everyone should get a flu shot every year.

Providers can take an active role in ensuring their patients receive influenza immunization each year by screening for and offering a flu shot to all patients every year, sending reminder messages, especially to all high risk groups, and display messages about the importance of flu shots in waiting and exam rooms. In addition, all healthcare workers should be strongly encouraged to get flu shots every year for their protection and, most importantly, for the protection of their patients.

Consumers should get a flu shot every year. Keeping a Personal Health Record (PHR) may help people remember when to get a flu shot and other regularly scheduled preventive services.

Flu shots are a cost-saving strategy for employers. All employers should make it easy for their employees to get annual flu shots by offering worksite flu clinics, vouchers for flu shots, and healthcare benefits that cover flu shots. Employers can also provide information on the importance of flu shots, and send reminders to all employees each flu season to get their shot.

Health plans can reduce the barrier of cost for flu shots by providing full coverage for flu shots, without co-pays or deductibles, obtained in provider's offices and offering reimbursable vouchers or contract with local pharmacies to provide flu shots in other settings. Health plans can also play a role in messaging, by informing members about the importance of flu shots each flu season.

Childhood immunizations: Washington State ranks 42nd in the nation for childhood immunization rates, and although the reasons for this poor performance are not entirely clear, it is certain that there is room for improvement in this highly effective method of protecting our children from preventable infectious diseases.

Washington State has two advantages when it comes to childhood immunizations that will hopefully improve our immunization rate over time. We are a universal distribution state, in that all ACIP-recommended immunizations are available free of charge through state or federal programs to children under the age of 19. And, the state has an immunization registry, called CHILD Profile, which houses children's immunization records online, and can be accessed by

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any provider in the state free of charge. The CIT recommendations around improving childhood immunization rates are built on improving the utilization and functioning of these two systems.

It is recommended that providers follow current ACIP guidelines to administer childhood immunizations in an appropriate and timely manner to all children; that they register for and use the CHILD Profile Immunization Registry; and that they administer state-supplied childhood vaccines, so that cost is not a barrier to children obtaining immunizations in their medical home. In addition providers should track children in their practices over time, and send out recall reminders when immunizations are due.

Parents are encouraged to inform themselves about the importance of childhood immunizations, and what shots are needed and when, and to keep an updated record of their children's immunizations. They should talk to their child's provider if they have concerns about the indications and safety of vaccines.

Health plans and employers should provide insurance coverage for all ACIP-recommended childhood vaccines and reduce or eliminate co-pays for childhood immunizations and well-child visits. Plans must also reimburse providers fairly for the purchase, administration, storage and disposal of childhood vaccines.

The state plays a crucial role in improving the rate of childhood immunizations, and the CIT recommends that policy-makers ensure that Washington State provides adequate funding for the consistent, reliable, and timely supply and distribution of all recommended childhood vaccines to providers; addresses the school entry vaccine exemption policy to determine if alternative methods can make the opt-out option less attractive to parents; provides vaccination programs in schools for parental convenience and access; and reimburses providers fairly for vaccine administration and well child exams under Medicaid and the Basic Health Plan.

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I. Introduction

A. Background

In December 2003, King County Executive Ron Sims convened a broad-based leadership group, *The King County Health Advisory Task Force*⁸, to develop an integrated strategy to address the systemic problems facing the health care system in the Puget Sound region. In particular, Executive Sims requested that the Task Force focus on three inter-related issues: the increase in health care costs for employees and employer purchasers, quality of care, and the importance of improving the health of the community.

The Task Force described the current system of health care as a “series of disconnected strategies all working concurrently but without a system steward, or neutral leader, to coordinate them and ensure that they are achieving the optimal mix of cost, quality, and health outcomes.”¹ As part of their recommendation to develop an integrated strategy, the Task Force advised creating a regional partnership to provide the necessary leadership to forge changes in the existing system.

The Puget Sound Health Alliance (the Alliance) was created to fill this role, with the vision to develop a state-of-the-art health care system that provides better care at a more affordable cost, resulting in healthier people in the Puget Sound Region. Its mission is to build a strong alliance among patients, doctors and other health care providers, hospitals, employers and health plans to promote health and improve quality and affordability by reducing overuse, under-use and misuse of health services.

The Alliance has developed an extensive membership of providers, employer/purchasers, hospitals, health care associations, health plans and individual consumers in a five-county region composed of King, Snohomish, Pierce, Thurston and Kitsap Counties.

The strategic approach of the Alliance addresses several key elements to improve health, quality, and cost outcomes, including: chronic disease management, scientific evidence to guide providers and patients in value-based medical decision-making, decreased practice variation, and quality measurement and reporting to support practice improvement and allow patients to seek appropriate care.

The Alliance Board of Directors originally selected four areas of focus for clinical improvement: heart disease, diabetes, back pain and depression. The Alliance formed a Clinical Improvement

⁸ King County Health Advisory Task Force Final Report, June 2004 [Accessed online 3_06_06 at: <ftp://extranet.metrokc.gov/exec/hatf/063004report.doc>]

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Team (CIT), a group of local experts representing various stakeholder groups, to look at each condition. The CITs report to the Quality Improvement Committee (QIC) and develop recommendations to the Board on standard guidelines, performance metrics and measurement approaches, and implementation and monitoring strategies for quality improvement in each area. Pharmacy and Prevention were later added as the fifth and sixth topics.

Prevention in particular was identified as an important area of healthcare delivery in which there is considerable room for improvement in the Puget Sound area.

The delivery of preventive health care services in Washington State is not ideal. According to statistics compiled by the Commonwealth Fund⁹, only 42% of adults over the age of 50 in Washington State have received recommended preventive care, such as screening for colorectal cancer, mammograms, Pap smears, and flu shots, at appropriate ages. This places Washington State 17th in nation for preventive care services, slightly above the median of 39.7% but below the best-performing state with a compliance rate of 50.1%. If Washington improved to the rate of the best-performing state, over 158,000 additional adults would receive recommended preventive care. In addition, Washington State ranks a dismal 42nd among states in childhood immunization rates, with only 77.8% of children ages 19-35 months up-to-date on five key vaccinations, compared with 93.5% in the best-performing state. If Washington State improved to the best level, over 18,000 more children would receive recommended doses of vaccines.

The Prevention CIT was convened in March 2007 and held monthly meetings through July 2007. The charter for the Prevention CIT, similar to those for other CITs, focused on:

- Identifying evidence-based clinical guidelines and standards to guide the improvement of health promotion and disease prevention;
- Recommending *nationally developed and vetted* performance metrics and measurement approaches for monitoring the quality of health promotion and disease prevention; and,
- Developing and prioritizing “change strategies” to increase health promotion and disease prevention at the point of care as well as strategies targeted at employers, health plans, and other stakeholders to increase a supportive community environment for health promotion and prevention.

B. Prevention CIT – Overview

1. Members of the CIT

The Prevention CIT consisted of local experts in the fields of disease prevention and health promotion representing the various stakeholder members of the Alliance, such as consumers and consumer advocacy groups, providers, public health, employers and other health care purchasers, and health plans. A list of members is found in Appendix 1.

⁹ The Commonwealth Fund State Scorecard. 2007.

http://www.commonwealthfund.org/statescorecard/statescorecard_show.htm?doc_id=495876

2. Scope and Focus of the Prevention CIT

Task of the Prevention CIT: The task of the Prevention CIT was to focus on improving the quality of disease prevention and health promotion practices in the Puget Sound region. This task encompassed a broad range of possible topics, including primary prevention (population risk reduction), secondary prevention (screening strategies), and tertiary prevention (disease management) for multiple conditions and diseases. Quality improvement in all three areas is necessary to achieve meaningful change. Some preventive strategies fall into the category of clinical preventive services, designed to be done at the point of care, while others are related to population health and may focus on population risk reduction, health promotion and wellness.

Framework: Given the wide range of topics that may be included under the umbrella of prevention, the first challenge of the Prevention CIT was to define the scope and focus of their work. The Alliance Quality Improvement Committee (QIC) provided guidance on this task by developing a framework for the work of the CIT.

Table 1: Framework for Prevention CIT Work

1. Select an evidence-based priority list of preventive or health promotion services (such as the Partnership for Prevention list) 2. Identify and define the roles and responsibilities of each stakeholder group in fostering disease prevention and health promotion in the community a. Patients/Consumers/Employees/Unions b. Providers c. Purchasers/Employers/Union Trusts d. Plans e. Policy-makers 3. Develop strategies for change for each stakeholder group 4. Recommend clinical performance measures for preventive services

Topics of Discussion: In selecting topics for discussion, the Prevention CIT identified areas for which there was the greatest need for improvement and/or that had the greatest potential impact on healthcare outcomes.

Table 2 below identifies key priorities for the Prevention CIT, and puts them into the context of the target disease burdens the CIT chose to focus on. The items in bold type in the table form the priorities for the Prevention CIT work. These include:

1. Physical activity and nutrition
2. Tobacco use

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3. Aspirin chemoprophylaxis
4. Colorectal cancer screening
5. Influenza immunizations
6. Childhood immunizations

Each topic was examined through “lenses” of importance and feasibility that were selected by the Prevention CIT. Building upon the QIC framework, with its emphasis on defining the roles of each stakeholder group, the Prevention CIT developed a list of criteria through which to review each topic for its feasibility and importance. These lenses included:

- Cost effectiveness
- Timeframe for implementation and outcomes (short term and long term)
- Contribution to lessening disease burden
- Delivery gaps and opportunity for improvement
- Alignment with stakeholder interest

In selecting topics, particular emphasis was placed on the degree of preventable disease burden and the cost-effectiveness of various clinical preventive services. The nationally-recognized **Partnership for Prevention’s**¹⁰ analysis and ranking of clinical preventive services was used as a guide in the selection process. Each of the clinical preventive services listed above are from the top three tiers of the Partnership for Prevention’s rankings, including aspirin chemoprophylaxis, childhood immunizations, and smoking cessation from tier 1, and colorectal cancer screening and influenza immunization from tier 3. Other topics highly ranked by the Partnership for Prevention (in Tiers 2 and 3), such as alcohol screening and intervention (tier 2), hypertension screening, or vision screening for older adults (tier 3) have been covered by previous CITs or will be deferred to future CITs.

Physical Activity and Nutrition do not appear on the Partnership for Prevention list, as these topics are broader and go beyond clinical preventive services. They involve recommendations for improvement not only at the point of healthcare delivery, but also for actions taken by the greater community. These topics were selected for their overall importance to the health of the people of the Puget Sound Region, and to broaden the focus of the CIT to include general health and wellness.

The list of selected topics was not intended to be inclusive of all preventive strategies or services, but rather to target areas that could be useful in developing models and strategies for preventive care in general. For example, colorectal cancer screening was chosen as an area of focus because it is currently one of the more underused cancer screening strategies, with the greatest room for improvement. However, recommendations around improving the rate of colorectal cancer screening can be applied to other cancer screening strategies as well, such as those for breast and cervical cancers. Likewise, recommendations around aspirin chemoprophylaxis also form a basis for assessment and discussion of overall cardiovascular risk.

¹⁰ Partnership for Prevention Ranking of Clinical Preventive Services. <http://www.prevent.org/content/view/43/71/>

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Future Topics: Several key preventive services were not discussed due to the need to keep the topic list manageable. Areas such as alcohol and substance abuse, oral health, and diabetes screening and prevention were examples of topics recommended by the CIT that were tabled at this time. The group made specific recommendations to convene future CITs to deal specifically with the topics of (1) alcohol and substance abuse, and (2) oral health and dental care.

Roles of Stakeholders: Each focus area was then discussed in terms of strategies for improvement that could be initiated by each of the five identified stakeholder groups. These stakeholders have been referred to as the “4-P’s” in other CITs: Patients, Providers, Purchasers, and Plans. The Prevention CIT added a 5th “P”, Policy-Makers, because disease prevention and health promotion is intricately linked to public policy decisions and public health endeavors.

Table 2: Population Risk Reduction Priorities for the Prevention CIT

Important criteria for topic selection:

- Cost effectiveness
- Timeframe for implementation and outcomes (short term and long term)
- Contribution to lessening disease burden
- Delivery gaps and opportunity for improvement
- Alignment with stakeholder interest

Risk reduction opportunities	Secondary & Tertiary Prevention	Target Diseases and Avoidable Outcomes
• Physical Activity and Nutrition • Smoking cessation	Lifestyle Diseases: • Hypertension • Diabetes Type II • Obesity • Hyperlipidemia	Heart disease and stroke
• Aspirin chemoprophylaxis	• Reduced clot formation	
• Screening participation	• Colon Cancer Screening	Cancer
• Smoking cessation		
• Flu shots • Childhood immunizations	• Influenza • Childhood diseases	Infectious disease morbidity and mortality

Boldface type indicates topics of discussion in the Prevention CIT

3. Resources

The Alliance is committed to using evidence-based guidelines to drive its work. The first step in the Prevention CIT framework was to select evidence-based recommendations for preventive services. The CIT chose to use the U.S. Preventive Services Task Force (USPSTF) recommendations on clinical preventive services as the basis for its work on this area. In addition, the team looked at the Partnership for Prevention work on cost-effectiveness and clinically preventable disease burden to help select priority items for evaluation. The Guide to Community Preventive Services was used as a resource for community-based priorities. Systems change approaches to prevention at the point of care are outlined in the Put Prevention into Practice, which is targeted to providers.

Table 3: Core Resources for the Prevention CIT

- U.S. Preventive Services Task Force Guide to Clinical Preventive Services http://www.ahcpr.gov/clinic/uspstfix.htm#Recommendations - Partnership for Prevention Rankings of Clinical Preventive Services http://www.prevent.org/content/view/49/99/ - The Guide to Community Preventive Services (The Community Guide) http://www.thecommunityguide.org/library/book/default.htm
Provider-focused Put Prevention Into Practice http://www.ahrq.gov/ppip/manual/
Employer-focused Partnership for Prevention. Why Invest? Recommendations for Improving Your Prevention Investment http://www.prevent.org/images/stories/PDF/whyinvest_web_small.pdf

The US Preventive Services Task Force

The US Preventive Services Task Force (USPSTF)'s Guide to Clinical Preventive Services was selected by the Prevention CIT as the primary evidence source for recommendations around the clinical preventive services discussed in this report. The USPSTF reviews the evidence around specific clinical preventive services, and makes recommendations based on that evidence, ranging from a service being strongly recommended to being recommended against. Sometimes there is insufficient evidence to recommend for or against a particular preventive service. The USPSTF evidence rating system is presented in the Table 4 below, and will be referred to throughout this report.

Table 4: USPSTF Rating System¹¹**Strength of 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.*

The Partnership for Prevention Ranking of Clinical Preventive Services

The Partnership for Prevention evaluated the USPSTF recommended clinical preventive services, and ranked these services in order of priority for implementation based on their degree of clinically preventable disease burden and the cost effectiveness of each service. The scoring system is described below:

“The health benefits of preventive services were defined as **clinically preventable burden (CPB)** or the disease, injury and premature death that would be prevented if the service were delivered to all people in the target population. CPB was measured in quality adjusted life years or **QALYs**, a measure of the effects of mortality and morbidity.”¹² “Clinically preventable burden was defined as the total QALYs that could be gained if the clinical preventive service were delivered at recommended intervals to a U.S. birth cohort of 4 million individuals over the years of life for which a service was

¹¹ US Preventive Services Task Force. <http://www.ahrq.gov/clinic/3rduspstf/ratings.htm>

¹² Partnership for Prevention Priorities for America’s Health: Capitalizing on Life-Saving, Cost-Effective Preventive Services <http://prevent.org/images/stories/health%20care%20delivery%20orgs%20guide.pdf>

recommended.”¹³

“The economic value of services was measured as **cost effectiveness (CE)**, which compares the net cost of a service to its health benefits. Net cost was defined as the cost of the service minus the cost avoided because of the service. CE provided a standard measure for comparing services’ return on investment.

A scoring system was used 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 the most cost effective received the highest CE score of 5. Scores for CPB and CE were then added to give each service a possible score between 10 and 2.

10 = highest impact, highest value among these evidence-based services

2 = lowest impact, least cost effective among these evidence-based preventive services.”¹⁴

Table 5: Partnership for Prevention Scoring Ranges

Score	CPB Range: QALYs saved, undiscounted	CE Range: \$/QALY saved, discounted
5	360,000	Cost-Saving
4	185,000 - 360,000	\$0 - 14,000
3	40,000 - 185,000	\$14,000 - 35,000
2	15,000 - 40,000	\$35,000 - 165,000
1	15,000	\$165,000 - 450,000
CPB - clinically preventable burden; CE - cost effectiveness; QALY - quality-adjusted life year		

From: <http://www.prevent.org/images/stories/clinicalprevention/article%201669p.pdf>

¹³ Maciosek MV, Coffield AB, Edwards NM, Goodman MJ, Flottemesch TJ, Solberg LI. Priorities among effective clinical preventive services: results of a systematic review and analysis. Am J Prev Med 2006; 31(1):52-61. <http://www.prevent.org/images/stories/clinicalprevention/article%201669p.pdf>

¹⁴ Partnership for Prevention Priorities for America’s Health: Capitalizing on Life-Saving, Cost-Effective Preventive Services <http://prevent.org/images/stories/health%20care%20delivery%20orgs%20guide.pdf>

II. Summary of CIT Recommendations

A. Recommendations at the Point of Care

What Providers Can Do To Improve Their Delivery of Preventive Care Services

General

1. Schedule a planned, regularly recurring **preventive care visit** for all patients. This may be annually or on a schedule that best meets individual patient needs. A regular preventive care visit should augment, rather than replace, preventive care services that are offered in an ongoing opportunistic manner at each visit.¹⁵
 - A recent study in Washington State showed that a planned annual preventive care visit can increase cancer screening rates. In the study, a preventive care visit was associated with a 3.5 times greater likelihood of completion of colorectal cancer screening, and a 1.23 times greater likelihood of screening mammography.¹⁶
 - The preventive care visit should focus on health maintenance activities such as those recommended by the USPSTF, including but not limited to:
 - Recommended cancer screening and early detection services
 - Immunization updates
 - Counseling on healthy lifestyle choices
 - Medication review
 - Screening for alcohol, tobacco and substance abuse

¹⁵ Eyre et al. Preventing Cancer, Cardiovascular Disease, and Diabetes: A Common Agenda for the American Cancer Society, the American Diabetes Association and the American Heart Association. 2004;109;3244-3255. Available at: <http://circ.ahajournals.org/cgi/content/full/109/25/3244>.

This report emphasizes the importance and limitations of both opportunistic encounter-based preventive care and the annual preventive care visit. The authors recognize that “although the importance of prevention and early detection generally is understood, inadequacies in the structure and organization of healthcare delivery, along with competing societal influences, detract from the adequate delivery of and reimbursement for preventive services. As a result, the delivery of preventive care emphasizes the use of opportunities for prevention during acute and chronic illness encounters, ie, opportunistic preventive care. The model of opportunistic prevention has emerged as a replacement for the annual physical examination, which several evidence-based reviews determined had little empirical evidence of value. Although the opportunistic model acknowledges the important role of the primary care provider as the most influential factor in preventive care, the need to treat illness(es) in an encounter and simultaneously identify and prioritize opportunities for prevention counseling and early detection results in disappointing and erratic opportunities for adherence with recommended guidelines.” The authors go on to suggest that periodic preventive health visits are an important adjunct to opportunistic preventive care. “The ambitious health-promotion and disease-prevention goals set by our organizations simply cannot be met unless we acknowledge the critically important and influential role of an individual’s primary care provider and provide the incentive, guidance, and opperiodic preventive health examinations.”

¹⁶ Fenton et al, How important is the preventive health evaluation? Arch Int Med 2007, 167: 580-85. Abstract available at: <http://archinte.ama-assn.org/cgi/content/abstract/167/6/580>

- Screening for depression
- Development and review of patient self-management goals for wellness and chronic diseases
- A physical exam that is targeted to the patient's needs, rather than a comprehensive exam.

Physical Activity and Nutrition

1. Screen all patients for obesity using the Body Mass Index (BMI), and offer intensive counseling or referral on lifestyle changes for those patients who are obese or who have lifestyle-related chronic diseases.
2. Incorporate counseling or referral on lifestyle changes into disease management strategies for all patients with lifestyle-related chronic diseases such as diabetes, heart disease, stroke, hypertension and hyperlipidemia.
3. Act as a catalyst for change in improving patient lifestyle behaviors.
4. Provide simple and consistent messaging on healthy diet and exercise recommendations.

Tobacco Use

1. Screen all adults to determine if they smoke or use other tobacco products, provide brief counseling, and offer patients nicotine replacement therapies, prescription medications, and referrals to help them quit.
2. Think of smoking as a chronic disease, and discuss smoking cessation and assess readiness to change at every visit with smokers.
3. Plan visits devoted to smoking cessation counseling.

Use of Aspirin to Prevent Heart Disease and Stroke

1. Determine cardiovascular risk in adult patients using a standardized risk assessment tool.
2. Discuss the use of aspirin to prevent heart disease and stroke in men over age 40, post-menopausal women, and anyone at increased risk for cardiovascular disease in the context of shared decision-making on the risks and benefits of aspirin for each individual.

Colorectal Cancer Screening

1. Offer routine colorectal cancer screening to all adults over the age of 50.¹⁷
2. The selection of colorectal screening strategy should be made by shared decision-making between provider and patient, taking into considerations patient overall health and co-morbidities, risks, cost, access, local availability of services, likelihood of adherence to selected strategies, and patient preference. Lack of ability or desire for one screening strategy should prompt selection of an alternative strategy that is more acceptable to the patient.
3. Track patients over time for compliance with selected colorectal cancer screening strategy, and proactively identify and remind patients who are due for screening.
4. Mail fecal occult blood test (FOBT) kits to patients over age 50.

¹⁷ Colon cancer screening should also be offered to younger adults at high risk for colon cancer based on family or individual medical history, but these recommendations are separate from the UPSTF recommendations for screening in the general population. In general, colonoscopy is the screening test of choice in patients at high risk of colon cancer.

Influenza Immunizations

1. Screen for and offer a flu shot to all patients every year.
2. Send reminder messages to all high risk groups.
3. Display messages about the importance of flu shots in waiting and exam rooms.
4. All healthcare workers should be strongly encouraged to get flu shots every year for their protection and, most importantly, for the protection of their patients.

Childhood Immunizations

1. Follow current ACIP guidelines to administer childhood immunizations in an appropriate and timely manner to all children.
2. Register for and use the CHILD Profile Immunization Registry available in Washington State.
3. Administer state-supplied childhood vaccines, so that cost is not a barrier to children obtaining immunizations in their medical home.
4. Track children over time, and send out recalls and reminders for shots due.

B. Creating a Supportive Community Environment for Change*Consumer Tips for Preventing Disease***Physical Activity and Nutrition**

1. Follow a healthy diet
2. Exercise regularly
3. Know your BMI and whether you are underweight, normal weight, overweight, or obese. Share with your BMI information with your healthcare provider.
4. Complete a health risk appraisal (HRA) if offered by health plan, provider, or employer, and follow-up on the results and recommendations
5. Set attainable goals to improve lifestyle choices and develop an action plan that is doable- start with small steps.

Tobacco Use

1. If you smoke or use tobacco products, quit.
2. Ask your health care provider for information on how to quit.
3. Know your smoking cessation benefits offered through your health plan.

Aspirin to Prevent Heart Disease and Stroke

1. Know your risk of heart disease- talk with your doctor about how to calculate your ten-year risk.
2. Talk to your doctor about whether aspirin is right for you to help prevent heart disease and stroke.

Colorectal Cancer Screening

1. If you are over age 50, or have a family history of colon cancer, discuss colorectal cancer screening with your doctor.
2. Follow-through with any agreed upon colorectal cancer screening strategy.

Influenza Immunizations

1. Get a flu shot every year.
2. Start a personal health record and keep track of immunizations and other health-related items.

Childhood Immunizations (Advice for Parents)

1. Inform yourself and talk to your child's doctor about the importance of childhood immunizations, and what shots are needed and when.
2. Keep an updated record of your child's immunizations.

What Employers Can Do To Maintain a Healthy Workforce**General**

1. Provide confidential Health Risk Appraisals (HRAs) and follow-up to employees. HRAs should include calculation of BMI, biometrics such as blood pressure and cholesterol, and a cardiovascular risk assessment

Physical Activity and Nutrition

1. Offer wellness programs to employees at the work site
2. Be innovative but evaluate the outcomes of programs offered to improve our knowledge on what works
3. Offer employee incentives for completion of health risk assessments, participation in wellness programs and/or for positive results and healthy behaviors
4. Provide healthy food choices and exercise opportunities at the workplace

Tobacco Use

1. Understand the cost of smoking to employer. Smoking cessation programs offered through the workplace save employers money.
2. Comply with the Clean Indoor Air Act by banning smoking in the workplace. Consider banning smoking outdoors as well.
3. Provide comprehensive smoking cessation benefits to employees

Aspirin to Prevent Heart Disease and Stroke

1. Embed a 10-year cardiovascular risk calculation in Health Risk Assessments (HRAs) given to employees.

Colorectal Cancer Screening

1. Contract with health plans to cover colorectal cancer for employees.

2. Provide information to employees (e.g. in pay stubs, mailings, worksite posters, newsletters) on the importance of colorectal cancer screening.

Influenza Immunizations

1. Make it easy for all employees to get annual flu shots. Healthier parents and healthier children will improve productivity in the workplace.
2. Offer worksite flu clinics, vouchers for flu shots, and provide healthcare benefits that cover flu shots.
3. Provide information on the importance of flu shots, and send reminders to all employees each flu season to get their shot.

Childhood Immunizations

1. Contract with health plans that cover all childhood immunizations recommended by ACIP.

How Health Plans Can Help Keep Their Members Healthy

General

1. Provide and reimburse for a regularly scheduled **Preventive Care Visit** for all adult members, at low or no out-of-pocket costs. Such visits may include a review of a health risk assessment, review of health risks, discussion of indicated clinical preventive services, discussion of smoking cessation, review of immunizations, review of current medications, and advice on physical activity and nutrition. A targeted physical exam may be indicated but the focus should be on health maintenance strategies rather than a comprehensive physical exam.

Physical Activity and Nutrition

1. Offer health risk appraisals to members, and provide follow-up.
2. Offer member incentives for completion of health risk assessments, participation in wellness programs and/or for positive results and healthy behaviors.
3. Reimburse providers and allied health professionals for wellness care and health promotion, including diet and exercise counseling and coaching.

Tobacco Use

1. Provide comprehensive smoking cessation benefits (visits, counseling, telephone support, nicotine replacement therapy and prescription medications) to all members.
2. Provide members with information about their smoking cessation benefits.
3. Reimburse providers for smoking cessation visits.
4. Provide a telephone quit line free of charge to all members.

Aspirin to Prevent Heart Disease and Stroke

1. Embed a ten-year cardiovascular risk calculation in Health Risk Assessments (HRAs) given to members.

Colorectal Cancer Screening

1. Cover all USPSTF-recommended colorectal cancer screening strategies with low or no co-pays or deductibles.
2. Educate members about the importance of colorectal cancer screening, and about their colorectal cancer screening benefits.
3. Provide feedback to patients and providers about compliance with a colon cancer screening strategy based on claims data.

