



INSTITUTE FOR CLINICAL  
SYSTEMS IMPROVEMENT

## Health Care Guideline:

# Primary Prevention of Chronic Disease Risk Factors

---

**Second Edition**  
**May 2009**

The information contained in this ICSI Health Care Guideline is intended primarily for health professionals and the following expert audiences:

- physicians, nurses, and other health care professional and provider organizations;
- health plans, health systems, health care organizations, hospitals and integrated health care delivery systems;
- health care teaching institutions;
- health care information technology departments;
- medical specialty and professional societies;
- researchers;
- federal, state and local government health care policy makers and specialists; and
- employee benefit managers.

This ICSI Health Care Guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. If you are not one of the expert audiences listed above you are urged to consult a health care professional regarding your own situation and any specific medical questions you may have. In addition, you should seek assistance from a health care professional in interpreting this ICSI Health Care Guideline and applying it in your individual case.

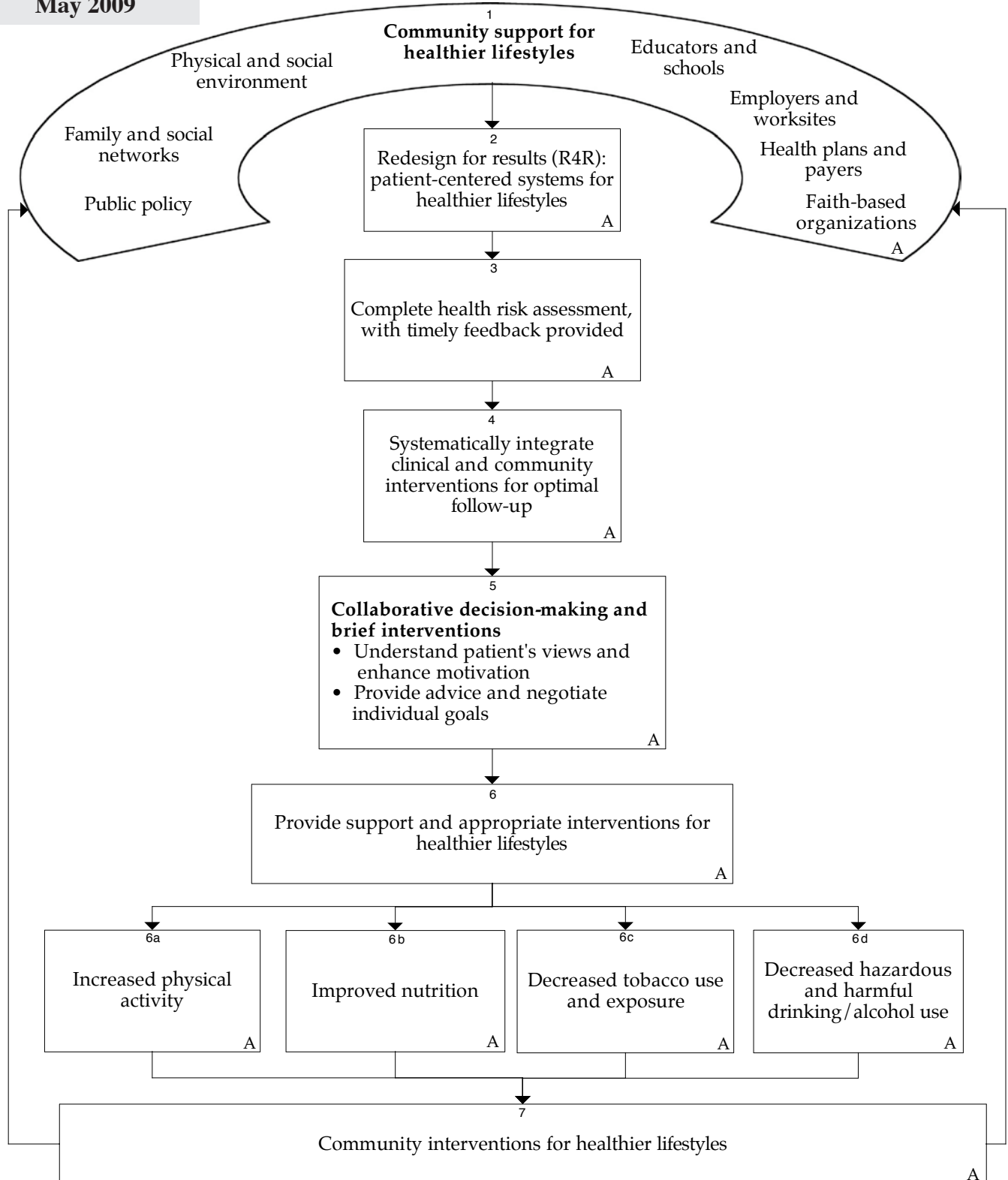
This ICSI Health Care Guideline is designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and is not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. An ICSI Health Care Guideline rarely will establish the only approach to a problem.

Copies of this ICSI Health Care Guideline may be distributed by any organization to the organization's employees but, except as provided below, may not be distributed outside of the organization without the prior written consent of the Institute for Clinical Systems Improvement, Inc. If the organization is a legally constituted medical group, the ICSI Health Care Guideline may be used by the medical group in any of the following ways:

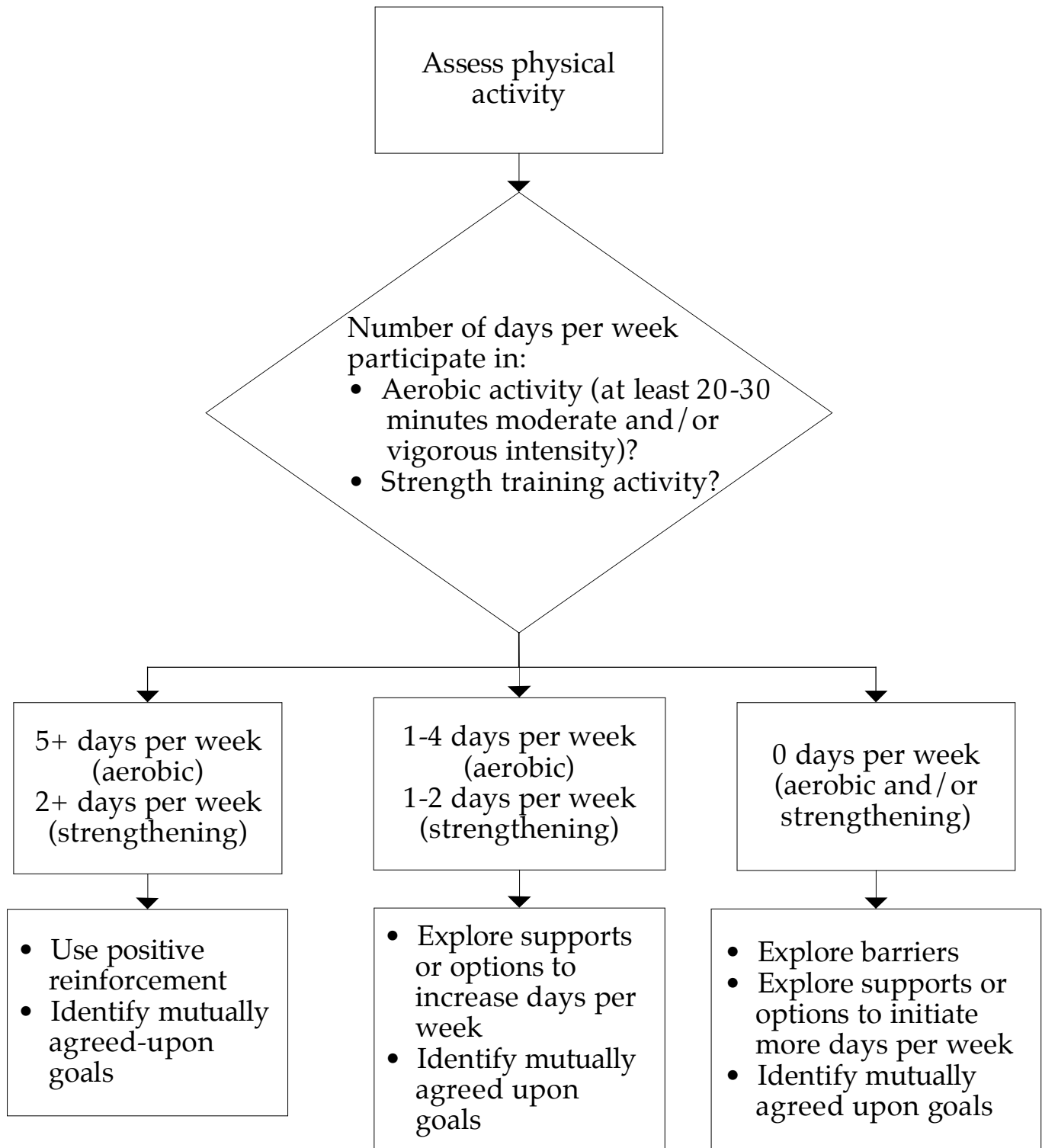
- copies may be provided to anyone involved in the medical group's process for developing and implementing clinical guidelines;
- the ICSI Health Care Guideline may be adopted or adapted for use within the medical group only, provided that ICSI receives appropriate attribution on all written or electronic documents; and
- copies may be provided to patients and the clinicians who manage their care, if the ICSI Health Care Guideline is incorporated into the medical group's clinical guideline program.

All other copyright rights in this ICSI Health Care Guideline are reserved by the Institute for Clinical Systems Improvement. The Institute for Clinical Systems Improvement assumes no liability for any adaptations or revisions or modifications made to this ICSI Health Care Guideline.

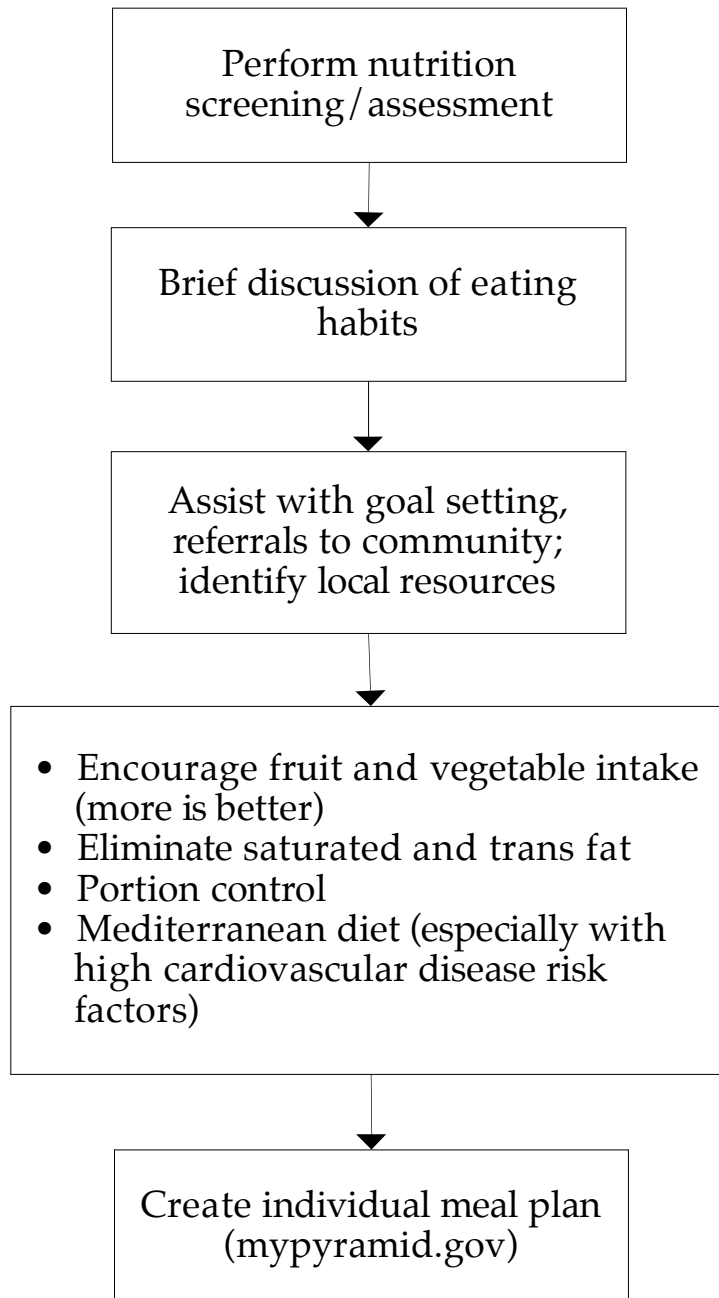
Second Edition  
May 2009



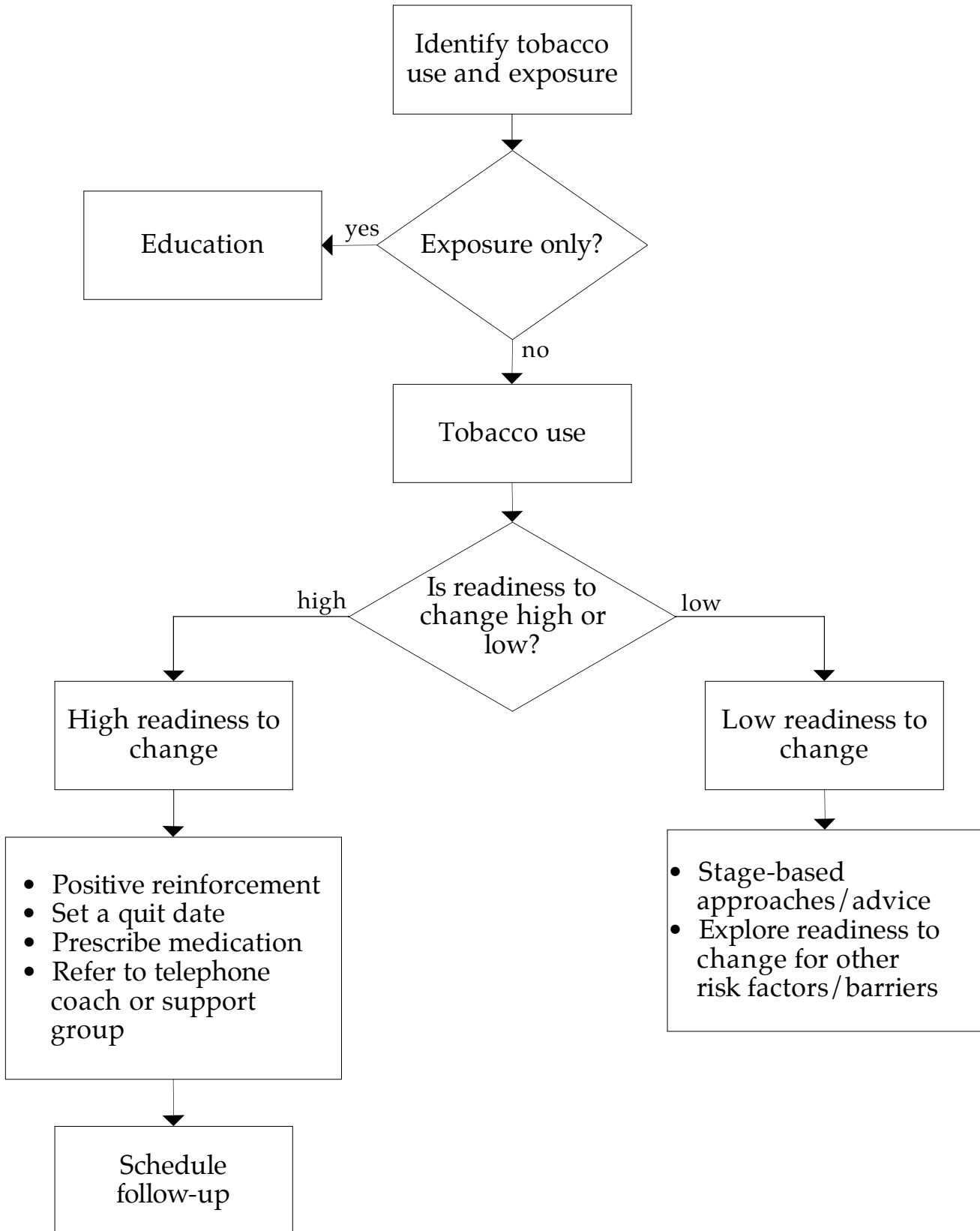
## 6a. Increased Physical Activity Decision Tree