Influenza Immunizations

1. Provide full coverage for flu shots, without co-pays or deductibles, obtained in provider's offices.
2. Offer reimbursable vouchers or contract with local pharmacies to provide flu shots
3. Inform members about the importance of flu shots each flu season.

Childhood Immunizations

1. Provide insurance coverage for all ACIP-recommended childhood vaccines and reduce or eliminate co-pays for childhood immunizations and well-child visits.
2. Reimburse providers fairly for the purchase, administration and storage of childhood vaccines.

What Policy-Makers Can Do To Keep the Residents of Washington State Healthy**Tobacco Use**

1. Increase the product excise tax on tobacco products
2. Make nicotine replacement therapy available for free through the Washington State tobacco quit line.

Childhood Immunizations

5. Provide adequate funding for the consistent, reliable, and timely supply and distribution of all recommended childhood vaccines to providers.
6. Address the school entry vaccine exemption policy to determine if alternative methods can make the opt-out option less attractive to parents.
7. Provide vaccination programs in schools for parental convenience and access.
8. Reimburse providers fairly for vaccine administration and well child exams under Medicaid and the Basic Health Plan.

III. Clinical Performance Measures

A. Alliance-Selected Clinical Performance Measures

Prior to the convening of the Prevention CIT, the Puget Sound Health Alliance Board of Directors made the decision to use the Institute of Medicine Starter Set of Clinical Performance Measures in the development of performance metrics for their first round of public reporting. In addition, the Board and Alliance staff recognized that only claims-based measurements would be possible to collect at this time, while recognizing the value of chart-based metrics for future measurement. The Alliance identified claims-based metrics for breast cancer screening, cervical cancer screening, colorectal cancer screening and Chlamydia screening from the IOM Starter Set. The Prevention CIT members had the opportunity to review and comment upon the selected measures, and their comments were relayed to the Health Information Team for future consideration. The prevention-related clinical performance measures selected by the Alliance are as follows:

Measure	Definition
Colorectal Cancer Screening	The percentage of adults 50–80 years of age who had appropriate screening for colorectal cancer (CRC). One or more of the following: Fecal occult blood test (FOBT) during the measurement year; Flexible sigmoidoscopy during the measurement year or the four years prior to the measurement year; Double contrast barium enema (DCBE) during the measurement year or the four years prior to the measurement year; Colonoscopy during the measurement year or the nine years prior to the measurement year. The hybrid method is recommended to calculate this measure.
Cervical Cancer Screening	The percentage of women 21–64 years of age who received one or more Pap tests to screen for cervical cancer. One or more Pap tests during the measurement year or the two years prior to the measurement year.
Breast Cancer Screening	The percentage of women 40–69 years of age who had a mammogram to screen for breast cancer during the measurement year or the year prior to the measurement year.
Chlamydia Screening	The percentage of women 16–25 years of age who were identified as sexually active and who had at least one test for chlamydia during the measurement year.

B. Additional CIT-Recommended Clinical Performance Measures

The Prevention CIT also made the following recommendations for clinical performance measures for topics not currently measurable by claims-based data.

1. Tobacco Use

Tobacco screening and brief intervention is an important recommended clinical preventive service, but it is not possible to ascertain from claims data that patients were screened for tobacco use and offered brief counseling. The Puget Sound Health Alliance is exploring working with partner organizations to come to agreement on tools and methodology for patient experience measurement in providers' offices in the Puget Sound Region. The survey that will likely be recommended is the Clinician/Group Consumer Assessment of Health Plans and Systems (CG-CAHPS) survey. The Prevention CIT recommends adding a question on tobacco screening and intervention to such a survey, using wording from the original Consumer Assessment of Health Plans and Systems (CAHPS) health plan survey.¹⁸

2. Aspirin Chemoprophylaxis

Currently it is not possible to use administrative data to determine whether or not a provider calculated cardiovascular risk and discussed aspirin chemoprophylaxis with a patient at risk for heart disease or stroke. The Prevention CIT recommends that the Alliance consider such measures when it becomes feasible to collect chart-based data.

3. Influenza Immunizations

The Prevention CIT acknowledged that it is impossible to get reliable information on flu shot administration from provider claims data, since many flu shots are administered in locations other than providers' offices. Some organizations (e.g. National Committee for Quality Assurance, the Institute of Medicine, and the Ambulatory Quality Alliance) recommend chart-based measures on the percent of patients aged 50-64 and ≥ 65 who received a flu shot in a given year. However, collection of chart-based data places an undue burden on providers, many of whom do not have electronic medical records or the ability to electronically generate reports; therefore, the use of chart-based data is not feasible for the Alliance at this time.

As with tobacco use, the Prevention CIT recommends adding a question on flu shot administration to the CG-CAHPS survey, using wording from the original Consumer Assessment of Health Plans and Systems (CAHPS) health plan survey.¹⁹

¹⁸ CAHPS Survey available at:

https://www.cahps.ahrq.gov/content/products/HP3/PROD_HP3_ExecSummary.asp?p=1021&s=211

¹⁹ CAHPS Survey available at:

https://www.cahps.ahrq.gov/content/products/HP3/PROD_HP3_ExecSummary.asp?p=1021&s=211

IV. Detailed Recommendations by Topic

A. Physical Activity and Nutrition

Prevention CIT Recommendations:

- Clinicians should screen all patients for obesity using the Body Mass Index (BMI) and offer intensive counseling or referral on lifestyle changes for those patients who are obese.
- Clinicians should incorporate counseling or referral on lifestyle changes into disease management strategies for all patients with lifestyle-related chronic diseases such as diabetes, heart disease, stroke, hypertension and hyperlipidemia.
- Clinicians should act as catalyst for change, while recognizing that much of the work on improving lifestyle behaviors will come from sources in addition to the clinical setting, such as workplace wellness programs, community-based programs, individual lifestyle coaches, dietitians and exercise specialists.

1. Background

Lifestyle factors play an important role in health and development of chronic diseases and poor lifestyle choices cause significant preventable morbidity and mortality among Americans. In their landmark 1993 paper, *Actual Causes of Death in the United States*,²⁰ McGinnis and Foege found that poor diet and lack of physical activity was second only to tobacco as the leading cause of death in the United States, accounting for 300,000 deaths per year, or 14% of total deaths. A study of male health professionals estimated that 62% of cardiovascular events in men could have been prevented if they exercised regularly, ate a healthy diet, drank alcohol only in moderation, maintained a healthy weight, and did not smoke.²¹

Maintaining a healthy lifestyle is a key aspect of preventive health care. One of the consequences of poor nutrition and a sedentary lifestyle is obesity, and the proportion of the American population that is overweight or obese is growing. Current figures suggest that almost two-thirds of adults in this country are overweight, with half of this group (or one-third of the population) qualifying as obese.²² The figures are equally alarming for children, with an estimated 16% of children ages 6 to 19 overweight and an additional 31% of children at risk for

²⁰ McGinnis and Foege. Actual Causes of Death in the United States. JAMA, 1993. 270(18) 2207-2212

²¹ Stephanie E. Chiuve, Marjorie L. McCullough, Frank M. Sacks and Eric B. Rimm. Antihypertensive Medications Among Men: Benefits Among Users and Nonusers of Lipid-Lowering and Healthy Lifestyle Factors in the Primary Prevention of Coronary Heart Disease. CIRCULATION 2006;114:160-167; originally published online Jul 3, 2006; *Circulation* <http://circ.ahajournals.org/cgi/content/full/114/2/160>

²² Chang VW, Lauderdale DS. Income disparities in body mass index and obesity in the United States, 1971-2002. Arch Intern Med 2005;165:2122-2128. <http://archinte.ama-assn.org/cgi/content/abstract/165/18/2122> and Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. JAMA 2004;291:2847-2850. <http://jama.ama-assn.org/cgi/content/full/291/23/2847?ijkey=35837507d64abd84c02b6e6952d6423ed8e35339>

overweight.²³ Overweight and obesity are related to many chronic health problems, such as diabetes, hypertension, heart disease, and arthritis. Even small amounts of weight loss, such as 5-10% of total body weight, can lead to significant improvements in health outcomes.²⁴

The causes of obesity are complex and include genetic and environmental factors. A recent study on the Framingham population data indicated that obesity may be related to social networks, with its finding that the likelihood of being obese increases if a close friend or family member is obese.²⁵ This suggests that social norms need to be considered among environmental influences on an individual's health status. Meaningful change in population lifestyle behaviors will require coordination and cooperation from many sectors of society to promote a simple and consistent message and to change social and cultural norms to promote healthy lifestyle choices.

Nutrition: According to the 2001 U.S. Surgeon General's Report: *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*²⁶, unhealthy dietary habits and sedentary behavior together account for approximately 300,000 deaths every year. According to the report, "the U.S. Department of Agriculture's 1994–1996 Continuing Survey of Food Intakes by Individuals showed that very few Americans met the majority of the Food Guide Pyramid recommendations. Only three percent of all individuals met four of the five recommendations for the intake of grains, fruits, vegetables, dairy products, and meat." The U.S. Department of Health and Human Services *Healthy People 2010: Understanding and Improving Health*²⁷ report confirmed that more than 80 percent of Americans do not eat the recommended number of daily servings of fruit, vegetables, and grain products, and eat more than the recommended proportions of daily calories from saturated fat and total fat.

Physical Activity: According to the Surgeon General's report, physical *inactivity* is an important contributing factor to the increasing prevalence of overweight and obesity in America. Our society has become very sedentary. The report highlighted that "many adult Americans have not been meeting Federal physical activity recommendations to accumulate at least 30 minutes of moderate physical activity most days of the week." In 1997, less than one-third of adults engaged in the recommended amount of physical activity, and 40 percent of adults engaged in no leisure-time physical activity." By 2005, the number of adult Americans who did not participate in any leisure time physical activity had decreased to 25%, but many adults were still not getting the recommended amount of exercise.²⁸

As discussed below, there is an important but limited role that providers can play at the point of

²³ Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. JAMA 2004;291:2847-2850. <http://jama.ama-assn.org/cgi/content/full/291/23/2847?ijkey=35837507d64abd84c02b6e6952d6423ed8e35339>

²⁴ America on the Move:

http://aom.americaonthemove.org/site/c.krLXJ3PJKuG/b.1776811/k.E4B4/Healthcare_Provider.htm

²⁵ Christakis and Fowler. The spread of obesity in a large social network over 32 years. NEJM 2007. 357: 370-379 <http://content.nejm.org/cgi/content/full/357/4/370>

²⁶ 2001 U.S. Surgeon General's Report: *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. http://www.surgeongeneral.gov/topics/obesity/calltoaction/1_0.htm

²⁷ U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office; 2000. Available online at: <http://www.health.gov/healthypeople/>.

²⁸ Behavioral Risk Factor Surveillance System, Surveillance for Certain Health Behaviors Among Selected Local Areas-United States, Behavioral Risk Factor Surveillance System, 2002, *Morbidity and Mortality Weekly Report (MMWR)*, 53, No SS-05. <http://www.cdc.gov/brfss/>.

care. Unlike recommendations in other sections of this report, improving physical activity and exercise is less a clinical preventive service as it is an opportunity for many sectors of the community, including individuals, employers, community organizations and government, to come together to affect change. Since the purpose of the Prevention CIT is to propose changes for improvement in the delivery of healthcare services, some of this needed effort is beyond the scope of its work. Nonetheless, recommendations made here can serve as one component of improving the health of residents of the Puget Sound region.

2. Recommended Guidelines

The Prevention CIT endorsed national guidelines on healthy eating and physical activity as recommended by the federal government. These include the U.S. Department of Agriculture's (USDA's) new Food Pyramid²⁹ and The Dietary Guidelines for Americans 2005.³⁰ The Dietary Guidelines for Americans report also contains recommendations for physical activity.^{31, 32} The Food Pyramid and recommendations from The Dietary Guidelines for Americans are found in Appendices 2 and 3, respectively.

3. U.S. Preventive Services Task Force and Partnership for Prevention

The United States Preventive Services Task Force (USPSTF) makes recommendations for clinical preventive services delivered within the healthcare setting. In previous sections of this report, the USPSTF recommendations formed the basis of the Prevention CIT's work on the selected topics. Since the aim of the CIT is to develop recommendations for improving the quality of healthcare delivery, this section will also focus on clinical preventive services, although it is important to note that for topics dealing with lifestyle factors, such as physical activity and nutrition, much of the improvements will come from sources beyond the healthcare setting. In addition, there is a need for continued research into what strategies work to improve lifestyle behaviors, in both clinical and the community settings. For example, the USPSTF finds insufficient evidence to recommend routine behavioral counseling on diet and exercise in the general patient population in a primary care setting, although it does recommend routine screening for obesity, with intensive therapy for patients who are obese (see USPSTF recommendations below). Likewise, in its list of the top 25 most cost-effective clinical preventive services, the **Partnership for Prevention** highlights screening and counseling for obesity (number 17 on their ranking list), and dietary counseling for patients with hyperlipidemia or other risk factors for cardiovascular disease or other diet-related chronic diseases (number 24 on the list).³³

The CIT referred to the U.S. Preventive Services Task Force (USPSTF) recommendations below

²⁹ USDA Food Pyramid 2005 www.mypyramid.gov

³⁰ The Department of Health and Human Services(DHHS)/USDA: The Dietary Guidelines for Americans 2005 www.health.gov/dietaryguidelines/dga2005/recommendations.htm and www.healthierus.gov/dietaryguidelines

³¹ The Department of Health and Human Services/USDA: The Dietary Guidelines for Americans 2005; Chapter 4: Physical Activity <http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter4.htm>

³² Note: Physical Activity for Americans Guidelines from DHHS will be released in 2008. <http://www.hhs.gov/news/press/2006pres/20061026.html>

³³ Partnership for Prevention Diet Counseling. <http://www.prevent.org/content/view/85/80/>

to recommend actions at the point of healthcare delivery, emphasizing the role of providers in identifying patients at risk for obesity or lifestyle-related chronic diseases, and providing or arranging for intensive counseling for those patients. There is less emphasis on providing routine nutrition and physical activity guidance in the clinical setting, but the CIT points out the community-wide effort that will be needed to see improvements in these factors among residents of the Puget Sound region.

U.S. Preventive Services Task Force Recommendations

1. Counseling for a Healthy Diet³⁴ (January 2003)

The U.S. Preventive Services Task Force (USPSTF) concludes that the evidence is insufficient to recommend for or against routine behavioral counseling to promote a healthy diet in unselected patients in primary care settings.

- Rating: I recommendation.

Rationale: The USPSTF found fair evidence that brief, low- to medium-intensity behavioral dietary counseling in the primary care setting can produce small-to-medium changes in average daily intake of core components of an overall healthy diet (especially saturated fat and fruit and vegetables) in unselected patients. The strength of this evidence, however, is limited by reliance on self-reported diet outcomes, limited use of measures corroborating reported changes in diet, limited follow-up data beyond 6 to 12 months, and enrollment of study participants who may not be fully representative of primary care patients. In addition, there is limited evidence to assess possible harms.

As a result, the USPSTF concluded that there is insufficient evidence to determine the significance and magnitude of the benefit of routine counseling to promote a healthy diet in adults. Although community-based studies have evaluated measures to reduce dietary fat intake in children, no controlled trials of routine behavioral dietary counseling for children or adolescents in the primary care setting were identified.

The USPSTF recommends intensive behavioral dietary counseling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease. Intensive counseling can be delivered by primary care clinicians or by referral to other specialists, such as nutritionists or dietitians.

- Rating: B recommendation.

Rationale: The USPSTF found good evidence that medium- to high-intensity counseling interventions can produce medium-to-large changes in average daily intake of core components of a healthy diet (including saturated fat, fiber, fruit, and vegetables) among adult patients at increased risk for diet-related chronic disease. Intensive counseling interventions that have been examined in controlled trials among at-risk adult patients have combined nutrition education with behavioral dietary counseling provided by a nutritionist, dietitian, or specially trained primary care clinician (e.g., physician, nurse, or nurse practitioner).

The USPSTF concluded that such counseling is likely to improve important health outcomes and that benefits outweigh potential harms. No controlled trials of intensive counseling in

³⁴ <http://www.ahrq.gov/clinic/uspstf/uspdiet.htm>

children or adolescents that measured diet were identified.

2. Screening and Interventions to Prevent Obesity in Adults³⁵ (December 2003)

The USPSTF recommends that clinicians screen all adult patients for obesity and offer intensive counseling and behavioral interventions to promote sustained weight loss for obese adults.

- Rating: B Recommendation.

Rationale: The USPSTF found good evidence that body mass index (BMI), calculated as weight in kilograms divided by height in meters squared, is reliable and valid for identifying adults at increased risk for mortality and morbidity due to overweight and obesity. There is fair to good evidence that high-intensity counseling—about diet, exercise, or both—together with behavioral interventions aimed at skill development, motivation, and support strategies produces modest, sustained weight loss (typically 3-5 kg for 1 year or more) in adults who are obese (as defined by BMI ≥ 30 kg/m²). Although the USPSTF did not find direct evidence that behavioral interventions lower mortality or morbidity from obesity, the USPSTF concluded that changes in intermediate outcomes, such as improved glucose metabolism, lipid levels, and blood pressure, from modest weight loss provide indirect evidence of health benefits. No evidence was found that addressed the harms of counseling and behavioral interventions. The USPSTF concluded that the benefits of screening and behavioral interventions outweigh potential harms.

The USPSTF concludes that the evidence is insufficient to recommend for or against the use of moderate- or low-intensity counseling together with behavioral interventions to promote sustained weight loss in obese adults.

- Rating: I Recommendation.

Rationale: The USPSTF found limited evidence to determine whether moderate- or low-intensity counseling with behavioral interventions produces sustained weight loss in obese (as defined by BMI ≥ 30 kg/m²) adults. The relevant studies were of fair to good quality but showed mixed results. In addition, studies were limited by small sample sizes, high drop-out rates, potential for selection bias, and reporting the average weight change instead of the frequency of response to the intervention. As a result, the USPSTF could not determine the balance of benefits and potential harms of these types of interventions.

The USPSTF concludes that the evidence is insufficient to recommend for or against the use of counseling of any intensity and behavioral interventions to promote sustained weight loss in overweight adults.

- Rating: I Recommendation.

Rationale: The USPSTF found limited data that addressed the efficacy of counseling-based interventions in overweight adults (as defined by BMI from 25-29.9 kg/m²). As a result, the USPSTF could not determine the balance of benefits and potential harms of counseling to

³⁵ USPSTF Screening and Interventions to Prevent Obesity in Adults.

<http://www.ahrq.gov/clinic/uspstf/uspsobes.htm> and <http://www.ahrq.gov/clinic/3rduspstf/obesity/obessum.htm>

promote sustained weight loss in overweight adults.

3. Physical Activity Counseling³⁶ (August 2002)

The USPSTF concludes that the evidence is insufficient to recommend for or against behavioral counseling in primary care settings to promote physical activity.

- Rating: I recommendation.

Rationale: The USPSTF found insufficient evidence to determine whether counseling patients in primary care settings to promote physical activity leads to sustained increases in physical activity among adult patients. Controlled trials of physical activity counseling in adult primary care patients were of variable quality and had mixed results. There were no completed trials with children or adolescents that compared counseling with usual care practices. Data on the feasibility and potential harms of routine physical activity counseling in primary care settings are limited. As a result, the USPSTF could not determine the balance of potential benefits and harms of routine counseling to promote physical activity in adults. The USPSTF reviewed only the literature on the effectiveness of primary care counseling to promote physical activity. It did not review the evidence for the effectiveness of physical activity to reduce chronic disease morbidity and mortality, which has been well documented in other recent reviews, or review evidence of counseling in other settings.

4. Strategies to Improve Nutrition and Encourage Physical Activity among Residents of the Puget Sound Region

a. Strategies for Providers

i. Screen for obesity with Body Mass Index (BMI)

- For adults, BMI is a good surrogate for determining health risk due to overweight and obesity. It is preferable to the older height and weight charts, or assessment of “ideal body weight.”³⁷ BMI also correlates well with central obesity, which has been shown to be associated with increased cardiovascular risk.³⁸

BMI*	Interpretation
<18.5	Underweight
18.5 – 24.9	Normal weight
25-29.9	Overweight
30 – 34.9	Mild Obesity
35 – 39.9	Moderate Obesity
≥ 40	Severe/Extreme Obesity

³⁶ USPSTF Recommendations on Physical Activity Counseling in Primary Care
<http://www.ahrq.gov/clinic/uspstf/uspstphys.htm>

³⁷ The American Medical Association’s Roadmap to Clinical Practice Series: *Assessment and Management of Obesity: A Primer for Physicians*, Booklet 2, Evaluating your patients for overweight or obesity. <http://www.ama-assn.org/ama/pub/upload/mm/433/booklet2.pdf>; USPSTF <http://www.ahrq.gov/clinic/uspstf/uspstfobes.htm>

³⁸ Vasquez et al. Comparison of Body Mass Index, Waist Circumference, and Waist/Hip Ratio in Predicting Incident Diabetes: A Meta-Analysis. *Epidemiologic Reviews* Advance Access published May 10, 2007

* Note: BMI does not distinguish between fat and lean body mass. It is therefore possible for a muscular but lean person with very low body fat to be classified as being overweight or obese using the BMI scale.

- Include BMI as a vital sign at each visit, calculated and recorded by medical assistants as the patient is being roomed.
 - For children ages 2-18, assess BMI and chart on standardized growth charts at each well-child visit. According to the new Expert Committee on the Assessment, Prevention and Treatment of Child and Adolescent Overweight and Obesity Recommendations, children with a BMI > 95 percentile for age are considered obese, and those with a BMI in the 85-95 percentile range are considered overweight.³⁹
 - Encourage adult patients to calculate their own BMI, using a tool such as:
 - My Personal Profile
www.health.gov/dietaryguidelines/dga2005/healthieryou/htmlpersonal_profile.html
 - BMI calculator <http://www.nhlbisupport.com/bmi/bmicalc.htm>
 - Embed BMI calculations in Health Risk Assessments (HRAs) provided by health plans, employers, or provider groups, and summarize the results clearly for providers.
 - For practices with electronic health records (EHRs), feed automated health risk assessments with BMI calculations directly into patients' EHRs.
- ii. Identify patients with or at risk for obesity and chronic disease, and provide targeted messages on lifestyle changes for these patients.
- The USPSTF task force recommends routine screening and intensive intervention for obesity. The USPSTF also recommends dietary counseling for patients with hyperlipidemia and other risk factors for cardiovascular and diet-related chronic disease.
 - Include diet and physical activity counseling as important components of disease management activities for diseases such as cardiovascular disease, diabetes, and hypertension.
 - Establish a network of referral resources in the community, and have information readily available to share with patients.
 - Providers with insufficient time, resources or training to provide intensive diet and physical activity counseling for patients with obesity or lifestyle-related diseases in their own practices need to know about referral resources within the community. These resources may include registered dietitians, lifestyle or wellness coaches, naturopathic physicians, and others.
- iii. Act as a catalyst for change around improving lifestyle behaviors.

³⁹ Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity: Appendix. June 6, 2007 http://www.ama-assn.org/ama1/pub/upload/mm/433/ped_obesity_recs.pdf

- Currently, there is little evidence as to the effectiveness of various strategies for the management of obesity in the clinical setting.⁴⁰ However, providers can provide a powerful message for change in patients who are overweight or obese if that message is consistent and repetitive. In addition, they can provide consistent messaging to all patients regarding healthy lifestyle choices.
- The Prevention CIT recommends using a standardized brief method of assessment of risk and readiness to change when approaching lifestyle behavior discussions with patients.
 - As an example, include assessments of physical activity with standard questions about the frequency, duration, and intensity of physical activity, as well as medical factors that dictate the type of physical activity or regimen to prevent harms or complications. Physical activity assessment can be individualized further to address motives, barriers, and supports for increasing activity levels. The efficacy of physical activity interventions appears to be enhanced when varied according to factors such as the patient's readiness to change, physical activity preferences, or past experiences.⁴¹
- The Prevention CIT recommends an approach such as the **Five A's**⁴² for initiating lifestyle behavior counseling with patients (see also the section on Tobacco Cessation for more details).
 - 5-A's Approach
 - **Ask** about risk factors.
 - **Advise** on healthy lifestyle prescriptions.
 - **Assess** level of risk and readiness to change.
 - **Assist** with support for self-management and pharmacotherapy.
 - **Arrange** follow-up and/or referrals
 - The Australian government has published a detailed guide on counseling on lifestyle changes including smoking, nutrition, alcohol and physical activity, called the SNAP Guide, that utilizes the 5-A's approach, and it is a useful resource for providers.
[http://www.racgp.org.au/Content/NavigationMenu/ClinicalResources/RACGP Guidelines/SNAPpopulationhealthguidetobehaviouralriskfactorsingeneralpractice](http://www.racgp.org.au/Content/NavigationMenu/ClinicalResources/RACGP%20Guidelines/SNAPpopulationhealthguidetobehaviouralriskfactorsingeneralpractice)

iv. Use simple and consistent messages on healthy lifestyles for patients.

- Start slowly. Research shows that 90% of adults can prevent weight gain by increasing daily physical activity by just 2,000 steps and eating 100 fewer calories

⁴⁰ Cochrane Review 2007. Improving health professionals' management and the organisation of care for overweight and obese people <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000259/frame.html>

⁴¹ USPSTF: Evaluating Primary Care Behavioral Counseling Interventions: An Evidence-based Approach <http://www.ahrq.gov/clinic/3rduspstf/behavior/behsum2.htm#RationaleFiveA>

⁴² More information on the 5 A's approach available at: http://www.medscape.com/viewarticle/457094_5 and <http://www.surgeongeneral.gov/tobacco/5steps.htm>

Note: The USPSTF lists a variation on this approach with the 5 A's identified as: Assess, Advise, Agree, Assess and Arrange. <http://www.ahrq.gov/clinic/3rduspstf/behavior/behsum2.htm#RationaleFiveA>

per day. Losing as little as 5% to 10% of total weight can significantly improve health.⁴³

- Recommended patient resources:
 - General population, and overweight (BMI < 30)
 - Healthy diet recommendations
 - USDA Food Pyramid www.mypyramid.gov
 - Dietary Guidelines for Adults 2005
www.health.gov/dietaryguidelines/dga2005/recommendations.htm
 - Physical activity prescription
 - At least 30 minutes of moderate-intensity physical activity per day, on most days of the week (60 minutes per day if trying to lose weight)⁴⁴
 - Examples of moderate-intensity and vigorous physical activity can be found at:
<http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter3.htm#table4>
 - The American Heart Association/American College of Sports Medicine Guidelines on Physical Activity and Public Health recommend:
“To promote and maintain health, all healthy adults aged 18 to 65 yr need moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic physical activity for a minimum of 20 min on three days each week.”⁴⁵
 - For older adults (age > 65), the American Heart Association/American College of Sports Medicine issues the following recommendations:
“The recommendation for older adults is similar to the updated ACSM/AHA recommendation for adults, but has several important differences including: the recommended intensity of aerobic activity takes into account the older adult’s aerobic fitness; activities that maintain or increase flexibility are recommended; and balance exercises are recommended for older adults at risk of falls. In addition, older adults should have an activity plan for achieving recommended physical activity that integrates preventive and therapeutic recommendations. The promotion of physical activity in older adults should emphasize moderate-intensity aerobic activity, muscle-strengthening activity, reducing sedentary behavior, and risk management”⁴⁶

⁴³ America on the Move:

http://aom.americaonthemove.org/site/c.krLXJ3PJKuG/b.1776811/k.E4B4/Healthcare_Provider.htm

⁴⁴ The Department of Health and Human Services/USDA: The Dietary Guidelines for Americans 2005; Chapter 4: Physical Activity <http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter4.htm>

⁴⁵ American Heart Association/American College of Sports Medicine Recommendations. Physical Activity and Public Health. Circulation. August 2007. 116:000-000. Available at:
<http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185649>

⁴⁶ American Heart Association/American College of Sports Medicine Recommendations. Physical Activity and Public Health in Older Adults. Circulation. August 2007. 116:000-000. Available at:
<http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.107.185650>

- Suggested resources for physical activity and behavior change
 - The Guide to Community Preventive Services (The Community Guide) recommends individually-adapted behavior change programs to increase physical activity. Refer to the Patient section above in this report, and the link following for more information on such programs.
<http://www.thecommunityguide.org/pa/pa-int-indiv-behav-change.pdf>
 - Patient-friendly resources for basic physical activity
 - America on the Move: 2,000 Steps a Day Project.
<http://www.americaonthemove.org/>
 - Small Steps <http://www.smallstep.gov/index.html>
 - American Heart Association: Physical Activity in Your Daily Life
<http://www.americanheart.org/presenter.jhtml?identifier=2155>
 - FamilyDoctor.Org. Exercise: A healthy habit to keep.
<http://familydoctor.org/online/famdocen/home/healthy/physical/basics/059.html>
 - Patient-friendly resources for more intense exercise prescription for weight loss:
 - Shape Up America: Add 10,000 steps
<http://www.shapeup.org/shape/steps.php>
 - The President’s Council on Physical Activity: A guide to personal fitness.
<http://www.fitness.gov/fitness.htm>
- v. Arrange for more intensive counseling for obese patients ($\text{BMI} \geq 30$), or overweight patients with co-morbidities ($\text{BMI} > 27$ with co-morbidities).
 - The USPSTF recommends intensive counseling and behavioral intervention for patients who are identified as obese.
 - In order to provide intensive therapy, referral to behavior change programs and/or weight management specialists, including registered dietitians, lifestyle coaches and bariatric specialists, may be appropriate for such patients.
 - The Community Guide finds good evidence to support the recommendation of “individual-adapted behavior change programs” for increasing physical activity in adults.⁴⁷ Such programs teach behavioral skills to help participants incorporate physical activity into their daily routines. The programs are tailored to each individual’s specific interests, preferences, and readiness for change. These programs teach skills such as 1) goal-setting and self-monitoring of progress toward those goals, 2) building social support for new behaviors, 3) behavioral reinforcement through self-reward and positive self-talk, 4) structured problem solving to maintain the behavior change, and 5) prevention of relapse into sedentary behavior.
 - A Yale University study showed that an intensive weight management program called Bright Bodies, that included exercise, nutrition, and behavior modification,

⁴⁷ The Community Guide: www.thecommunityguide.org/pa

was effective in reducing weight, body fat and insulin resistance in overweight children.⁴⁸

- The American Medical Association's Roadmap to Clinical Practice Series: *Assessment and Management of Obesity: A Primer for Physicians (2003)* is a useful resource for motivated providers who wish to provide counseling and management of obese patients. The primer is a ten booklet series that provides extensive information on evaluating patients for overweight and obesity, assessing readiness to change, counseling on dietary management, encouraging physical activity, designing systems approaches, and providing resources and tools.
- Available at: <http://www.ama-assn.org/ama/pub/category/10931.html>
- Locally, Group Health Cooperative has developed guidelines on "The Management of Adult Obesity" that also utilize the 5 A's approach.⁴⁹

b. Strategies for Patients (Consumers, Employees, Union Members)

i. Know your risk

- Calculate your Body Mass Index (BMI)⁵⁰ to determine whether you are overweight or obese. Share your BMI with your healthcare provider.

Tools:

- My Personal Profile

www.health.gov/dietaryguidelines/dga2005/healthieryou/htmlpersonal_profile.html

- BMI calculator

<http://www.nhlbisupport.com/bmi/bmicalc.htm>

ii. Complete a Health Risk Assessment (HRA) provided by your health plan or employer to determine your health risks

- Ideally, your HRA will include a BMI calculator and information on your weight status and how it compares to healthy weight targets. An HRA that includes important biometric information like blood pressure and cholesterol may provide a more complete picture of your health. Ask your health plan or employer to include these items in their HRA.

iii. Set simple individual goals, and develop an action plan for maintaining healthy lifestyle behaviors. You may need assistance in developing and maintaining your action plan; ask your healthcare provider or health plan for guidance and resources.

⁴⁸ Savoye et al. Effects of a weight management program on body composition and metabolic parameters in overweight children: a randomized controlled trial. JAMA 2007; 297: 2697-2704.

⁴⁹ GHC Obesity Guidelines provided for review by Dr. David Grossman, Prevention CIT member.

⁵⁰ Body Mass Index (BMI) is calculated as weight in kilograms divided by the height in meters squared (kg/m²).

Classification using BMI: <18.5 = underweight; 18.5-24.9 = normal weight; 25-29.9 = overweight; ≥30 = obese. Obesity is further classified into mild (BMI 30.0-34.9), moderate (BMI 35-39.9) and severe/extreme (BMI ≥ 40). It should be noted that the BMI does not distinguish between fat and lean body mass. It is therefore possible for a muscular but lean person with very low body fat to be classified as being overweight or obese using the BMI scale.

- Resource for goal-setting:
 - America on the Move: Steps to a healthier way of life
Free online tools and resources for making positive lifestyle changes:
http://aom.americaonthemove.org/site/c.krLXJ3PJKuG/b.1776883/k.B835/Tools_for_Success.htm
- The Guide to Community Preventive Services (The Community Guide) recommends individually-adapted behavior change programs to increase physical activity. The programs teach behavioral skills to help participants incorporate physical activity in their daily routines and are tailored to each individual's specific interests, preferences, and readiness for change. These skills include: goal-setting and self-monitoring of progress toward those goals; building social support for new behaviors; behavioral reinforcement through self-reward and positive self-talk; structured problem solving to maintain the behavior change; and prevention of relapse into sedentary behavior.

The Community Guide information on individually-adapted behavior change programs is found at: <http://www.thecommunityguide.org/pa/pa-int-indiv-behav-change.pdf> Check with your health plan or employer to see if such programs are available to you.

Such programs may also be helpful in setting dietary goals.

iv. Follow a healthy diet

- Recommended healthy eating guidelines:
 - The USDA Dietary Guidelines for Adults 2005
www.health.gov/dietaryguidelines/dga2005/recommendations.htm According to the guidelines, a healthy diet includes:
 - An emphasis on fruits, vegetables, whole grains, and fat-free or low fat dairy products as carbohydrate sources;
 - Lean meats, poultry, fish, beans, eggs, fruits and nuts as protein sources;
 - Minimal amounts of saturated fats, trans fats, cholesterol, salt and added sugars.
 - The USDA Food Pyramid. Based on the Healthy Dietary Guidelines for Adults, the Food Pyramid contains recommendations on different food groups:
 - Grains - Eat at least 3 oz of whole grains per day.
 - Vegetables - Vary your vegetables: eat more dark green and orange vegetables, and dry beans and peas.
 - Fruits - Eat a variety of fresh, frozen, canned or dried fruit; limit fruit juices.
 - Milk - Choose fat-free or low fat milk, or other dairy products or calcium-containing substitutes.
 - Meats and beans - Choose low fat meats and poultry, and vary your choices with more beans, fish, peas, nuts and seeds.

- Oils and fats - Make most of your fat sources from fish, nuts and vegetable oils. Limit solid fats like butter, stick margarine, shortening or lard.
 - Available at: <http://www.mypyramid.gov/pyramid/index.html>
 - MyPyramid.gov Steps to a Healthier You is an interactive website that allows individuals to identify components of a healthy diet based on their age, weight, and level of physical activity. It includes advice for children and adults.
 - Available at: www.mypyramid.gov
 - Helpful resources for dietary change:
 - Food Groups to Encourage
<http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter5.htm>
 - Five a Day: Eat a Colorful Variety of Fruits and Vegetables Every Day
<http://www.5aday.gov/>
- v. Be physically active
- Adults should strive for 30 minutes of moderate intensity physical activity (such as walking, light gardening, or cycling at a slow pace) most days (60 minutes for weight loss), and 60-90 min most days for adolescents⁵¹. For most people, greater health benefits can be obtained by engaging in physical activity of a more vigorous nature or for a longer time.
 - Examples of moderate and vigorous intensity physical activity can be found at:
<http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter3.htm#table4>
 - A recent study in the British Medical Journal echoed the recommendations of the Community Guide in finding that interventions tailored to people's needs, targeted at the most sedentary or at those most motivated to change, and delivered either at the level of the individual (brief advice, supported use of pedometers, telecommunications) or household (individualized marketing) or through groups, can encourage people to walk more.⁵²
 - Types of interventions that were successful in increasing walking time per week, at least in the short term, included brief advice to individuals, remote (telephone or online) support to individuals, group-based activities such as walking groups or educational sessions, providing pedometers.
 - Begin with small steps to maintain weight and improve health.
 - Studies indicate that adding 2,000 steps per day and reducing calorie intake by 100 calories per day can help people maintain their weight.

⁵¹ The Department of Health and Human Services/USDA: The Dietary Guidelines for Americans 2005; Chapter 4: Physical Activity <http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter4.htm>

⁵² Ogilvie et al. Interventions to promote walking: A systemic review. BMJ 2007;334:1204
<http://www.bmj.com/cgi/content/full/334/7605/1204?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=Promote+walking&searchid=1&FIRSTINDEX=0&volume=334&issue=7605&resourcetype=HWCIT>

- Resources for people beginning physical activity:
 - America on the Move: 2,000 Steps a Day Project.
<http://www.americaonthemove.org/>
 - Small Steps <http://www.smallstep.gov/index.html>
 - American Heart Association: Physical Activity in Your Daily Life
<http://www.americanheart.org/presenter.jhtml?identifier=2155>
 - FamilyDoctor.Org. Exercise: A healthy habit to keep.
<http://familydoctor.org/online/famdocen/home/healthy/physical/basics/059.html>
- For individuals who need to lose weight, more intensive physical activity is recommended, e.g.
 - Shape Up America: Add 10,000 steps
<http://www.shapeup.org/shape/steps.php> and
<http://www.shapeup.org/shape/steps.php#intro>
 - The President's Council on Physical Activity: A guide to personal fitness.
<http://www.fitness.gov/fitness.htm>

c. Strategies for Purchasers, Employers, and Union Trusts

- i. Offer wellness or health promotion programs to employees
 - Studies have shown a positive return on investment (ROI) for workplace wellness programs. In general, it is estimated that a \$1 investment in employee wellness programs saves \$3 or more in health care costs over five years, a 3:1 ROI.⁵³ Despite this, as of 2001, fewer than 20% of employers offered wellness programs.⁵⁴
 - Examples of programs demonstrating a return on investment
 - Citigroup: Every \$1 spent on its wellness program saved the company \$4.70⁵⁵
 - Pitney Bowes: A multi-pronged wellness program had an ROI of \$2-3 for every \$1 spent on the program⁵⁶

⁵³ Zook, T. The ROI on Workplace Wellness, Forbes. Com 4.24.06.
http://www.forbes.com/ceonetwork/2006/04/21/wellness-programs-gold-standards-cx_tz_0424wellness.html; The Cost of Wellness. Wellness Councils of America Interview with Ron Goetzel.
http://www.welcoa.org/freeresources/pdf/goetzel_interview_cost.pdf; The Health Fitness Organization, Employers Guide to a Healthy Organization. http://www.hfit.com/cm_files/results/10_7_05HFCOutcomesBrochure.pdf; Brady, Workplace Wellness Programs: Can They Really Pay a 300% Return on Investment? May, 2004.
http://hrdailyadvisor.blr.com/archive/2007/05/04/Workplace_employee; and Goetzel at al. Estimating the Return-on-Investment From Changes in Employee Health Risks on The Dow Chemical Company's Health Care Costs (J Occup Environ Med. 2005;47: 759-768)
<http://healthproject.stanford.edu/publications/Estimating%20health%20care%20costs%20Goetzel.pdf>; Zank and Friedsman. Translating Research into Policy and Practice
Employee Health Promotion Programs: What is the Return on Investment?
Wisconsin Public Health and Health Policy September 2005 Vol 6 Number 5
<http://www.pophealth.wisc.edu/UWPHI/publications/briefs/Vol6%20No5.pdf>

⁵⁴ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010
http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁵⁵ McQueen. Wellness Plans Reach out to the Healthy. Wall Street Journal. March 28, 2007.

- Johnson and Johnson achieved an average annual reduction in employee health costs of \$225 per employee after implementing its wellness program⁵⁷
- Wellness programs typically include such components as health risk appraisals, weight control, nutrition information, stress management, disease screening and smoking cessation.
- Employee wellness program resources:
 - Active for Life (ACS Workplace Solutions) - a flexible ten-week online program that allows employees to set their own physical activity goals, and offers points for achieving their goals.
<http://www.acsworkplacesolutions.com/activeforlifeonline.asp>
 - Active for Life is offered at Cell Therapeutics Inc, Seattle
<http://www.acsworkplacesolutions.com/files/Employee%20Services%20Mgmt%20Assoc%20CTI%20AFL%20Award.pdf>
 - The Washington Health Foundation Healthiest State in the Nation Business Challenge provides tools and incentives for businesses and employees participating in an annual challenge to improve employee health.
<http://www.whf.org/HSIN/BusinessChallenge.aspx>
 - Wellness Council for America – dedicated to providing tools for employers in starting wellness programs as well as a variety of behavior targeted programs for physical activity, tobacco cessation, and nutrition.
- ii. Be innovative with approaches to encourage healthy behaviors among employees, but EVALUATE the outcomes of any such approaches so that evidence on successful programs can accumulate and be disseminated.
 - Although employee health promotion and wellness programs are gaining in popularity across the country, the Prevention CIT recognizes that there is little evidence on the types of programs that yield improved health outcomes, especially in the realm of physical activity and nutrition.
 - Suggested outcomes to measure:
 - Trends in healthcare costs over time (over five years or longer)
 - Absenteeism and sick days
 - Presenteeism⁵⁸
 - Healthcare behaviors or healthcare outcomes, such as number of smokers, percent of employees identified as overweight and obese, or average lipid levels among employees. Such data must be de-identified to the employer, and usually is collected and evaluated by a third-party vendor or health plan.

⁵⁶ Ibid

⁵⁷ The Cost of Wellness. Wellness Councils of America Interview with Ron Goetzel. http://www.welcoa.org/freeresources/pdf/goetzel_interview_cost.pdf

⁵⁸ Presenteeism may be defined as being present at work but functioning at less than full capacity because of illness. It is usually measured by self-report in surveys with standardized questions, although it may also be measured productivity metrics in some workplaces. For more information on measuring presenteeism, see: Mattke et al. A Review of Methods to Measure Health-related Productivity Loss. The American Journal of Managed Care. 2007. 13 (4): 211-217 http://www.ajmc.com/files/articlefiles/AJMC_07aprMattke211to217.pdf

- Participation in employer-sponsored wellness activities
- Implementation of policies that support employees making healthy choices such as showers on site; guidelines for catering meals and light refreshments; breastfeeding, etc.
- Examples of regional employee wellness programs with evaluation components include:
 - The **Washington State Health Care Authority** (HCA) Washington Wellness Demonstration Project.⁵⁹ An estimated \$600,000 over two years is committed to a program aimed at improving the health of state employees through policy and environmental changes as well as health and wellness programs. The project will be evaluated, with outcome measures including “the reduction in the percent of the population that is overweight or obese, the reduction in risk factors related to diabetes, the reduction in risk factors related to absenteeism, the reduction in tobacco consumption, the reduction in high blood pressure and high cholesterol, and the increase in appropriate use of preventive health services.” Worksite measurement of employee fasting blood sugar, cholesterol, and blood pressure will be conducted, as well as assessment of smoking behavior and absenteeism and presenteeism.
 - **WAMU** (Washington Mutual) offers an employee wellness program through a third party vendor that stratifies employees by risk based on their completion of an HRA, and offers different intervention levels depending on risk. Risk stratification is a common element of employer-based wellness programs. WAMU intends to measure health outcomes resulting from this program.⁶⁰
 - **STEPS Grant: Thurston County** is a recipient of a STEPS to a HealthierUS grant from the Department of Health and Human Services (DHHS). This funding offers, among other things, a program entitled STEPS to a Healthier Workforce. Online resources and support is available through the web site: <http://www.co.thurston.wa.us/health/steps/Supporting%20Pages/HealthierWorkforce.html>.
 - The WorkWell Program identifies local employers who make a commitment to address workforce health issues.
<http://www.wmsgroup.com/WorkWell/index.html>
 - **King County Employees**
<http://www.metrokc.gov/employees/HealthyIncentives/default.aspx>
 - Program includes: Healthy Incentives Program
Live Well Challenge (company fitness challenge)⁶¹
Gym discount program⁶²
Move More
Weight Watchers at Work⁶³

⁵⁹ SB 5930 (passed into law 2007). Section 41. <http://www.leg.wa.gov/pub/billinfo/2007-08/Pdf/Bills/Session%20Law%202007/5930-S2.SL.pdf>

⁶⁰ Personal communication, Marilyn Guthrie, Prevention CIT member.

⁶¹ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010 http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁶² Ibid

iii. Provide healthy choices in the workplace, such as:

- Point-of-decision prompts (e.g. signs and arrows to the stairs placed at elevators)⁶⁴
- Clean and safe stairwells that encourage their use⁶⁵
- Healthy food choices in cafeteria, vending machines, break rooms and at meetings^{66,67,68}
- Subsidized (lower cost) healthy food choices in the cafeteria and vending machines⁶⁹
 - E.g. Novartis Pharmaceuticals offers a “buy-four-get-one-free” card that gives all employees incentive to choose the healthier option in the cafeteria, as well as an on-site nutritionist who consults with employees one-on-one at no cost.⁷⁰
- Access to onsite or nearby gyms or walking trails⁷¹
- Employee group physical activity programs-e.g. lunchtime walking groups, team sports, employee cycling club, etc.⁷²
- Facilities for employees to keep bikes secure and onsite showers and lockers⁷³

iv. Provide employee incentives for participating in wellness programs

Incentives might be provided for:

- Completing Health Risk Assessments (HRA's), setting goals based on HRA results, and/or following up on goals⁷⁴
 - E.g. King County Employees Healthy Incentives Program
<http://www.metrokc.gov/employees/HealthyIncentives/default.aspx>
- Participation in specified health promotion, wellness or disease prevention programs (either general programs or programs based on risk factors)

⁶³ Ibid

⁶⁴ Recommended by the Community Guide. www.thecommunityguide.org/pa

⁶⁵ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010
http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁶⁶ Ibid

⁶⁷ Work with food service vendors to provide meals and snacks that meet the USDA guidelines e.g. Thurston County Golden Fork designation http://www.co.thurston.wa.us/News_Releases/healthy-food-options.htm

⁶⁸ For information on healthy meetings, see: American Cancer Society Meeting Well
http://www.cancer.org/docroot/PED/content/PED_1_5X_Meeting_Well.asp and The Washington State Department of Health Energize Your Meetings Guidelines

http://www.doh.wa.gov/cfh/NutritionPA/our_work_sites/healthy_meeting_guidelines/default.htm

⁶⁹ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010
http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁷⁰ Zook, T. The ROI on Workplace Wellness, Forbes. Com 4.24.06.

http://www.forbes.com/ceonetwork/2006/04/21/wellness-programs-gold-standards-cx_tz_0424wellness.html

⁷¹ Ibid

⁷² Ibid

⁷³ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010
http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁷⁴ Ibid

- Outcomes, such as quitting smoking or losing weight (if incentives are given for outcomes, then employees who are non-smokers or a healthy weight at the onset should also receive rewards).

Incentives may be in the form of prizes (ideally prizes related to healthy lifestyle, such as pedometers, exercise equipment or DVDs, gym memberships or discounts, Weight Watchers memberships, etc.) or healthcare premium or deductible reductions.⁷⁵

- v. Offer, or contract with health plans that offer, free or reduced health club memberships⁷⁶, or provide onsite gym or exercise facilities.
- vi. Provide flexible work schedules so employees can exercise or participate in weight loss programs.⁷⁷

d. Strategies for Health Plans

- i. Offer Health Risk Assessments (HRAs) to members, and provide follow-up
 - Include an embedded BMI calculator, information on chronic diseases and risk factors, and questions regarding physical activity in the HRA
 - Provide results of the HRA to members in a summarized, understandable and useful format with recommendations for further action
 - Tailor the follow-up to individual needs based on responses to the HRA, including:
 - Referral to health promotion activities or wellness programs or health coaching
 - Targeted print material to members on lifestyle changes
 - Provide the results of the HRA to the primary care provider and health and wellness vendor and primary care provider

- ii. Offer incentives to members to participate in wellness activities

Incentives may be offered for:

- Completion of an HRA (e.g. prizes, premium or co-pay reductions)
- Developing personal goals and action plans
- Participating in designated health promotion, prevention, or wellness programs

⁷⁵ Note: In December 2006, the US Department of Labor and the Department of Health and Human Services issued final HIPAA rules allowing health plans or employers to offer a maximum discount of 20% of a single insurance premium for taking part in a wellness program. These rules went into effect July 1, 2007. Information available at: <http://www.insidearizonabusiness.com/contributors.asp?ID=9> and http://www.dol.gov/ebsa/faqs/faq_hipaa_ND.html

⁷⁶ Recommended in: American Cancer Society Workplace Solutions. Healthy Workforce 2010 http://www.acsworkplacesolutions.com/documents/Healthy_Workforce_2010.pdf pp.19-20

⁷⁷ Ibid

- Achieving specific goals, such as weight loss or smoking cessation (note: incentives should also be available for members who are a healthy weight or do not smoke).
- iii. Reimburse for wellness care and health promotion, including coverage for nutritional and physical activity counseling for patients at risk for obesity or chronic diseases provided through healthcare providers, educators, wellness coaches or other specialists.

B. Tobacco Cessation

Prevention CIT Recommendation:

Clinicians should screen all adults to determine if they smoke or use other tobacco products, provide brief counseling, and offer patients nicotine replacement therapies, prescription medications, and referrals to help them quit.⁷⁸

1. Background

Tobacco use causes significant disease burden and economic costs in the United States; smoking accounts for over 90% of tobacco use⁷⁹ and 21.6% of U.S. adults smoke.⁸⁰ In Washington State, most recent figures suggest that 17.3 % of adults are smokers.⁸¹ One-third of smokers will die prematurely as a result of their habit.⁸² Annually, 440,000 Americans die of smoking-attributable causes, with 18.1 % of total deaths in 2000 attributable to smoking.⁸³ The cost of smoking, both in terms of health care expenditures and lost productivity, are estimated to be approximately \$3,400 per year per smoker, with a total annual cost in the U.S. of \$157 billion.⁸⁴

Preventive strategies have been shown to be effective in reducing tobacco use. Based on review of the evidence, the U.S. Preventive Services Task Force (USPSTF) recommends tobacco screening and brief intervention for all adults.⁸⁵

The Partnership for Prevention estimates the effectiveness of this recommendation in getting smokers to quit:⁴

⁷⁸ Taken from the Partnership for Prevention language, which is based upon the USPSTF recommendations.

⁷⁹ Capehart, Tom. [Expenditures for Tobacco Products and Disposable Personal Income, 1989–2005](#). Compiled from reports of the Department of Commerce, Bureau of Economic Analysis. [cited 2007 Mar 13]. Available from: <http://www.ers.usda.gov/Briefing/Tobacco/Data/table21.pdf>.

⁸⁰ Partnership for Prevention. Tobacco cessation. <http://www.prevent.org/index.php?option=content&task=view&id=82>

⁸¹ Washington State Behavioral Risk Factor Surveillance System 2006 http://www.doh.wa.gov/EHSPHL/CHS/CHS-Data/brfss/brfss_homepage.htm

⁸² Partnership for Prevention. Tobacco cessation. <http://www.prevent.org/index.php?option=content&task=view&id=82>

⁸³ Mokdad A, Marks JS, Stroup DE, Gerberding JL. Actual causes of death in the United States. JAMA 2004; 291(10): 1238-1245, and CDC Annual Smoking-Attributable Mortality <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5114a2.htm>

⁸⁴ CDC Annual Smoking-Attributable Mortality <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5114a2.htm>

⁸⁵ US Preventive Services Task Force. Counseling to Prevent Tobacco Use. <http://www.ahrq.gov/clinic/uspstf/uspstbac.htm>

- Effectiveness of one time tobacco use assessment and counseling without smoking cessation medications: 2.4%
- Effectiveness of one time tobacco use assessment and counseling with smoking cessation medications: 5.0%
- Effectiveness of repeated interventions including offers of cessation medication in inducing additional quits among smokers: 23%

Tobacco use is a difficult habit to break, but repeated interventions can increase the rate of successful quitting. Tobacco use, as with other addictions, should be viewed as a chronic disease. In this way, the chronic care model⁸⁶, which emphasizes a coordinated approach across stakeholder groups, including patient self-management support, can be applied to the problem, and serve as an effective model for intervention. In encouraging tobacco cessation, interventions that combine screening and counseling with medications to aid quitting are more effective than these services provided without medications. The Community Guide to Preventive Services⁸⁷ recommends a multifaceted approach, including client telephone support, as a recommended strategy. In addition, they recommend reducing out-of-pocket costs for medications to aid quitting.

In its ranking of clinical preventive services, the Partnership for Prevention⁸⁸ gives its highest ratings for both clinical preventable burden and cost-effectiveness of repeated counseling for smoking cessation (see table below). Repeated counseling of smokers to quit including the offering of quit aids can save nearly 2.5 million quality-adjusted life years (QALYs) in a theoretical cohort of four million people. In addition, the service saves more in direct health care costs than it costs to administer. It costs about \$39 per person per year to screen for tobacco use and assist with smoking cessation, while the annual per person medical cost savings is \$196, a net cost saving of \$157 per person. The estimated percent of the service costs recovered in the long run is 503%.⁸⁹ These calculations do not take into account the economic savings of reduced absenteeism and increased productivity.