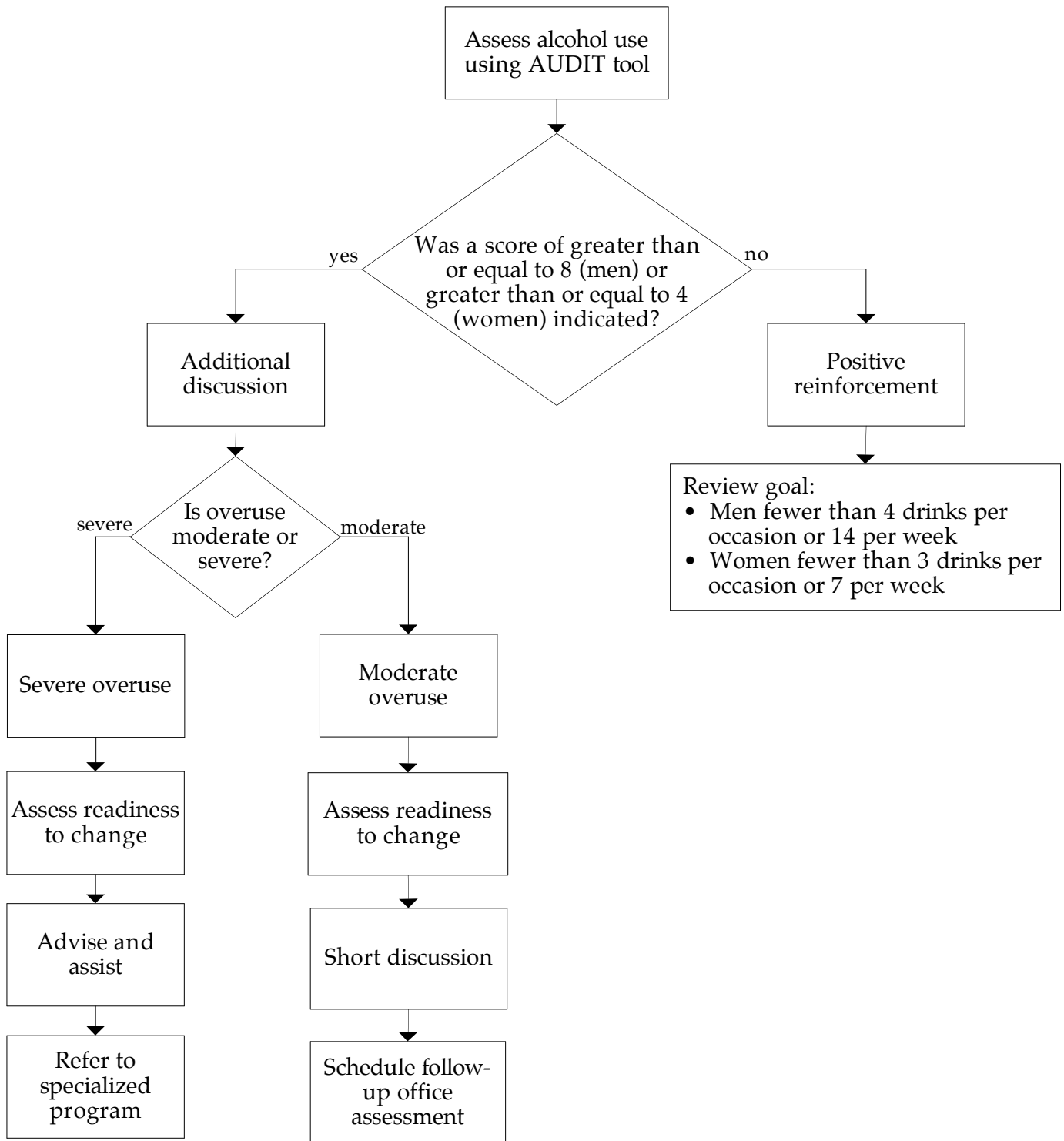
## 6b. Improved Nutrition Decision Tree



### 6c. Decreased Tobacco Use and Exposure Decision Tree



## 6d. Decreased Hazardous and Harmful Drinking/Alcohol Use Decision Tree



## Table of Contents

<p><b>Work Group Leader</b> Thomas E. Kottke, MD <i>Cardiology, HealthPartners Medical Group and Regions Hospital</i></p> <p><b>Work Group Members</b></p> <p><b>Cardiology</b> Courtney Jordan, MD <i>University of Minnesota</i> Stephen L. Kopecky, MD <i>Mayo Clinic</i></p> <p><b>Exercise Physiology</b> Kim Seibert, CES, RCEP <i>St. Paul Heart Clinic</i></p> <p><b>Family Medicine</b> Patrick O'Connor, MD <i>HealthPartners Medical Group and Regions Hospital</i> Michael Schoenleber, MD <i>HealthPartners Medical Group and Regions Hospital</i> John Wilkinson, MD <i>Mayo Clinic</i></p> <p><b>General Internist</b> Martha Sanford, MD <i>Stillwater Medical Group</i></p> <p><b>Health Education</b> Trina Ford, RD, MSN <i>Marshfield Clinic</i></p> <p><b>Nursing</b> Kelly Waldera, RN <i>HealthPartners Medical Group and Regions Hospital</i></p> <p><b>Research</b> Aaron Kelly, PhD <i>Assistant Professor of Pediatrics, University of Minnesota</i></p> <p><b>Worksite Health</b> Julie Coe <i>Hennepin County Medical Center-HealthQuest</i></p> <p><b>Facilitator</b> Melissa Marshall, MBA <i>ICSI</i> Janet Jorgenson-Rathke, PT <i>ICSI</i></p>	<p><b>Algorithms and Annotations</b> ..... 1-41</p> <p>    Algorithm ..... 1</p> <p>    Increased Physical Activity Decision Tree ..... 2</p> <p>    Improved Nutrition Decision Tree ..... 3</p> <p>    Decreased Tobacco Use and Exposure Decision Tree ..... 4</p> <p>    Decreased Hazardous and Harmful Drinking/Alcohol Use Decision Tree ..... 5</p> <p>    Foreword</p> <p>        Scope and Target Population ..... 7</p> <p>        Clinical Highlights and Recommendations ..... 7</p> <p>        Priority Aims ..... 7</p> <p>        Key Implementation Recommendations ..... 8</p> <p>        Related ICSI Scientific Documents ..... 8</p> <p>        Disclosure of Potential Conflict of Interest ..... 8</p> <p>        Introduction to ICSI Document Development ..... 9</p> <p>        Description of Evidence Grading ..... 9</p> <p>    Introduction ..... 10-11</p> <p>    Annotations ..... 11-34</p> <p>    Appendices ..... 35-41</p> <p>        Appendix A – Health Risk Assessments (HRAs) ..... 35-36</p> <p>        Appendix B – Intensity Levels of Physical Activity ..... 37-38</p> <p>        Appendix C – Alcohol Use Disorders Identification Test (AUDIT) ..... 39</p> <p>        Appendix D – Implementation Summary Sheet ..... 40</p> <p>        Appendix E – Guideline Implementation Tool ..... 41</p> <p><b>Supporting Evidence</b> ..... 42-49</p> <p>    Brief Description of Evidence Grading ..... 43</p> <p>    References ..... 44-49</p> <p><b>Support for Implementation</b> ..... 50-61</p> <p>    Priority Aims and Suggested Measures ..... 51-52</p> <p>    Key Implementation Recommendations ..... 53</p> <p>    Knowledge Resources ..... 54</p> <p>    Resources Available ..... 55-61</p>
--	--

## Foreword

### Scope and Target Population

This guideline, Primary Prevention of Chronic Disease, outlines the existing evidence for the effectiveness of strategies and programs designed to help adults successfully make essential changes to achieve healthier lifestyles (increased physical activity, improved nutrition, decreased tobacco use and exposure, decreased hazardous and harmful drinking/alcohol use). It also outlines how these programs might be integrated into preventive services in health care systems, which traditionally have focused on early detection of disease or treatment of risk factors rather than preventing the onset of risk factors.

Nearly all individuals would derive measurable benefits from healthier lifestyles; even small improvements across a large portion of the population would have a greater impact than focusing on a small portion of the population that is at the upper end of the risk distribution. Therefore, the target population for this guideline includes all adults (age 18 and older) in the community, irrespective of their utilization of the health care system. Although this guideline focuses on adults, adolescents and children may benefit from many of the components or recommendations in this guideline.

### Clinical Highlights and Recommendations

- Four lifestyle behaviors – adequate physical activity, a diet that emphasizes fruits and vegetables, abstinence from tobacco and avoidance of tobacco smoke, and avoidance of hazardous and harmful drinking – are associated with a decade or more of increased life expectancy. Individuals who adopt this lifestyle in middle age have total mortality rates that are 40% lower than those who do not adopt. (*Annotation #6a-d; Aim #1*)
- Medical groups cannot be given the sole responsibility for effecting lifestyle changes. There is a growing recognition and understanding of the role that community networks, physical and social environments, and public policy all play in fostering healthier lifestyles. (*Annotation #1; Aim #3*)
- A broad approach is necessary to achieve and support healthier behaviors in individuals. It requires individual change, health care system redesign, as well as community, employer and payer support. (*Annotation #2; Aim #4*)
- Health risk assessments are most effective when combined with interventions aimed at risk reduction and support. (*Annotation #3; Aim #2*)
- Collaborative decision-making and brief, combined interventions are effective in helping motivate and engage patients in healthier lifestyles. (*Annotation #5*)

### Priority Aims

1. Improve the population health of adults ages 18 and older, through the identification and promotion of healthy lifestyle behaviors. (*Annotations #6a-d*)
2. Improve the effectiveness of Health Risk Assessments by providing timely feedback, education and other interventions. (*Annotation #3*)
3. Improve the coordination and integration between the health care system, employers and community-based groups to support healthier lifestyles in adults. (*Annotation #1*)
4. Create patient-centered health care delivery systems that collaborate with external stakeholders in supporting healthier lifestyles of adults. (*Annotations #2, 5*)



## Key Implementation Recommendations

The following system changes were identified by the guideline work group as key strategies for health care systems to incorporate in support of the implementation of this guideline.

1. Develop a plan for educating all physicians and staff about the organizational goals for the primary prevention of chronic disease.
2. Develop a process to promote the completion of health risk assessments and to support behavioral changes intended to prevent chronic disease development.
3. Build a collaborative relationship between health care providers and employer leadership to support healthier lifestyles. Create communication processes to share initiatives such as wellness programs, health risk assessments, educational opportunities and other support programs.
4. Develop decision support processes in electronic medical records to support physicians and staff in delivering specific components of the guideline.
5. Place education materials that focus on healthier lifestyle throughout the facility to include but not limited to posters, pamphlets, videos, available Web sites, support groups and promotion of health risk assessments by informing individuals about the benefits and subsequent assistance with behavior change(s).
6. Seek leadership support for the implementation of an internal worksite wellness program in order to "lead by example."
7. Build relationships between clinic/medical group leadership and community leaders in the area to learn about what kinds of wellness program(s) they provide or would like to provide for their citizens.

## Related ICSI Scientific Documents

### Guidelines

- Hypertension Diagnosis and Treatment
- Lipid Management in Adults
- Preventive Services for Adults
- Prevention and Management of Obesity
- Stable Coronary Artery Disease
- Diagnosis and Management of Type 2 Diabetes Mellitus in Adults

## Disclosure of Potential Conflict of Interest

ICSI has adopted a policy of transparency, disclosing potential conflict and competing interests of all individuals who participate in the development, revision and approval of ICSI documents (guidelines, order sets and protocols). This applies to all work groups (guidelines, order sets and protocols) and committees (Committee on Evidence-Based Practice, Cardiovascular Steering Committee, Women's Health Steering Committee, Preventive & Health Maintenance Steering Committee and Respiratory Steering Committee).

Participants must disclose any potential conflict and competing interests they or their dependents (spouse, dependent children, or others claimed as dependents) may have with any organization with commercial, proprietary, or political interests relevant to the topics covered by ICSI documents. Such disclosures will be shared with all individuals who prepare, review and approve ICSI documents.

No work group members have potential conflicts of interest to disclose.

## Introduction to ICSI Document Development

This document was developed and/or revised by a multidisciplinary work group utilizing a defined process for literature search and review, document development and revision, as well as obtaining input from and responding to ICSI members.

For a description of ICSI's development and revision process, please see the Development and Revision Process for Guidelines, Order Sets and Protocols at <http://www.icsi.org>.

## Evidence Grading System

### A. Primary Reports of New Data Collection:

- Class A: Randomized, controlled trial
- Class B: Cohort study
- Class C: Non-randomized trial with concurrent or historical controls  
Case-control study  
Study of sensitivity and specificity of a diagnostic test  
Population-based descriptive study
- Class D: Cross-sectional study  
Case series  
Case report

### B. Reports that Synthesize or Reflect upon Collections of Primary Reports:

- Class M: Meta-analysis  
Systematic review  
Decision analysis  
Cost-effectiveness analysis
- Class R: Consensus statement  
Consensus report  
Narrative review
- Class X: Medical opinion

Citations are listed in the guideline utilizing the format of (*Author, YYYY [report class]*). A full explanation of ICSI's Evidence Grading System can be found at <http://www.icsi.org>.

# Algorithm Annotations

## Introduction

In the last half of the 20th century, chronic diseases – particularly heart disease, stroke, cancer, diabetes and depression – emerged as the major causes of death, disability and rising health care costs for the American public. Chronic disease accounts for 7 out of 10 deaths and affects the quality of life of 90 million Americans (*Jordan, 2008 [R]*). Moreover, a significant portion of the preventable component for all of these conditions can be traced to four behaviors: poor nutrition, inadequate levels of physical activity, smoking and exposure to tobacco smoke, and hazardous drinking of alcohol. In fact, 40% of all deaths in the United States can be attributed to these four behaviors alone (*Mokdad, 2004 [M]*).

There is growing evidence that interventions to increase physical activity, improve nutrition, decrease tobacco use and exposure and decrease hazardous and harmful drinking/alcohol use will reduce the burden of disease, disability and premature death. A prospective study was conducted on 15,792 individuals aged 45-64, looking at four healthy lifestyle behaviors. The behaviors are defined as eating at least five fruits and vegetables a day, exercising a minimum of 2.5 hours a week, maintaining a body mass index between 18.5 and 30, and not smoking. The study found that maintaining a healthy lifestyle may reduce mortality and cardiovascular disease by over 40% in four years (*King, 2007 [B]*). There is also a growing body of evidence that these changes will lead to a more productive workforce and reduced health care costs (*Goetzel, 1998 [B]*; *Ozminkowski, 2002 [B]*; *Ozminkowski, 2000 [C]*).

A model for perfect care of heart disease prevention and treatment was developed and tested. Perfect care was defined as the elimination of risk factors and the prescription of all effective medications. The results indicate that benefits would accrue from interventions before and between acute events. The study also concluded that risk factor interventions also reduce the risk of death from other chronic disease (*Kottke, 2009 [M]*).

There is a growing recognition and understanding of the role that community networks, the physical and social environments, and public policy all play in fostering healthier lifestyles. Individuals are very often activated or motivated to adopt and maintain healthier lifestyles by various social factors and supports, or other incentives, originating with employers and the workplace, health plans, communities, social service agencies and government policies and programs. While not the primary focus of the guideline, we do discuss examples of various initiatives in the wider society designed to encourage healthier lifestyles.

Medical groups cannot be given the sole responsibility for effecting lifestyle changes; the relative infrequency of patient visits, limited time and reimbursement pressures on clinicians, and the high cost of delivering health promotion interventions in the clinic setting all present significant barriers to success. There is little evidence that the current health care system, much less individual providers when they are acting alone, can reliably or consistently motivate or activate individual patients for healthier lifestyles. Rather, health care delivery systems should be designed and organized, based on best evidence, to support already motivated and activated individuals, and to effectively collaborate with other stakeholders.

Only about 5% of the population have no identifiable risk factors (*Daviglus, 2004 [B]*). Therefore, nearly all individuals could benefit from healthier lifestyles and assistance in behavior change. Moreover, the majority of the disease burden, and the associated costs, originates with individuals who are at or not far above the "average" population risk (*Lauer, 2007 [R]*). Although the average change in nutrition patterns, levels of physical activity, population smoking rates or rates of hazardous drinking are small in the trials that provide the documentation for this guideline, individuals who make significant lifestyle changes can expect to experience large reductions in risk of disease and large reductions in risk of future health care costs. Furthermore, the small changes in average disease risk expected with the interventions, because

## Algorithm Annotations

they will be spread widely across the population, can be expected to result in large reduction disease rates (Rose, 1985 [R]).

There is also growing interest in what has sometimes been termed "primordial prevention" (preceding "primary prevention"), based on growing evidence that chronic disease prevention begins in childhood before physiological risk factors develop. While many of the interventions and concepts presented in this guideline are effective in adolescents and children, the evidence for long-term benefits in children is not yet fully developed (Lavizzo-Mourey, 2007 [R]). Therefore, the work group members recommended that, for now, the scope of this guideline be limited to adults.

The work group members also fully recognize the role of depression, psychosocial factors and other mental health problems in aggravating unhealthy lifestyles, as well as the necessity of addressing these issues before effecting positive change. Other ICSI work groups and guidelines focus on this topic; their work will be incorporated into later editions of this guideline.

## Algorithm Annotations

### 1. Community Support for Healthier Lifestyles

#### Key Points:

- Individuals are increasingly activated or motivated to adopt and maintain healthier lifestyles through various community-level initiatives, particularly through employers and worksites.
- Broad-based community and environmental supports, in collaboration with the health care system, are essential to healthier lifestyles in the population.
- Physicians, as trusted and respected members of the community, should publicly support those measures, which promote healthier lifestyles, and recommend them to their patients.

Achieving healthier lifestyles (increased physical activity, improved nutrition, decreased tobacco use and exposure, decreased hazardous and harmful drinking/alcohol use) will require fully integrated and coordinated efforts of both clinical and community-based groups. Only these types of interventions are likely to have the needed impact to engage, motivate and support people to make the needed improvements (Brownson, 2006 [R]).

Research focusing on how environmental changes may promote healthier lifestyles is still relatively new and faces challenges. Although it may be possible to randomize interventions to some extent, real control of the environment is usually not possible; there can be no parallel to the classic randomized placebo controlled double-blinded study. Many studies focusing on a single intervention show mixed results or significant differences but at a level that may have little impact in the long run. Multifaceted interventions generally have greater evidence of impact, yet it may be difficult to know which of those facets are most beneficial. Few studies have had sufficient time to show sustained effects.

There is no single or comprehensive vision of community interventions; many separate strategies have been proposed and evaluated. The Community Task Force (CTF), convened and supported by Centers for Disease Control and Prevention (CDC), outlines the following evidence-based preventive strategies, integrated with clinical preventive strategies, in community settings:

- Improvements in health care systems

## Algorithm Annotations

- Education, policy and environmental changes
- Collaborative partnerships among the various stakeholders in communities

(*Task Force on Community Preventive Services, 2005b [R]*)

**Individual providers**, by virtue of their standing in their communities and in society, should

- encourage patients to more effectively utilize community resource, and
- publicly support new, evidence-based interventions to change the physical and social environment (*Woolf, 2006 [D]; Woolf, 2007 [R]*).