⁸⁶ Chronic Care Model: Wagner (1998). What will it take to improve care of chronic illness? *Eff. Clin Pract* 1(1): 2-4. Model available at: http://www.improvingchroniccare.org/index.php?p=The_Chronic_Care_Model&s=2

⁸⁷ The Community Guide to Preventive Services- Tobacco. <http://www.thecommunityguide.org/tobacco/>

⁸⁸ Partnership for Prevention. Tobacco cessation. <http://www.prevent.org/index.php?option=content&task=view&id=82>

⁸⁹ Partnership for Prevention. Tobacco cessation. <http://www.prevent.org/index.php?option=content&task=view&id=82>

Table: Clinical Preventable Burden (CPB) and Cost-Effectiveness (CE) Calculation of Repeated Tobacco Cessation Counseling⁹⁰:

	CPB*	CE [#]	Total Score
Scoring Range	> 360,000	< \$0 (cost saving)	
Actual number	2,473,996	Cost saving	
Score	5/5	5/5	10/10

*Clinical preventable burden = the number of QALYs saved in a cohort of four million people if repeated counseling was offered to all smokers.

[#] Cost effectiveness of repeated tobacco cessation counseling and administration of quit aids = Cost per year of life saved

QALY = Quality Adjusted Life Year

Given the potential cost savings and reduced disease burden from screening and counseling for tobacco use cessation, it should be a high priority clinical preventive service. However, the current intervention rate is less than desirable. As cited by the Partnership for Prevention, the National Health Interview Survey (2001) and HEDIS performance data indicate that about 68% of smokers who visited a healthcare provider in the past year received advice to quit. However, only about 35% of smokers received brief counseling that involved discussion of medication and cessation strategies as recommended by the USPSTF.⁹¹ If the intervention rate increased to 90%, then an estimated 1.3 million QALYs could be saved annually in a theoretical cohort of four million lives.⁹²

2. Recommended Guidelines

The Prevention CIT selected the U.S. Preventive Services Task Force (USPSTF) guidelines for tobacco cessation as the primary source of recommendations in this area.

USPSTF Recommendations for Tobacco Cessation⁹³

The USPSTF strongly recommends that clinicians screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products.

Rating: A Recommendation.

Rationale: The USPSTF found good evidence that brief smoking cessation interventions, including screening, brief behavioral counseling (less than 3 minutes), and pharmacotherapy delivered in primary care settings, are effective in increasing the proportion of smokers who successfully quit smoking and remain abstinent after 1 year. Although most smoking cessation trials do not provide direct evidence of health benefits, the USPSTF found good evidence that smoking cessation lowers the risk for heart disease, stroke, and lung disease. The USPSTF concluded that there is good

⁹⁰ Data from Partnership for Prevention Technical Bulletin

<http://www.prevent.org/images/stories/clinicalprevention/tobaccocessation.pdf>

⁹¹ Partnership for Prevention. <http://prevent.org/content/view/51/104/> and the State of Health Care Quality 2005. http://www.ncqa.org/Docs/SOHCQ_2005.pdf

⁹² Partnership for Prevention. <http://prevent.org/content/view/51/104/>

⁹³ US Preventive Services Task Force. Counseling to Prevent Tobacco Use. <http://www.ahrq.gov/clinic/uspstf/uspstbac.htm>

indirect evidence that even small increases in the quit rates from tobacco cessation counseling would produce important health benefits, and that the benefits of counseling interventions substantially outweigh any potential harms.

The USPSTF strongly recommends that clinicians screen all pregnant women for tobacco use and provide augmented pregnancy-tailored counseling to those who smoke.

Rating: A Recommendation.

Rationale: The USPSTF found good evidence that extended or augmented smoking cessation counseling (5-15 minutes) using messages and self-help materials tailored for pregnant smokers, compared with brief generic counseling interventions alone, substantially increases abstinence rates during pregnancy, and leads to increased birth weights. Although relapse rates are high in the post-partum period, the USPSTF concluded that reducing smoking during pregnancy is likely to have substantial health benefits for both the baby and the expectant mother. The USPSTF concluded that the benefits of smoking cessation counseling outweigh any potential harms.

The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for tobacco use or interventions to prevent and treat tobacco use and dependence among children or adolescents.

Rating: I Recommendation.

Rationale: The USPSTF found limited evidence that screening and counseling children and adolescents in the primary care setting are effective in either preventing initiation or promoting cessation of tobacco use. As a result, the USPSTF could not determine the balance of benefits and harms of tobacco prevention or cessation interventions in the clinical setting for children or adolescents.

3. Strategies to Decrease Tobacco Use in the Puget Sound Region

a. Strategies for Providers

- i. Screen every adult patient for tobacco use at each visit
 - Tobacco use should be written in as a vital sign at each patient visit, and included in patient registries when available.
- ii. Consider smoking a chronic disease, and discuss smoking cessation with each smoker at every visit, following the suggested format below:
 - The 5 A's Model for Facilitating Smoking Cessation (see table):⁹⁴
 - **Ask** about tobacco use during every office visit.

⁹⁴ From 2000 Agency for Health Care Policy and Research (AHCPR; now the Agency for Healthcare Research and Quality) clinical practice guideline on treating tobacco use and dependence; reproduced in American Family Physician 2006. <http://www.aafp.org/afp/20060715/262.html>

- **Advise** all smokers to quit.
- **Assess** the patient's willingness to quit.
- **Assist** the patient in his or her attempt to quit.
- **Arrange** follow-up contact.

The Five A's Model for Facilitating Smoking Cessation

Ask about tobacco use during every office visit.

Include questions about tobacco use when assessing the patient's vital signs. Placing tobacco-use status stickers on patient charts, noting tobacco use in electronic medical records, or using computer reminder systems also may be helpful.

Advise all smokers to quit.

Advice should be:

- Clear: "I think it is important for you to quit smoking now. Cutting down or changing to light cigarettes is not enough."
- Strong: "As your physician, I need to tell you that smoking cessation is one of the most important decisions you can make for your health."
- Personalized: physicians should talk with patients about how smoking has affected their health, children, or other family members; the social and economic costs of smoking; and the patient's readiness to quit.

Assess the patient's willingness to quit.

Assess the patient's willingness to quit by asking, "On a scale from 0 to 10, with 0 being 'not at all motivated' and 10 being 'extremely motivated,' how motivated are you to quit smoking?"

Use the patient's level of motivation to determine the next step:

- If the patient is willing to make a quit attempt, offer medication, brief counseling, and self-help resources and schedule a follow-up visit.
- If the patient is unwilling to quit, identify why the patient is not motivated. Explore what he or she likes and does not like about smoking and the potential advantages and disadvantages of quitting. Identify the patient's core values (e.g., health, being a role model for children) and how smoking affects these values.

Assist the patient in his or her attempt to quit.

Help the patient make a quit plan:

- Set a quit date, ideally within two weeks of the office visit.
- Request encouragement and support from family and friends.
- Anticipate triggers and cues to smoking and identify alternative coping strategies.

Help the patient change his or her environment:

- Throw away cigarettes, matches, lighters, and ashtrays; launder clothing; vacuum home and car.

- Avoid smoking in places where the patient spends a lot of time (e.g., home, work, car).
- Avoid other smokers and drinking alcohol.

Provide basic information about smoking and cessation (e.g., addictive nature of smoking, importance of complete abstinence, possible withdrawal symptoms).

Recommend pharmacotherapy (such as nicotine replacement therapy, and/or Zyban or Chantix) unless contraindications exist, and behavior therapy for smoking cessation.

Provide supplementary self-help materials

Arrange follow-up contact.

Follow-up should occur within the first week after the quit date. A second follow-up contact is recommended within the first month. Further follow-up visits should be scheduled as needed. Follow-up may be in person, by telephone or email.

During a follow-up visit, success should be congratulated. If the patient has relapsed, review the circumstances and elicit a new commitment to quit. Consider referral for more intensive treatment.

From: 2000 Agency for Health Care Policy and Research (AHCPR; now the Agency for Healthcare Research and Quality) Clinical Practice Guideline on Treating Tobacco Use and Dependence; reproduced in American Family Physician 2006. <http://www.aafp.org/afp/20060715/262.html>

iii. Ask patients about the tobacco cessation benefits offered by their health plans or employers

- Many patients have smoking cessation benefits that may include coverage for telephone counseling, nicotine replacement therapy (NRT), and/or prescription quit aids such as bupropion (Zyban, Wellbutrin) or varenicline (Chantix). Providers should suggest that patients access these benefits when they exist, as they can help reduce the financial barrier to patient access to smoking cessation aids.

iv. Consider scheduling patient visits devoted to smoking cessation counseling.

- Once a patient has been identified as a smoker, and the subject of smoking cessation has been broached, providers should assess a patient's willingness to quit. If the response is positive, the provider may choose to offer a brief interventional counseling at that time, and then schedule a follow-up visit. Given time constraints inherent in modern clinical practice, adequate time for appropriate discussions on smoking cessation strategies and available aids is often lacking in regular visits. Providers should consider scheduling visits devoted entirely to smoking cessation counseling for patients who are interested in quitting smoking.
- Reimbursement is an important component in encouraging providers to offer smoking cessation visits.
- Providers may code for a smoking cessation visit using:

- E/M visit code with ICD-9 code 305.1, Tobacco Use Disorder
OR
- CPT procedural codes for smoking cessation counseling 99401 (brief) or 99402 (intensive)
- Medicare pays for tobacco cessation counseling for patients diagnosed with an illness or an adverse health effect related to tobacco or who are taking medications that are complicated by tobacco use.⁹⁵ Medicare codes for tobacco cessation:
 - G0375: Smoking and tobacco use cessation counseling visit; intermediate; greater than 3 minutes up to 10 minutes.
 - G0376: Smoking and tobacco use cessation counseling visit; intensive; greater than 10 minutes
- Based on Alliance staff research, most plans in the region offer comprehensive smoking cessation benefit packages, but it is not clear if they would reimburse provider visits if the patient has not accessed the full benefit program. However, at least one insurer indicates that they would reimburse either of the non-Medicare coding strategies above for members of most of their plans, although prescription smoking cessation aids are rarely covered.

b. Strategies for Patients (Consumers, Employees, Union Members)

- i. Messaging to consumers around tobacco use should have the following goals⁹⁶:
 - Preventing tobacco product use initiation
 - Increasing cessation
 - Reducing exposure to environmental tobacco smoke

Such messaging should be provided in multiple formats, from multiple sources, such as:

- Mass media campaigns. Mass media campaigns are an effective way of educating consumers about the dangers of smoking.
 - A systematic review of published studies, conducted on behalf of the Task Force on Community Preventive Services by a team of experts, found that mass media campaigns are effective in reducing initiation of tobacco use when combined with other actions (e.g., increasing the excise tax). Mass media campaigns may also decrease consumption of tobacco products and increase tobacco use cessation. Based on this review, the Task Force recommends that this strategy be implemented on the basis of *strong* evidence of effectiveness.⁹⁷

⁹⁵ American College of Physicians. Medicare Ushers in New Smoking Cessation Coverage. ACP Observer (May 2005), Available at: <http://www.acponline.org/journals/news/may05/smoking.htm>

⁹⁶ From: The Community Guide <http://www.ahrq.gov/clinic/uspstfix.htm#Recommendations>

⁹⁷ The Guide to Community Preventive Services: Tobacco. Available at: <http://www.thecommunityguide.org/tobacco/tobac-int-mass-media.pdf>

- Trusted online sources, such as
 - Centers for Disease Control and National Cancer Institute: Smokefree.gov
www.smokefree.gov/guide
 - American Cancer Society: http://www.cancer.org/docroot/PED/ped_10.asp
 - Washington State Department of Health:
<http://www.doh.wa.gov/Tobacco/default.htm>
 - Local Health Jurisdictions
 - Public Health- Seattle & King County:
<http://www.metrokc.gov/health/tobacco/quitsmoking.htm>
 - Thurston County Department of Public Health and Social Services
<http://www.co.thurston.wa.us/health/cleanindoorair/index.html>
 - Tacoma-Pierce County Public Health
<http://www.tpchd.org/page.php?id=23>
 - Snohomish County Public Health District
<http://www.snohd.org/snoTobacco/index.htm>
 - Kitsap County Health District <http://www.kitsapcountyhealth.com/>
 - Puget Sound Health Alliance
<http://www.pugetsoundhealthalliance.org/members/resources.cfm#SampleTools> (requires member log-in)
 - The Washington State Tobacco Quit Line: 1-800-QUIT-NOW, offering telephone and online coaching and advice.⁹⁸
- ii. Consumers should be aware of tobacco cessation benefits offered through their health plans and/or employers
- Such benefits vary, but may offer cost savings to the individual through covered counseling services, free nicotine replacement therapy (NRT), and/or prescription quit aids

c. Strategies for Purchasers (Employers, Union Trusts)

- i. Become educated about the costs of smoking in the workplace and the return on investment (ROI) for sponsoring smoking cessation programs.

The following statistics are provided in the BUILT (Building Trade Unions Ignite Less Tobacco) Handbook:⁹⁹

- Smokers have higher absenteeism rates, averaging 34% more absences from work than non-smokers. Non-smokers exposed to secondhand smoke also have a higher rate of illness.
- Smokers are 29% more likely to have industrial accidents and 40% more likely to suffer injuries at work. This translates into higher health insurance, life insurance, and workers' compensation claims.

⁹⁸ Quitline.com. <http://www.quitline.com/>

⁹⁹ BUILT Handbook <http://www.cdc.gov/elcosh/docs/d0700/d000757/d000757.html>

- 6 to 12% of health and welfare fund costs are for treating smoking-related illnesses.
- Employees who smoke (on or off the worksite) can cost employers up to \$2,000 a year.
- Health and fire insurance premiums can be 25 to 35 percent lower for smoke-free businesses.
- For every dollar spent on smoking cessation programs, there is a return of \$15 in reduced medical expenditures alone

From Partnership for Prevention:¹⁰⁰

- According to the CDC, smoking costs an estimated \$80 billion per year in lost productivity due to sickness, disability and death.

From the National Business Group on Health:¹⁰¹

- Female smokers incur \$17,500 more in lifetime medical expenses than nonsmokers.
- Male smokers incur \$15,800 more in lifetime medical expenses than nonsmokers.
- On average, direct medical expenses and lost productivity resulting from premature death for people with smoking-related diseases cost \$157 billion each year, or \$3,856 per smoker per year.
- Comprehensive tobacco cessation benefits cost between \$1.20 and \$4.80 per employee per year. In contrast, the annual healthcare costs related to tobacco use is about \$3,400 per smoker.
- See table below on “Calculating the Costs of Smoking”

¹⁰⁰ Partnership for Prevention Worksite Health News March 2006

http://www.prevent.org/newsletters/2006/mar/index_march.html

¹⁰¹ ISSUE Brief; Center for Prevention and Health Services: Reducing the Burden of Smoking on Employee Health and Productivity, Volume I, Number 5, 2003. http://www.businessgrouphealth.org/pdfs/issuebrief_cphssmoking.pdf

Calculating the Cost of Smoking¹⁰²

To calculate the cost of smoking for an individual company, consider the following:

- The overall prevalence of tobacco use is about 25% of the total population, which can be generalized to any workplace population.
- The CDC estimates that companies spend \$3,856 per smoker per year in direct medical costs and lost productivity.

Estimated cost per year in excess medical expenditures and lost productivity =
 (Number of employees) x (0.25) x (\$3,856 per year)

Example:

(10,000 employees) x (0.25) = 2,500 employees who use tobacco

(2,500) x (\$3,856) = \$9,640,000 per year in business borne costs

From: http://www.businessgrouphealth.org/pdfs/issuebrief_cphssmoking.pdf

ii. Ban smoking in the workplace

- “Studies that evaluated the effect of smoking bans in workplaces observed an average reduction in exposure to components of ETS [exhaled tobacco smoke] (e.g., nicotine vapor) of 72%. Smoking bans were more effective in reducing ETS exposures than were smoking restrictions. Smoking bans were effective in a wide variety of public and private workplaces and healthcare settings. Their effectiveness should extend to most indoor workplaces in the United States. Studies evaluating smoking bans also observed reductions in the amount smoked.”¹⁰³
- The Washington State Expanded Indoor Clean Air Act took effect in December 2005 and restricts smoking in all indoor workplaces and public buildings. However, Washington State employers should also consider a total smoking ban throughout their campus, including outdoor spaces.

iii. Provide comprehensive smoking cessation benefits to employees in a cafeteria-style design through contracted health plans, or directly through the workplace through contracted vendors.

¹⁰² From: National ISSUE Brief; Center for Prevention and Health Services: Reducing the Burden of Smoking on Employee Health and Productivity, Volume I, Number 5, 2003.

http://www.businessgrouphealth.org/pdfs/issuebrief_cphssmoking.pdf

¹⁰³ The Guide to Community Preventive Services. <http://www.thecommunityguide.org/tobacco/tobac-int-smoke-bans.pdf>

- Smoking cessation programs are cost-saving to employers (see above), and yet nationally fewer than 20% of employers offer any type of smoking cessation benefits to employees, and only 4% offer an optimal benefit.¹⁰⁴
- Employers should offer comprehensive smoking cessation benefits, including offering nicotine replacement therapy (NRT), prescription quit aids such as bupropion (Zyban, Wellbutrin) and Varenicline (Chantix) and counseling.¹⁰⁵
- A cafeteria-style design means that employees can choose from a set of benefits, but are not disqualified from the program and benefits if they do not take advantage of all components of the program. While a multifaceted approach has been shown to be most successful in inducing quitting, not all smokers choose to utilize a comprehensive program. Such individuals should not be discouraged from attempting to quit smoking in a way that best suits their personal preferences.
- Examples of successful workplace smoking cessation programs include:
 - King County Employees
 - Smoking cessation counseling is administered through Harris Health Trends, with 100% coverage of prescription and over-the-counter NRT and nicotine withdrawal aids, as well as acupuncture and hypnosis
<http://www.metrokc.gov/employees/esmm/smokecessation.aspx>
 - Northwest Carpenters Trust
 - Smoking cessation program is offered through the Free and Clear¹⁰⁶ program, with provision of smoking cessation medications, including NRT and Zyban (bupropion).
 - The 12-month smoking quit rate was 27.5% with implementation of this program
 - <http://www.cdc.gov/elcosh/docs/d0700/d000757/d000757.html>
 - The City of Seattle
 - The City of Seattle implemented the Free & Clear Program in November of 2006. Six months after its inception, 123 employees have been enrolled in the program. The program covers NRT (patch & gum) but not prescription quit aids.¹⁰⁷
 - Union Pacific Railroad
 - BOB (Butt Out and Breathe) program.
 - Included health coaches, a 90-day supply of Zyban for free, and NRT for a \$5 copay
 - Smoking among Union Pacific workers dropped from 40%-26% in 8 years
 - <http://www.cdc.gov/elcosh/docs/d0700/d000757/d000757.html>

¹⁰⁴ Bondi, Harris et al. Employer Coverage of Clinical Preventive Services in the United States. Amer J. Health Promotion. 2006. 20(3): 214-222.

¹⁰⁵ Partnership for Prevention Worksite Health News March 2006.
http://www.prevent.org/newsletters/2006/mar/index_march.html

¹⁰⁶ Free and Clear Program <http://www.freeclear.com/>

¹⁰⁷ Personal communication, Susie Ferrel, City of Seattle, and Prevention CIT member. May, 2007.

iv. Offer tobacco quit lines to employees.

- Regardless of whether a comprehensive set of smoking cessation benefits are offered or utilized by employees, employers should contract with a vendor, such as Free & Clear, to offer an accessible tobacco quit line to their employees who smoke.

v. Offer employee incentives to quit smoking

- Consider a point system, with attached incentives, in which points are earned for not smoking, or for quitting smoking and/or participating in a smoking cessation program.
- Such a program could be built into an employee wellness incentive program.
- Examples of successful incentive programs:
 - IBM offers rebates for healthy behaviors, including not smoking
 - In 2003, IBM offered annual premium reductions to nonsmokers (a one-time \$150 bonus to employees who were nonsmokers) and an incentive for smokers who completed a cessation program. After three years, as the percentage of nonsmoking employees approached 90%, IBM transitioned the nonsmoking incentive program to one-time \$150 cash rebates for nonsmoking new employees and those who complete an initial cessation program. The company invests \$120 for every employee in cessation and expects to pay out \$2.1 million in \$150 rebates to nonsmoking new employees this year. Its data estimates that self-reported smokers cost an additional \$200 to \$300 per-employee per-year, so the program costs currently remain below related claims costs.
 - The national smoking quit rate is about 12% nine to 12 months after initial program completion, while the IBM population quit rate is above 24% over the same time period.¹⁰⁸
 - Bank One offers differential health insurance premiums to smokers and nonsmokers or smokers who complete a smoking cessation program.
 - Bank One estimated that 11% of its employees in 2002 were smokers and that the company lost more than \$24 million annually to smoking. To address this issue:
 - Bank One offered a variety of health plans, each with different benefits related to tobacco cessation. Smokers pay \$14 more per pay period than nonsmokers do for both health and life insurance (\$336 more per year). The additional fees paid by smokers fund wellness programs and offset higher health care costs.
 - In addition, the company implemented a smoking cessation program that consists of four class sessions. Anyone who completes the program (regardless of whether they quit smoking) is eligible for the nonsmokers'

¹⁰⁸ Managed Healthcare Executive. December 2006. Savings by Design: IBM's Dr. Martin Sepulveda saves millions with employee benefit design. <http://www.managedhealthcareexecutive.com/mhe/article/articleDetail.jsp?id=389260&pageID=3>; and http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7823211&dopt=Abstract;

discount. In 2002, Bank One found that about 23% of those who took part in the program said they quit smoking for at least a year.¹⁰⁹

d. Strategies for Plans (Health Plans, Self-insured Employers)

- i. Provide comprehensive smoking cessation benefits to members in a cafeteria-style design
 - “An effective health plan should cover smoking cessation counseling and therapies- including over-the-counter cessation aids- and offer telephone quit lines”¹¹⁰
 - A 1998 study done at Group Health Cooperative in Washington State showed that up to 10% of smokers utilized smoking cessation services when counseling and NRT were fully covered, with no co-payments except for prescription medications, while only 2.4% of smokers used services under a reduced benefit design requiring a 50% co-payment for behavioral counseling and nicotine replacement therapy (NRT).¹¹¹
 - Plans often do not offer coverage for over-the-counter (OTC) products such as NRT, but NRT is an important component of successful smoking cessation programs. It is estimated that the successful quit rate is increased by 10-15% with the use of smoking cessation aids including NRT. The average cost of a course of NRT is \$250. The average smoker will attempt quitting six to eight times before he or she is successful, at a total cost of over \$3,000. This is a significant financial barrier to many smokers.
 - A cafeteria-style design means that employees can choose from a set of benefits, but are not disqualified from the program and benefits if they do not take advantage of all components of the program. While a multifaceted approach has been shown to be most successful in inducing quitting, not all smokers choose to utilize a comprehensive program. Such individuals should not be discouraged from attempting to quit smoking in a way that best suits their personal preferences.
- ii. Provide information and reminders to members about smoking cessation benefits.
- iii. Provide information to providers about members’ smoking cessation benefits.
- iv. Reimburse providers for providing smoking cessation visits whether or not a member is enrolled in a smoking cessation benefit package (see discussion under Providers for information on possible coding options for reimbursement).

¹⁰⁹ As discussed in http://www.businessgrouphealth.org/pdfs/issuebrief_cphssmoking.pdf

¹¹⁰ Partnership for Prevention: Employer’s Guide.

<http://www.prevent.org/images/stories/clinicalprevention/employersguide.pdf>

¹¹¹ Curry et al. Use and Cost Effectiveness of Smoking-Cessation Services under Four Insurance Plans in a Health Maintenance Organization, NEJM 339: 673-679. 1998. Abstract available at:

<http://content.nejm.org/cgi/content/abstract/339/10/673>

Full article available at: <http://content.nejm.org/cgi/content/full/339/10/673> (requires registration)

- v. Provide telephone smoking quit lines offering counseling services to members (see information under Patients for rationale behind telephone quit lines).

e. Strategies for Policy-Makers

i. Increase the tobacco tax

- The price/demand elasticity curve is relatively constant over a wide range of prices for tobacco products. Studies indicate that for every 10% rise in the price of cigarettes, there is a 3-5% decrease in the prevalence of smoking in adults, and a 7% reduction in the prevalence of smoking in teenagers.¹¹²
 - Increasing the unit price of tobacco products is an effective way of decreasing initiation of smoking and increasing the number of smokers who quit.
 - “A systematic review of published studies, conducted on behalf of the Task Force on Community Preventive Services by a team of experts, found that interventions to increase the unit price for tobacco products are effective both in reducing the number of people who start using tobacco and in increasing the number who quit. Based on this review, the Task Force recommends that this strategy be implemented on the basis of *strong* evidence of effectiveness.”¹¹³
- The unit price of tobacco may be increased by increasing the product excise tax at the state level.¹¹⁴
 - Revenues from the tobacco excise tax could be used to fund tobacco use prevention and control programs.
- The unit price of tobacco may also be increased by increasing the federal tobacco tax.
 - The American Academy of Family Practice is lobbying the US Congress to increase the federal tobacco tax by a minimum of \$0.61 per pack, and to apply the revenue to the State Child Health Insurance Program. It is estimated that such an increase would yield \$50 billion in revenue per year.¹¹⁵

ii. Add free nicotine replacement therapy (NRT) to the Washington State tobacco quit line.

- This could be included as a rider on the state’s Free and Clear quit line contract.

¹¹² Campaign for Tobacco Free Kids: Increasing the Federal Cigarette Tax Reduces Smoking, and the Tobacco Companies Know It. <http://tobaccofreekids.org/research/factsheets/pdf/0021.pdf>

¹¹³ The Guide to Community Preventive Services. <http://www.thecommunityguide.org/tobacco/tobac-int-unit-price.pdf>

¹¹⁴ Currently the Washington State excise tax rate on cigarettes is 202.5 cents per pack. Washington State ranks third in the nation in taxing tobacco. State Excise Tax Rates on Cigarettes. January, 2007. Available at: <http://economics.about.com/gi/dynamic/offsite.htm?site=http://www.taxadmin.org/fta/rate/cigarett.html>

¹¹⁵ AAFP New Now. 6-14-07. Fund SCHIP by Hiking Tobacco Tax, says AAFP. <http://www.aafp.org/online/en/home/publications/news/news-now/government-medicine/20070613schiptobaccotax.html>

- Other states have adopted such a policy, such as Colorado, New Mexico, New York and others.¹¹⁶

¹¹⁶ Colorado Quitline offers innovative nicotine replacement program. <http://www.co.boulder.co.us/health/pr/2005/12162005tobaccoQuitline.htm> , Department of Health Offers Free Nicotine Replacement. http://www.health.state.nm.us/pdf/nicotine_replacement.pdf , Free Nicotine Replacement Therapy now offered at NYDOH's Quitline. <http://jeny.ipro.org/showthread.php?t=238>

C. Aspirin Chemoprophylaxis

Prevention CIT Recommendation:

The Prevention CIT recommends that providers discuss the use of aspirin to prevent heart disease and stroke in men over age 40, post-menopausal women, and anyone at increased risk for cardiovascular disease, and that this discussion be within the context of comprehensive cardiovascular risk assessment and disease prevention.

1. Background

One of the most cost-effective and high impact clinical preventive services identified by the Partnership for Prevention is the recommendation to discuss the use of aspirin to prevent heart disease or stroke in patients at risk for those conditions. The value of aspirin prophylaxis is closely linked to an individual's cardiovascular risk. Therefore, the discussion of aspirin use provides a valuable opportunity for patients and providers to assess and discuss individual risk in detail and to determine the most effective preventive strategies.

Cardiovascular Disease: Cardiovascular disease, including coronary heart disease, stroke and peripheral vascular disease, is the leading cause of death in the United States. Over 480,000 Americans die each year from coronary heart disease alone. A further 565,000 people will experience a first heart attack each year, and 300,000 will have a recurrent event.¹¹⁷ More than a third of heart attacks will result in disabling congestive heart disease within six years.¹¹⁸ Most heart attacks occur in older people (men over age 40 and postmenopausal women), and those with recognized risk factors for cardiovascular disease, including high cholesterol, high blood pressure, diabetes, or a history of smoking.

Clinical trials have shown that aspirin can reduce the risk of cardiovascular events by 30%.¹¹⁹ Aspirin is effective in both primary and secondary prevention of cardiovascular events,¹²⁰ with benefits seen in both men and women.¹²¹ In a meta-analysis, there was a significant reduction in the incidence of heart attacks seen in men taking aspirin, while in women aspirin showed a greater benefit in reducing strokes.¹²² However, these benefits must be weighed against the risks of daily aspirin use, such as gastrointestinal bleeding and hemorrhagic stroke. The risk-benefit ratio is most favorable for persons at high risk for heart disease based on age and risk factors. If physicians advised all high-risk adults to consider taking aspirin an estimated 80,000 lives would be saved annually.

It is not known how many adults at risk for cardiovascular disease receive counseling from their health care providers on the benefits and harms of aspirin. However, 36% of adults over age 35

¹¹⁷ Partnership for Prevention: Discuss Daily Aspirin Use.

<http://www.prevent.org/index.php?option=content&task=view&id=58>

¹¹⁸ Ibid

¹¹⁹ Ibid

¹²⁰ USPSTF

¹²¹ Berger et al. Aspirin in the Primary Prevention of Cardiovascular Events in Men and Women. JAMA 2006. 295 (3): 306-313.

¹²² Ibid

take aspirin on a regular basis.¹²³ Counseling on aspirin use is a cost-saving clinical preventive service. The average cost per person to administer the service is \$25 per year, with an annual per person medical cost savings of \$95, resulting in a net medical cost savings of \$70 per person advised.

The Partnership for Prevention and the USPSTF advise that men over age 40, postmenopausal women and others at high risk for heart disease be advised on the benefits/harms of aspirin use for the primary prevention of cardiovascular events. In the Partnership for Prevention's ranking of clinical preventive services, counseling on aspirin chemoprophylaxis receives the top scores for both clinical preventable burden and cost-effectiveness (see table below)¹²⁴.

Table: Clinical Preventable Burden (CPB) and Cost-Effectiveness (CE) Calculation of Aspirin Chemoprophylaxis

	CPB*	CE [#]	Total Score
Scoring range	>360,000	< \$0	
Actual number	590,000**	Cost saving	
Score	5/5	5/5	10/10

*QALYs saved per four million cohort

[#] Cost per QALY; QALY= Quality Adjusted Life Year

** Assuming a 50% current intervention rate, increasing to 90%

Dose: The USPSTF suggests that low-dose aspirin (75-81 mg) is as effective in prevention of CVD as higher doses. A recent analysis confirms this, concluding that current data “do not support the routine, long-term use of aspirin dosages greater than 75 to 81 mg/d in the setting of cardiovascular disease prevention. Higher dosages...do not better prevent events but are associated with increased risks of gastrointestinal bleeding.”¹²⁵

Colon cancer: It has also been suggested that aspirin can reduce the risk of colon cancer. Although older studies failed to show a difference in colon cancer rates between aspirin users and non-users,¹²⁶ a recent study reported in the British journal *The Lancet* indicated that use of at least 300 mg of aspirin a day reduced colon cancer rates by almost 40%, but the benefit was seen only after ten years of follow-up.¹²⁷ In addition, only higher doses of aspirin are associated with a reduction in colon cancer, with a resulting increase in risks, including gastrointestinal bleeding. For these reasons, the USPSTF currently recommends against the use of aspirin for the primary prevention of colon cancer (D recommendation), finding that the harms outweigh the potential benefits.¹²⁸ Chemoprevention of colon cancer is not considered in the subsequent discussion.

¹²³ Ibid

¹²⁴ Partnership for Prevention Rankings of Clinical Preventive Services. <http://www.prevent.org/content/view/43/71/>

¹²⁵ Aspirin Dose for the Prevention of Cardiovascular Disease: A Systematic Review *JAMA*. 2007;297:2018-

2024. <http://jama.ama-assn.org/cgi/content/abstract/297/18/2018>

¹²⁶ The Nurses Health Study and the Physicians Health Study. Summarized in *Journal Watch* 1998. <http://general-medicine.jwatch.org/cgi/content/full/1998/508/2#>

¹²⁷ Flossmann et al. Effect of aspirin on long-term risk of colorectal cancer: consistent evidence from randomized and observational studies. *The Lancet* 2007. 369: 1603-1613.

¹²⁸ USPSTF: Aspirin or Non-steroidal Antiinflammatory Drugs in the Primary prevention of Colorectal Cancer. Available at: <http://www.ahrq.gov/clinic/uspstf/uspstfasc.htm>

2. Recommended Guidelines:

The Prevention CIT recommends the use of the U.S. Preventive Services Task Force (USPSTF) recommendations for aspirin chemoprophylaxis.

USPSTF Recommendations¹²⁹

The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians discuss aspirin chemoprevention with adults who are at increased risk for coronary heart disease (CHD). Discussions with patients should address both the potential benefits and harms of aspirin therapy.

Rating: A recommendation.

Rationale: The USPSTF found good evidence that aspirin decreases the incidence of coronary heart disease in adults who are at increased risk for heart disease. They also found good evidence that aspirin increases the incidence of gastrointestinal bleeding and fair evidence that aspirin increases the incidence of hemorrhagic strokes. The USPSTF concluded that the balance of benefits and harms is most favorable in patients at high risk of CHD (5-year risk of greater than or equal to 3 percent) but is also influenced by patient preferences.

Clinical Considerations

- Decisions about aspirin therapy should take into account overall risk for coronary heart disease. Risk assessment should include asking about the presence and severity of the following risk factors: age, sex, diabetes, elevated total cholesterol levels, low levels of high-density lipoprotein (HDL) cholesterol, elevated blood pressure, family history (in younger adults), and smoking. Tools that incorporate specific information on multiple risk factors provide more accurate estimation of cardiovascular risk than categorizations based simply on counting the numbers of risk factors (<http://www.intmed.mcw.edu/clincalc/heartrisk.html>).
- Men older than 40 years, postmenopausal women, and younger people with risk factors for coronary heart disease (e.g., hypertension, diabetes, or smoking) are at increased risk for heart disease and may wish to consider aspirin therapy. The table below shows how estimates of the type and magnitude of benefits and harms associated with aspirin therapy vary with an individual's underlying risk for coronary heart disease. Although balance of benefits and harms is most favorable in high-risk people (5-year risk greater than 3 percent), some people at lower risk may consider the potential benefits of aspirin to be sufficient to outweigh the potential harms.
- Discussions about aspirin therapy should focus on potential coronary heart disease benefits, such as prevention of myocardial infarction, and potential harms, such as gastrointestinal and intracranial bleeding. Discussions should take into account individual preferences and risk aversions concerning myocardial infarction, stroke,

¹²⁹ USPSTF recommendations on aspirin chemoprophylaxis. Available at: <http://www.ahrq.gov/clinic/uspstf/uspasm.htm>

and gastrointestinal bleeding.

- Although the optimal timing and frequency of discussions related to aspirin therapy are unknown, reasonable options include every 5 years in middle-aged and older people or when other cardiovascular risk factors are detected.
- Most participants in the primary prevention trials of aspirin therapy have been men between 40 and 75 years of age. Current estimates of benefits and harms may not be as reliable for women and older men.
- Although older patients may derive greater benefits because they are at higher risk for CHD and stroke, their risk for bleeding may be higher.
- Uncontrolled hypertension may attenuate the benefits of aspirin in reducing CHD.
- The optimum dose of aspirin for chemoprevention is not known. Primary and secondary prevention trials have demonstrated benefits with a variety of regimens, including 75 mg per day, 100 mg per day, and 325 mg every other day. Doses of approximately 75 mg per day appear as effective as higher doses; whether doses below 75 mg per day are effective has not been established. Enteric-coated or buffered preparations do not clearly reduce adverse gastrointestinal effects of aspirin. Uncontrolled hypertension and concomitant use of other non-steroidal anti-inflammatory agents or anticoagulants increase risk for serious bleeding.

The Prevention CIT also recommends the American Heart Association Guidelines for the Primary Prevention of Heart Attack and Stroke (previously recommended by the Heart Disease CIT).¹³⁰ The AHA guidelines concur with the USPSTF recommendations, recommending low-dose aspirin in people at higher risk of coronary heart disease (especially those with a ten-year cardiovascular risk of ten percent or greater [five-year risk of five or greater]).¹³¹ Recent changes to AHA guidelines for women suggest that low dose aspirin therapy may be considered in women age 65 or older regardless of CVD risk status, if benefits are likely to outweigh other risks (previous guidelines did not recommend aspirin in lower risk or healthy women).¹³²

¹³⁰ American Heart Association <http://www.americanheart.org/presenter.jhtml?identifier=4456> and Guidelines for the Primary Prevention of Heart Attack and Stroke, 2002 Update. <http://circ.ahajournals.org/cgi/content/full/106/3/388>

¹³¹ AHA Guidelines for the Primary Prevention of Heart Attack and Stroke, 2002 Update. <http://circ.ahajournals.org/cgi/content/full/106/3/388>

¹³² American Heart Association 2007. Evidence-based guidelines for prevention of cardiovascular disease in women. <http://circ.ahajournals.org/cgi/content/full/CIRCULATIONAHA.107.181546> and <http://circ.ahajournals.org/cgi/content/full/115/11/1481/TBL4B>

Table: Estimates of Benefits and Harms of Aspirin Therapy Given for Five Years to 1,000 Individuals with Various Levels of Baseline Risk for Coronary Heart Disease (from the USPSTF)¹³³

Baseline risk for coronary heart disease over 5 years: 1% Total mortality: No effect CHD events**: 1-4 avoided Hemorrhagic strokes***: 0-2 caused Major gastrointestinal bleeding events****: 2-4 caused
Baseline risk for coronary heart disease over 5 years: 3% Total mortality: No effect CHD events**: 4-12 avoided Hemorrhagic strokes***: 0-2 caused Major gastrointestinal bleeding events****: 2-4 caused
Baseline risk for coronary heart disease over 5 years: 5% Total mortality: No effect CHD events**: 6-20 avoided Hemorrhagic strokes***: 0-2 caused Major gastrointestinal bleeding events****: 2-4 caused

These estimates are based on a relative risk reduction of 28% for coronary heart disease events in aspirin-treated patients. They assume risk reductions do not vary significantly by age.

** Nonfatal acute myocardial infarction and fatal coronary heart disease. Five-year risks of 1%, 3% and 5% are equivalent to 10-year risks of 2%, 6%, and 10%, respectively.

*** Data from secondary prevention trials suggest that increases in hemorrhagic stroke may be offset by reduction in other types of stroke in patients at very high risk for cardiovascular disease (CVD) (greater than or equal to 10% 5-year risk).

**** Rates may be 2 to 3 times higher in people older than 70 years.

3. Strategies to Improve the Frequency of Discussion of Aspirin Chemoprophylaxis and Primary Prevention of Heart Attacks and Stroke in the Puget Sound Region

a. Strategies for Providers

- i. Determine cardiovascular risk in adult patients

¹³³ Source: Hayden M, Pignone M, Phillips C, Mulrow C. Aspirin for the primary prevention of cardiovascular events: A summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine* 2002;136:16172. Available at: <http://www.ahrq.gov/clinic/3rduspstf/aspirin/asptab1.htm>

- Risk factor assessment should begin at age 20 and include family history, smoking and alcohol status, blood pressure, BMI, pulse, and fasting blood sugar and lipid levels (repeated every five years, or every two years if risk factors are present).¹³⁴
- Ten-year cardiovascular risk should also be assessed with a multiple risk factor tool, such as the Framingham calculator, especially in patients over age 40 or those with known risk factors.¹³⁵ Consider embedding the Framingham risk calculator in any Health Risk Assessment given to patients¹³⁶.
 - Cardiovascular ten year risk calculator (Framingham)
 - Online: <http://www.intmed.mcw.edu/clincalc/heartrisk.html> or <http://hp2010.nhlbihin.net/atpiii/calculator.asp?usertype=prof>
 - Downloadable PDA versions:
 - Palm OS only: <http://hp2010.nhlbihin.net/atpiii/atp3palm.htm>
 - Palm OS and Pocket PC: <http://www.statcoder.com/cholesterol.htm>
 - Print version: <http://hp2010.nhlbihin.net/atpiii/riskcalc.htm>
- ii. Be knowledgeable about current guidelines for prevention of heart disease and stroke in general, and aspirin chemoprophylaxis specifically.
 - When prescribing aspirin for prevention of heart disease and stroke, prescribe the lowest effective dose of 75-81 mg per day.
 - Resources:
 - AHA Guidelines for Primary Prevention of Cardiovascular Disease and Stroke: 2002 Update: <http://circ.ahajournals.org/cgi/content/full/106/3/388>
 - USPSTF Recommendations for Aspirin Chemoprophylaxis, 2002: <http://www.ahrq.gov/clinic/3rduspstf/aspirin/asprrr.htm>
- iii. Discuss aspirin chemoprophylaxis with all patients at risk for heart disease, including men over age 40, postmenopausal women, and anyone with risk factors for

¹³⁴ American Heart Association Guidelines for the Primary Prevention of Heart Attack and Stroke, 2002. <http://circ.ahajournals.org/cgi/content/full/106/3/388/TBL1>

¹³⁵ Ibid

¹³⁶ The Framingham risk calculator provides a reasonable assessment of cardiovascular risk over ten year for Non-Hispanic Whites, Hispanics, and Black Americans. It is less accurate for people of East and South Asian descent. The risk assessment applies only to primary prevention, i.e. to those patients who do not have any clinical manifestations of coronary heart disease. Once coronary atherosclerotic disease becomes clinically manifest, the risk for future coronary events is much higher than that for patients without CHD, regardless of other risk factors, and in this case, Framingham scoring no longer applies. A full discussion of the value and limitations of the Framingham risk calculator are discussed in detail in Grundy et al. AHA/ACC Scientific Statement. Assessment of Cardiovascular Risk by Use of Multiple-Risk-Factor Assessment Equations: A Statement for Healthcare Professionals. From the American Heart Association and the American College of Cardiology. *Circulation*. 1999;100:1481-1492 <http://circ.ahajournals.org/cgi/content/full/100/13/1481>

cardiovascular disease risk factors. Use patients' ten-year cardiovascular risk assessment to guide the discussion.

- The table in the Background section of this topic can guide the clinician in determining risks and benefits of aspirin chemoprophylaxis for individual patients.
- iv. Engage in shared decision-making with patients when discussing aspirin chemoprophylaxis.
- Aspirin chemoprophylaxis is a prime example of the need for shared decision-making between patient and provider. The recommendation of aspirin for primary prevention of heart disease and stroke involves discussion of the potential benefits for individual patients based on their risk of CVD, and the potential harms of treatment. The discussion may be based upon the evidence presented in the USPSTF recommendations (see blue box above), but must also be sensitive to patients' individual risks, perceptions, and values.
 - This shared decision-making process between patient and provider can be time-consuming for clinicians. The USPSTF offers suggestions on how to achieve shared decision-making in practice.
 - “Clinicians should make sure that balanced, evidence-based information about the service (including the potential benefits and harms, alternatives, and uncertainties) is available to the patient if needed. For preventive services for which the balance of potential benefits and harms is a close call, or for which the evidence is insufficient to guide a decision for or against screening, clinicians should additionally assist patients in determining whether individual characteristics and personal preferences favor performing or not performing the preventive service”.¹³⁷
 - Resources:
 - Shared Decision Making About Screening and Chemoprevention: A Suggested Approach from the U.S. Preventive Services Task Force <http://www.thecommunityguide.org/cancer/idm/sdm-consent.pdf>
 - The Foundation for Shared Medical Decision Making¹³⁸ www.fimdm.org
 - The Washington State Health Care Authority (HCA) has begun a Demonstration Project based on the recommendations of the Blue Ribbon Commission¹³⁹ (commissioned by the state legislature in 2006 to make recommendations to improve healthcare in the state) that will fund resources for shared decision-making for patients covered under the HCA, including

¹³⁷ Sheridan et al. Shared Decision Making About Screening and Chemoprevention A Suggested Approach from the U.S. Preventive Services Task Force Amer. J. Prev. Med 2004; 26:56-66 Available at: <http://www.thecommunityguide.org/cancer/idm/sdm-consent.pdf>

¹³⁸ “The Foundation for Informed Medical Decision Making is a non-profit organization dedicated to assuring that people understand their choices and have the information they need to make sound decisions affecting their health and well being”. From FIDM website: www.fimdm.org

¹³⁹ Blue Ribbon Commission Final Report. January 2007. http://www.governor.wa.gov/priorities/healthcare/BlueRibbon_FinalReport.pdf

public employees and Basic Health Plan enrollees. The demonstration project will incorporate decision aids into clinical practice to assess their effect on health care quality, cost and patient satisfaction.¹⁴⁰

b. Strategies for Patients, Consumers, Employees, Union Members

- i. Be aware of your risk for cardiovascular disease, including an assessment of ten-year cardiovascular risk based on a multiple risk score such as the Framingham risk calculator.
 - Consumer-oriented Framingham risk calculator:
<http://hp2010.nhlbi.nih.net/atp/iii/calculator.asp?usertype=pub>
 - American Heart Association Risk Assessment Tool
<http://www.americanheart.org/presenter.jhtml?identifier=3003499>
- ii. Discuss the use of aspirin as a preventive measure with your healthcare provider. Consider becoming familiar with the risks and benefits of aspirin use prior to the discussion, so that they may better participate in a shared decision-making process to determine if aspirin is right for them.
 - AHA Handout for patients:
<http://www.americanheart.org/presenter.jhtml?identifier=4456>

c. Strategies for Other Stakeholders (i.e. Purchasers, Employers, Union Trusts and Health Plans)

- i. Embed a ten-year cardiovascular risk calculation in Health Risk Assessments (HRAs) given to employees or members.
 - The USPSTF guidelines for aspirin chemoprophylaxis are complex, in that they recommend discussing aspirin chemoprophylaxis with patients at risk for heart disease in the context of their individual cardiovascular risk. Such a discussion involves shared decision-making between patient and provider. Therefore, the Prevention CIT members did not see an extensive role for other stakeholders in improving the uptake of this recommendation, other than to embed a ten-year cardiovascular risk assessment within HRAs.

¹⁴⁰See: http://www.redorbit.com/news/health/922404/washington_becomes_first_state_to_endorse_shared_medical_decision_making/index.html?source=r_health

D. Colorectal Cancer Screening

Prevention CIT Recommendations:

- Routine colorectal cancer screening should be offered to all adults over the age of 50.¹⁴¹
- The selection of the screening strategy should be made by shared decision-making between provider and patient, taking into considerations patient overall health and co-morbidities, risks, cost, access, local availability of services, likelihood of adherence to selected strategies, and patient preference. Lack of ability or desire for one screening strategy should prompt selection of an alternative strategy that is more acceptable to the patient.

Background

Colorectal cancer is third most common cancer diagnosed in the United States and the second leading cause of annual cancer deaths. The American Cancer Society estimates that over 150,000 new cases of colorectal cancer will be diagnosed in Americans in 2007 and that the disease will cause about 52,000 deaths.¹⁴² Although effective screening strategies exist for colorectal cancer, screening rates remain low. The Partnership for Prevention estimates that currently only about one-third of eligible adults are up-to-date on colorectal cancer screening.¹⁴³

The Prevention CIT selected colorectal cancer screening as topic for discussion because of the large potential for improvement in current screening levels. However, the discussion and recommendations made for colon cancer can serve as a model for cancer screening in general and can also be applied to other cancer preventive services, such as those for breast, cervical and prostate cancer.

Colorectal Cancer Screening Strategies: The U.S. Preventive Services Task Force (USPSTF) recommends one of several colorectal cancer screening strategies in the general population, including¹⁴⁴:

1. Fecal occult blood testing (FOBT) every year
2. Flexible sigmoidoscopy every five years
3. Fecal occult blood testing every year and flexible sigmoidoscopy every five years
4. Colonoscopy every ten years.

¹⁴¹ Colon cancer screening should also be offered to younger adults at high risk for colon cancer based on family or individual medical history, but these recommendations are separate from the USPSTF recommendations for screening in the general population. In general, colonoscopy is the screening test of choice in patients at high risk of colon cancer.

¹⁴² American Cancer Society. Detailed Guide: Colon and Rectum Cancer

What Are the Key Statistics for Colorectal Cancer?

http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_are_the_key_statistics_for_colon_and_rectum_cancer.asp?sitearea=

¹⁴³ Partnership for Prevention: Colon Cancer Screening. <http://www.prevent.org/content/view/66/112>

¹⁴⁴ For information on the various recommended colon cancer screening tests, go to American Cancer Society: Detailed Guide Colon and Rectal Cancer: Colorectal Cancer Screening.

http://www.cancer.org/docroot/CRI/content/CRI_2_4_3X_Can_colon_and_rectum_cancer_be_found_early.asp

The USPSTF no longer recommends double contrast barium enema as a screening strategy of choice, as there is no direct evidence that this test reduces colon cancer mortality. Of the strategies listed, the USPSTF finds that the combination of fecal occult blood testing and flexible sigmoidoscopy is more sensitive than either strategy alone, but it does not find sufficient evidence to recommend one strategy over another (see USPSTF recommendations below for further details).

Selection of Colorectal Cancer Screening Strategies: Effectiveness, Cost, Risk and Patient Choice: The USPSTF, in making their recommendations on colorectal cancer screening, examined the effectiveness of the various tests in reducing mortality from colon cancer.¹⁴⁵ Results are mixed, making direct comparisons of the different methods difficult.

A Minnesota study found that annual FOBT decreased colon cancer deaths by 33% after 18 years, while biennial screening decreased deaths by 21%. Two European studies showed that biennial FOBT reduced colon cancer mortality by 15% and 18%. The Partnership for Prevention estimates the mean of all studies they examined to be 38% colorectal cancer mortality reduction with FOBT,¹⁴⁶ but they assumed that people who had at least one test were 80% compliant with recommended screening intervals. It should be remembered that positive testing on FOBT requires follow-up tests, such as colonoscopy, and the value of FOBT is lost if patients cannot or do not undergo appropriate follow-up.

Studies on flexible sigmoidoscopy have also led to mixed results. The only randomized controlled trial identified by the USPSTF was too small to show a significant difference in mortality rates, but did show odds ratio of 0.20 in the incidence of colon cancer in the screened group.¹⁴⁷ An older case-controlled study of rigid sigmoidoscopy showed a 59% reduction in deaths due to colorectal cancer in the screened population.¹⁴⁸ The Partnership for Prevention estimated that patients who ever had a sigmoidoscopy had a mean reduction in colorectal cancer mortality of 45%, but emphasized that the range of results across the studies included in their analysis was wide.¹⁴⁹

Currently, no randomized trials that examine death from colorectal cancer as an end point have compared FOBT alone or sigmoidoscopy alone with a strategy of performing both tests. The USPSTF found one study that compared rigid sigmoidoscopy combined with FOBT to rigid sigmoidoscopy alone; the study found the relative risk of colon cancer mortality for those patients using the combined as compared to the single strategy was 0.56.¹⁵⁰

The ability of colonoscopy to prevent colorectal cancer deaths has not been studied in a

¹⁴⁵ Pignone et al. *Annals of Internal Medicine*. 2002, 137:132-141. Screening for Colorectal Cancer in Adults at Average Risk: A Summary of the Evidence for the U.S. Preventive Services Task Force

<http://www.annals.org/cgi/content/full/137/2/132>

¹⁴⁶ Partnership for Prevention. Colorectal Cancer Screening: Technical Report. 2006

<http://www.prevent.org/images/stories/clinicalprevention/colorectal.pdf>

¹⁴⁷ USPSTF Screening for Colorectal Cancer. 2002. <http://www.ahrq.gov/clinic/uspstf/uspstf/uspstfcol.htm>

¹⁴⁸ Ibid

¹⁴⁹ Partnership for Prevention. Colorectal Cancer Screening: Technical Report. 2006

<http://www.prevent.org/images/stories/clinicalprevention/colorectal.pdf>

¹⁵⁰ Pignone et al. *Annals of Internal Medicine*. 2002, 137:132-141. Screening for Colorectal Cancer in Adults at Average Risk: A Summary of the Evidence for the U.S. Preventive Services Task Force

<http://www.annals.org/cgi/content/full/137/2/132>

randomized controlled trial. The USPSTF cites the National Polyp Study, published in 1993, which estimated the reduction in mortality with regular colonoscopy to be 76-90% compared to historic controls.¹⁵¹ A case-control study at Veteran's Affairs hospitals showed a 55% reduction in colon cancer mortality in patients who had had a previous colonoscopy.¹⁵² The USPSTF states that the "efficacy of colonoscopy is supported by its integral role in trials of FOBT, extrapolation from sigmoidoscopy studies, limited case-control evidence, and the ability of colonoscopy to inspect the proximal colon."¹⁵³

In terms of cost-effectiveness, a meta-analysis found that cost-effectiveness ratios for screening with any of the screening modalities were generally between \$10,000 and \$25,000 per year of life saved.¹⁵⁴ As in other studies, this analysis found no one strategy to be consistently more effective, and/or to have the best incremental cost-effectiveness ratio. Similar estimates for cost-effectiveness were found in the Partnership for Prevention analysis (ranging from \$9,000 per QALY for colonoscopy to \$20,000 for flexible sigmoidoscopy).¹⁵⁵ Despite the fact that colonoscopy is the most expensive of the screening strategies, its greater screening interval of ten years reduces its annual cost, thus bringing it in line with, or even lower than, other screening strategies. It should also be noted that the effectiveness of FOBT is dependent upon follow-up for positive results, often with colonoscopy, which increases the cost of that strategy.

Each of the screening procedures carries with it inherent risks. Death from complications of sigmoidoscopy is estimated to be 1 in 55,000 patients and from colonoscopy 1 in 20,000.¹⁵⁶ There is no risk of adverse events from FOBT itself, but there are risks in the follow-up procedures for positive results. As with any screening program for asymptomatic adults, screening risks should be weighed against potential benefits. In addition to risk, costs and inconveniences limit the appropriateness of testing strategies for some patients. Considerations such as health status and co-morbidities, cost, access, availability, likelihood of adherence and patient preference should all be taken into account when selecting a colorectal screening strategy for a given patient. The USPSTF recommends that patients and providers engage in shared decision-making to determine which strategy is most appropriate for each patient.