**Employers and worksites**, through coordinated health risk assessment and health education programs, can positively affect the health and well-being of employees (*Ozminkowski, 2002 [B]; Task Force on Community Preventive Services, 2005b [R]*). Proper et al. conducted a literature search on the effectiveness of worksite physical activity programs. The article concluded that implementation of a worksite physical activity program does increase physical activity; however, cardiorespiratory fitness improvement could not be established (*Proper, 2003 [M]*).

**Health plans and employers** have themselves provided health risk assessments, education programs and other interventions to their enrollees; the available evidence, while incomplete, is promising for certain conditions.

**Educators and schools** can promote healthier lifestyles through the availability of healthy food choices in cafeterias (*French, 2003 [M]*), through tobacco and alcohol education, or requirements for physical education classes, among other initiatives.

**Faith-based organizations** (churches, synagogues, and mosques) are, for many people and in many communities, an important focus of the social network, and they can provide support for healthier lifestyles as well as sites for screening and wellness outreach. They can be powerful voices for the necessary environmental and public policy changes, as well.

**Other community collaborations** may also include relationships with state and local agencies, non-profits and service organizations.

**Changes in the physical environment** include positive changes to promote healthier lifestyles: safe, accessible walking trails, safe and well-lit parks and playgrounds (*Sallis, 2006 [R]; Williams, 2007 [M]*). These may also include changes that remove barriers to healthier lifestyles. So-called point-of-service prompts include such things as nutritional information on menus or reminders prompting people to use stairs rather than elevators.

**Changes in the social environment** include positive changes to promote healthier lifestyles such as efforts to change public attitudes and social norms, and other types of education campaigns.

**Public policy initiatives** to support healthier lifestyles include such things as providing public funding for recreational facilities and walking trails, enacting clean indoor air laws, enforcing stricter driving under the influence (DUI) standards, or increasing cigarette taxes. Encouraging more nutritious food options in supplemental food programs may also be beneficial. Other examples include tax incentives and zoning codes to encourage grocery stores in low-income and underserved neighborhoods, or initiatives to provide safe, well-lit recreation areas in these same areas.

**Evidence-based policy** aimed at changing health policy is rarely systematically implemented or studied. Even if studied, questions remain about generalizability, ability to maintain benefit, and possible unintended consequences.

A system of evidence-based evaluation of policy changes includes:

- a framework for structured assessment of health policy changes needed to allow meaningful comparisons among policies while supporting innovative, local solutions,
- assurance that proposed changes are ethical,
- studies to determine if unintended consequences can be minimized,
- pilot projects or timely retrospective assessments to address benefits and harms for stakeholders,
- feedback systems to maintain acceptable outcomes after policy changes (*Wharam, 2007 [R]*).

More detailed examples of specific community-level interventions and programs, and supporting evidence, are included under Annotation #7, "Community Interventions for Healthier Lifestyles."

## 2. Redesign for Results (R4R): Patient-Centered Systems for Healthier Lifestyles

Employers, health plans, government and other payers are increasingly demanding that health care systems demonstrate measurable improvements in patient health.

There is little evidence that the current health care system, much less individual providers when they are acting alone, can reliably or consistently motivate or activate individual patients for healthier lifestyles. Rather, health care delivery systems should be designed and organized, based on best evidence, to support already motivated and activated individuals, and to effectively collaborate with other stakeholders.

Patient-centered systems, such as those redesigned to support the chronic care model, can have a positive impact on certain behaviors; the evidence is stronger for decreased tobacco use and decreased hazardous and harmful drinking/alcohol use, and less so for increased physical activity and improved nutrition (*Bodenheimer, 2002 [D]*). See Annotation #6, "Provide Support and Appropriate Interventions for Healthier Lifestyles," for more information.

A health care system redesigned for results and for productive interactions between patients and providers includes:

- Clinical information systems
  - timely information and feedback to patients (tailored treatment plans, tailored messaging for self-management)
  - timely information on populations and individual patients to providers
- Decision support systems
  - evidence-based guidelines and protocols
  - specialist expertise integrated into primary care
- Delivery system design
  - multidisciplinary team and partnerships
  - use of systematic, proactive planned strategies
  - systematic follow-up

## Algorithm Annotations

- Self-management support
  - patient-centered, collaborative process between patient and provider
  - tailored education and psychosocial support
- Community resources
  - use of non-clinical resources – the maintenance of healthy lifestyles is strongly related to social support mechanisms

Informed, activated, engaged and empowered patients have better functional and clinical outcomes. Providers who are prepared and have access to supporting resources are more likely to meet patient needs and expectations.

### 3. Complete Health Risk Assessment, with Timely Feedback Provided

#### Key Points:

- Annual or periodic health risk assessments (HRAs) identify health risk factors and provide feedback on the effectiveness of behavior changes already made.
- Health risk assessments are most effective when combined with timely feedback, education and other interventions as appropriate.
- Health risk assessments can be administered in many settings.

Health risk assessments are standardized surveys that can measure health status and readiness to change, as well as attitudes, skills and behaviors. Effective health risk assessments provide feedback and recommendations for change on short-term (next five years) modifiable risk factors.

#### Benefits of Health Risk Assessments

There is some evidence that taking a health risk assessment is effective in changing attitudes of people who are already in a "precontemplative" state of change (*Coulter, 2007 [R]; Kreuter, 1996 [A]; Vasse, 1998 [D]*).

There is good evidence that taking a health risk assessment that offers immediate feedback can be educational and that people report a heightened awareness of their risk factors (*Coulter, 2007 [R]*).

When health risk assessments are performed consistently, they are valuable for measuring the effect of various interventions on populations. The Community Task Force (CTF), in a recent draft recommendation, states that health risk assessments that include individualized feedback and health education show "strong evidence of effectiveness in improving one or more health behaviors or conditions in populations of workers" (*Task Force on Community Preventive Services, 2005a [R]*). These improvements include:

- improving measurements of physical activity,
- reducing dietary intake of fat,
- decreasing tobacco use,
- decreasing hazardous or harmful drinking/alcohol use,
- reducing overall (median) blood pressure measurements,
- reducing overall (median) cholesterol measurements,



## Algorithm Annotations

- improving the summary health risk estimates of at-risk participants,
- reducing the number of days lost from work due to illness or disability, and
- improving a range of measures of use of health care services.

The Community Task Force found insufficient evidence to determine whether or not similar programs are effective in:

- increasing dietary intake of fruits and vegetables,
- altering body composition (body mass index and percentage of fat), and
- improving fitness.

(Sorenson, 1996 [A]; Sorenson, 1998 [A]; Task Force on Community Preventive Services, 2005a [R])

The optimal frequency for performing health risk assessments has not been determined, but there is some evidence, and growing experience, that more frequent contacts may maintain momentum and "critical mass" among populations. Consequently, many corporate health executives try to engage employees on an annual basis.

The optimal location for performing a health risk assessment is not known, although worksites are often most successful for a variety of reasons. Aldana et al. studied the Diabetes Prevention Program as a worksite intervention. The study showed improved diet, increased physical activity and improved clinical measures among study participants. The article found that coworkers and peers can offer social supports as they work together on interventions and that employers can most efficiently provide intensive health-related screening, education and interventions to large populations.

(Aldana, 2006 [D])

Goetzel et al. studied Johnson & Johnson's health and wellness program. This program offered employees a financial incentive to complete a health risk assessment and participate in a high-risk program, when appropriate. The study concluded that corporate investment in work health is important (Goetzel, 2002 [B]).

Worker privacy and concerns about confidentiality have been raised, but employers are required to de-identify and aggregate health risk assessment data. Nonetheless, some individuals may prefer to address certain topics (e.g., problem drinking, drug use) through their primary provider, while others may prefer community-based interventions. See also Annotation #4, "Systematically Integrate Clinical and Community Interventions for Optimal Follow-Up."

### **Standardization and Content Validation of Health Risk Assessments**

There are many health risk assessments available, both proprietary and in the public domain. Specific, validated instruments are discussed in Appendix A, "Health Risk Assessments (HRAs)."

### **Provide Timely Feedback and Education; Recommend Next Steps**

A health risk assessment must provide feedback tailored to the individual's level of risk.

- For low- or medium-risk individuals, recommend lifestyle changes and self-management, and offer education.
- For higher-risk individuals, also offer other appropriate resources and interventions.



## 4. Systematically Integrate Clinical and Community Interventions for Optimal Follow-Up

### Key Points:

- Develop systems to convey approval and support of community-level interventions by the primary provider.
- Develop seamless, patient-centered clinical information collection systems to minimize redundancy in collection of patient information, and to integrate health risk assessment information with other health and risk factor assessments and with decision support systems.
- Include and consistently document lifestyle vital signs in medical record.

Although some individuals, following their health risk assessment, will initiate and sustain lifestyle changes on their own, most will require some degree of follow-up to achieve even modest improvements.

Much of the support, reinforcement and access to resources will be through community-based programs. In these situations, health care systems, medical groups, and individual providers may have only a minimal, if any, role, except perhaps to suggest or coordinate community resources and programs.

However, some of the follow-up will be in the form of more traditional clinical activities; in these situations, health care systems, medical groups, and individual providers must be prepared to respond with evidence-based interventions.

Health care systems should implement the following evidence-based, patient-centered systems changes in order to ensure consistent follow-up and support for healthier lifestyles.

### **Develop systems to convey primary provider approval and support of community-level interventions**

A clear, strong, personal message from the primary care provider appears to be a very helpful intervention for establishing long-term behavior change, particularly when combined with personalized educational materials, follow-up, and referral when appropriate (*Logue, 2005 [A]; Rensicow, 2003 [B]; van Sluijs, 2004 [R]*). Patients whose primary care providers addressed these behaviors reported a higher likelihood to consider the information important and relevant, a greater likelihood that they would discuss the advice with others, and a greater likelihood that they would attempt the behavior change (quit smoking, cut down on fat, increase general activity) (*Logue, 2005 [A]; Resnicow, 2003 [B]*).

Health care systems can implement various innovative methods, other than traditional one-on-one or face-to-face contacts, to convey to patients their primary provider's support, endorsement and familiarity with community-level interventions. Examples might include:

- follow-up phone calls by office personnel,
- letters signed by the primary care provider, and
- awareness of patient participation in specific programs (by chart reminders or other methods) at time of office visits or other contacts.

### **Develop systems for seamless, patient-centered clinical information collection**

**Ask once:** Develop patient-centered systems for the collection of either clinical or demographic information that can be collected once and readily updated, rather than being collected anew.

Develop systems that are interoperable and that allow information (when and where appropriate and when patient has granted permission) to be shared among collaborators (e.g., worksite health risk assessment information incorporated into medical record). While paper-based systems can be very effective, Web-based systems will ultimately be the standard.

**Integrate health risk assessment information with other health and risk factor assessment:** Many scales or instruments for risk stratification are also used in selected populations (Personal Health Questionnaire-9, etc.), and the collection of many other types of information is mandated by various quality improvement initiatives, regulatory bodies and other guidelines. Computerized systems, utilizing branching logic questions and algorithms, can most efficiently tailor the specific information collected on each individual (*Bachman, 2006 [R]*).

**Integrate into decision support:** Clinical information is being increasingly treated as inputs into other decision support systems; move beyond collecting "stand-alone" information.

**Include documentation of lifestyle vital signs in medical record**

Having a full understanding of the specific needs of each patient, as well as knowing which interventions have been offered and tried, is one characteristic of integrated, patient-centered systems.

Moreover, various accrediting bodies and quality initiatives mandate the documentation of this type of information as the current standard of care. In particular, specific documentation that people have been offered assistance with nutrition, exercise, tobacco use and problem drinking is often required.

There is good evidence that lifestyle-related screening – particularly for tobacco abuse, obesity and physical activity – is often incompletely represented in the medical record (*McBride, 2000 [C]*).

There is good evidence that demonstrates that providers are more likely to document management of risk factors and provide interventions when they are named in the medical record (*McBride, 2000 [C]*; *Rothenmich, 2008 [A]*).

While there is agreement (and ICD-9 codes) on diagnostic terminology for tobacco use, alcohol abuse or dependence, and obesity, there is currently no consensus regarding diagnostic terminology for inadequate physical activity and poor nutrition. In addition, although the ICD-10 introduced the term harmful drinking, there is not a currently a corresponding code for hazardous drinking (*Babor, 2001 [R]*).

While we encourage accurate documentation in general, for now be cautious in making (or coding) a specific diagnosis of "harmful" or "hazardous" drinking, particularly if the drinking pattern does not rise to the level of alcohol abuse or dependence. The implications of this degree of specificity of documentation, particularly for insurance and employment reasons, are not yet fully understood.

Nutritional status a vital sign can be accomplished with simple screening tools like the 23-item Recommended Food Score (RFS) checklist (*Kant, 2000 [R]*).

## 5. Collaborative Decision-Making and Brief Interventions

**Key Points:**

- Brief interventions are often effective in helping people make changes leading to healthier lifestyles.
- Individuals should not be discouraged from addressing multiple health behaviors simultaneously; combined interventions result in the greatest benefits.

## Algorithm Annotations

- There is weak evidence supporting the effectiveness of "stage-based" interventions (interventions tailored to an individual's "readiness to change") – further study is needed.

**Collaborative decision-making** requires that all persons clarify their individual values and priorities, with help from their providers if they wish, so that they may decide on their desired goals and specific interventions.

There is no best or easy approach to this step of the decision-making process. Patience, insight and care are required to recognize different perspectives and to achieve a respectful and balanced discussion about making lifestyle changes for better health.

**Brief interventions** consist of feedback of screening data designed to increase motivation to change behaviors, simple advice, health education, skill building, and practical suggestions.

Specific elements of brief interventions include:

- present screening results;
- identify risks and discuss consequences;
- provide medical advice;
- identify and agree on short- and long-term measurable goals;
- solicit patient commitment;
- give advice and encouragement, assist with motivation, skills and supports; and
- arrange follow-up support and repeated counseling, including referral if needed.

**Readiness to change (RTC)**, developed by Prochaska, has been applied to a wide range of specific behaviors, such as smoking cessation, seat belt use, sunscreen use, physical activity, healthier eating, and alcohol use. Sets of standardized questions have been developed for these specific behaviors and embedded in many health risk assessment (*Prochaska, 2005 [A]*).

There is good evidence that the readiness to change stage is a strong predictor of subsequent improvement in some chronic diseases, but there is only weak evidence supporting the effectiveness of lifestyle interventions that are based on an individual's "stage of change" or "readiness to change" (*Riemsma, 2003 [M]*).

A less structured collaborative decision-making process, involving simply asking people about their individual priorities, goals and preferred areas of focus, seems to be sufficient. It may also be helpful to include periodic assessments as to how patients are feeling regarding self-efficacy, general optimism, motivation, volition, commitment to change, and viewed importance of change (*Armitage, 2004 [A]*; *Nothwehr, 2006 [D]*; *Resnicow, 2003 [B]*; *Tinker, 2007 [D]*), as these may predict initiation of behavior change and continuation of the healthy behavior. In addition, describing a person as being in a "precontemplation" stage, or someone as "not ready to change" may not be appropriate and may result in missed opportunities for positive change (*Nothwehr, 2006 [D]*; *van Sluijs, 2004 [R]*; *Verheijden, 2004 [C]*).

**Motivational interviewing (MI)** is defined as a client-centered, directive counseling style for eliciting behavior change by helping clients to explore and resolve ambivalence. Rather than telling a client what changes to make, the interviewer elicits "change talk" from them, taking into account an individual's priorities and values. There is considerable evidence to support the use of motivational interviewing as a brief intervention for treating substance abuse disorders (*Dunn, 2001 [M]*; *Resnicow, 2002 [R]*).

Applying motivational interviewing techniques to healthy behaviors related to alcohol and substance abuse is supported by evidence. Lifestyle behaviors requiring a change in behavior may respond to motivational

interviewing techniques, as opposed to discontinuing or initiating a behavior may not respond to these techniques (*Resnicow, 2002 [R]*). On the other hand, brief motivational interviewing to address an assortment of lifestyle changes has been found to have an effect (*Rubak, 2005 [M]*).

Motivational interviewing can be incorporated into an assortment of settings from health care to workplace with non-physician providers conducting a large portion of the interventions (*Resnicow, 2002 [R]*).

**Combined interventions**, focusing on all aspects that need attention and on which the patient is willing to work, do not appear to be viewed as unduly daunting or discouraging for patients to attempt. Primary providers should not position themselves as barriers to positive change by unnecessarily narrowing patient's opportunities for change; there is no evidence in the literature that patients are only able to address a limited number of issues at any one time, and several studies indicate that offering a menu of opportunities for behavior change does not jeopardize the probability of change (*Aldana, 2005a [A]*; *Babor, 2004 [R]*; *Goldstein, 2004 [R]*; *Millen, 2004 [B]*; *Pronk, 2004a [D]*).

## 6. Provide Support and Appropriate Interventions for Healthier Lifestyles

### Key Points:

- There is good evidence supporting specific goals and benefits of increased physical activity, but minimal evidence for the efficacy of most clinical interventions.
- There is good evidence supporting specific goals and benefits of improved nutrition, but minimal evidence for the efficacy of most clinical interventions.
- There is good evidence for the efficacy of systematically identifying and providing brief interventions to all individuals who use or are exposed to tobacco, and offering additional interventions and follow-up, as appropriate.
- There is good evidence for the efficacy of systematically identifying and providing brief interventions to all individuals who engage in hazardous or harmful drinking, as well as those who meet the criteria for alcohol abuse or dependence, and offering additional interventions and follow-up, as appropriate.

Clinical interventions, which reliably support healthier lifestyles, must include the following components:

- Deliver clear, consistent goals and key messages
- Utilize evidence-based, validated assessment instruments
- Be prepared to offer advice and brief counseling to people identified as being likely to benefit
- Be prepared to offer more in-depth intervention or referral to people identified as needing additional services or support
- Have well-developed relationships with community and employer stakeholders

Good mental health is needed to achieve and support healthy lifestyles. Routinely screen for depression, but only when accurate diagnosis, effective treatment and follow-up are in place (*ICSI Depression Guideline, 2008 [R]*).