Current Colorectal Cancer Screening Rates: The Partnership for Prevention estimated that the combined rate of colorectal cancer screening in the U.S. in 2005 was 35%.¹⁵⁷ Looking at each screening strategy separately, in 2003 19% of US adults over age 50 had a FOBT within the last two years, 5% of adults over 50 had a sigmoidoscopy within the last five years, and 20% of

¹⁵¹ Ibid

¹⁵² Ibid and Partnership for Prevention. Colorectal Cancer Screening: Technical Report. 2006

<http://www.prevent.org/images/stories/clinicalprevention/colorectal.pdf>

¹⁵³ USPSTF Screening for Colorectal Cancer. 2002. <http://www.ahrq.gov/clinic/uspstf/uspstfcoloscolo.htm>

¹⁵⁴ Pignone et al. A Systematic Review Cost-effectiveness Analyses of Colorectal Cancer Screening Ann Intern Med 2002;137(2):96-104 <http://www.ahrq.gov/clinic/3rduspstf/colorectal/colocost1.htm#Results>

¹⁵⁵ Partnership for Prevention Colorectal Cancer Screening: Technical Report Prepared for the National Commission on Prevention Priorities. Last updated May 2006.

<http://www.prevent.org/images/stories/clinicalprevention/colorectal.pdf>

¹⁵⁶ Pignone et al. Annals of Internal Med. 2002, 137:132-141. Screening for Colorectal Cancer in Adults at Average Risk: A Summary of the Evidence for the U.S. Preventive Services Task Force

<http://www.annals.org/cgi/content/full/137/2/132>

¹⁵⁷ Partnership for Prevention Benefits of Increased Utilization: <http://prevent.org/content/view/51/104/>. 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

adults over 50 had a colonoscopy within the last ten years.¹⁵⁸

A Washington State study looked at retrospective Medicare claims data for a nine-month period in 2000.¹⁵⁹ It showed that 9.2% of beneficiaries had fecal occult blood tests during the study period, 7.2% had any invasive colon tests (colonoscopy, flexible sigmoidoscopy, or barium enema for diagnostic or screening purposes), and 3.5% had invasive tests for screening purposes only. The study highlighted demographic disparities in colorectal cancer screening rates. Women were more likely to receive fecal occult blood test screening and less likely to receive invasive tests for screening indications than men and rural residents were more likely than urban residents to have fecal occult blood tests but less likely to receive invasive screening tests. Racial disparities in colorectal cancer screening were also found. Assuming constant screening test rates, the authors extrapolated the data to estimate that over a five-year period, 23% of whites would undergo invasive tests, compared to only 19% of blacks and 11% of Hispanics. These differences were further magnified if fecal occult blood test utilization was considered.

In above study, colonoscopy accounted for 41% of all invasive screening tests. Medicare did not begin coverage of colonoscopy in average risk patients until July 2001, and so the authors conclude that most colonoscopies in their study were done in high-risk patients. A more recent analysis¹⁶⁰ looked at utilization trends following expanded Medicare reimbursement for colon cancer screening, including colonoscopy. It found that expanded coverage corresponded with an increased utilization of colonoscopy, from 285/100,000 beneficiaries per quarter in 1992-1997 (when Medicare offered no coverage for colon cancer screening) to 889/100,000 in January 1998-June 2001 (when Medicare covered FOBT, sigmoidoscopy, colonoscopy for high risk patients only). With full coverage in place, during the period from July 2001 to December 2002, the screening rate rose to 1,919/100,000. The changes in Medicare coverage were associated with earlier stage at diagnosis for those diagnosed with colon cancer, especially those with proximal colon lesions. The association with proximal lesions suggests that increased utilization of colonoscopy, which examines the whole colon, was responsible for the change. However, the main difference in stage of diagnosis was seen between the first and second study periods, when reimbursement was expanded to FOBT, sigmoidoscopy and high-risk colonoscopy screening only. The study, however, was unable to show that colon cancer was prevented by the changes in Medicare reimbursement, and cautions that screening all eligible Medicare beneficiaries with colonoscopy would cost several billion dollars per year, without clear benefit of this modality over other screening strategies¹⁶¹

Partnership for Prevention Ranking: The table below shows the Partnership for Prevention's calculations on clinical preventive burden and cost effectiveness of colorectal cancer screening. "If a birth cohort of 4 million were offered screening at recommended intervals, 31,500 deaths

¹⁵⁸ Partnership for Prevention Colon Cancer Screening Tables. <http://www.prevent.org/content/view/65/94/>. Based on the NHIS 2003 Sample Adult Core Survey.

¹⁵⁹ Ko et al. Persistent demographic differences in colorectal cancer screening utilization despite Medicare reimbursement. BMC Gastroenterology 2005, 5:10
http://coloncancer.about.com/gi/dynamic/offsite.htm?zi=1/XJ&sdn=coloncancer&cdn=health&tm=6&f=00&su=p247.2.140.ip_p726.2.152.ip_p284.8.150.ip_&tt=2&bt=0&bts=0&zu=http%3A//dx.doi.org/10.1186/1471-230X-5-10

¹⁶⁰ Gross et al. Relation between Medicare screening and reimbursement and stage at diagnosis for older patients with colon cancer. JAMA 2006, 23:2815-2822.

¹⁶¹ Morris AM, Medicare Policy and Colorectal Cancer Screening: Will Changing Access Change Outcomes? JAMA 2006, 296:2855-6.

would be prevented and 338,000 years of life would be gained over the lifetime of the birth cohort. In the current cross-section of people aged 50 and older, 18,800 deaths could be prevented each year by offering all people in this group screening at recommended intervals. Only 58% of these deaths are currently being prevented. In year 2000 dollars, the cost effectiveness of offering patients aged 50 and older a choice of colorectal cancer screening options is \$11,900 per year of life gained.”¹⁶²

Table: Clinical Preventable Burden (CPB) and Cost-Effectiveness (CE) Calculation of Colon Cancer Screening¹⁶³

	CPB*	CE [#]	Total
Scoring Range	185,00-360,00	\$0-\$14,000	
Actual number	337,556	\$11,947**	
Score	4/5	4/5	8/10

*Clinical Preventable Burden = QALYs saved per birth cohort of four million people if everyone over age 50 received colon cancer screening.

[#] Cost effectiveness = Cost per QALY gained in birth cohort of four million

**Weighted CE across the recommended screening strategies; CE of annual FOBT = \$13,334/QALY saved; CE of flexible sigmoidoscopy every five years = 19,482/QALY saved, and CE of colonoscopy every ten years = \$8,840/QALY saved.

QALY = Quality-Adjusted Life Year

1. Recommended Guidelines

The Prevention CIT recommends the U.S. Preventive Services Task Force (USPSTF) Screening for Colorectal Cancer Guidelines (2002) as the source of recommendations around colorectal cancer screening.

¹⁶² Macosiek et al. Colon Cancer Screening. Health Impact and Effectiveness. Am J Prev Med 2006;31(1):80 – 89. Available at: <http://www.prevent.org/images/stories/clinicalprevention/article%201666p.pdf>

¹⁶³ Based on estimates in Partnership for Prevention Colorectal Cancer Screening: Technical Report Prepared for the National Commission on Prevention Priorities. Last updated May 2006. <http://www.prevent.org/images/stories/clinicalprevention/colorectal.pdf>

USPSTF Recommendations¹⁶⁴**Summary of Recommendations**

The USPSTF strongly recommends that clinicians screen men and women 50 years of age or older for colorectal cancer with FOBT, sigmoidoscopy or colonoscopy.

Rating: A recommendation.

Rationale: The USPSTF found fair to good evidence that several screening methods are effective in reducing mortality from colorectal cancer. The USPSTF concluded that the benefits from screening substantially outweigh potential harms, but the quality of evidence, magnitude of benefit, and potential harms vary with each method.

The USPSTF found good evidence that periodic fecal occult blood testing (FOBT) reduces mortality from colorectal cancer and fair evidence that sigmoidoscopy alone or in combination with FOBT reduces mortality. The USPSTF did not find direct evidence that screening colonoscopy is effective in reducing colorectal cancer mortality; efficacy of colonoscopy is supported by its integral role in trials of FOBT, extrapolation from sigmoidoscopy studies, limited case-control evidence, and the ability of colonoscopy to inspect the proximal colon. Double-contrast barium enema offers an alternative means of whole-bowel examination, but it is less sensitive than colonoscopy, and there is no direct evidence that it is effective in reducing mortality rates. The USPSTF found insufficient evidence that newer screening technologies (for example, computed tomographic colography) are effective in improving health outcomes.

There are insufficient data to determine which strategy is best in terms of the balance of benefits and potential harms or cost-effectiveness. Studies reviewed by the USPSTF indicate that colorectal cancer screening is likely to be cost-effective (less than \$30,000 per additional year of life gained) regardless of the strategy chosen.

It is unclear whether the increased accuracy of colonoscopy compared with alternative screening methods (for example, the identification of lesions that FOBT and flexible sigmoidoscopy would not detect) offsets the procedure's additional complications, inconvenience, and costs.

2. Strategies to Improve the Rate of Colorectal Cancer Screening in the Puget Sound Region

a. Strategies for Providers

- i. Recommend routine colorectal cancer screening in all patients over age 50
 - Provide a simple and consistent message to patients about the importance of colorectal cancer screening.

¹⁶⁴ USPSTF Screening for Colorectal Cancer. 2002. <http://www.ahrq.gov/clinic/uspstf/uspcolo.htm>

- Engage in shared decision-making with patients about what screening strategy is best for them, and then implement a recommended strategy on an ongoing basis. If FOBT is chosen, it should be offered annually.
 - Take factors such as patient overall health and co-morbidities, procedural risks, cost, access, local availability of services, likelihood of adherence to selected strategies, and patient preference into account.
- ii. Track patients over time for compliance with the selected colorectal cancer screening strategy and proactively identify and remind patients who are due for screening.
- Tracking may be done by electronic health records or patient registries, or by completing an appropriate area on a prominently displayed Problem List or flow sheet in a patient's chart.
 - Institute an opportunistic screening policy. Colorectal cancer screening should be discussed with all patients who are due for screening regardless of reason for their visit (discussion should not be limited to an annual visit).
- iii. Schedule a planned, regularly recurring preventive care visit for all patients.
- Although colorectal and other cancer screening tests should be discussed with patients whenever there is an opportunity, a recent study in Washington State showed that a planned annual preventive care visit can increase cancer screening rates. In the study, a preventive care visit was associated with a 3 1/2 times greater likelihood of completion of colorectal cancer screening.¹⁶⁵
 - The preventive care visit should focus on health maintenance activities, such as cancer screening and early detection, immunization updates, counseling on healthy lifestyles, and medication review. The physical exam should be targeted to the patient's needs.
- iv. Mail FOBT kits to patients over age 50.
- A Kaiser Permanente study showed that compliance rates with any colorectal cancer screening increased 13-14% in patients who received direct mailing of FOBT kits with or without follow-up reminders, compared to a 7% increase in controls exposed to a community-wide awareness campaign.¹⁶⁶

b. Strategies for Patients (Consumers, Employees, Union Members)

- i. All patients over age 50 or with a family history of colon cancer should discuss colorectal cancer screening with their healthcare provider.

¹⁶⁵ Fenton et al, How important is the preventive health evaluation? Arch Int Med 2007, 167: 580-85. Abstract available at:

<http://archinte.ama-assn.org/cgi/content/abstract/167/6/580>

¹⁶⁶ Church et al. A Randomized Trial of Direct Mailing of Fecal Occult Blood Tests To Increase Colorectal Cancer Screening. JNCI 2004, 96:770-780 <http://jnci.oxfordjournals.org/cgi/content/full/96/10/770>

- Patients should ask their healthcare provider about the different options for colorectal cancer screening, and adopt a colon cancer screening strategy that they can best adhere to.
 - ii. Follow-through with selected colorectal cancer screening strategy.
 - iii. Be informed about colorectal cancer screening
 - Patient educational resources:
 - American Cancer Society:
http://www.cancer.org/docroot/CRI/content/CRI_2_4_1x_What_Is_Colon_and_Rectum_Cancer.asp?rnav=cri
 - FamilyDoctor.org
<http://familydoctor.org/online/famdocen/home/common/cancer/risk/556.html>
- c. Strategies for Plans (Health Plans, Self-insured Employers)
- i. Cover colorectal cancer screening.
 - Consider full coverage (without co-pays) for all preventive services, including colorectal cancer screening. This includes full coverage for colonoscopy as a screening strategy if selected as appropriate by patient and provider, as well as any secondary diagnostic studies required to confirm or follow-up on initial positive screens.
 - ii. Cover annual preventive visits for all members.
 - iii. Educate members about the importance of colorectal cancer screening, and about their colorectal cancer screening benefits and their compliance with a colon cancer screening strategy based on claims data.
- d. Strategies for Purchasers (Employers, Union Trusts)
- i. Cover colorectal cancer screening for all employees.
 - Contract with health plans to offer colorectal cancer screening.
 - According to a recent survey only 68% of U.S. employers offer some coverage for colorectal cancer screening.¹⁶⁷
 - Coverage should be for any recommended screening test, according to patient preference, not limited by the cost of one-time testing. Over time, the various screening strategies are similar in terms of cost-effectiveness.
 - ii. Provide employee education and promote awareness of the importance of colorectal cancer screening.

¹⁶⁷ Bondi, Harris, et al. Employer coverage of clinical preventive services in the United States. American Journal of Health Promotion 2006. 20: 214-222. Abstract available at:
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=16422142&query_hl=3&itool=pubmed_docs [accessed 5-23-07]

- This may be done by posters or brochures at the workplace, or in pay-stub mailings.
- Educate employees on their healthcare benefits for colorectal cancer screening.

e. Strategies for Policy-Makers

- i. Washington State has recently adopted an insurance mandate for colorectal cancer screening that follows the USPSTF guidelines.¹⁶⁸

¹⁶⁸ Washington State: An Act Relating to Colorectal Cancer Early Detection 2007.
http://www.fightcolorectalcancer.org/advocacy/2007/04/washington_governor_chris_greg.php and
<http://www.leg.wa.gov/pub/billinfo/200708/Pdf/Bills/House%20Passed%20Legislature/1337-S.PL.pdf>

E. Influenza Immunizations

Prevention CIT Recommendations:

- In the interest of developing a consistent and simple message, the Prevention CIT recommends that the Alliance promote the message that everyone should consider getting a flu shot every year.
- Influenza immunizations are available in both a killed virus injection form, and as a live attenuated virus nasal spray. The Prevention CIT did not make recommendations on one form of influenza immunization over another, but recommends either form based on patient and provider preference, and availability.

1. Background

Influenza is a serious illness with significant morbidity and mortality, especially among the very old, the very young, and those with chronic diseases. An estimated 36,000 people die annually from influenza (90% of deaths are in those over age 65). Two hundred thousand are hospitalized, at a cost of approximately \$10,000 per case.¹⁶⁹

Influenza vaccinations decrease both the incidence (rate of new infection) and severity of flu. Vaccinations are 70-80% effective at preventing the flu entirely,¹⁷⁰ and clinical symptoms are dramatically reduced among people who do become ill after a vaccination. Furthermore, influenza immunizations¹⁷¹ are 43% effective in reducing influenza-related mortality, and 23% effective in reducing hospitalizations from influenza and pneumonia.¹⁷²

The Partnership for Prevention estimated the cost-effectiveness and health impact of influenza immunizations for adults aged 50 and older. This target group was chosen based on Advisory Committee for Immunization Practices (ACIP) guidelines, which have since been expanded to include children, pregnant women and caretakers and household contacts of high-risk individuals (see below for current ACIP recommendations). In their ranking of clinical preventive services, the Partnership for Prevention gives influenza immunization a score of eight out of a possible ten (see table below). The significance of the scoring system is described in the first section of this report.

¹⁶⁹ The Partnership for Prevention Ranking of Clinical Preventive Services: Influenza Immunization. <http://www.prevent.org/content/view/67/94/>

¹⁷⁰ Centers for Disease Control and Prevention. Vaccine-preventable diseases: Improving vaccination coverage in children, adolescents, and adults. A report on recommendations of the Task Force on Community Preventive Services. *MMWR* 1999;48 (No. RR-8).

¹⁷¹ Influenza immunizations are available in two forms: as an injectible killed virus (the “flu shot”) and as a live attenuated virus administered as a nasal spray. For the purposes of this discussion, the two forms will be considered together, although there are differences in effectiveness and cost of the two forms.

¹⁷² Centers for Disease Control and Prevention. Vaccine-preventable diseases: Improving vaccination coverage in children, adolescents, and adults. A report on recommendations of the Task Force on Community Preventive Services. *MMWR* 1999;48 (No. RR-8).

The Partnership for Prevention's analysis shows that influenza immunizations in adults over age 50 are cost-effective. They estimate that 68% of the costs of immunization are recovered in health care savings from the prevention of influenza complications.¹⁷³ However, the Partnership for Prevention looks at savings in health care costs only, and does not take into account the full economic burden of influenza, including decreased productivity of the work force, so these savings are likely an underestimate. Other studies have shown actual cost savings with vaccination of specific groups, such as children¹⁷⁴ and healthy adult workers.¹⁷⁵ Flu shots for working age adults can decrease absenteeism by up to 45%.¹⁷⁶

Table: Partnership for Prevention Clinical Preventable Burden (CPB) and Cost-Effectiveness (CE) Calculation of Influenza Vaccination of All Adults over Age 50¹⁷⁷

	CPB*	CE [#]	Total
Range	185,00-360,000	0-\$14,000	
Actual number	274,881	\$5858	
Score	4/5	4/5	8/10

*Clinical Preventable Burden= Quality-Adjusted Life Years (QALYs) saved per birth cohort of four million people if everyone over age 50 received an influenza vaccine.

[#] Cost effectiveness = Cost per year of life gained

The 2005 National Health Interview Survey shows that only 21% adults age 50-64 and 61% adults over aged 65 received influenza immunizations that year. The rates for children were even lower. In the 2004-2005 flu season, only 33.8% of children aged 6-23 months were vaccinated against the flu, and only 17.8% received the recommended two doses. Washington State achieved less than the national average in this age group, with 27.9% of young children partially vaccinated and 13.1% fully vaccinated.¹⁷⁸ Increased efforts are needed to improve influenza vaccination rates in adults and children in our region.

2. Recommended Guidelines

The Prevention CIT recommends that the Advisory Committee on Immunization Practices (ACIP) guidelines for influenza immunizations be used as the standard source of recommendations for influenza immunizations.

¹⁷³ The Partnership for Prevention Ranking of Clinical Preventive Services: Influenza Immunization. <http://www.prevent.org/content/view/67/94/> [accessed 5-14-07]

¹⁷⁴ Salo et al. Vaccine. 2006 Jun 5;24(23):4934-41. Cost-effectiveness of influenza vaccination of healthy children. This study in Finland showed that "influenza vaccination resulted in savings in all programs including children ≤ 13 years of age from both the health care provider and societal perspective. Investing 1.7 million euros in vaccination of children <5 years of age yielded savings of 2.7 million euros in health care costs."

¹⁷⁵ Kristin L. Nichol. Cost-Benefit Analysis of a Strategy to Vaccinate Healthy Working Adults Against Influenza *Arch Intern Med.* 2001;161:749-759.

¹⁷⁶ Harper SA, Fukuda K, Uyek TM, Cox NH, Bridges CB. Prevention and control of influenza. MMWR 53(RR06), May 28 2004: 1-40. www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm

¹⁷⁷ Data from Partnership for Prevention Technical Bulletin: <http://www.prevent.org/images/stories/clinicalprevention/influenza.pdf>

¹⁷⁸ MMWR 2006 55(39): 1062-1065 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5539a1.htm>

As described above, the ACIP guidelines have changed over the last few years to include young children and pregnant women in their list of high-priority vaccine recipients.

ACIP Recommendations for Influenza Immunizations¹⁷⁹

Who should get a flu shot?

- **In general, anyone who wants to reduce their chances of getting the flu can get vaccinated.**
- However, certain people should get vaccinated each year. They are either people who are at **high risk** of having serious flu complications or people who live with or care for those at high risk for serious complications. During flu seasons when vaccine supplies are limited or delayed, the ACIP makes recommendations regarding priority groups for vaccination.
 - **People at high risk for complications from the flu, including:**
 - Children aged 6 months until their 5th birthday,
 - Pregnant women,
 - People 50 years of age and older, and
 - People of any age with certain chronic medical conditions;
 - People who live in nursing homes and other long term care facilities.
 - **People who live with or care for those at high risk for complications from flu, including:**
 - Household contacts of persons at high risk for complications from the flu (see above)
 - Household contacts and out of home caregivers of children less than 6 months of age (these children are too young to be vaccinated)
 - Healthcare workers

3. Strategies to Improve the Rate of Influenza Immunization in the Puget Sound Region

a. Strategies for Providers

- i. Each flu season providers should inquire about flu shots at each patient visit and offer flu shots when appropriate
 - Ask “Did you get a flu shot?” and document response in the medical record
 - For providers, the onus should be on both the advice to get a flu shot as well as the actual delivery of flu shots, since patients may get flu shots from locations other than their health care provider
 - Providers should stock and administer influenza vaccines in their offices whenever possible

¹⁷⁹ Advisory Committee on Immunization Practices. Prevention and Control of Influenza. 2006. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5510a1.htm?s_cid=rr5510a1_e [accessed 5-15-07].

- ii. Send reminder messages (mailers, postcards, email messaging) to high-risk members and their families, including
 - Children six months to five years of age
 - Pregnant women
 - Those over age 50
 - Anyone with a chronic disease (asthma, COPD, heart disease, etc.)
- iii. Place take-home pamphlets and display posters in waiting and exam rooms during flu season to increase awareness about flu shots
- iv. Strongly encourage all health care workers with face-to-face contact with patients to have annual flu shots
 - Health care workers are among the high-priority groups targeted by the ACIP recommendations. Not only are health care workers at increased risk for contracting influenza because of their exposure to sick patients, but they also risk transmitting the disease to patients who are at high risk for complications.¹⁸⁰ Immunization of healthcare workers can reduce the incidence of influenza and reduce morbidity and mortality among high risk patients in a patient care setting.¹⁸¹
 - It has been shown that voluntary educational and promotional campaigns have limited effectiveness at increasing influenza vaccination rates among healthcare workers¹⁸². Consideration may also be given to mandatory influenza immunization as a requirement for fitness for duty in a patient care setting.
 - Such a mandatory program was instituted at Virginia Mason (VM) Medical Center in Seattle. Prior to the mandatory requirement, only 30-50% of VM healthcare workers were immunized against influenza. Following the requirement, in the 2006-07 flu season, there was 100% compliance with the policy (98.5% through vaccination, and 1.5% by infection control measures for those who obtained an accommodation for medical or religious reasons).¹⁸³

¹⁸⁰ Health and Health Care in Schools. March, 2006. Debate Grows on Requiring Flu Shots for Health Workers <http://www.healthinschools.org/ejournal/2006/march2.htm>

¹⁸¹ Potter et al. Influenza vaccination of health care workers in long-term-care hospitals reduces the mortality of elderly patients. *J Infect Dis*. 1997 Jan;175(1):1-6.; Carmen et al., Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care: a randomized controlled trial. *Lancet*. 2000 Jan 8;355(9198):93-7;

¹⁸² Dey et al. Promoting uptake of influenza vaccination among health care workers: a randomized controlled trial. *J Public Health Med*. 2001 Dec;23(4):346-8; Kimura et al. The effectiveness of vaccine day and educational interventions on influenza vaccine coverage among health care workers at long-term care facilities. *Am J Public Health*. 2007 Apr;97(4):684-90. Epub 2007 Feb 28

¹⁸³ Joyce Lammert, Virginia Mason Section Chief Allergy and Immunology, Powerpoint Presentation: Virginia Mason Influenza Immunization Policy. Obtained courtesy of Kim Pittenger, MD. Family Physician, Virginia Mason, CIT member, personal communication. 7/5/07.

- In ambulatory and hospital settings, an efficient mechanism should be put in place to administer flu shots to office staff that is independent of regularly scheduled duties, in order to facilitate worker access to immunizations.

b. Strategies for Patients, Consumers, Employees, Union Members

Consumers should receive a consistent and coherent message, reinforced by all stakeholders that “Everyone should get a flu shot every year.”

Barriers to successful messaging about flu shots include myths about risks and benefits of flu shots, misinformation about peak flu months and concerns that it is “too late” to get a flu shot by December (the peak flu months are typically January to March), vaccine shortage years with emphasis on “high-risk groups” only, and other issues that confuse consumers. These barriers should be counteracted through consistent and persistent information to consumers.

Information about flu shots should be provided to consumers in a variety of forms in order to dispel myths and answer common questions. The sources of this information can include:

- Local media
 - CDC: <http://www.cdc.gov/flu/about/qa/flushot.htm>
 - Washington State Department of Health (DOH): <http://www.doh.wa.gov/FluNews/influenza.htm>
 - Local Public Health Jurisdictions
 - Public Health Seattle & King County: <http://www.metrokc.gov/health/immunization/fluseason.htm>
 - Thurston County Department of Public Health and Social Services <http://www.co.thurston.wa.us/health/Influenza/Influenza.html>
 - Tacoma-Pierce County Public Health <http://www.tpchd.org/page.php?id=20>
 - Snohomish County Public Health District <http://www.snohd.org/snoComHealth/immun.htm>
 - Kitsap County Health District http://www.kitsapcountyhealth.com/community_health/clinical_services/cd_immunizations.htm
 - Individual providers or provider groups (in-person advice, pamphlets, posters)
- i. Practical, accurate and up-to- date information should be provided to consumers on where to get influenza immunizations, and their availability and cost. Possible sources of this information include:
- Local media

- Local public health jurisdictions web sites (note: Every effort should be made to keep these sites up to date, with accurate information for the public, especially pertaining to the locations of available flu shots and Flu Mist nasal spray)
 - Public Health Seattle King County website:
<http://www.metrokc.gov/health/immunization/fluseason.htm#where>
 - Thurston County Department of Public Health and Social Services
<http://www.co.thurston.wa.us/health/Influenza/Influenza.html>
 - Tacoma-Pierce County Public Health
<http://www.tpchd.org/page.php?id=230>
- ii. Personal Health Records (PHRs), that are owned by and accessible to patients
 - PHRs may be hard copies or electronic web-based individual health records that are accessible to patients. Such records can improve a patient's sense of responsibility for their own health care. Some PHRs can be set up with reminder systems for items such as flu shots.

c. Strategies for Purchasers, Employers, and Union Trusts

- i. Understand the return on investment (ROI) for influenza vaccination programs in the workplace
 - There is a small net increase in health care costs for programs to provide influenza immunizations to employees (estimated at \$9 per employee¹⁸⁴). However, there is the potential for total cost savings to employers due to increased productivity in the workplace.
 - According to a 2001 study on healthy adults,¹⁸⁵ “Vaccinating healthy working adults was on average cost saving, with mean savings of \$13.66 per person vaccinated.”¹⁸⁶
- ii. Promote flu shots among employees, develop a positive environment that changes attitudes and beliefs towards flu shots, and make getting a flu shot the norm in the workplace.
- iii. Provide insurance coverage for flu shots, preferably at no cost to employees and their dependents
 - According to a review of 19 studies by the Task Force for Community Preventive Services, reducing out-of-pocket costs for flu shots increases utilization by 15%.¹⁸⁷

¹⁸⁴ Partnership for Prevention. <http://www.prevent.org/content/view/67/94/> [accessed 5-15-07]

¹⁸⁵ Kristin L. Nichol. Cost-Benefit Analysis of a Strategy to Vaccinate Healthy Working Adults Against Influenza *Arch Intern Med.* 2001;161:749-759.

Available at: <http://archinte.ama-assn.org/cgi/content/abstract/161/5/749> [accessed 5-15-07]

¹⁸⁶ “With a 95% probability interval: net savings of \$32.97 to net costs of \$2.18), with vaccination generating net savings 95% of the time. The model was most sensitive to the influenza illness rate, the work absenteeism rate due to influenza, and hourly wages. In the worst-case scenario vaccination was not cost saving. Vaccination also generated net costs to society during years with a poor vaccine–circulating virus strain match. In all of the other sensitivity analysis scenarios, vaccination was cost saving.”

- A 1997 Partnership for Prevention survey¹⁸⁸ showed that only 57% of employers offered coverage for flu vaccines. A follow-up survey in 2001, completed by 2,180 employers, showed little improvement, with between 55% and 66% of employers, depending on their type of health plan, offering coverage for flu shots.¹⁸⁹
 - The Disability Management Employer's Coalition (DMEC), a national non-profit coalition of small to large employers, conducted a 2005 member survey on flu shot coverage in which 72.1% of respondents indicated that they cover at least a portion of the cost of employee flu shots. This was primarily accomplished through health plans, with 62.3% of respondents answering that their plans cover flu shots.¹⁹⁰
- iv. Inform employees about available coverage for flu shots and send out seasonal reminders about flu shots (e.g. in pay stub mailings, company newsletters, worksite posters or brochures, emails)
 - v. Provide mechanisms outside health plan benefits to reimburse employees (and dependents) for flu shots obtained outside a traditional healthcare setting.
 - One strategy is to provide reimbursable vouchers or vaccine reimbursement forms for flu shots for employees (and their dependents) who obtain flu shots outside the workplace or provider's office. This benefit could be managed through health plans (see the discussion of Uniform Medical Plan's flu shot reimbursement program under the Health Plans section below for an example of how such a program may be implemented).
 - Another strategy is to contract with one or several retail pharmacies that have sites close to the place of employment, so that the pharmacy administers the flu shot to the employee (and dependents) and bills the employer directly.
 - vi. Offer work-site flu shot clinics.
 - On-site flu clinics are cost-saving. A recent study estimated that the mean break-even cost for employers for a flu vaccination was \$49.73 per person.¹⁹¹ The cost of the dose and administration fees for a flu vaccination in 2005 was under \$30.00.¹⁹² Indirect costs include the treatment of any side-effects. Together, the

¹⁸⁷ Briss PA, et al. Review of evidence regarding efforts to improve vaccination coverage in children, adolescents, and adults. *Am J Prev Med* 2000 18 (1S): 97-140.

¹⁸⁸ Partnership for Prevention. 2002. Preventive Services: Helping Employers Expand Coverage

¹⁸⁹ Bondi, Harris, et al. Employer coverage of clinical preventive services in the United States. *American Journal of Health Promotion* 2006, 20: 214-222. Abstract available at: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=16422142&query_hl=3&itool=pubmed_docs [accessed 5-23-07]

¹⁹⁰ Risk Management Solutions. March, 2006, Vol 17. U of T expert warns businesses to wake up to flu risks Available at: <http://www.curie.org/extdoc/rmnl200603.pdf>

¹⁹¹ Nichol KL, et al. Influence of clinical case definitions with differing levels of sensitivity and specificity on estimates of the relative and absolute health benefits of influenza vaccination among healthy working adults and implications for economic analyses. *Virus Research* 2004; 103: 3-8.

¹⁹² Centers for Disease Control and Prevention. Influenza Vaccine Bulletin #3Flu Season 2005-2006, September 29, 2005. Available at http://www.cdc.gov/flu/professionals/bulletin/2005-06/bulletin3_092905.htm

direct and indirect costs of this recommendation will nearly always be below the break-even point of \$50.¹⁹³

d. Strategies for Health Plans

- i. Inform members about the importance of getting flu shots annually in mailers, newsletters, emails or other methods.
 - This approach could target all members or higher risk members based on age and/or chronic disease status
- ii. Inform members about their flu shot coverage.
- iii. Eliminate co-pays for flu shots in providers' offices.
- iv. Provide reimbursable vouchers or vaccine reimbursement forms for flu shots administered in pharmacies or other community settings (note: this activity could also be provided through employers).
 - An example in Washington State is the Uniform Medical Plan program, which uses capped reimbursement to increase flu vaccinations. Enrollees seek reimbursement for their flu shots after filling out a vaccination form.¹⁹⁴

¹⁹³ Jeff Harris (CIT member), personal communication.

¹⁹⁴ UMP flu shot reimbursement form available at: <http://www.ump.hca.wa.gov/medical/docs/fluform2007-01.pdf>

F. Childhood Immunizations

Prevention CIT Recommendations:

- Administer all ACIP-recommended childhood immunizations to all children in a timely manner
- Participate in the CHILD Profile Immunization Registry that allows providers and others to track, review, recall, remind and report childhood immunizations in Washington State.

1. Background

Childhood immunizations provide proven protection against infectious diseases that can cause significant morbidity and mortality. Although the childhood immunization rate is relatively high in the United States, there is room for improvement in this highly cost-effective clinical preventive service. According to data cited by the Partnership for Prevention, childhood immunizations have eliminated 86% of all cases of childhood vaccine preventable disease, and 98% of deaths related to these diseases¹⁹⁵. Of the remaining 2.4 million current annual cases of vaccine preventable disease in children, 96% of cases are either chicken pox (800,000 cases) or influenza (1,500,000 cases).¹⁹⁶

However, despite these encouraging statistics, not all children receive vaccines in a timely manner. The National Immunization Survey (NIS) reports that only 76% of preschool-age children aged 19-35 months were up-to-date on the primary series of six vaccines in 2005-2006.¹⁹⁷ While reported vaccination rates tend to improve in older children as they enter school, younger children are particularly susceptible to vaccine-preventable diseases and their consequences, and further work needs to be done to improve the timely vaccination rate for children of all ages.

Despite relatively high vaccination rates, vaccine preventable diseases continue to occur in children in this country. For example, during 1998-2000, 824 cases of *Hemophilus influenza* were reported.¹⁹⁸ In fairly recent history, there was a large resurgence of measles in the United States in 1989-1990, which prompted changes in the timing of measles vaccines in young children.¹⁹⁹ A subsequent aggressive vaccination campaign against measles resulted in the disease being declared eliminated from the United States in 2000. However, an outbreak of

¹⁹⁵ Partnership for Prevention: Childhood immunization series. <http://www.prevent.org/content/view/46/116/>

¹⁹⁶ Ibid

¹⁹⁷ Centers for Disease Control National Immunization Survey. 2005-2006. http://www.cdc.gov/vaccines/stats-surv/nis/data/tables_0506.html

Vaccines measured: 4 or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any acellular pertussis vaccine (DTP/DTaP/DT), 3 or more doses of any poliovirus vaccine, 1 or more doses of measles-mumps-rubella vaccine, 3 or more doses of *Haemophilus influenzae* type b (Hib) vaccine, 3 or more doses of hepatitis B vaccine, 1 or more doses of varicella at or after child's first birthday, unadjusted for history of varicella illness. Rates of pneumococcal vaccination (PCV) were also measured but not included in the combination calculations.

¹⁹⁸ NCQA the State of Healthcare Quality Report 2006.

http://www.ncqa.org/Communications/SOHC2006/SOHC_2006.pdf p.29-30

¹⁹⁹ Atkinson, et al. The resurgence of measles in the United States 1989-1990, *Annu Rev Med.* 1992;43:451-63
Abstract available at: http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=1580601

measles in Indiana in 2005, stemming from a Romanian immigrant and ultimately involving 34 cases,²⁰⁰ reminded us that these diseases continue to be endemic worldwide, and that unvaccinated or minimally vaccinated children in this country remain at risk.

The **Partnership for Prevention** ranks childhood immunizations as one of the highest priorities for clinical preventive services, giving it a score of five out of five for clinical preventable disease burden and five out of five for cost-effectiveness (i.e. childhood vaccinations are cost-saving).²⁰¹

The NCQA cites compelling data for ensuring that all children receive the appropriate recommended vaccinations in a timely manner:²⁰²

- One fourth of lifelong hepatitis B virus infections, which can lead to liver failure and death, result from infections in infants and young children. Before vaccinations were common, hepatitis B infected 24,000 infants and children each year.
- Childhood immunizations of Diphtheria, Tetanus, acellular Pertussis (DTaP), Hemophilus Influenza (Hib), Injectable Polio Vaccine (IPV), Measles, Mumps, Rubella (MMR), hepatitis B and varicella (chicken pox) vaccines save \$9.9 billion in direct medical costs and \$43.3 billion in indirect costs.
- A child with chicken pox misses an average of 5-6 days of school; adult caretakers miss an average of 3-4 days of work.
- Every dollar spent on Hib vaccine saves \$1.40 in direct medical costs and \$2.00 in indirect costs; every dollar spent on hepatitis B vaccine saves 50 cents in direct medical costs and \$3.10 in indirect costs; and every dollar spent on varicella vaccine saves 90 cents in direct medical costs and \$5.40 in indirect costs.
- Discontinuing Hib immunization would result in approximately 20,000 cases per year of invasive disease, with 600 associated deaths.
- Pneumococcal disease, the main cause of bacterial meningitis, is found most frequently among children under two, with a high mortality rate.

The barriers to increasing vaccine coverage are numerous and complex. The Community Guide characterizes these barriers as resulting from low community demand for vaccines, lack of access to vaccination services, or system- or provider-related factors.²⁰³ Access to vaccines for children varies with each state and depends in part on the vaccine financing programs that are in place (see below for discussion on the Vaccines for Children Program, and state supplied vaccines). Even in states with universal distribution of childhood vaccines, funding for certain vaccines may not be readily available. These tend to include the newer and more expensive vaccines, such as pneumococcal conjugate, meningococcal and Hepatitis A. In some cases, state funding for such vaccines must await legislative action. For example, in Washington State, HPV

²⁰⁰ Parker et al. Implications of a 2005 measles outbreak in Indiana for sustained elimination of measles in the United States. *N Engl J Med*. 2006 Aug 3;355(5):447-55. Abstract available at: http://www.ncbi.nlm.nih.gov/sites/entrez?Db=PubMed&Cmd=ShowDetailView&TermToSearch=16885548&ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVAbstractPlus

²⁰¹ Partnership for Prevention Childhood Immunization Series. <http://www.prevent.org/content/view/46/116/>

²⁰² NCQA the State of Healthcare Quality Report 2006. http://www.ncqa.org/Communications/SOHC2006/SOHC_2006.pdf p.29-30

²⁰³ The Community Guide: <http://www.thecommunityguide.org/vaccine/vpd-int-demand-multicomponent-ed.pdf>

vaccine, rotavirus vaccine, and the second dose of varicella vaccine became available for ordering by providers only in May 2007,²⁰⁴ although the recommendations to administer these vaccines have been in place for a year or longer. Measurement of vaccination rates for these newer vaccines by NIS, NCQA, and other organizations typically lags behind the recommendations to provide them, and thus an accurate picture of how many children have received all recommended vaccines is lacking.

Vaccine shortages may also occur, adding to confusion over dosing schedules and the need for later catch-up. In 2004, for example, there was a national shortage of pneumococcal conjugate vaccine due to reduced production capacity of the single manufacturer, prompting the recommendation by the CDC for providers to suspend the 3rd and 4th doses of the vaccine in healthy children until supplies resumed.²⁰⁵

Another challenge that applies across all states is the ever-expanding lists of required vaccines, which translates into multiple injections for children at each visit and an increasing number of visits to complete the recommended vaccination series. It also provides a challenge to providers to keep up with the recommendations and to evaluate each individual child's immunization status.

Provider capacity, on the other hand, does not appear to be a limiting factor in vaccine coverage. One study, based on 1997 data, indicated that there is adequate provider capacity to provide vaccines to all children in the U.S., and suggested that efforts be focused on increasing the use of preventive care services by children, improving provider immunization performance, and in assuring continuity of care.²⁰⁶ Interestingly, this same article pointed out that increasing families' use of preventive services (e.g., reducing costs and dropout rates) and improving provider preventive care (e.g., reducing missed opportunities) may require more resources than are involved in actually providing vaccinations.

Washington State: In NIS rankings, Washington State performs lower than the national average, with only 66% of children ages 19-35 months having completed the six-vaccine series.²⁰⁷ According to the Commonwealth Fund, Washington State's childhood immunization rate ranks 42nd in the nation. That data measures the rate of five key immunizations (the NIS series without varicella)²⁰⁸ and showed that in Washington only 77.8% of children ages 19-35 months up-to-date on the five vaccinations, compared with 93.5% in the best-performing state.²⁰⁹ The Commonwealth Fund estimated that if Washington State improved to the best level, over 18,000 more children would receive recommended doses of vaccines.

²⁰⁴ Washington State Department of Health State-Supplied Vaccine- Vaccine Supply Information.

<http://www.doh.wa.gov/cfh/Immunize/vaccinesupply.htm>

²⁰⁵ MMWR March 05, 2004 / 53(08);177-178 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5308a5.htm>

²⁰⁶ LeBaron et al. Childhood vaccination providers in the United States. Am J Public Health.2002;92:266-270

<http://www.ajph.org/cgi/reprint/92/2/266>

²⁰⁷ Ibid and Washington State Department of Social and Health Services News Release June 6, 2007.

<http://www1.dshs.wa.gov/mediareleases/2007/pr07056.shtml>

²⁰⁸ Vaccines measured include: at least 4 doses of diphtheria-tetanus-acellular pertussis (DTaP), at least 3 doses of polio, at least 1 dose of measles-mumps-rubella (MMR), at least 3 doses of Haemophilus influenzae B (Hib), and at least 3 doses of hepatitis B antigens.

http://www.commonwealthfund.org/usr_doc/statescorecard48_methodology.pdf?section=5061

²⁰⁹ The Commonwealth Fund State Scorecard 2007.

http://www.commonwealthfund.org/statescorecard/statescorecard_show.htm?doc_id=495876

The above measures on vaccine combinations do not include the pneumococcal conjugate vaccine (PCV). Pneumococcus is a cause of serious infections in infants and young children, including bacteremia, sepsis, pneumonia and meningitis. The NIS recently began measuring rates of PCV immunization, but does not include it in the vaccination series reports. Their data shows that nationally, 80% of children ages 19-35 months have received the recommended four dose series of PCV, while in Washington State only 58% have received the full PCV series (although 82% have received at least 3 doses).²¹⁰ Other vaccines, such as meningococcus, HPV, Hepatitis A and rotavirus are not included in the above statistics, and currently not measured by the NIS or Commonwealth Fund.

The reasons behind the lower vaccination rates in Washington State in particular are unclear. Some local experts that we consulted have cautioned against putting too much emphasis on national rankings, since the distance between the top ranking states and the bottom states is often relatively small, and vaccine rates may be falsely low due to inadequate reporting methodologies or under-funding for tracking and reporting in some states. In addition, states may perform poorly on one or two vaccines (leading them to score poorly on vaccine series delivery), while doing well on other individual vaccines. For example, according to NCQA data, which measures the vaccines received by infants and toddlers up to their second birthday, the Washington State Medicaid managed care program ranks number one in the nation for three of the childhood immunizations: Diphtheria/Tetanus, Polio and Hemophilus Influenza.²¹¹

In Washington State, like most other states, vaccination rates improve as children enter school. A recent survey of American kindergartners found that Washington State achieved at least a 90% vaccination rate on each of five vaccines studied (DtaP, Polio, MMR, Hepatitis B and Varicella).²¹² This improvement over vaccine rates for younger children emphasizes that state laws requiring proof of immunization for school entry are effective in increasing the number of children who receive vaccines.²¹³ However, at least three-quarters of states achieved a 95% vaccination rate for all five vaccines, while Washington State reached the 95% level for only the Hepatitis B vaccine. One reason cited for Washington State's lower performance in this regard is a high rate of parental refusal for school-entry vaccines in this state compared to other states. School and day care immunization requirements increase vaccination rates.²¹⁴ Washington State

²¹⁰ Centers for Disease Control National Immunization Survey. 2005-2006. http://www.cdc.gov/vaccines/stats-surv/nis/data/tables_0506.html

²¹¹ Washington State Department of Social and Health Services News Release June 6, 2007. <http://www1.dshs.wa.gov/mediareleases/2007/pr07056.shtml> and the NCQA the State of Healthcaer Quality Report 2006. http://www.ncqa.org/Communications/SOHC2006/SOHC_2006.pdf

NCQA measurements include: 1. Four doses DTPor DtaP (diphtheria-tetanus) 2. Three doses OPV or IPV (polio) 3. One dose MMR(measles-mumps-rubella) 4. Three doses Hib (Haemophilus influenzaetype b) 5. Three doses hepatitis B 6. One dose VZV (chicken pox) and 7. Four doses pneumococcal conjugate. Nationally, in 2005, 77% of children with commercial insurance and 70.4% of children with Medicaid received the recommended vaccines 1 through 6 by the time of their second birthday, and 53.1% of children with commercial insurance and 42.1% of children with Medicaid had received all seven recommended vaccines by their second birthday.

²¹² Vaccination Coverage Among Children in Kindergarten --- United States, 2006--07 School Year. MMWR August 17, 2007 / 56(32);819-821 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5632a3.htm#tab1>

²¹³ Vaccination Coverage Among Children in Kindergarten --- United States, 2006--07 School Year. MMWR August 17, 2007 / 56(32);819-821 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5632a3.htm#tab1> and The Community Guide: Vaccines. <http://www.thecommunityguide.org/vaccine/vpd-int-demand-require.pdf>

²¹⁴ The Community Guide: Vaccines. <http://www.thecommunityguide.org/vaccine/vpd-int-demand-require.pdf>

has the highest school entry vaccine exemption rate in the nation, at 5%.²¹⁵ State Department of Health officials suggest that it is quite simple to obtain an exemption here, based on medical, religious or philosophical grounds,²¹⁶ and that for some parents it is easier to opt out than it is to complete the needed healthcare visits to fully immunize their child. The Department of Health is studying options for making the exemption on philosophical grounds more rigorous and less attractive to parents. Not all states allow a philosophical objection to school entry vaccine requirements, and studies have shown that such an exemption results in lower vaccination rates.²¹⁷ At the same time, some local public health officials²¹⁸ caution that children may be exempted from school immunization requirements because their immunizations are not well recorded and it is difficult for parents to obtain documentation, rather than that they are under-immunized. A statewide immunization registry (such as the CHILD Profile registry discussed below) would help with documentation issues.

In terms of improvement, Washington State has two advantages that should increase vaccination and documentation rates in this state: (1) it is a universal vaccine distribution state, and (2) it maintains a statewide vaccine registry, called the CHILD Profile Immunization Registry.

Universal distribution of vaccines: Washington State is one of fifteen states with a universal childhood vaccine distribution system. Since 1990 Washington has provided recommended vaccines to any child, regardless of their ability to pay or health plan coverage. Beginning in 1994, Washington State has received federal funding under the Vaccines for Children (VFC) program, which provides vaccines to any child under age 19 who is: (1) Medicaid eligible (2) uninsured or (3) an American Indian/Alaskan Native. In addition, underinsured children (those who have insurance that does not cover immunizations) can receive VFC vaccines in federally qualified health centers or rural health clinics. Some federal funding, such as the Public Health Service Act section 317 discretionary grants, is available to provide vaccines for underinsured

²¹⁵ CDC School Immunization Survey, 2006-2005. <http://www.cdc.gov/vaccines/stats-surv/schoolsurv/default.htm>

²¹⁶ Washington State Law: Rev. Code Wash. (ARCW) § 28A.210.080 (2002) § 28A.210.080. “The attendance of every child at every public and private school in the state and licensed day care center shall be conditioned upon the presentation before or on each child's first day of attendance at a particular school or center, of proof of either (1) full immunization, (2) the initiation of and compliance with a schedule of immunization, as required by rules of the state board of health, or (3) a certificate of exemption as provided for in RCW 28A.210.090.”

Rev. Code Wash. (ARCW) § 28A.210.090 (2002) § 28A.210.090. “Any child shall be exempt in whole or in part from the immunization measures required by RCW 28A.210.060 through 28A.210.170 upon the presentation of any one or more of the following, on a form prescribed by the department of health: (1) A written certification signed by any physician licensed to practice medicine pursuant to chapter 18.71 or 18.57 RCW that a particular vaccine required by rule of the state board of health is, in his or her judgment, not advisable for the child: PROVIDED, That when it is determined that this particular vaccine is no longer contraindicated, the child will be required to have the vaccine; (2) A written certification signed by any parent or legal guardian of the child or any adult in loco parentis to the child that the religious beliefs of the signator are contrary to the required immunization measures; and (3) A written certification signed by any parent or legal guardian of the child or any adult in loco parentis to the child that the signator has either a philosophical or personal objection to the immunization of the child.” Full text available at: <http://www.909shot.com/state-site/Washington.htm>

²¹⁷ Thompson et al. Impact of Addition of Philosophical Exemptions on Childhood Immunization Rates Am J Prev Med 2007;32(3):194–201

²¹⁸ Sherri McDonald, Director Thurston County Public Health & Social Services and CIT member, personal communication. August 13, 2007.

children in public health clinics.²¹⁹ In 2006, approximately half of all children in the U.S. under age 19 were VFC eligible.²²⁰ Since the implementation of the VFC program, Washington has used state funding to provide any VFC-covered vaccine to children who are not VFC eligible.

In Washington State, providers access state and federally supplied vaccines through their local health departments, who then contact the state Department of Health, which coordinates state and federal vaccine suppliers.

Although vaccines are available to all children in the state free of charge through these programs, there may be an administration fee and/or a charge for an office visit at which the vaccine is administered. Administration fees are typically low, but Washington State law forbids that any child be denied immunization in a clinic receiving state-supplied vaccines based on inability to pay.²²¹ States with universal vaccine distribution programs have been shown to reduce referrals of vaccines from physician's offices to public health or other centers, a practice that often results in lost opportunities for vaccination and an overall lower vaccination rate.²²²

CHILD Profile: The Children's Health Immunizations Linkages and Development (CHILD) Profile is the Washington State Health Promotion and Immunization Registry system.²²³ The system has both an immunization registry function and an educational function in providing information on prevention, immunizations and child development to parents of preschool and early school-aged children from birth to six years of age. The CHILD Profile system was started in 1992 as a two-county (King and Snohomish) pilot project, and expanded to a statewide system in 2002. It now serves parents and health care providers in every county in Washington.

The CHILD Profile immunization registry²²⁴ is a shared, secured statewide database that includes the vaccine histories of children allows healthcare providers to record and review the immunization history of children they see. Health care providers can register as users of registry free of charge. Using a web-based format, they can then access their patients' demographic and immunization data in the registry and update new immunizations as they are given. The system allows for quick entry of both historic and new data. The resulting database provides a complete childhood immunization history that can be viewed, updated and printed for parent, school or camp requests. In addition, the Registry helps physicians manage patient care and immunization reporting. It can also generate clinic-specific recall lists of children past due for vaccines as well as create vaccine accountability and benchmarking reports. Approximately 70% of Washington State providers who see children are registered with the site.²²⁵ Efforts to improve utilization of the CHILD Profile registry by all providers, and ensuring a consistent source of state-supplied vaccine are two strategies that were emphasized by the Prevention CIT to improve vaccination

²¹⁹ Washington State Department of Health Vaccines for Children.

<http://www.doh.wa.gov/cfh/Immunize/vaccine4.htm>, and Lee et al. Gaps in vaccine financing for underinsured children in the United States. JAMA 2007. 298 (6): 638-643.

²²⁰ Lee et al. Gaps in vaccine financing for underinsured children in the United States. JAMA 2007. 298 (6): 638-643.

²²¹ Ibid, and http://www.doh.wa.gov/cfh/immunize/child_FAQ.htm

²²² Rosenbaum et al. Universal childhood vaccine distribution: the experience of twelve states. *AHSR FHSR Annu Meet Abstr Book*. 1995; 12: 101. <http://gateway.nlm.nih.gov/MeetingAbstracts/102215607.html>

²²³ CHILD Profile web site: <http://www.childprofile.org/index.html>

²²⁴ CHILD Profile Immunization Registry. <https://fortress.wa.gov/doh/cpir/iweb/main.jsp>

²²⁵ CHILD Profile Winter Newsletter 2007.

<https://fortress.wa.gov/doh/cpir/iweb/homepage/cpconnections/winter2007.pdf>

rates in the state, and will be discussed further below.

Identifying strategies to overcome all of the barriers to childhood vaccinations is clearly a challenge, and beyond the scope of the Prevention CIT. The CIT therefore chose to focus on the strengths already existing in Washington State, and to recommend ways in which these strengths can be maximized.

2. Recommended Guidelines

Recommendations for childhood immunizations are complex and change rapidly as new vaccines and dosing schedules are developed. The Prevention CIT identifies the **Advisory Committee on Immunization Practices (ACIP)** as the nationally-recognized source of updated immunization guidelines for children and adults. The 2007 ACIP set of recommendations for immunization of children and adolescents is reproduced in Appendix 4.

3. Strategies to Improve Immunization Rates in the Puget Sound Region

a. Strategies for Providers

- i. Follow current ACIP guidelines to administer childhood immunizations appropriately and in a timely manner to all children.²²⁶
- ii. Provide and administer state-supplied vaccines, so that all children may be immunized in their medical home without cost as a barrier.
 - Currently, because of low reimbursement for vaccine administration under the state program, many private providers are choosing to privately purchase and charge for vaccines for children, or to avoid vaccine administration altogether. This limits access especially for underinsured children who receive their medical care from such providers, but whose insurance does not cover immunizations, or is accompanied by a high deductible or co-pay. In these cases, such children may be referred to public health clinics for their immunizations, with resulting loss of continuity of care and lost immunization opportunities.
- iii. Register for and use the CHILD Profile Immunization Registry that is available for free in Washington State. Information for providers on the Immunization Registry is available at: <https://fortress.wa.gov/doh/cpir/iweb/main.jsp> and <https://fortress.wa.gov/doh/cpir/iweb/homepage/cpconnectionswinter2007.pdf>
 - The CHILD Profile Immunization Registry has many advantages for providers. It enables them to enter, review and update each child's immunization history; maintain facility-specific records on vaccinators, physicians, and lot numbers; record required information for each Vaccine Information Sheet (VIS) given;

²²⁶ 2007 Advisory Committee on Immunization Practices. Recommendations for Children and adolescents: <http://www.cdc.gov/vaccines/recs/schedules/downloads/child/2007/child-schedule-color-print.pdf>

access the tools to support a reminder/recall system; create AFIX²²⁷ and CASA reports; and order state-supplied vaccines (in connection with local health jurisdictions who relay the order to the State Department of Health). The goal of the registry is to simplify vaccine ordering, administration and reporting requirements for providers through “one-stop shopping.”²²⁸ And, most importantly, it ensures ready access to vaccine status and enhances continuity of care across providers.