Self-management programs that are based on self-efficacy theory and an emphasis on problem solving, decision-making and confidence building (*Lorig, 2003 [R]*) can improve health status (*Lorig, 2006 [A]*; *Lorig, 1999 [A]*).

Individualization of education and interventions can be helpful in assisting patients in the change process, and if face-to-face contact is not possible or feasible, then telephone counseling appears to be effective, as well (Nothwehr, 2006 [D]; Prochaska, 2005 [A]; Tinker, 2007 [D]).

The most effective intervention timetables appear to be weekly or biweekly visits with persons, individually or in groups, with individualized assistance and encouragement to continue to make these healthy behavior changes (Tinker, 2007 [D]; van Sluijs, 2004 [R]; Verheijden, 2004 [C]).

## 6a. Increased Physical Activity

**Minimum goals** (any improvement is beneficial)

At a minimum, all individuals should get at least an additional 10 minutes of physical activity above what they are already doing each day.

**Healthier behavior goals**

For healthy adults under age 65

Moderate intensity aerobic exercise for a minimum of 30 minutes per day, five days per week or vigorous intensity aerobic exercise for a minimum of 20 minutes per day, three days per week (Haskell, 2007 [R]).

The recommended amounts are in addition to routine activities of daily living of light intensity (self-care, cooking, casual walking or shopping) or lasting less than 10 minutes in duration (walking around the home or office, walking from the parking lot) (Haskell, 2007 [R]).

Strength training exercises (8-12 repetitions each of 8-10 different exercises) two or more non-consecutive days per week (Haskell, 2007 [R]; U.S. Department of Health and Human Services, 2008 [R]).

**Optimal healthy behavior goals**

Moderate intensity aerobic exercise 45 minutes every day or 60 minutes most days of the week (300 minutes per week), or 10,000 steps per day, or equivalent.

For information on how to measure your intensity level, please see Appendix B, "Intensity Levels of Physical Activity."

**Key messages for increased physical activity**

- Positive benefits of increased physical activity include cardiorespiratory fitness, improved blood pressure values, improved lipid profile, increased insulin sensitivity, more effective weight management, improved glycemic control and help in alleviating symptoms of depression.
- Because the positive effects of increased physical activity diminish within days of the cessation of exercise, regular activity is necessary.
- Gradually increase levels of physical activity either by increasing duration or frequency.
- It is not true that only high-intensity exercise is beneficial; small but sustained improvements result in significant benefits.
- People who can maintain a regular regimen of longer and more intense activity are likely to derive the greatest benefit.
- Physical activity done intermittently throughout the day (increments of at least 10 minutes each) may be as beneficial as longer periods of continuous physical exertion.

## Algorithm Annotations

- Incorporate small increases in activity (taking stairs, parking farther away, exercising while watching television, and taking short activity breaks) into daily routines (*DeBusk, 1990 [A]; Hardman, 1999 [R]*).
- Mild- to moderate-intensity physical activity (brisk walking), when combined with modest weight loss (5%-10%), results in substantial risk factor modification.
- Use of a pedometer.

### Assessment of physical activity

Reliably measuring physical activity has proven to be challenging. Self-reports often overestimate amounts and duration of people's activities.

The International Physical Activity Questionnaire (IPAQ) is a seven-question, validated instrument that is easily administered in the clinical setting.

However, as a practical matter, precise quantification of physical activity is not necessarily essential for clinical interventions, as virtually all individuals would benefit from increasing their current levels of activity.

See Algorithm 6a, "Increased Physical Activity Decision Tree" for more information.

### Efficacy of clinical interventions

The use of a pedometer is associated with significant increases in physical activity (approximately 1 mile of walking per day) and significant decreases in body mass index and blood pressure. Whether these changes are durable over the long-term is undetermined.

(*Bravata, 2007 [M]*)

There is insufficient evidence to determine whether counseling patients in primary care settings leads to sustained increases in physical activity among adults (*Eden, 2002 [R]; U.S. Preventive Services Task Force, 2003b [R]*).

Interventions used to increase physical activity were effective in the short term (follow-up less than one year), but were not effective in changing behavior for the long term (longer than one year) (*Harland, 1999 [A]*).

The more contacts made during the intervention or the more intense the intervention, the longer the adherence to the increase in physical activity (*Eakin, 2007 [R]*).

## 6b. Improved Nutrition

### Healthier behavior goals

Follow the nutritional standards of the U.S. Dietary Guideline:

- Emphasize fruit, vegetables, whole grains, and fat-free or low-fat dairy products
- Include lean meats, poultry, fish, beans, eggs and nuts
- Limit saturated fats, trans fats, cholesterol, salt (sodium) and sugar

(*National Center for Chronic Disease Prevention and Health Promotion, 2007 [R]; U.S. Department of Health and Human Services, 2005 [R]*)

### Optimal healthy behavior goals

Follow the nutritional standards of the Mediterranean diet:

- Eat a generous amount of fruits and vegetables



## Algorithm Annotations

- Consume healthy fats such as olive and canola oil
- Eat small portions of nuts
- Consume very little red meat
- Eat fish on a regular basis
- Drink red wine in moderation\* (one 5 oz. serving per day for women, one or two 5 oz. servings per day for men)

(Panagiotakos, 2007 [D]; Panagiotakos, 2003 [D])

\*There is no evidence that non-drinkers should begin drinking in order to achieve health benefits; this guideline should not be construed in any way advocating such an interpretation.

### Key messages for improved nutrition

- Positive benefits of improved nutrition and weight loss include improved blood pressure values, improved lipid profile, improved cardiac status, increased insulin sensitivity, more effective weight management and improved glycemic control.
- The primary components of a healthier eating pattern include:
  - adequate caloric intake to maintain or achieve a healthy weight;
  - consumption of whole grains instead of refined grains;
  - 5 to 10 servings daily of a variety of fruit and vegetables;
  - 2 to 3 servings of fat-free or low-fat dairy products daily;
  - limiting fats to less than 30% of total caloric intake, with saturated fats less than 7% of caloric intake;
  - avoidance of trans fatty acids;
  - aiming for less than 300 mg per day of dietary cholesterol;
  - selecting lean sources of protein and limit red meat; and
  - no more than 2,400 mg of sodium per day.

Typically an eating pattern associated with less processed foods with emphasis on variety, moderation, portionality and gradual changes of improvement is more likely to incorporate the above components of a healthier eating pattern.

(National Heart, Lung and Blood Institute, 2005 [R]; U.S. Department of Health and Human Services, 2005 [R]; U.S. Department of Health and Human Services, 2006 [R])

- Modest weight loss (5%-10%), when combined with mild- to moderate-intensity\*\* physical activity (brisk walking, bicycling 5 to 9 mph, swimming), results in substantial risk factor modification.
- It is not true that only significant weight loss is beneficial; small but sustained improvements result in significant benefits.
- There is no clear evidence that weight cycling is particularly hazardous to health: concerns about cycling should not prevent obese individuals from trying to lose weight (Wannamethee, 2002 [C]).

\*\* See Appendix B, "Intensity Levels of Physical Activity," for further information on moderate-intensity physical activity.

### Assessment of nutrition

The limited evidence that currently exists suggests that brief nutrition assessment tools are as reliable and valid as longer, more exhaustive tools (*Miller, 2005 [R]*). Validated tools include the "REAP" assessment, the "Rate your Plate" assessment (*Gans, 2003 [D]*) and the recommended food score (RFS) checklist (*Kant, 2000 [R]*).

A food/beverage frequency checklist, a three-day food/beverage record and weekly food/beverage diaries can be used to collect information about dietary habits in specific cases but are unnecessarily burdensome for use as tools for brief dietary screening.

### Efficacy of clinical interventions

There is no conclusive evidence to recommend for or against routine behavioral counseling to promote a healthier diet in the general healthy population (*U.S. Preventive Services Task Force, 2003a [R]*).

Identifying high-risk patients in the primary care setting and providing intensive behavioral dietary counseling by specially trained health care providers can produce medium to large changes in average daily intake of saturated fat, fiber, fruits and vegetables. There is a parallel relationship between individuals at high risk for a health condition and their ability to make dietary changes (*Ammerman, 2002 [M]*; *Lindström, 2003 [A]*; *Pignone, 2003 [R]*; *Pomerleau, 2005 [M]*). Pomerleau et al. conducted a literature search on interventions to increase fruits and vegetable intake. The article reviewed 44 articles and concluded that several interventions were effective in increasing fruit and vegetable intake (*Pomerleau, 2005 [M]*).

Despite the lack of demonstrated effectiveness in the primary care setting, intervention is encouraged due to the numerous benefits associated with consumption of a healthy diet, physical activity and prevention of obesity. Parents play a direct role in children's eating patterns through their behaviors, attitudes and feeding styles (*Patrick, 2005 [R]*). There are studies that indicate adequate or modified intake of specified dietary factors may help prevent or reduce the risk of certain diseases or conditions. Fiber intake from cereals, vegetables and fruits is associated with lower risk of cardiovascular disease and cancers (*Mozaffarain, 2003 [B]*; *Pereira, 2004 [M]*). Modest weight loss and increases in physical activity have been demonstrated to reduce cardiovascular risk factors such as hypertension, dyslipidemia and type 2 diabetes. Reduced caloric intake and increased physical activity has been shown to reduce the risk of diabetes and decrease insulin resistance (*Eyre, 2004 [R]*).

Following a tailored nutrition message delivered by means of written material, computer-generated reports or in individual counseling sessions on dietary behaviors, individuals report an intention to consume more fruit and vegetables and lower-fat foods (*Fries, 2005 [A]*; *Stevens, 2003 [C]*; *Tessaro, 2007 [A]*).

A number of randomized controlled trials have demonstrated a positive outcome in changing dietary behaviors by incorporating a variety of interventions. Stevens paired individual counseling with a computer-assisted assessment that produced a personalized printout and telephone call follow-up support. At twelve months postintervention, participants had a significant reduction in dietary fat and greater intake of fruit and vegetables (*Stevens, 2003 [C]*). One randomized, controlled trial found a combination of physician endorsement, brief telephone counseling and personalized feedback mailed to participants resulted in improved dietary knowledge and changes in dietary behavior (*Fries, 2005 [A]*).

Telephone-based counseling is effective for promoting reduced dietary fat intake and increased consumption of fruit and vegetables. The following recommendations focus on high-risk individuals as they seem to respond more favorably to telephone-based counseling:

- Match the intensity of telephone-based counseling to the level of health risk.
- Focus on changing one or two eating behaviors at a time.
- A reasonable amount of time is 15 to 20 minutes per session of telephone-based counseling.



## Algorithm Annotations

- Use a feedback loop to communicate with clinical providers, especially when a person's condition changes or adjustment in medications is needed.
- Use telephone counselors who are well trained in the theoretical bases of dietary behavior change.

(Vanwormer, 2006 [M])

**Computer-tailored education** that is offered in settings ranging from the worksite to the primary care office to community organizations may offer a lower-cost and easier method for motivating people to make positive behavior changes, especially related to fat, fruit and vegetable intake (Pomerleau, 2005 [M]; Revere, 2001 [M]). Kypri et al. conducted a randomized control trial on Web-based interventions for physical inactivity, low fruit and vegetable intake, hazardous alcohol consumption and smoking. The study concluded that after a brief computerized intervention, fruit and vegetable intake and physical activity compliance increased. Differences in drinking levels were not significant and the study was not able to assess for smoking.

(Kypri, 2005 [A])

A computer-based interactive heart healthy cooking program was integrated into a local primary care clinic setting. Participants accessed the program during the waiting time prior to seeing a health care provider. At a three-month telephone follow-up, participants were at a higher level of readiness to change and demonstrated greater knowledge about fat grams and calories. However, their reported consumption of fat, fruit and vegetables was no different than the control group (Tessaro, 2007 [A]).

See Algorithm #6b, "Improved Nutrition Decision Tree," for more information.

Please see the ICSI Obesity Guideline for additional information on body mass index and weight management.

## 6c. Decreased Tobacco Use and Exposure

**Minimum goals** (any improvement is beneficial)

At a minimum, identify all individuals who use or are exposed to tobacco and provide a brief intervention to help eliminate or at least decrease their use or exposure.

**Healthier behavior goals**

Identify all individuals who use or are exposed to tobacco and provide brief interventions to all; systematically offer additional interventions, including pharmacotherapy and follow-up, as appropriate.

- Eliminate tobacco advertising and commercial promotion.
- Eliminate tobacco smoke in all public areas, both indoor and outdoors.
- Eliminate youth access to tobacco products.

**Optimal healthy behavior goals**

Eliminate all tobacco use and exposure.

**Key messages to decrease tobacco use and exposure**

- Smoking cessation significantly improves health outcomes.
- Advise all females of childbearing age of the harmful effects of smoking on a fetus and the need for cessation during pregnancy.
- Avoiding tobacco smoke improves health, and quitting smoking at any time improves health.

## Algorithm Annotations

- Avoid any and all tobacco smoke.
- Do not allow smoking at home, in the family vehicles or in personal workspaces.
- Telephone quit lines, pharmacotherapy and other interventions are moderately effective in helping to quit smoking.

### Assessment of tobacco use and exposure

It is essential that clinicians and health care delivery systems (including administrators, insurers and purchasers) institutionalize the consistent identification, documentation and treatment of every tobacco user seen in a health care setting (*Fiore, 2008 [R]*).

### Efficacy of clinical interventions

Tobacco dependence is a chronic condition that often requires repeated intervention. However, effective treatments exist that can produce long-term or even permanent abstinence.

Because effective tobacco dependence treatments are available, every patient who uses tobacco should be offered at least one of these treatments:

- Patients **willing** to try to quit tobacco use should be provided with treatments identified as effective in this guideline.
- Patients **unwilling** to try to quit tobacco use should be provided with a brief intervention designed to increase their motivation to quit.

There is a strong dose-response relation between the intensity of tobacco dependence counseling and its effectiveness. Treatments involving person-to-person contact (via individual, group or proactive telephone counseling) are consistently effective, and their effectiveness increases with treatment intensity (e.g., minutes of contact) (*Fiore, 2008 [R]*).

See #6c, "Decreased Tobacco Use and Exposure Decision Tree," for more information.

### Brief interventions

Brief interventions consist of feedback of screening data designed to increase motivation to change tobacco use behavior, simple advice, health education, goal-setting, practical suggestions, and follow-up, with referral when appropriate. See also Annotation #5, "Collaborative Decision-Making and Brief Interventions."

Brief tobacco dependence treatment is effective, and every patient who uses tobacco should be offered at least brief treatment (*Fiore, 2008 [R]*).

### Other interventions

Proactive telephone counseling increases cessation rates by 20 percent, and group counseling increases cessation rates by about 30 percent over no format. However, it is important to recognize that acceptability of group counseling is far less than proactive telephone counseling.

**Tobacco telephone quit lines** and proactive telephone counseling increase the odds of abstinence by about 20 percent.

Three types of counseling and behavioral therapies were found to be especially effective and should be used with all patients attempting tobacco cessation:

- Provision of practical counseling (problem-solving/skills training)
- Provision of social support as part of treatment (intratreatment social support)
- Help in securing social support outside of treatment (extratreatment social support)

Numerous effective pharmacotherapies for smoking cessation now exist. These interventions should be offered to all patients attempting to quit smoking except in the presence of contraindications or populations for which there is insufficient evidence of effectiveness. The Department of Health and Human Services suggests that there is insufficient evidence to conclude efficacy of pharmacotherapy interventions for the following patient populations: pregnant women, light smokers, smokeless tobacco users, and adolescents.

## 6d. Decreased Hazardous and Harmful Drinking/Alcohol Use

**Minimum goals** (any improvement is beneficial)

At a minimum, identify all individuals who engage in hazardous or harmful drinking/alcohol use, as well as those who meet the criteria for alcohol abuse or dependence, and provide an appropriate brief intervention.

**Healthier behavior goals**

Identify all individuals who engage in hazardous or harmful drinking/alcohol use, as well as those who meet the criteria for alcohol abuse or dependence, and provide brief interventions to all; systematically offer additional interventions and follow-up, as appropriate.

Refrain from hazardous drinking (defined by the number of standard drinks any drink that contains 14 grams of pure alcohol – for example: 12 ounces beer or 5 ounces table wine – in a given time period):

- Healthy men (less than 65 years): No more than 14 drinks per week and no more than 4 drinks per occasion
- Healthy women (and healthy men over 65 years): No more than 7 drinks per week and no more than 3 drinks per occasion (*U.S. Department of Health and Human Services, 2007 [R]*)

**Optimal healthy behavior goals**

Discontinue all drinking that has any adverse impact on a person's health.

**Key messages to decrease hazardous and harmful drinking/alcohol use**

- Several conditions or chronic diseases, including hypertension, trauma, certain cancers and mental health issues, among others, may be positively impacted by decreasing hazardous or harmful levels of drinking.
- Advise all females of childbearing age of the harmful effects of alcohol on a fetus and the need for cessation during pregnancy.
- Reinforce dangers of drinking and driving automobiles, motorcycles, snowmobiles, off-road vehicles and watercraft.
- Advise patients not to ride with anyone who is under the influence of alcohol and to discourage others from driving or operating watercraft while under the influence of alcohol.

### Assessment of Harmful and Hazardous Drinking

The AUDIT (the Alcohol Use Disorders Identification Test) tool is the screening instrument best validated for the effective assessment of hazardous or harmful drinking; it can help identify people who would benefit from reducing or ceasing drinking, and give an indication of future alcohol-related problems (*Saunders, 1993 [C]*). The well-known CAGE questions, and others, are designed to screen for alcohol abuse and dependence, but are too narrowly focused to detect individuals in earlier stages of excess alcohol use.

## Algorithm Annotations

The AUDIT tool helps identify individuals in the following categories:

- Low-risk drinking or abstinence – no evidence of excessive alcohol use
- Hazardous drinking – pattern of alcohol use that increases the risk of harmful consequences for the user or others, despite the absence of any current alcohol use disorder
- Harmful drinking – high levels of daily drinking or drinking causing physical, mental or social consequences
- Alcohol dependence – including a strong desire to consume alcohol, impaired control over its use, persistent drinking despite harmful consequences, increased tolerance, and withdrawal symptoms

In addition to the screening done as part of a health risk assessment, screening for excessive drinking should also be routinely done for these patients.

- General hospital patients (especially those with disorders known to be associated with alcohol dependence – pancreatitis, cirrhosis, gastritis, tuberculosis, cardiomyopathy)
- Certain persons with psychiatric illness, particularly those who are depressed or who attempt suicide
- Trauma victims in emergency departments
- Homeless persons
- Prisoners
- Persons cited for legal offenses connected with drinking (DUI, public intoxication, etc.)

There are published guidelines available for the administration of the AUDIT, including appropriate settings, patient education about the screening, methods of administration, and scoring and interpretation (*Babor, 2001 [R]*).

The benefits of screening and assessment include:

- educating patients about appropriate levels of alcohol use and the risks associated with excessive use;
- aiding in the understanding of a patient's presenting symptoms, diagnosis, or lack of response to treatment; and
- alerting clinicians about alcohol-drug interactions.

### **Efficacy of clinical interventions**

Most of the harm associated with alcohol use occurs among people who are not dependent and who do not have a specific diagnosis of alcoholism or alcohol dependence. Fortunately, people who are not dependent on alcohol may stop or reduce their consumption with appropriate assistance and effort.

The United States Preventive Service Task Force in 2004 found "good evidence that screening in primary care settings can accurately identify patients whose levels or patterns of alcohol consumption do not meet criteria for alcohol dependence but place them at risk for increased morbidity and mortality" (*Whitlock, 2004 [R]*).

The United States Preventive Service Task Force also found "good evidence that brief behavioral counseling interventions with follow-up produce small to moderate reductions in alcohol consumption that are sustained over 6- to 12-month periods or longer" (*Whitlock, 2004 [R]*). Bertholet et al. conducted a systematic review to look at brief alcohol interventions in primary care. The article reported that brief alcohol interventions

## Algorithm Annotations

in men and women were effective in reducing alcohol consumption at 6 and 12 months (*Bertholet, 2005 [M]*).

See #6d, "Decreased Hazardous and Harmful Drinking/Alcohol Use Decision Tree," for more information.

### **Brief interventions**

One study demonstrated that problem drinking screening and brief interventions in primary care are one of the most effective and cost effective clinical preventive services (*Solberg, 2008 [M]*).

Brief interventions consist of feedback of screening data designed to increase motivation to change drinking behavior, simple advice, health education, goal-setting, practical suggestions, and follow-up, with referral when appropriate. See also Annotation #2, "Redesign for Results (R4R): Patient-Centered Systems for Healthier Lifestyles."

Interventions based on AUDIT scores are as follows:

- Low-risk drinking or abstinence (AUDIT score 0-7): alcohol education is recommended
- Hazardous drinking (AUDIT score 8-15): simple advice and patient education materials are recommended (see key messages)
- Harmful drinking (AUDIT score 16-19): simple advice plus brief counseling and continued monitoring are suggested
- Alcohol dependence (AUDIT score 20-40): a referral to a specialist for diagnostic evaluation and treatment should be initiated

(*Babor, 2001 [R]*; *U.S. Department of Health and Human Services, 2005 [R]*)

### **Other interventions**

A meta-analysis concluded that use of a single-session personalized feedback intervention, without therapeutic guidance, can reduce problem drinking in specific populations (*Ripper, 2009 [M]*).

For patients with a diagnosis of alcohol abuse or dependence, document the diagnosis and attempt to schedule a referral appointment while in the physician's office. The behavioral case manager at the patient's insurance company, the local health department, Employee Assistance Program, and local hospitals can all assist with referrals.

Alcoholics Anonymous (AA) offers free, widely available groups of volunteers in recovery from alcohol dependence. Volunteers are often willing to work with professionals who refer patients.

There are many other self-help organizations and groups that offer a variety of approaches. See the Recommended Resources section at the end of this guideline for more information.

Please see Appendix C, "Alcohol Use Disorders Identification Test (AUDIT)," for an example of the AUDIT tool.

## **7. Community Interventions for Healthier Lifestyles**

### **Key Points:**

- Multifaceted interventions generally have greater evidence of impact, yet it may be difficult to know which of those facets are most beneficial.
- Developing clinical-community partnerships to support and promote healthier lifestyles (workplace, school, social, family) is important to address these diverse issues.

- Environmental and public policy initiatives to promote healthier lifestyles provide important opportunities for research to demonstrate the effect of such initiatives on healthier behaviors.
- Employers and other payers are increasingly demanding and expecting that health care providers will develop effective interventions for healthier lifestyles.

## 7a. Community Interventions to Increase Physical Activity

Kahn et al. summarize the overall effectiveness of interventions to increase physical activity, highlighting point-of-decision prompts, school-based physical education, social support in community settings, individually adapted behavior changes, and enhanced access to places for physical activity as effective approaches (Kahn, 2002 [M]).

### Employers and worksites

There is some evidence that telephone-based lifestyle intervention programs are able to successfully increase or maintain physical activity. These programs are suitable for delivery through employer groups and worksites, as well as through medical groups and health plans (Pronk, 2004b [R]).

The Community Guide's review of interventions creating or improving access to places for physical activity, including worksites (as well as coalitions, agencies and communities), finds strong evidence to recommend this approach. Many of the programs evaluated also included informational outreach (Aldana, 2005b [A]; Brownson, 2006 [R]; McCarty, 2005 [B]; Task Force on Community Preventive Services, 2005b [R]).

Employers, health plans, government and other payers have implemented a variety of incentives and programs with which they hope to encourage healthier lifestyles.

### Health plans and employee benefit managers

There is some evidence that telephone-based lifestyle intervention programs are able to successfully increase or maintain physical activity. These programs are suitable for delivery through health plans, as well as through medical groups and employers.

### Educators and schools

The Community Guide reviewed 14 interventions aimed at increasing the amount of time students spend doing moderate or vigorous physical activity in physical education classes. Many interventions also included health education. The Community Guide found strong evidence to recommend such interventions (Task Force on Community Preventive Services, 2005b [R]).

### Other community collaborations

The Community Guide reviewed 10 multicomponent, large-scale, intense, highly visible community wide campaigns to promote physical activity and found strong evidence to recommend this approach. Such interventions included media campaigns to large audiences through different types of media; strategies such as self-help groups, physical activity counseling, and community fairs; and policy changes such as the creation of walking trails (Task Force on Community Preventive Services, 2005b [R]).

Changes in the physical environment have not been shown to promote activity. Nonetheless, many communities are undertaking efforts to improve the built environment. These efforts provide important research opportunities to examine the impact of built environment on changes in activity.

Sallis et al. provide the background, framework, areas of current and directions for future direction in research for the concept of active living, an approach to the promotion of physical activity that draws from disciplines including urban planning, transportation, leisure, recreation and public policy. Evidence for



supporting the advancement of active living as a way to increase physical activity is made on the basis of ecological studies, with support from theory (*Sallis, 2006 [R]*).

The Community Guide recommends street-scale design and land use policies and practices to facilitate and increase physical activity levels, based on their review of six studies, which generally limited their interventions to a small geographic area of a few blocks. The design components include better street lighting, infrastructure projects to increase safety of street crossing, and use of traffic calming approaches (*Task Force on Community Preventive Services, 2005b [R]*).

The Robert Wood Johnson Foundation reviews the literature on built environment and summarizes as follows: "Many cross-sectional studies show that certain built environment features are associated with activity. These features include proximity to destinations, aesthetics, access to parks and open spaces and the 'walkability' of the community." The current body of evidence is relatively weak in showing that changes to the built environment will promote activity. Many communities are undertaking efforts to improve the built environment. These efforts provide important research opportunities to examine the impact of built environment on changes in activity (*Williams, 2007 [M]*).

## 7b. Community Interventions to Improve Nutrition

### Employers and worksites

There is limited evidence that telephone-based lifestyle intervention programs are able to increase healthy eating. These programs are suitable for delivery through employer groups as well as through medical groups and health plans. In addition, there is considerable evidence that changes in food offerings at worksite cafeterias may affect food choices in a positive way.

A controlled trial of worksite environment-only intervention (informational sheets placed near food products to encourage healthier food choices) reported mixed results for psychosocial determinants of nutrition behavior (perceived social support and self-efficacy) and measures of cardiovascular risk (blood pressure, cholesterol and body fat) (*Engbers, 2006 [C]; Engbers, 2007 [C]*).

Thirty-eight adult nutritional environmental intervention studies were identified that influenced the environment through food availability, access, pricing, or point-of-purchase information in worksites, universities, grocery stores and restaurants. No direct comparisons of studies across settings were possible, but results suggest that worksite and university interventions have the most potential, while grocery store interventions have the least potential for success (*Seymour, 2004 [M]*).

### Educators and schools

Food choices in schools come from a number of different sources. Foods sold as part of the National School Lunch Program – with federal guidelines specifying nutritional standards – may compete with the often less healthy choices available from a la carte areas, snack bars, vending machines and fundraisers. Improving the nutritional quality of foods offered in school cafeterias is an obvious target for school-based interventions to improve nutrition for children, but it is important to consider how such interventions will be rolled out and maintained. In reviewing school-based interventions to promote fruit and vegetable consumption, there is a need for specific behavioral guidelines with food service staff and the need for training and ongoing support for food service staff; further research is needed to determine the school- or district-based factors that make some guidelines easier to implement than others (*French, 2003 [M]*).

Studies examining the association between school environmental factors and fruit and vegetable consumption have found negative correlations between fruit and vegetable consumption and cafeteria "a la carte" dining programs and school-based snack vending machines (*French, 2003 [M]*).

At the 2007 Action on Obesity Summit, a presentation described how several districts in Minnesota have implemented changes in school cafeteria and vending programs.

## Algorithm Annotations

The Community Guide's review of interventions to improve nutrition is ongoing, but so far concludes that multicomponent school-based nutrition programs have insufficient evidence to recommend them (*Task Force on Community Preventive Services, 2005b [R]*). However, structured literature reviews concluded that multicomponent interventions in the school have been effective in promoting small but significant changes in fruit and vegetable consumption (*French, 2003 [M]*). Further research is needed to establish long-term effectiveness of such programs.

### **Faith-based organizations**

An example of a faith-based program to increase fruit and vegetable consumption is the Body and Soul health program developed for African-American churches.

### **Other community collaborations**

A non-comprehensive review of few studies of increasing fruit and vegetable consumption via interventions in grocery stores and other community settings was conducted. In general, while these studies have demonstrated feasibility, they have not been well controlled and therefore provide references for future research directions rather than solid evidence for efficacy (*Glanz, 2004 [R]*).

## **7c. Community Interventions to Decrease Tobacco Use and Exposure**

### **Health plans and employee benefit managers**

Tobacco dependence treatments are both clinically effective and cost effective relative to other medical and disease prevention interventions. As such, insurers and purchasers should ensure that:

- all insurance plans include as a reimbursed benefit the counseling and pharmaco-therapeutic treatments identified as effective in this guideline,
- clinicians are reimbursed for providing tobacco dependence treatment just as they are reimbursed for treating other chronic conditions,
- smoking cessation campaigns are periodically sponsored in concert with mass media education programs and clinical interventions,
- there is support for provider reminders and provider education for smoking cessation advice,
- there is a reduction in patient out-of-pocket costs for effective treatments for tobacco use and dependence, and
- there is a sponsorship of patient telephone support (quit lines) when combined with other interventions.

### **Other community collaborations**

The independent Task Force on Community Preventive Services has used explicit criteria to judge the effectiveness of community-based interventions within three strategic areas of tobacco use prevention and control: preventing tobacco product use initiation, increasing cessation, and reducing exposure to environmental tobacco smoke (ETS). They found strong evidence that the following interventions reduce exposure to environmental tobacco smoke: smoking bans and restrictions, increasing the unit price for tobacco products, and mass media education (campaigns) when combined with other interventions. They found strong evidence that the following strategies increase tobacco cessation: campaigns, when combined with other interventions; increasing the unit price for tobacco products; provider reminder plus provider education (with or without patient education); and patient telephone support (quit lines) when combined with other interventions (*Task Force on Community Preventive Services, 2005a [R]*).



**Public policy initiatives**

- support smoking bans and restrictions in all public areas, both indoors and outdoors, and
- support increases in the price of tobacco products.

While these interventions do help people quit smoking and reduce the prevalence of smoking in a population, the promotions of tobacco companies are very effective relative to smoking cessation interventions. Thus, the overall smoking rate for Minnesota adults in 2004 was 20.5% but ranged from 32.3% for adults ages 18-24 to 7.1% for adults ages 65 and older. More effective clinical interventions are therefore needed. Implementing smoke-free policies in all public areas – including parks and beaches, recreational facilities like athletic fields, and multiunit housing complexes (apartment buildings) – would reduce both the burden of tobacco and the prevalence of smoking.

The goals of these tobacco-free public areas are to prevent uptake of tobacco use, help tobacco users who want to quit, and eliminate involuntary exposure to environmental tobacco smoke.

Risk from tobacco can be assessed by a health risk assessment, a simple questionnaire using standard questions, which is a validated instrument. For more information, see Annotation #3, "Complete Health Risk Assessment, with Timely Feedback Provided."

Health care system interventions that were found to be effective include provider reminder systems alone or in combination with provider education. The task force found sufficient evidence to recommend reducing patient out-of-pocket costs for treatments and strong evidence to support patients with quit lines (*U.S. Department of Health and Human Services, 2000 [R]*).

<b><i>Strategies to Reduce Exposure to Environmental Tobacco Smoke (ETS)</i></b>	
Smoking bans and restrictions	Recommended (strong evidence)
Community education to reduce ETS exposure in the home environment	Insufficient evidence to determine effectiveness
<b><i>Strategies to Reduce Tobacco Use Initiation by Children, Adolescents and Young Adults</i></b>	
Increasing the unit price for tobacco products	Recommended (strong evidence)
Mass media education (campaigns) when combined with other interventions	Recommended (strong evidence)
<b><i>Strategies to Increase Tobacco Cessation</i></b>	
Increasing the unit price for tobacco products	Recommended (strong evidence)
<b><i>Mass Media Education</i></b>	
Campaigns when combined with other interventions	Recommended (strong evidence)
Smoking cessation series	Insufficient evidence to determine effectiveness
Smoking cessation contests	Insufficient evidence to determine effectiveness
<b><i>Interventions Appropriate for Health Care Systems</i></b>	
Provider reminder systems (alone)	Recommended (sufficient evidence)
Provider education programs (alone)	Insufficient evidence to determine effectiveness
Provider reminder + provider education (with or without patient education)	Recommended (strong evidence)
Provider feedback system	Insufficient evidence to determine effectiveness
Reducing patient out-of-pocket costs for effective treatments for tobacco use and dependence	Recommended (sufficient evidence)
Patient telephone support (quit lines) when combined with other interventions	Recommended (strong evidence)

## 7d. Community Interventions to Decrease Hazardous and Harmful Drinking/Alcohol Use

Broad, evidence-based community strategies to permit low-risk drinking while minimizing alcohol-related threats to public health and safety include youth education, media campaigns, speeding and drunk driving awareness days, "speedwatch" telephone hotlines, police training, Students Against Destructive Decisions (originally "Students Against Driving Drunk") chapters, alcohol-free proms, beer keg registration, increased surveillance of liquor outlets, preschool education programs, and training for staff at hospitals and prenatal clinics (*Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention, 2007 [R]*).

## Algorithm Annotations

---

### **Employers and worksites**

There are sporadic case reports of employers who have attempted to identify alcohol overuse and refer to appropriate management programs. However, there are few clinical trials or controlled studies that address this domain.

### **Health plans and employee benefit managers**

There is little evidence that health plans have effectively addressed the issue of alcohol overuse.

### **Other community collaborations**

There is strong evidence that community-based prevention activities can result in decreases in alcohol consumption. There is suggestive but insufficient evidence that these programs can diminish driving after drinking, traffic death and injury, and speeding (*Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention, 2007 [R]*).

There is strong evidence that changes in the social environment and public policy (increased drinking age, higher alcohol taxes, increased enforcement of driving under the influence and underage drinking, etc.) can result in decreases in alcohol consumption (*Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention, 2007 [R]*).

There is good evidence that systemic follow-up of all individuals is a vital part of any patient-centered delivery system. See Annotation #3, "Complete Health Risk Assessment, with Timely Feedback Provided," which recommends annual health risk assessments.

Follow-up is designed to:

- update health and risk factor assessment,
- reinforce patient self-management and positive behaviors,
- maintain ongoing clinical interventions, and
- decrease relapse prevention.

In addition, various clinical and community-level interventions are being systematically studied and evaluated, which will require an awareness of developing innovative programs and resources for promoting healthier lifestyles.

## Appendix A – Health Risk Assessments (HRAs)

### Benefits/Role or Function of Health Risk Assessments

Health risk assessments (HRAs) are standardized surveys that can measure changes in attitudes, skills and behaviors, as well as health status and impacts on health care utilization and readiness to change. Health risk assessments were first used in the United States in the 1950s to help family doctors educate patients about risks of premature death. Today they not only predict mortality, but also focus heavily on morbidity and its impact on function and quality of life.

A health risk assessment can be educational. If it offers immediate feedback, a health risk assessment will heighten awareness of one's risk factors, as well as give appropriate advice on decreasing those risk factors. But this heightened awareness alone is usually unsuccessful in changing behaviors (*Coulter, 2007 [R]*). If health risk assessments results are shared and discussed with a health care provider, they can open communication for interventions that can improve identified risks.