- Providers with electronic health records (EHR) with registry function may be able to create records, reminders, prompts and recall letters within their system. However, these providers are still encouraged to interface with the CHILD Profile registry so that vaccine information is available to other providers, schools and daycare facilities. The CHILD Profile software is designed to interface with many EHRs, so that redundant data entry can be avoided. Officials at CHILD Profile recommend that providers contemplating purchase of an EHR ensure that it is registry compatible. “According to the Certification Commission for Healthcare Information Technology (CCHIT), by the year 2007 a certified EHR must have a one-direction interface capable of sending data from the provider’s office to the immunization registry. Providers can check the certification status of EHR products by visiting www.cchit.org. Some EHRs also can share data in two directions (both from the provider to the registry, and from the registry to the provider’s EHR).”²²⁹ In addition, “very few EHRs offer the tools the Immunization Registry does for forecasting individual patient vaccination schedules. The Reminder/Recall feature surpasses the similar feature in EHR products, with five types of output customized to individual practice needs. The Registry’s Vaccination Data Quality Detail Report can help providers review and monitor the quality of their own immunization practices.”²³⁰

- iv. Send out patient recalls and reminders to patients, in the form of letters, postcards or telephone calls, for specific vaccines and for routine well child care.

²²⁷ The acronym AFIX stands for Assessment of immunization coverage levels, Feedback of the assessment findings to providers, Incentives to motivate and acknowledge change, and eXchange of information on best practices. In 1995, Congress directed the Centers for Disease Control and Prevention (CDC) to set guidelines for assessing coverage levels in all public clinics as part of the federal funding for immunization programs. A continuous quality improvement strategy was developed to assess coverage levels and provide insight on how to improve coverage levels. In 2000, CDC/National Immunization Program (NIP) launched the VFC-AFIX initiative, which linked AFIX with the VFC program, in order to assess and improve immunization delivery practices at the public and private provider level to assure that VFC-eligible children are receiving quality services. From: The 2004 Annual Report to the Office of Management and Budget: Implementing the VFC-AFIX Project: A National Strategy to Improve the Quality of Immunization Practices among VFC Providers May 2005

<http://www.cdc.gov/vaccines/programs/afix/downloads/2004afixreport.txt>

²²⁸ CHILD Profile Winter 2007 Newsletter.

<https://fortress.wa.gov/doh/cpir/iweb/homepage/cpconnections/winter2007.pdf>

²²⁹ Margo Harris, Health Marketing Specialist, CHILD Profile Immunization Registry. Is your EMR immunization ready? WSMA Website News and Events <http://www.wsma.org/scripts/news.cfm>

²³⁰ Ibid.

- The Community Guide suggests that client recalls (for vaccines that are due) and reminders (for vaccines that are overdue) are an effective way of increasing vaccine coverage.²³¹
- v. Have reminder systems and prompts in place that indicate when patients are due or overdue for immunizations.
 - The Community Guide suggests that provider reminder systems are effective in improving vaccine coverage.²³²
 - Such reminder systems may be programmed into the CHILD Profile system, or embedded in electronic health records (EHRs).
- vi. Take advantage of every opportunity to vaccinate a child. Be aware of true contraindications for vaccine administration, and don't defer for minor upper respiratory or other illnesses.
 - The CDC Guide to Contraindications for Vaccination.
http://www.cdc.gov/vaccines/recs/vacadmin/downloads/contraindications_guide.pdf

Tools and Resources for Providers

- AAP Immunization Support Program Website:
<http://www.aap.org/healthtopics/immunizations.cfm>

b. Strategies for Patients (Parents, Guardians)

Educational strategies for parents should focus on the importance of immunizations in preventing disease and death, dispelling vaccine myths information on when and where to get their children immunized

Educational materials and messaging should be provided in multiple formats and languages, and be from multiple sources, such as the media, provider offices, community organizations and government.

The Community Guide²³³ warns that parental education alone is insufficient to improve vaccination rates, but should be part of a multi-pronged approach. In the interventions studied by the Task Force on Community Preventive Services, target populations received education about vaccinations through mailings, newspaper, media, and other public sources. In addition to education, other intervention components included provider reminders, expanded hours or access, client reminders, reduced out-of-pocket costs for clients, client-held vaccination records, WIC interventions, psychosocial assessments, nutrition services, or home visits. Multi-component interventions that include education with at least one other strategy increased community awareness of the

²³¹ The Community Guide: <http://www.thecommunityguide.org/vaccine/vpd-int-demand-client-remind.pdf>

²³² The Community Guide: <http://www.thecommunityguide.org/vaccine/vpd-int-prov-remind.pdf>

²³³ The Community Guide: Multicomponent Interventions that Include Education are Recommended to Increase Coverage with Universally Recommended Vaccines <http://www.thecommunityguide.org/vaccine/vpd-int-demand-multicomponent-ed.pdf>

availability, usefulness, and relevance of vaccination services, as well as providing the information necessary to use these services.

Educational resources for parents:

- CHILD Profile sends health promotion materials to all parents of children birth to age six in Washington State. The materials contain age-specific information about growth, development, safety, nutrition, and other parenting issues.
 - Any parents residing in Washington State who are not receiving information through CHILD Profile can contact the program at:
CHILD Profile (Health Promotion)
401 Fifth Avenue, Suite 1000
Seattle, WA 98104
(206) 296-2785 or 1-800-322-2588
E-mail: child-profile.health@kingcounty.gov
 - CHILD Profile Health Promotion Materials are available at:
<http://www.childprofile.org/hpmats/default.html>
 - CHILD Profile immunization brochures are available in 4 languages (English, Spanish, Russian and Vietnamese): <http://www.childprofile.org/index.html>
- CDC site Why Immunize? <http://www.cdc.gov/vaccines/spec-grps/parents.htm>
- i. Educate yourself about the importance of immunizations in preventing disease and death and information on when and where to get children immunized.
- ii. Keep up-to-date and accessible immunization records for each child that includes information on when the next shots are due.
 - Parents should ask for a CHILD Profile print-out or an updating of child's immunization card after each set of immunizations or well child visit.
 - The Centers of Disease Control (CDC) provides an interactive scheduler for parents based on a child's birth date:
http://www2a.cdc.gov/nip/kidstuff/newscheduler_le/

c. Strategies for Health Plans

- i. Provide insurance coverage for all recommended childhood vaccines and reduce or eliminate co-pays for childhood immunizations and well-child visits.
 - The Community Guide suggests that reduction of out-of-pocket costs by providing free vaccinations (as Washington State does), reducing administrative costs associated with vaccines, providing insurance coverage, or reducing co-payments for vaccinations at the point of service improves vaccination rates.
<http://www.thecommunityguide.org/vaccine/vpd-int-acc-out-of-pocket.pdf>
- ii. Reimburse providers fairly for the purchase, administration and storage of vaccines.

- Adequate provider reimbursement for vaccines helps avoid referral from a primary care physician or “medical home” to a public health clinic. Such referral practices disrupt continuity of care and result in missed opportunities.
 - Adequate vaccine reimbursement is an important issue for providers, and is a national advocacy priority for both the American Academy of Pediatrics (AAP) and the American Academy of Family Physicians (AAFP).^{234,235}
 - Although providers can obtain childhood vaccines from the state free of charge, some providers who choose to opt out of the state program self-purchase vaccines, and all providers face the issue of vaccine administration and storage. For children with insurance, these costs should be fairly reimbursed by their health plans.

d. Strategies for Purchasers, Employers, and Union Trusts

- i. Contract with health plans that cover all childhood immunizations recommended by ACIP.

e. Strategies for State Policy Makers

- i. Provide adequate funding for the consistent, reliable, and timely supply and distribution of all recommended childhood vaccines to providers.
- ii. Address the school entry vaccine exemption policy to determine if alternative methods can make the opt-out option less attractive to parents.
- iii. Provide vaccination programs in schools for parental convenience and access.
- iv. Reimburse providers fairly for vaccine administration and well child exams under Medicaid and the Basic Health Plan.

²³⁴ AAFP Advocacy <http://www.aafp.org/online/en/home/publications/news/news-now/practice-management/20070723healthplanmeetings.html>

²³⁵ AAFP New Now. Wellpoint Promises Revisions in Vaccine payment policy. 5/22/07. <http://www.aafp.org/online/en/home/publications/news/news-now/practice-management/20070124cigna.html> and Cigna Increases Payment for Vaccines. 1/24/07. <http://www.aafp.org/online/en/home/publications/news/news-now/practice-management/20070522wellpointvaccines.html>

Appendix I: Members of the Prevention CIT

Chair & Consultant Lead: Lori Whittaker, MD, MPH

1. *Prevention Expertise:* Jeff Harris, MD, MBA, MPH, Professor, Health Services, University of Washington, University of Washington
2. *Prevention Expertise:* David Grossman, MD, MPH, Medical Director, Preventive Care, Group Health Cooperative
3. *Prevention Expertise:* Alfred Berg, MD, Chair of Family Medicine, University of Washington (Former Chair of the U.S. Preventive Services Task Force)
4. *Provider:* Kim Pittenger, MD, Family Physician, Virginia-Mason
5. *Provider:* Ryan Bradley, ND, Bastyr Center for Natural Health
6. *Employer:* Marilyn Guthrie, Manager of Health Promotion Programs, Washington Mutual
7. *Employer:* Susie Farrell, Director, Employee Health Services, City of Seattle
8. *Employer:* Kathleen Clark, Washington Wellness, WA State Health Care Authority
9. *Public Health:* Sherri McDonald, RN, MPA, Director, Public Health and Social Services Department, Thurston County
10. *Public Health:* Charissa Fotinos, MD, Medical Director, Community Health Services, Seattle/King County Public Health
11. *Health Plan:* Susan Ramstead, Health Promotion Administrator, Premera and Kimber Bishop, Quality Program Development, Premera.
12. *Health Plan:* Cary Badger, Vice President, Market Development, and Management Sponsor of “Vitality” (wellness program), Regence
13. *Consumer:* Norman Charney, MD, Retired Physician, President, Health Care for the 21st Century

Puget Sound Health Alliance Staff:

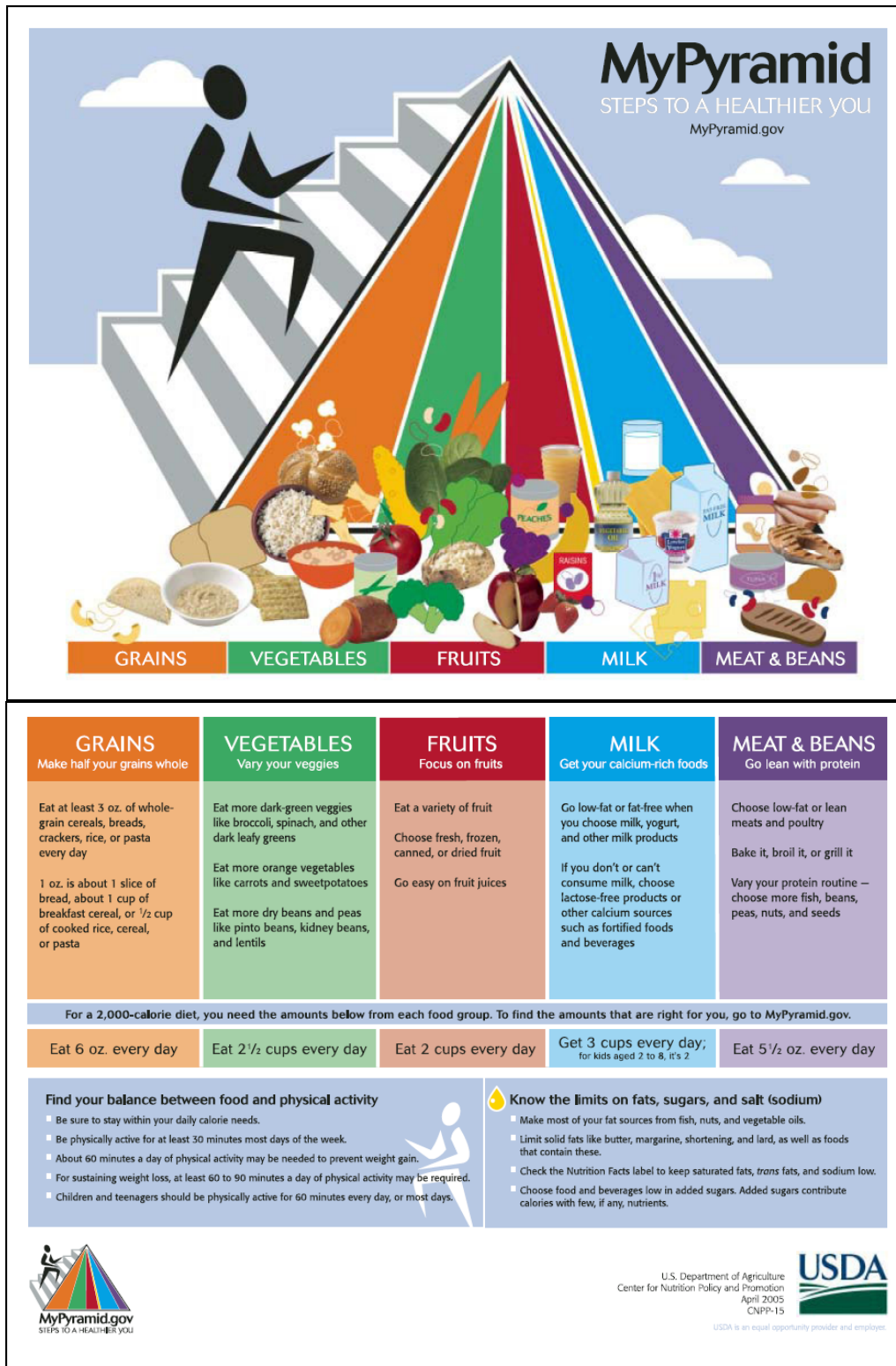
Susie Dade, Quality Improvement Director

Kerri Petrin, Research Analyst

Natalie Moe, Committee Coordinator

Sean McCliment, Business Manager and Executive Assistant

Appendix 2: The Food Pyramid



<http://www.mypyramid.gov/downloads/MiniPoster.pdf>

Appendix 3: Dietary Guidelines for Americans 2005 – Key Recommendations for the General Population

ADEQUATE NUTRIENTS WITHIN CALORIE NEEDS

- Consume a variety of nutrient-dense foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and *trans* fats, cholesterol, added sugars, salt, and alcohol.
- Meet recommended intakes within energy needs by adopting a balanced eating pattern, such as the U.S. Department of Agriculture (USDA) Food Guide or the Dietary Approaches to Stop Hypertension (DASH) Eating Plan.

WEIGHT MANAGEMENT

- To maintain body weight in a healthy range, balance calories from foods and beverages with calories expended.
- To prevent gradual weight gain over time, make small decreases in food and beverage calories and increase physical activity.

PHYSICAL ACTIVITY

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.
 - To reduce the risk of chronic disease in adulthood: Engage in at least 30 minutes of moderate-intensity physical activity, above usual activity, at work or home on most days of the week.
 - For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer duration.
 - To help manage body weight and prevent gradual, unhealthy body weight gain in adulthood: Engage in approximately 60 minutes of moderate- to vigorous-intensity activity on most days of the week while not exceeding caloric intake requirements.
 - To sustain weight loss in adulthood: Participate in at least 60 to 90 minutes of daily moderate-intensity physical activity while not exceeding caloric intake requirements. Some people may need to consult with a healthcare provider before participating in this level of activity.
- Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.

FOOD GROUPS TO ENCOURAGE

- Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2½ cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level.
- Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week.

- Consume 3 or more ounce-equivalents of whole-grain products per day, with the rest of the recommended grains coming from enriched or whole-grain products. In general, at least half the grains should come from whole grains.
- Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

FATS

- Consume less than 10 percent of calories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep *trans* fatty acid consumption as low as possible.
- Keep total fat intake between 20 to 35 percent of calories, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.
- When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free.
- Limit intake of fats and oils high in saturated and/or *trans* fatty acids, and choose products low in such fats and oils.

CARBOHYDRATES

- Choose fiber-rich fruits, vegetables, and whole grains often.
- Choose and prepare foods and beverages with little added sugars or caloric sweeteners, such as amounts suggested by the USDA Food Guide and the DASH Eating Plan.
- Reduce the incidence of dental caries by practicing good oral hygiene and consuming sugar- and starch-containing foods and beverages less frequently.

SODIUM AND POTASSIUM

- Consume less than 2,300 mg (approximately 1 teaspoon of salt) of sodium per day.
- Choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits and vegetables.

ALCOHOLIC BEVERAGES

- Those who choose to drink alcoholic beverages should do so sensibly and in moderation—defined as the consumption of up to one drink per day for women and up to two drinks per day for men.
- Alcoholic beverages should not be consumed by some individuals, including those who cannot restrict their alcohol intake, women of childbearing age who may become pregnant, pregnant and lactating women, children and adolescents, individuals taking medications that can interact with alcohol, and those with specific medical conditions.
- Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill, or coordination, such as driving or operating machinery.

FOOD SAFETY

- To avoid microbial food borne illness:

- o Clean hands, food contact surfaces, and fruits and vegetables. Meat and poultry should not be washed or rinsed.
- o Separate raw, cooked, and ready-to-eat foods while shopping, preparing, or storing foods.
- o Cook foods to a safe temperature to kill microorganisms.
- o Chill (refrigerate) perishable food promptly and defrost foods properly.
- o Avoid raw (unpasteurized) milk or any products made from unpasteurized milk, raw or partially cooked eggs or foods containing raw eggs, raw or undercooked meat and poultry, unpasteurized juices, and raw sprouts.

<http://www.health.gov/dietaryguidelines/dga2005/recommendations.htm>

Appendix 4: 2007 Recommended Childhood Immunization Schedule from the Advisory Committee on Immunization Practices (ACIP)

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION Recommended Immunization Schedule for Persons Aged 0–6 Years—UNITED STATES • 2007

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B ¹	HepB	HepB	HepB	see footnote 1	HepB	HepB	HepB	HepB	HepB	HepB Series		
Rotavirus ²			Rota	Rota	Rota							
Diphtheria, Tetanus, Pertussis ³			DTaP	DTaP	DTaP		DTaP					DTaP
<i>Haemophilus influenzae</i> type b ⁴			Hib	Hib	Hib ⁴	Hib			Hib			
Pneumococcal ⁵			PCV	PCV	PCV	PCV					PCV PPV	
Inactivated Poliovirus			IPV	IPV		IPV						IPV
Influenza ⁶							Influenza (Yearly)					
Measles, Mumps, Rubella ⁷							MMR					MMR
Varicella ⁸							Varicella					Varicella
Hepatitis A ⁹							HepA (2 doses)				HepA Series	
Meningococcal ¹⁰											MPSV4	

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 0–6 years. Additional information is available at <http://www.cdc.gov/nip/recs/child-schedule.htm>. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and

other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

1. Hepatitis B vaccine (HepB). (Minimum age: birth)

At birth:

- Administer monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
- If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mother's negative HBsAg laboratory report documented in the infant's medical record.

After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of ≥3 doses of a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

4-month dose:

- It is permissible to administer 4 doses of HepB when combination vaccines are administered after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)

- Administer the first dose at age 6–12 weeks. Do not start the series later than age 12 weeks.
- Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4–6 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
- TriHibit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in children aged ≥12 months.

5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])

- Administer PCV at ages 24–59 months in certain high-risk groups. Administer PPV to children aged ≥2 years in certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1–35.

6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])

- All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
- Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55(No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- Administer the second dose of MMR at age 4–6 years. MMR may be administered before age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

8. Varicella vaccine. (Minimum age: 12 months)

- Administer the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be administered before age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- HepA is recommended for all children aged 1 year (i.e., aged 12–23 months). The 2 doses in the series should be administered at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. Meningococcal polysaccharide vaccine (MPSV4). (Minimum age: 2 years)

- Administer MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54(No. RR-7):1–21.

The Recommended Immunization Schedules for Persons Aged 0–18 Years are approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/nip/acip>), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

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DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

Recommended Immunization Schedule for Persons Aged 7–18 Years—UNITED STATES • 2007

Vaccine ▼	Age ►	7–10 years	11–12 YEARS	13–14 years	15 years	16–18 years	
Tetanus, Diphtheria, Pertussis ¹	see footnote 1		Tdap		Tdap		Range of recommended ages
Human Papillomavirus ²	see footnote 2		HPV (3 doses)		HPV Series		
Meningococcal ³		MPSV4	MCV4		MCV4¹ MCV4		Catch-up immunization
Pneumococcal ⁴			PPV				
Influenza ⁵			Influenza (Yearly)				
Hepatitis A ⁶			HepA Series				Certain high-risk groups
Hepatitis B ⁷			HepB Series				
Inactivated Poliovirus ⁸			IPV Series				
Measles, Mumps, Rubella ⁹			MMR Series				
Varicella ¹⁰			Varicella Series				

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. Additional information is available at <http://www.cdc.gov/nip/recs/child-schedule.htm>. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components

of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).

(Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL™)

- Administer at age 11–12 years for those who have completed the recommended childhood DTP/DaP vaccination series and have not received a tetanus and diphtheria toxoids vaccine (Td) booster dose.
- Adolescents aged 13–18 years who missed the 11–12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DaP vaccination series.

2. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)

- Administer the first dose of the HPV vaccine series to females at age 11–12 years.
- Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose.
- Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

3. Meningococcal vaccine. (Minimum age: 11 years for meningococcal conjugate vaccine [MCV4]; 2 years for meningococcal polysaccharide vaccine [MPSV4])

- Administer MCV4 at age 11–12 years and to previously unvaccinated adolescents at high school entry (at approximately age 15 years).
- Administer MCV4 to previously unvaccinated college freshmen living in dormitories; MPSV4 is an acceptable alternative.
- Vaccination against invasive meningococcal disease is recommended for children and adolescents aged ≥2 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54(No. RR-7):1–21. Use MPSV4 for children aged 2–10 years and MCV4 or MPSV4 for older children.

4. Pneumococcal polysaccharide vaccine (PPV). (Minimum age: 2 years)

- Administer for certain high-risk groups. See *MMWR* 1997;46(No. RR-8):1–24, and *MMWR* 2000;49(No. RR-9):1–35.

5. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])

- Influenza vaccine is recommended annually for persons with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55 (No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

6. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- The 2 doses in the series should be administered at least 6 months apart.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55 (No. RR-7):1–23.

7. Hepatitis B vaccine (HepB). (Minimum age: birth)

- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB® is licensed for children aged 11–15 years.

8. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age ≥4 years.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

9. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- If not previously vaccinated, administer 2 doses of MMR during any visit, with ≥4 weeks between the doses.

10. Varicella vaccine. (Minimum age: 12 months)

- Administer 2 doses of varicella vaccine to persons without evidence of immunity.
- Administer 2 doses of varicella vaccine to persons aged <13 years at least 3 months apart. Do not repeat the second dose, if administered ≥28 days after the first dose.
- Administer 2 doses of varicella vaccine to persons aged ≥13 years at least 4 weeks apart.

The Recommended Immunization Schedules for Persons Aged 0–18 Years are approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/nip/acip>), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

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Catch-up Immunization Schedule

UNITED STATES • 2007

for Persons Aged 4 Months–18 Years Who Start Late or Who Are More Than 1 Month Behind

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age.

CATCH-UP SCHEDULE FOR PERSONS AGED 4 MONTHS–6 YEARS					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B ¹	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Rotavirus ²	6 wks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis ³	6 wks	4 weeks	4 weeks	6 months	6 months ³
<i>Haemophilus influenzae</i> type b ⁴	6 wks	4 weeks if first dose administered at age <12 months 8 weeks (as final dose) if first dose administered at age 12–14 months No further doses needed if first dose administered at age ≥15 months	4 weeks ⁴ if current age <12 months 8 weeks (as final dose) ⁴ if current age ≥12 months and second dose administered at age <15 months No further doses needed if previous dose administered at age ≥15 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Pneumococcal ⁵	6 wks	4 weeks if first dose administered at age <12 months and current age <24 months 8 weeks (as final dose) if first dose administered at age ≥12 months or current age 24–59 months No further doses needed for healthy children if first dose administered at age ≥24 months	4 weeks if current age <12 months 8 weeks (as final dose) if current age ≥12 months No further doses needed for healthy children if previous dose administered at age ≥24 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Inactivated Poliovirus ⁶	6 wks	4 weeks	4 weeks	4 weeks ⁶	
Measles, Mumps, Rubella ⁷	12 mos	4 weeks			
Varicella ⁸	12 mos	3 months			
Hepatitis A ⁹	12 mos	6 months			
CATCH-UP SCHEDULE FOR PERSONS AGED 7–18 YEARS					
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis ¹⁰	7 yrs ¹⁰	4 weeks	8 weeks if first dose administered at age <12 months 6 months if first dose administered at age ≥12 months	6 months if first dose administered at age <12 months	
Human Papillomavirus ¹¹	9 yrs	4 weeks	12 weeks		
Hepatitis A ⁹	12 mos	6 months			
Hepatitis B ¹	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Inactivated Poliovirus ⁶	6 wks	4 weeks	4 weeks	4 weeks ⁶	
Measles, Mumps, Rubella ⁷	12 mos	4 weeks			
Varicella ⁸	12 mos	4 weeks if first dose administered at age ≥13 years 3 months if first dose administered at age <13 years			

1. Hepatitis B vaccine (HepB). (Minimum age: birth)

- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB[®] is licensed for children aged 11–15 years.

2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)

- Do not start the series later than age 12 weeks.
- Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fifth dose is not necessary if the fourth dose was administered at age ≥4 years.
- DTaP is not indicated for persons aged ≥7 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- Vaccine is not generally recommended for children aged ≥5 years.
- If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB[®] or ComVax[®] [Merck]), the third (and final) dose should be administered at age 12–15 months and at least 8 weeks after the second dose.
- If first dose was administered at age 7–11 months, administer 2 doses separated by 4 weeks plus a booster at age 12–15 months.

5. Pneumococcal conjugate vaccine (PCV). (Minimum age: 6 weeks)

- Vaccine is not generally recommended for children aged ≥5 years.

6. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- The second dose of MMR is recommended routinely at age 4–6 years but may be administered earlier if desired.
- If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.

8. Varicella vaccine. (Minimum age: 12 months)

- The second dose of varicella vaccine is recommended routinely at age 4–6 years but may be administered earlier if desired.
- Do not repeat the second dose in persons aged <13 years if administered ≥28 days after the first dose.

9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- HepA is recommended for certain groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). (Minimum ages: 7 years for Td, 10 years for BOOSTRIX[®], and 11 years for ADACEL[™])

- Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for other doses.
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (fourth) dose is needed if any of the previous doses were administered at age <12 months. Refer to ACIP recommendations for further information. See *MMWR* 2006;55(No. RR-3).

11. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)

- Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

Information about reporting reactions after immunization is available online at <http://www.vaers.hhs.gov> or by telephone via the 24-hour national toll-free information line 800-822-7967. Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for immunization, is available from the National Center for Immunization and Respiratory Diseases at <http://www.cdc.gov/nip/default.htm> or telephone, 800-CDC-INFO (800-232-4636).

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