There is strong evidence (randomized, controlled trial) that just taking a health risk assessment will not show an improvement in modifiable risk factors if it is merely repeated at a later date and no counseling or interventions take place. There is some evidence that health risk assessments combined with counseling sessions can be an effective health promotion tool to motivate behavioral changes. Delaying or preventing the onset of chronic disease by identifying risk factors and developing interventions has been proven to be effective in many studies (*Aldana, 2005a [A]*; *Edye, 1989 [A]*; *Sorenson, 1996 [A]*; *Sorenson, 1998 [A]*).

There is some evidence that taking an health risk assessment is effective in changing attitudes of people who are already in a "precontemplative" state of change (*Coulter, 2007 [R]*; *Kreuter, 1996 [A]*; *Vasse, 1998 [D]*). To modify behavior, the belief structure (attitude, social norm, perceived behavioral control, intention) must be changed. Regular and repeated interventions and messages are suggested for success.

There is no evidence that taking a health risk assessment improves motivation.

Patient health risk assessments can assist providers in evaluating their practice. Some existing health risk assessments have the ability to be linked directly with their provider's practice.

Health risk assessments can be:

- educational (however, they do not change behavior when used alone);
- used as a communication tool with your primary provider;
- used by providers to evaluate their practices;
- used by health plans to develop and implement strategies to improve the health of their members,
- used by employers in the worksite to identify and intervene with modifiable risk factors in their employees;
- used to develop and implement strategies to target the low-risk employee/member to maintain his or her current health status as he or she ages;
- used with special populations, like geriatrics, to assess present status and maintain functionality; and
- a valuable tool when used in the context of a plan to improve population health.

(*Goetzel, 2002 [B]*; *Gomel, 1993 [A]*; *Maes, 1998 [B]*; *Richmond, 1999 [C]*)

### **Standardization/Content Validation of Health Risk Assessment**

Utilization of a reliable tool can confirm that variation over time or between groups is not from instrument inconsistencies, but is due in fact, to true differences (*Gold, 2007 [R]*). Health risk assessments should be able to:

- stratify the population into those with more and those with fewer risk factors,
- give feedback and recommendations on the same day that they are completed,
- assure confidentiality (utilizing a third party may be helpful),
- incorporate both qualitative and quantitative questions,
- identify the stage of change through the questions, and
- provide culturally sensitive health risk assessments.

Other desirable health risk assessments attributes include user friendliness, research based, price affordability, appropriateness for companies/practices of all sizes, availability online as well as in hard copy format, and ability to be customized by the employer.

There are health risk assessments available that are age-specific for teens, and geriatrics as well as gender and risk specific (cardiovascular disease).

## Appendix B – Intensity Levels of Physical Activity

Moderate intensity physical activity means working hard enough to raise your heart rate and break a sweat, yet still be able to carry on a conversation (examples: brisk walking, bicycling 5 to 9 mph, swimming).

Intensity: four ways to measure

- Heart rate – maximum heart rate =  $220 - \text{age}$   
Get to 75% of maximum (i.e., 50 year old get to 128 beats per minute)
- Exertion scale – (Borg Rating of Perceived Exertion)  
Get to 13 (Moderately Hard)
- Calories – women 4-6 kilo calorie/minutes (200 minutes/week=1,000 kilo calorie)  
Men 9-11 kilo calorie/minutes (200 minutes/week=2,000 kilo calorie)
- Breathing – should gasp if talking

### Perceived Exertion (Borg Rating of Perceived Exertion Scale)

One method of determining physical activity intensity is the Borg Rating of Perceived Exertion (RPE). Perceived exertion is how hard you feel like your body is working. It is based on the physical sensations a person experiences during physical activity, including increased heart rate, increased respiration or breathing rate, increased sweating, and muscle fatigue. Although this is a subjective measure, a person's exertion rating may provide a fairly good estimate of the actual heart rate during physical activity\*.

Practitioners generally agree that perceived exertion ratings between 12 to 14 on the Borg Scale suggests that physical activity is being performed at a moderate level of intensity. During activity, use the Borg Scale to assign numbers to how you feel (see instructions below). Self-monitoring how hard your body is working can help you adjust the intensity of the activity by speeding up or slowing down your movements.

Through experience of monitoring how your body feels, it will become easier to know when to adjust your intensity. For example, a walker who wants to engage in moderate-intensity activity would aim for a Borg Scale level of "somewhat hard" (12-14). If he describes his muscle fatigue and breathing as "very light" (9 on the Borg Scale), he would want to increase his intensity. On the other hand, if he felt his exertion was "extremely hard" (19 on the Borg Scale), he would need to slow down his movements to achieve the moderate-intensity range.

\*A high correlation exists between a person's perceived exertion rating times 10 and the actual heart rate during physical activity, so a person's exertion rating may provide a fairly good estimate of the actual heart rate during activity. For example, if a person's rating of perceived exertion (RPE) is 12, then  $12 \times 10 = 120$ ; the heart rate should be approximately 120 beats per minute. Note that this calculation is only an approximation of heart rate, and the actual heart rate can vary quite a bit depending on age and physical condition. The Borg Rating of Perceived Exertion is also the preferred method to assess intensity among those individuals who take medications that affect heart rate or pulse.

### Instructions for Borg Rating of Perceived Exertion (RPE) Scale

While doing physical activity, we want you to rate your perception of exertion. This feeling should reflect how heavy and strenuous the exercise feels to you, combining all sensations and feelings of physical stress, effort and fatigue. Do not concern yourself with any one factor such as leg pain or shortness of breath, but try to focus on your total feeling of exertion.

**Appendix B – Intensity Levels of Physical Activity**

Look at the rating scale below while you are engaging in an activity; it ranges from 6 to 20, where 6 means "no exertion at all" and 20 means "maximal exertion." Choose the number below that best describes your level of exertion. This will give you a good idea of the intensity level of your activity, and you can use this information to speed up or slow down your movements to reach your desired range.

Try to appraise your feeling of exertion as honestly as possible, without thinking about what the actual physical load is. Your own feeling of effort and exertion is important, not how it compares to other people's. Look at the scales and the expressions and then give a number.

**Borg Rating of Perceived Exertion Scale**

6	No exertion at all
7	Extremely light (7.5)
8	
9	Very light; for a healthy person, it is like walking slowly at his/her pace for some minutes
10	
11	Light
12	
13	Somewhat hard, but feels okay to continue
14	
15	Hard (heavy)
16	
17	Very hard, very strenuous. A healthy person can still go on, but he/she really has to push. This feels very heavy and the person is very tired.
18	
19	Extremely hard; for most people this is the most strenuous exercise they have ever experienced
20	Maximal exertion

Source: [http://www.cdc.gov/nccdphp/dnpa/physical/measuring/perceived\\_exertion.htm](http://www.cdc.gov/nccdphp/dnpa/physical/measuring/perceived_exertion.htm)

## Appendix C – Alcohol Use Disorders Identification Test (AUDIT)

Question	Score				
	0	1	2	3	4
How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times/month	2-3 times/week	4 or more times/week
How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7-9	10 or more
How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
How often during the last year have you found that you were unable to stop drinking once you had started?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
How often during the last year have you failed to do what was normally expected from you because of drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
Have you or someone else been injured as a result of your drinking?	Never	Yes, but not in the last year (2 points)		Yes, during the last year (4 points)	
Has a relative or friend, doctor, or other health worker been concerned about your drinking or suggested you cut down?	Never	Yes, but not in the last year (2 points)		Yes, during the last year (4 points)	

The minimum score (for non-drinkers) is 0 and the maximum score is 40. A score of 8 or more indicates a strong likelihood of a hazardous or harmful alcohol consumption.

Source: National Institute on Alcohol Abuse and Alcoholism

(Saunders, 1993 [C])



## Appendix D – Implementation Summary Sheet

Implementation Summary Sheet	Community					Other
	Doctors & Clinics	Health Plans	Work Sites	Government Policy	Schools	
Smoking cessation	<ul style="list-style-type: none"> <li>• 5-A approach */**</li> <li>• Pharmacologic support */**</li> </ul>	<ul style="list-style-type: none"> <li>• Telephone contact */**</li> <li>• Financial incentives/financial disincentives</li> </ul>	<ul style="list-style-type: none"> <li>• Smoke free worksites *</li> <li>• Financial incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Tobacco taxes */**</li> <li>• Public smoking bans*</li> <li>• Regulate tobacco products</li> </ul>	<ul style="list-style-type: none"> <li>• Education on smoking risks</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate Internet information and support</li> </ul>
Healthy eating	<ul style="list-style-type: none"> <li>• Brief assessment</li> <li>• Brief counseling */intervention</li> </ul>	<ul style="list-style-type: none"> <li>• Telephone coach</li> <li>• Payers cover nutrition counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy food options on-site</li> <li>• High prices for unhealthy food</li> <li>• Change vending food options</li> </ul>	<ul style="list-style-type: none"> <li>• Tax unhealthy foods</li> <li>• Subsidize healthy foods</li> </ul>	<ul style="list-style-type: none"> <li>• Healthy food choices promoted</li> <li>• Unhealthy food choices (pop) limited</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate Internet information and support</li> </ul>
Physical activity	<ul style="list-style-type: none"> <li>• Brief assessment</li> <li>• Brief office intervention</li> </ul>	<ul style="list-style-type: none"> <li>• Telephone coach */financial incentives</li> </ul>	<ul style="list-style-type: none"> <li>• Exercise facilities on-site</li> <li>• Time for activity on job</li> </ul>	<ul style="list-style-type: none"> <li>• Consumer exercise facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Effective physical activity programs</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate Internet information and support</li> </ul>
Alcohol use	<ul style="list-style-type: none"> <li>• Brief assessment</li> <li>• Brief office * intervention</li> </ul>	<ul style="list-style-type: none"> <li>• Member education</li> <li>• Provider education</li> </ul>	<ul style="list-style-type: none"> <li>• Policy for social events</li> <li>• Education</li> <li>• Facilitate referral and counseling</li> <li>• Encourage AA</li> </ul>	<ul style="list-style-type: none"> <li>• Public education</li> <li>• Taxes</li> <li>• Marketing and availability</li> </ul>	<ul style="list-style-type: none"> <li>• Education</li> <li>• Management of social events</li> <li>• Individual assessment and counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate Internet information and support</li> </ul>

\* = Evidence of effectiveness

\*\* = Evidence of cost effectiveness

See resource table in the Support for Implementation section for more resources.

## Appendix E – Guideline Implementation Tool

This tool is to be used to foster discussion around the components of the guideline (physical activity, nutrition, tobacco use, and hazardous and harmful drinking/alcohol) and as a means to measure patient success/barriers around these components.

### Individual Guideline Component Survey

Name: \_\_\_\_\_

Date of birth: \_\_\_\_\_

Date of office visit: \_\_\_\_\_

1. I routinely eat fruits, vegetables, whole grains and low-fat dairy products  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**
2. I routinely limit total fat, especially saturated fat, trans fats and cholesterol  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**
3. I limit foods with added sugars and caloric carbonated beverages  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**
4. I participate in moderate-intensity aerobic exercise 30 minutes per day/5 days a week or vigorous intensity 20 minutes per day/3 days a week  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**
5. I am a smoker  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**
6. I consume alcohol  
\_\_\_\_\_ **YES**            \_\_\_\_\_ **NO**

If you answered, "YES" (to #6) please answer the following:

I consume \_\_\_\_\_ drinks per week.  
(# of drinks here)

I would like to talk more with my physician/care team member **and** receive education materials:

- \_\_\_\_\_ **Today**  
\_\_\_\_\_ **I would like to wait until my next clinic visit**  
\_\_\_\_\_ **I would like education materials only, today**



INSTITUTE FOR CLINICAL  
SYSTEMS IMPROVEMENT

# Supporting Evidence: Primary Prevention of Chronic Disease

Document Drafted  
May – Oct 2007

Critical Review  
Nov – Dec 2007

First Edition  
Apr 2008

Second Edition  
Begins Jun 2009

Released in May 2009 for Second Edition.

*The next scheduled revision will occur within 12 months.*

## Original Work Group Members

Penny Fredrickson  
*Implementation/Measurement Advisor*  
**ICSI**

Trina Ford, RD, MSN  
*Health Education*  
**Marshfield Clinic**

Courtney Jordan, MD  
*PhD Candidate in Public Health*  
**University of Minnesota**

Aaron Kelly, PhD  
*Cardiology*  
**St. Paul Heart Clinic**

Stephen L. Kopecky, MD  
*Cardiology*  
**Mayo Clinic**

Thomas E. Kottke, MD  
*Cardiology, Work Group Leader*  
**HealthPartners Medical Group**

Ann-Marie Landin, BS, RHIT  
*Facilitator*  
**ICSI**

Melissa Magstadt, MS, CNP  
*Nursing*  
**Sanford Health**

Charles Montreuil  
*Employer*  
**Carlson Companies**

Patrick O'Connor, MD  
*Family Medicine*  
**HealthPartners Medical Group**

Martha Sanford, MD  
*General Internist*  
**Stillwater Medical Group**

Michael Schoenleber, MD  
*Family Medicine*  
**HealthPartners Medical Group**

Kim Seibert, CES, RCEP  
*Exercise Physiology*  
**St. Paul Heart Clinic**

Megan Slater  
*MS Candidate in Public Health*  
**University of Minnesota**

Molly Soeby, MPA, MT  
*Health Education*  
**Altru Health System**

Cally Vinz, RN  
*Facilitator*  
**ICSI**

John Wilkinson, MD  
*Family Medicine*  
**Mayo Clinic**

Mary Winnett, MD, MPH  
*Family Medicine*  
**Minnesota Department of Health  
Epidemiology**

### Contact ICSI at:

8009 34th Avenue South, Suite 1200; Bloomington, MN 55425; (952) 814-7060; (952) 858-9675 (fax)  
Online at <http://www.ICSI.org>

## **Brief Description of Evidence Grading**

Individual research reports are assigned a letter indicating the class of report based on design type: A, B, C, D, M, R, X.

A full explanation of these designators is found in the Foreword of the guideline.

## References

- Aldana S, Barlow M, Smith R, et al. A worksite diabetes prevention program: two-year impact on employee health. *AAOHN J* 2006;54:389-95. (Class D)
- Aldana SG, Greenlaw RL, Diehl HA, et al. Effects of an intensive diet and physical activity modification program on the health risks of adults. *J Am Diet Assoc* 2005a;105:371-81. (Class A)
- Aldana SG, Greenlaw RL, Diehl HA, et al. The effects of a worksite chronic disease prevention program. *J Occup Environ Med* 2005b;47:558-64. (Class A)
- Ammerman AS, Lindquist CH, Lohr KN, Hersey J. The efficacy of behavioral interventions to modify dietary fat and fruit and vegetable intake: a review of the evidence. *Prev Med* 2002;35:25-41. (Class M)
- Armitage CJ. Evidence that implementation intentions reduce dietary fat intake: a randomized trial. *Health Psychol* 2004;23:319-23. (Class A)
- Babor TF, Higgins-Biddle JC. Brief intervention for hazardous and harmful drinking: a manual for use in primary care. 2001. (Class R)
- Babor TF, Sciamanna CN, Pronk NP. Assessing multiple risk behaviors in primary care: screening issues and related concepts. *Am J Prev Med* 2004;27:42-53. (Class R)
- Bachman J, Pincus HA, Houtsinger JK, Unützer J. Funding mechanisms for depression care management: opportunities and challenges. *Gen Hosp Psychiatry* 2006;28:278-88. (Class R)
- Bertholet N, Daepfen JB, Wietlisbach V, et al. Reduction by alcohol consumption by brief alcohol intervention in primary care: systematic review and meta-analysis. *Arch Intern Med* 2005;165:986-95. (Class M)
- Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness. *JAMA* 2002;288:1775-79. (Class D)
- Bravata DM, Smith-Spangler C, Sundaram V, et al. Using pedometers to increase physical activity and improve health: a systematic review. *JAMA* 2007;298:2296-2304. (Class M)
- Brownson RC, Haire-Joshu D, Luke DA. Shaping the context of health: a review of environmental and policy approaches in the prevention of chronic diseases. *Ann Rev Public Health* 2006;27:341-70. (Class R)
- Coulter A, Ellins J. Effectiveness of strategies for informing, educating, and involving patients. *BMJ* 2007;335:24-27. (Class R)
- Daviglus ML, Stamler J, Pirzada A, et al. Favorable cardiovascular risk profile in young women and long-term risk of cardiovascular and all-cause mortality. *JAMA* 2004;292:1588-92. (Class B)
- DeBusk RF, Stenestrand U, Sheehan M, Haskell WL. Training effects of long versus short bouts of exercise in healthy subjects. *Am J Cardiol* 1990;65:1010-13. (Class A)
- Dunn C, Deroo L, Rivara F. The use of brief interventions adapted from motivational interviewing across behavioral domains: a systematic review. *Addiction* 2001;96:1725-42. (Class M)
- Eakin EG, Lawler SP, Vandelanotte C, Owen N. Telephone interventions for physical activity and dietary behavior change: a systematic review. *Am J Prev Med* 2007;32:419-34. (Class R)
- Eden KB, Orleans CT, Mulrow CD, et al. Does counseling by clinicians improve physical activity? A summary of the evidence for the U.S. preventive services task force. *Ann Intern Med* 2002;137:208-15. (Class R)

## References

- Edye BV, Mandryk JA, Frommer MS, et al. Evaluation of a worksite programme for the modification of cardiovascular risk factors. *Med J Aust* 1989;150:544-81. (Class A)
- Engbers LH, van Poppel MNM, Paw MCA, van Mechelen W. The effects of a controlled worksite environmental intervention on determinants of dietary behavior and self-reported fruit, vegetable and fat intake. *BMC Public Health* 2006;6:253. (Class C)
- Engbers LH, van Poppel MNM, van Mechelen W. Modest effects of a controlled worksite environmental intervention on cardiovascular risk in office workers. *Prev Med* 2007; 44:356-62. (Class C)
- Eyre H, Kahn R, Robertson RM, ACS/ADA/AHA Collaborative Writing Committee, The. Preventing cancer, cardiovascular disease, and diabetes: a common agenda for the American Cancer Society, the American Diabetes Association, and the American Heart Association. *CA Cancer J Clin* 2004;54:190-207. (Class R)
- Fiore MC, Jaén CR, Baker TB, et al. Treating tobacco use and dependence: 2008 update. Available at:<http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat2.chapter.28163>. Accessed March 10, 2009. (Class R)
- French SA, Stables G. Environmental interventions to promote vegetable and fruit consumption among youth in school settings. *Prev Med* 2003;37:593-610. (Class M)
- Fries E, Edinboro P, McClish D, et al. Randomized trial of a low-intensity dietary intervention in rural residents: the rural physician cancer prevention project. *Am J Prev Med* 2005;28:162-68. (Class A)
- Gans KM, Ross E, Barner CW, et al. REAP and WAVE: new tools to rapidly assess/discuss nutrition with patients. *J Nutr* 2003;133:556S-62S. (Class D)
- Glanz K, Yaroch AL. Strategies for increasing fruit and vegetable intake in grocery stores and communities: policy, pricing, and environmental change. *Prev Med* 2004;39:S75-S80. (Class R)
- Goetzel RZ, Anderson DR, Whitmer RW, et al. The relationship between modifiable health risks and health care expenditures: an analysis of the multi-employer HERO health risk and cost database. *J Occup & Environ Med* 1998;40:843-54. (Class B)
- Goetzel RZ, Ozminkowski RJ, Bruno JA, et al. The long-term impact of Johnson & Johnson's health & wellness program on employee health risks. *J Occup Environ Med* 2002;44:417-24. (Class B)
- Gold D, Grossmeier J. Using an HRA as an evaluation tool. *Wellness Management* 2007;20:1-5. (Class R)
- Goldstein MG, Whitlock EP, DePue J, et al. Multiple behavioral risk factor interventions in primary care: summary of research evidence. *Am J Prev Med* 2004;27:61-79. (Class R)
- Gomel M, Oldenburg B, Simpson JM, Owen N. Work-site cardiovascular risk reduction: a randomized trial of health risk assessment, education, counseling, and incentives. *Am J Public Health* 1993;83:1231-38. (Class A)
- Hardman AE. Accumulation of physical activity for health gains: what is the evidence? *Br J Sports Med* 1999;33:87-92. (Class R)
- Harland J, White M, Drinkwater C, et al. The Newcastle exercise project: a randomised controlled trial of methods to promote physical activity in primary care. *BMJ* 1999;319:828-32. (Class A)
- Haskell WL, Lee IM, Pate RR, et al. Physical activity and public health: updated recommendation for adults from the American college of sports medicine and the American heart association. *Med Sci Exerc* 2007;39:1423-34. (Class R)
- Jordan CO, Slater M, Kottke TE. Preventing chronic disease risk factors: rationale and feasibility. *Medicina* 2008;44:745-49. (Class R)

## References

- Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity: a systematic review. *Am J Prev Med* 2002;22:73-107. (Class M)
- Kant AK, Schatzkin A, Graubard BI, Schairer C. A prospective study of diet quality and mortality in women. *JAMA* 2000;283:2109-15. (Class R)
- King DE, Mainous III AG, Geesey ME. Turning back the clock: adopting a healthy lifestyle in middle age. *Am J Med* 2007;120:598-603. (Class B)
- Kottke TE, Faith DA, Jordan CO, et al. The comparative effectiveness of heart disease prevention and treatment strategies. *Am J Prev Med* 2009;36:82-88. (Class M)
- Krueter MW, Strecher VJ. Do tailored behavior change measures enhance the effectiveness of health risk appraisal? Results from a randomized trial. *Theory & Prac* 1996;11:97-105. (Class A)
- Kypri K, McAnally HM. Randomized controlled trial of web-based primary care intervention for multiple health risk behaviors. *Prev Med* 2005;41:761-66. (Class A)
- Lauer MS. Primary prevention of atherosclerotic cardiovascular disease: the high public burden of low individual risk. *JAMA* 2007;297:1376-78. (Class R)
- Lavizzo-Mourey R. Childhood obesity: what it means for physicians. *JAMA* 2007;298:920-22. (Class R)
- Lindström J, Louheranta A, Mannelin M, et al. The Finnish diabetes prevention study (DPS): lifestyle intervention and 3-year results on diet and physical activity. *Diabetes Care* 2003;26:3230-36. (Class A)
- Logue E, Sutton K, Jarjoura D, et al. Transtheoretical model-chronic disease care for obesity in primary care: a randomized trial. *Obes Res* 2005;13:917-27. (Class A)
- Lorig KR, Holman HR. Self-management education: history, definition, outcomes, and mechanisms. *Ann Behav Med* 2003;26:1-7. (Class R)
- Lorig KR, Ritter PL, Laurent DD, Plant K. Internet-based chronic disease self-management: a randomized trial. *Med Care* 2006;44:964-71. (Class A)
- Lorig KR, Sobel DS, Stewart AL, et al. Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: a randomized trial. *Med Care* 1999;37:5-14. (Class A)
- Maes S, Verhoeven C, Kittel F, Scholten H. Effects of a Dutch work-site wellness-health program: the Brabantia project. *Am J Public Health* 1998;88:1037-41. (Class B)
- McBride P, Underbakke G, Plane MB, et al. Improving prevention systems in primary care practices: the Health Education and Research Trial (HEART). *J Fam Pract* 2000;49:126-29. (Class C)
- McCarty CA, Scheuer D. Lessons learned from employee fitness programs at the Marshfield clinic. *WMJ* 2005;104:61-65. (Class B)
- Millen BE, Quatromoni PA, Nam B, et al. Dietary patterns, smoking, and subclinical heart disease in women: opportunities for primary prevention from the Framingham nutrition studies. *J Am Diet Assoc* 2004;104:208-14. (Class B)
- Miller MP. Best questions and tools for quickly assessing your patient's dietary health: towards evidence-based determination of nutritional counseling need in the general medical interview. *Nutrition Noteworthy* 2005;7:1-14. (Class R)
- Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA* 2004;291:1238-45. (Class M)



## References

- Mozaffarian D, Kumanyika SK, Lemaitre RN, et al. Cereal, fruit, and vegetable fiber intake and the risk of cardiovascular disease in elderly individuals. *JAMA* 2003;289:1659-66. (Class B)
- National Center for Chronic Disease Prevention and Health Promotion. Can eating fruits and vegetables help people to manage their weight? 2007. (Class R)
- National Heart, Lung and Blood Institute. Your guide to lowering cholesterol with therapeutic lifestyle changes (TLC). NIH publication 06-5235. December 2005. (Class R)
- Nelson ME, Rejeski WJ, Blair SN, et al. Physical activity and public health in older adults: recommendation from the American college of sports medicine and the American heart association. *Circulation* 2007;116:1094-1105. (Class R)
- Nothwehr F, Snetselaar L, Yang J, Wu H. Stage of change for healthful eating and use of behavioral strategies. *J Am Diet Assoc* 2006;106:1035-41. (Class D)
- Ozminkowski RJ, Goetzel RZ, Smith MW, et al. The impact of the citibank, na, health management program on changes in employee health risks over time. *J Occup Environ Med* 2000;42:502-11. (Class C)
- Ozminkowski RJ, Ling D, Goetzel RZ, et al. Long-term impact of Johnson & Johnson's health and wellness program on health care utilization and expenditures. *J Occup Environ Med* 2002;44:21-29. (Class B)
- Panagiotakos DB, Pitsavos CH, Chroysohoou C, et al. Status and management of hypertension in Greece: the role of the adoption of Mediterranean diet: the ATTICA study. *J Hypertens* 2003;21:1483-89. (Class D)
- Panagiotakos DB, Pitsavos C, Skoumas Y, Stefanadis C. The association between food patterns and the metabolic syndrome using principal components analysis: the ATTICA Study. *J Am Diet Assoc* 2007;107:979-87. (Class D)
- Patrick H, Nicklas TA. A review of family and social determinants of children's eating patterns and diet quality. *J Am Coll Nutr* 2005;24:83-92. (Class R)
- Pereira MA, O'Reilly E, Augustsson K, et al. Dietary fiber and risk of coronary heart disease: a pooled analysis of cohort studies. *Arch Intern Med* 2004;164:370-76. (Class M)
- Pignone MP, Ammerman A, Fernandez L, et al. Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. preventive services task force. *Am J Prev Med* 2003;24:75-92. (Class R)
- Pomerleau J, Lock K, Knai C, McKee M. Interventions designed to increase adult fruit and vegetable intake can be effective: a systematic review of the literature. *J Nutr* 2005;135:2486-95. (Class M)
- Prochaska JO, Velicer WF, Redding C, et al. Stage-based expert systems to guide a population of primary care patients to quit smoking, eat healthier, prevent skin cancer, and receive regular mammograms. *Prev Med* 2005;41:406-16. (Class A)
- Pronk NP, Martinson B, Kessler RC, et al. The association between work performance and physical activity, cardiorespiratory fitness, and obesity. *J Occup Environ Med* 2004a;46:19-25. (Class D)
- Pronk NP, Peek CJ, Goldstein MG. Addressing multiple behavior risk factors in primary care: a synthesis of current knowledge and stakeholder dialogue sessions. *Am J Prev Med* 2004b;27:4-17. (Class R)
- Proper KI, Koning M, van der Beek AJ, et al. The effectiveness of worksite physical activity programs on physical activity, physical fitness, and health. *Clin J Sport Med* 2003;13:106-17. (Class M)
- Resnicow K, Dilorio C, Soet JE, et al. Motivational interviewing in health promotion: it sounds like something is changing. *Health Psych* 2002;21:444-51. (Class R)

## References

- Resnicow K, McCarty F, Baranowski T. Are precontemplators less likely to change their dietary behavior? A prospective analysis. *Health Educ Res* 2003;18:693-705. (Class B)
- Revere D, Dunbar PJ. Review of computer-generated outpatient health behavior interventions: clinical encounters "in absentia". *J Am Med Inform Assoc* 2001;8:62-79. (Class M)
- Richmond RL, Kehoe L, Hailstone S, et al. Quantitative and qualitative evaluations of brief interventions to change excessive drinking, smoking and stress in the police force. *Addiction* 1999;94:1509-21. (Class C)
- Riemsma RP, Pattenden J, Bridle C, et al. Systematic review of the effectiveness of stage based interventions to promote smoking cessation. *BMJ* 2003;326:1175. (Class M)
- Riper H, van Straten A, Keuken M, et al. Curbing problem drinking with personalized-feedback interventions: a meta-analysis. *Am J Prev Med* 2009;36:247-55. (Class M)
- Rose G. Sick individuals and sick populations. *Intl J of Epidemiology* 1985;14:32-38. (Class R)
- Rothemich SF, Woolf SH, Johnson RE, et al. Effect on cessation counseling of documenting smoking status as a routine vital sign: an ACORN study. *Ann Fam Med* 2008;6:60-68. (Class A)
- Rubak S, Sandboek A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *Brit J Gen Pract* 2005;55:513:305-12. (Class M)
- Sallis JF, Cervero RB, Ascher W, et al. An ecological approach to creating active living communities. *Annu Rev Public Health* 2006;27:297-322. (Class R)
- Saunders JB, Aasland OG, Babor TF, et al. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption – II. *Addiction* 1993;88:791-804. (Class C)
- Seymour JD, Yaroch AL, Serdula M, et al. Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review. *Prev Med* 2004;39:S108-S36. (Class M)
- Solberg LI, Maciosek MV, Edwards NM. Primary care intervention to reduce alcohol misuse: ranking its health impact and cost effectiveness. *Am J Prev Med* 2008;34:143-52. (Class M)
- Sorensen G, Stoddard A, Hunt MK, et al. The effects of a health promotion – health protection intervention on behavior change: the WellWorks study. *Am J Public Health* 1998;88:1685-90. (Class A)
- Sorensen G, Thompson B, Glanz K, et al. Work site-based cancer prevention: primary results from the Working Well trial. *Am J Public Health* 1996;86:939-47. (Class A)
- Stevens VJ, Glasgow RE, Toobert DJ, et al. One-year results from a brief, computer assisted intervention to decrease consumption of fat and increase consumption of fruit and vegetables. *Prev Med* 2003;36:594-600. (Class C)
- Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Prevention (SAMHSA/CSAP), The. Preventing problems related to alcohol availability: environmental approaches. DHHS Publication No. (SMA)99-3298. Accessed October 10, 2007. (Class R)
- Task Force on Community Preventive Services. Preventive services: what works to promote health? Oxford University Press. 2005a. (Class R)
- Task Force on Community Preventive Services. The Guide to Community Preventive Services. 2005b. (Class R)
- Tessaro I, Rye S, Parker L, et al. Effectiveness of a nutrition intervention with rural low-income women. *Am J Health Behav* 2007;31:35-43. (Class A)

## References

- Tinker LF, Rosal MC, Young AF, et al. Predictors of dietary change and maintenance in the women's health initiative dietary modification trial. *J Am Diet Assoc* 2007;107:1155-65. (Class D)
- U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans. 2008. (Class R)
- U.S. Department of Health and Human Services. DASH eating plan. Available at: [http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/how\\_plan.html](http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/how_plan.html). 2006. (Class R)
- U.S. Department of Health and Human Services. Dietary guidelines for Americans 2005. Available at: <http://www.healthierus.gov/dietary/guidelines>. 6th Ed. 2005. (Class R)
- U.S. Department of Health and Human Services. Helping patients who drink too much: a clinician's guide. 2007. (Class R)
- U.S. Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Washington, DC, U.S. Govt. Printing Office, 1996. (Class R)
- U.S. Department of Health and Human Services. *In Treating Tobacco Use and Dependence*. June 2000. (Class R)
- U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote a healthy diet. *Am J Prev Med* 2003a;24:93-100. (Class R)
- U.S. Preventive Services Task Force. Behavioral counseling in primary care to promote physical activity: recommendation and rationale. *AJN* 2003b;103:101-07. (Class R)
- U.S. Preventive Services Task Force. Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: recommendation statement. *Ann Intern Med* 2004;140:554-56. (Class R)
- van Sluijs EMF, van Poppel MNM, van Mechelen W. Stage-based lifestyle interventions in primary care: are they effective? *Am J Prev Med* 2004;26:330-43. (Class R)
- Vanwormer JJ, Boucher JL, Pronk NP. Telephone-based counseling improves dietary fat, fruit, and vegetable consumption: a best-evidence synthesis. *J Am Diet Assoc* 2006;106:1434-44. (Class M)
- Vasse R, Nijhuis F, Kok G. Effectiveness of a personalized health profile for blue-collar workers. *J Occup Environ Med* 1998;40:69-75. (Class D)
- Verheijden MW, Van der Veen JE, Bakx JC, et al. Stage-matched nutrition guidance: stages of change and fat consumption in Dutch patients at elevated cardiovascular risk. *J Nutr Educ Behav* 2004;36:228-37. (Class C)
- Wannamethee SG, Shaper AG, Walker M. Weight change, weight fluctuation, and mortality. *Arch Intern Med* 2002;162:2575-80. (Class C)
- Wharam JF, Daniels N. Toward evidence-based policy making and standardized assessment of health policy reform. *JAMA* 2007;298:676-79. (Class R)
- Whitlock EP, Orleans CT, Pender N, Allan J. Evaluating primary care behavioral counseling interventions: an evidence-based approach. *J Prev Med* 2002;22:267-84. (Class R)
- Williams CH. The built environment and physical activity: what is the relationship? Research Synthesis Report No. 11. April 2007. (Class M)
- Wolf SH, Krist AH, Johnson RE, et al. A practice-sponsored web site to help patients pursue healthy behaviors: an ACORN study. *Ann Fam Med* 2006;4:148-52. (Class D)
- Wolf SH, Krist AH, Rothemich SF. Joining hands: partnerships between physicians and the community in the delivery of preventive care. 2007. (Class R)

This section provides resources, strategies and measurement specifications for use in closing the gap between current clinical practice and the recommendations set forth in the guideline.

The subdivisions of this section are:

- Priority Aims and Suggested Measures
- Key Implementation Recommendations
- Knowledge Resources
- Resources Available

## Priority Aims and Suggested Measures

- \* The term "individual" will be used for those in the work/employment setting.
- \* The term "patient" will be used for those in the clinic/medical setting.
- 1. Improve the population health of adults ages 18 and older through the identification and promotion of healthy lifestyle behaviors. (*Annotations #6a-d*)

Possible measures for accomplishing this aim:

- a. Percentage of adult patients screened for the presence of the four behavioral risk factors (tobacco use and exposure, alcohol use, physical activity and dietary patterns) documented in the medical record.
  - b. Percentage of adult patients with documentation in medical record indicating level of physical activity assessed and intervention provided to start, increase or maintain level of activity.
  - c. Percentage of adult patients with documentation in medical record indicating that nutrition assessed and intervention was provided.
  - d. Percentage of adult patients with documentation in medical record indicating that screening for tobacco use or exposure, readiness assessed and intervention provided.
  - e. Percentage of adult patients with documentation in medical record indicating alcohol use assessed and intervention provided as appropriate.
- 2. Improve the effectiveness of Health Risk Assessments by providing timely feedback, education and other interventions. (*Annotation #3*)

Possible measures for accomplishing this aim:

- a. Percentage of adult patients with a completed, up-to-date (within the last year) health risk assessment documented in their medical record.
- b. Percentage of adult patients with documentation in their medical record, indicating the physician or designated clinical staff reviewed the assessment and intervention\* regarding healthier lifestyles pertaining to one or more of the components of the guideline.

(\* the intervention includes health education, skill building and/or practical suggestions.)

Physical activity

Nutrition

Tobacco use

Hazardous and harmful drinking/alcohol use

- c. Percentage of adult individuals with documentation in their medical record that his/her employer reviewed and provided education and/or resources regarding healthier lifestyles pertaining to one or more of the components of the guideline.

Physical activity

Nutrition

Tobacco use

Hazardous and harmful drinking/alcohol use

**Priority Aims and Suggested Measures**

3. Improve the coordination and integration between the health care system, employers and community-based groups to support healthier lifestyles in adults. (*Annotation #1*)

Possible measures for accomplishing this aim:

- a. Number of Health Risk Assessments (HRAs) completed by employed individuals that are shared between HRA vendor and provider of choice.
  - b. Percentage of adult patients with documentation of referral to a community or worksite program that addresses one or more of the four behaviors of the guideline.
4. Create patient-centered health care delivery systems that collaborate with external stakeholders in supporting healthier lifestyles of adults.

Possible measures for accomplishing this aim:

- a. Percentage of health plans offering risk reduction programs to the community.
- b. Percentage of public health organizations offering risk reduction programs to the community.
- c. Percentage of individuals utilizing community fitness programs (i.e., parks and recreation activities, walking/biking paths, community education programs).
- d. Percentage of employers who provide worksite healthy behavior options to employees (i.e., healthy vending options, hall walking programs, worksite exercise areas, group exercise programs).
- e. Percentage of employers providing incentives to employees who are able to participate in active transportation alternatives (i.e., mass transit, biking or walking to work).

At this point in development for this guideline, there are no specifications written for possible measures listed above. ICSI will seek input from the medical groups on what measures are of most use as they implement the guideline. In a future revision of the guideline, measurement specifications may be included.

## **Key Implementation Recommendations**

The following system changes were identified by the guideline work group as key strategies for health care systems to incorporate in support of the implementation of this guideline.

1. Develop a plan for educating all physicians and staff about the organizational goals for the primary prevention of chronic disease.
2. Develop a process to promote the completion of health risk assessments (HRAs) and to support behavioral changes intended to prevent chronic disease development.
3. Build a collaborative relationship between health care providers and employer leadership to support healthier lifestyles. Create communication processes to share initiatives such as wellness programs, health risk assessments, educational opportunities and other support programs.
4. Develop decision support processes in electronic medical records to support physicians and staff in delivery specific components of the guideline.
5. Place education materials that focus on healthier lifestyle throughout the facility to include but not limited to posters, pamphlets, videos, available Web sites, support groups, and promotion of health risk assessments by informing individuals about the benefits and subsequent assistance with behavior change(s).
6. Seek leadership support for the implementation of an internal worksite wellness program in order to "lead by example."
7. Build relationships between clinic/medical group leadership and community leaders in the area to learn about what kinds of wellness program(s) they provide or would like to provide for their citizens.



# Knowledge Resources

## Criteria for Selecting Resources

The following resources were selected by the Primary Prevention of Chronic Disease guideline work group as additional resources for providers and/or patients. The following criteria were considered in selecting these resources.

- The site contains information specific to the topic of the guideline.
- The content is supported by evidence-based research.
- The content includes the source/author and contact information.
- The content clearly states revision dates or the date the information was published.
- The content is clear about potential biases, noting conflict of interest and/or disclaimers as appropriate.

## Resources Available to ICSI Members Only

ICSI has a wide variety of knowledge resources that are *only* available to ICSI members (these are indicated with an asterisk in far left-hand column of the Resources Available table). In addition to the resources listed in the table, ICSI members have access to a broad range of materials including tool kits on CQI processes and Rapid Cycling that can be helpful. To obtain copies of these or other Knowledge Resources, go to [http://www.icsi.org/improvement\\_resources](http://www.icsi.org/improvement_resources). To access these materials on the Web site, you must be logged in as an ICSI member.

The resources in the table on the next page that are not reserved for ICSI members are available to the public free-of-charge.

## Resources Available

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	Action for Healthy Kids	<p><b>Action for Healthy Kids:</b> The goal is to engage diverse organizations, leaders and volunteers in actions that foster sound nutrition and good physical activity in children, youth and schools.</p> <p>Action for Healthy Kids teams are active in every state and District of Columbia. Information on each states activities can be found on the Web site.</p> <p><b>Minnesota Action for Healthy Kids:</b> The Minnesota Action for Healthy Kids Team was recently awarded a grant through the national Action for Healthy Kids Team Grant Program. The Minnesota Team will assist school districts and schools with the implementation of Wellness Policies by engaging Minnesota parents to increase their involvement with policy development and implementation.</p>	Patients and Families	<p><a href="http://actionforhealthykids.org/">http://actionforhealthykids.org/</a></p> <p><a href="http://actionforhealthykids.org/state_profile.php?state=MN">http://actionforhealthykids.org/state_profile.php?state=MN</a></p>
	Alcoholics Anonymous	<p><b>Alcoholics Anonymous:</b> The Web site offers information about this fellowship of men and women who share their experience, strength and hope with each other to stay sober and help other alcoholics to achieve sobriety.</p>	Health Care Professionals; Patients and Families	<a href="http://www.aa.org">http:// www.aa.org</a>
	America on the Move	<p><b>America On the Move:</b> A national movement that encourages everyone to take steps towards a healthier way of life.</p>	Patients and Families	<a href="http://www.americaonthemove.org">http://www.americaonthemove.org</a>
	American Association of Diabetes	<p><b>Diabetes Prevention Program</b></p>	Health Care Professionals	<a href="http://www.bsc.gwu.edu/dpp/index.htmlvdoc">http://www.bsc.gwu.edu/dpp/index.htmlvdoc</a>
	American Association of Diabetes Educators	<p>WAVE Assessment: The WAVE nutrition pocket guide.</p>	Health Care Professionals	<a href="http://tde.sagepub.com/cgi/content/citation/27/3/352">http://tde.sagepub.com/cgi/content/citation/27/3/352</a>

\* Available to ICSI members only.

Resources Available

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	American Cancer Society	<b>American Cancer Society:</b> Can you prevent cancer or reduce your cancer risk? How can you detect cancer early? What are the risk factors for different types of cancer? Concerned about cancer because it runs in your family? Frequently exposed to tobacco or environmental hazards? Just want to stay healthy? You can find answers to these questions and more using the resources in this area.	Health Care Professionals; Patients and Families	<a href="http://www.cancer.org/docroot/PED/content/PED_10_13X_Guide_for_Quitting_Smoking.asp">http://www.cancer.org/docroot/PED/content/PED_10_13X_Guide_for_Quitting_Smoking.asp</a>
	American College of Sports Medicine	<b>American College of Sports Medicine:</b> The Web site promotes and integrates scientific research, education and practical applications of sports medicine and exercise science to maintain and enhance physical performance, fitness, healthy and quality of life.	Health Care Professionals	<a href="http://www.acsm.org">http://www.acsm.org</a>
	American Heart Association	<b>Alliance for a Healthier Generation:</b> Offers a toolkit for middle and high school students who want to make changes to their school's snack and/or beverage choices but don't know where to begin.	Patients and Families	<a href="http://www.healthiergeneration.org/">http://www.healthiergeneration.org/</a>
	American Heart Association	<b>American Heart Association:</b> A national voluntary health agency whose mission is "Building healthier lives, free of cardiovascular diseases and stroke."	Health Care Professionals; Patients and Families	<a href="http://www.americanheart.org">http://www.americanheart.org</a>
	Body & Soul	<b>Body &amp; Soul:</b> A Celebration of Healthy Eating and Living is a health program developed for African-American churches.	Patients and Families	<a href="http://www.bodyandsoul.nih.gov">http://www.bodyandsoul.nih.gov</a>
	Centers for Disease Control and Prevention	<b>Fruits and Veggies Matter:</b> Web site offers many things that will help you learn more about the National Fruit & Vegetable Program and help you encourage others to eat a colorful variety of fruits and vegetables.	Health Care Professionals; Patients and Families	<a href="http://www.fruitsandveggiesmatter.gov">http://www.fruitsandveggiesmatter.gov</a>
	Centers for Disease Control and Prevention	<b>The Community Guide</b> Web site offers evidence-based recommendations for programs and policies to promote population health.	Health Care Professionals	<a href="http://www.thecommunityguide.org">http://www.thecommunityguide.org</a>

\* Available to ICSI members only.

**Resources Available**

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	Connecticut's Team Nutrition Program	<p><b>Rate Your Plate:</b></p> <ul style="list-style-type: none"> <li>• Choose foods from various drop-down menus.</li> <li>• When you're done selecting foods, simply click on the "Rate My Plate" button at the bottom of your screen.</li> <li>• Decide how you want to rate your plate based on four options.</li> </ul> <p>You can play over and over again, choosing different foods and combinations of foods each time you play.</p>	Health Care Professionals; Patients and Families	<a href="http://www.sp.uconn.edu/~cthompson/">http://www.sp.uconn.edu/~cthompson/</a>
	Dartmouth Medical School	<p><b>How's Your Health:</b> The Web site has information that is designed and tested to help individuals take better care of yourself and help you get better health care. It also offers resources for health care providers.</p>	Health Care Professionals; Patients and Families	<a href="http://www.howsyourhealth.com">http://www.howsyourhealth.com</a>
	Department of Community Health, Brown University	<p><b>Institute for Community Health Promotion:</b> The Web site promotes health improvement, especially in underserved populations, by conducting interdisciplinary research and education to empower individuals, providers, organizations and communities to practice and promote healthier behaviors and environments.</p>	Health Care Professionals	<a href="http://www.brown.edu/Research/ICHP/">http://www.brown.edu/Research/ICHP/</a>
	Department of Health and Human Services	<p><b>President's Council on Physical Fitness and Sports.</b> This is the health, physical activity, fitness and sports information Web site.</p>	Health Care Professionals; Patients and Families	<a href="http://www.fitness.gov">http://www.fitness.gov</a>
	Drug Digest	<p>The Web site offers a simple quiz to help individuals determine if you are suffering from alcoholism and are in need of help.</p>	Health Care Professionals; Patients and Families	<a href="http://www.drugdigest.org/DD/HRA/AlcoholismHRAResults/1,21883,,00.html">http://www.drugdigest.org/DD/HRA/AlcoholismHRAResults/1,21883,,00.html</a>
	Headquartered in Washington, D.C., also has offices in Chicago, Atlanta and San Mateo	<p><b>KaBOOM!</b> KaBOOM! is a national non-profit organization that envisions a great place to play within walking distance of every child in America.</p>	Patients and Families	<a href="http://www.kaboom.org/">http://www.kaboom.org/</a>

\* Available to ICSI members only.

**Resources Available**

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	Healthy Minnesota Workplace Initiative	<b>Healthy Minnesota Workplace Initiatives:</b> The Web site promotes building employer support and capacity to implement successful worksite health promotion programs that increase healthy behavior, improve the overall health status of Minnesota workers and their families, and reduce health care costs across the state. A "Healthy Minnesota Workplace Toolkit" is available.	Health Care Professionals; Patients and Families	<a href="http://www.health.state.mn.us/divs/hpcd/NGAtoolkit/toc.html">http://www.health.state.mn.us/divs/hpcd/NGAtoolkit/toc.html</a>
	Institute of Community Health Promotion, Brown University, Providence, RI	<b>REAP Assessment:</b> Rapid Eating Assessment for Patients	Patients and Families	<a href="http://bms.brown.edu/nutrition/acrobat/REAP%206.pdf">http://bms.brown.edu/nutrition/acrobat/REAP%206.pdf</a>
	Institute of Medicine of the National Academies	<b>Institute of Medicine:</b> Features links to current projects, events, and reports concerning food, nutrition and diet. Food safety, dietary supplements, adequate nutrition and guidelines for nutrient intake are among issues addressed.	Health Care Professionals	<a href="http://www.iom.edu/CMS/3708.aspx">http://www.iom.edu/CMS/3708.aspx</a>
	International Physical Activity & the Environment Network (IPEN)	<b>International Physical Activity Questionnaires (IPAQ):</b> Comprises a set of 4 questionnaires. Long and short versions for use by either telephone or self-administered methods are available. The purpose of the questionnaires is to provide common instruments that can be used to obtain internationally comparable data on health-related physical activity.	Health Care Professionals	<a href="http://www.ipaq.ki.se/">http://www.ipaq.ki.se/</a>

\* Available to ICSI members only.

Resources Available

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	Minnesota Department of Health	<p><b>Northeast Minnesota Obesity Prevention Project:</b> Mission is to reduce obesity in Carlton, Cook, Lake and St. Louis counties and on the Fond du Lac and Grand Portage Reservations through coordinated public health strategies that include:</p> <ul style="list-style-type: none"> <li>• conducting walkability assessments in the four participating counties;</li> <li>• implementing recommendations from the University of Minnesota "Guidelines for Offering Healthy Foods at Meetings, Seminars and Catered Events;" and</li> <li>• assisting employers in offering healthier vending machine options.</li> </ul>	Health Care Professionals; Patients and Families	<a href="http://www.cancerplanmn.org/North_East_MN_Obesity_Prevention_Project_NEMOPP.html">http://www.cancerplanmn.org/North_East_MN_Obesity_Prevention_Project_NEMOPP.html</a>
	Minnesota Department of Transportation	<p><b>Minnesota Safe Routes to Schools:</b> A program designed to improve the conditions and quality of bicycling and walking to school – reintroducing opportunities for regular physical activity.</p>	Patients and Families	<a href="http://www.dot.state.mn.us/saferoutes/index.html">http://www.dot.state.mn.us/saferoutes/index.html</a>
	Minnesota Medical Association and seven non-profit Minnesota health plans	<p><b>Minnesota Community Measurement:</b> MN Community Measurement is Minnesota's source for information on health care quality.</p>	Health Care Professionals; Patients and Families	<a href="http://www.mnhealthcare.org">http://www.mnhealthcare.org</a>
	Motivational Interviewing	<p><b>Motivational Interviewing.</b> The Web site includes general information about the approach, as well as links, training resources, and information on reprints and recent research.</p>	Health Care Professionals	<a href="http://www.motivationalinterviewing.org">http://www.motivationalinterviewing.org</a>
	National Cancer Institute and National Institutes of Health (NIH)	<p><b>National Cancer Institute:</b> The National Cancer Institute coordinates the National Cancer Program, which conducts and supports research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention and treatment of cancer, rehabilitation from cancer, and the continuing care of cancer patients and the families of cancer patients.</p>	Health Care Professionals	<a href="http://rtips.cancer.gov/rtips/index.do">http://rtips.cancer.gov/rtips/index.do</a>
	National Football League and the AHA	<p><b>What Moves U:</b> NFL/AHA program targeted at schools.</p>	Patients and Families	<a href="https://www.jointheteam.com">https://www.jointheteam.com</a>

\* Available to ICSI members only.

**Resources Available**

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	National Institute of Diabetes and Digestive and Kidney Diseases, and the American Diabetes Association	<b>American Diabetes Association:</b> Research has also shown that if you take action to manage your blood glucose when you have pre-diabetes, you can delay or prevent Type 2 Diabetes from ever developing.	Health Care Professionals; Patients and Families	<a href="http://www.diabetes.org/pre-diabetes.jsp">http://www.diabetes.org/pre-diabetes.jsp</a>
	National Program Office	<b>Action Pack:</b> Provides assistance for clinical and community teams in improving outpatient health needs	Health Care Professionals	<a href="http://www.actionpack.com">http://www.actionpack.com</a>
	Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human	<b>Healthy People 2010</b> challenges individuals, communities and professionals to take specific steps to ensure that good health, as well as long life, are enjoyed by all.	Health Care Professionals; Patients and Families	<a href="http://www.healthypeople.gov">http://www.healthypeople.gov</a>
*	Park Nicollet Health Services	Facts about Triglycerides (2005)	Health Care Professionals	<a href="http://www.icsi.org">http://www.icsi.org</a>
*	Park Nicollet Health Services	Prevention and Management of Obesity Guideline Pilot Summary	Health Care Professionals	<a href="http://www.icsi.org">http://www.icsi.org</a>
*	Park Nicollet Health Services	Preventive Health Care (2005)	Health Care Professionals	<a href="http://www.icsi.org">http://www.icsi.org</a>
*	Park Nicollet Health Services	Understanding Lipids (2005)	Health Care Professionals	<a href="http://www.icsi.org">http://www.icsi.org</a>
	Robert Wood Johnson Foundation	The <b>Active Living By Design</b> Web site offers innovative approaches to increase physical activity through community design, public policies and communications strategies.	Health Care Professionals; Patients and Families	<a href="http://www.activelivingbydesign.org">http://www.activelivingbydesign.org</a>
	State of South Dakota	<b>Healthy South Dakota:</b> This Web site was created to help South Dakotans become more physically active and eat healthier foods.	Health Care Professionals; Patients and Families	<a href="http://www.healthysd.gov/">http://www.healthysd.gov/</a>
	U.S. Dept. of Agriculture	<b>MyPyramid Plan:</b> The Web site offers a personal eating plan with the foods and amounts that are right for you. <b>MyPyramid Tracker:</b> Offers a detailed assessment of your food intake and physical activity level.	Health Care Professionals; Patients and Families	<a href="http://www.mypyramid.gov">http://www.mypyramid.gov</a>
	U.S. Department of Health and Human Services	<b>Steps to a Healthier MN:</b> The Web site provides current news and links to general information about Steps focus areas and the settings in which we work.	Health Care Professionals; Patients and Families	<a href="http://www.stepsstohealthiermn.org">http://www.stepsstohealthiermn.org</a>

\* Available to ICSI members only.



**Resources Available**

*	Author/Organization	Title/Description	Audience	Web Sites/Order Information
	U.S. National Library of Medicine	<b>U.S. National Library of Medicine and National Institute of Health.</b> The Web site offers visitors the opportunity to click on a wide range of health topics and then navigate further to find resources in their local communities to address those health issues. This Web site is part of a national project coordinated by the U.S. National Library of Medicine and National Institutes of Health.	Health Care Professionals; Patients and Families	<a href="http://www.nlm.nih.gov">http://www.nlm.nih.gov</a>

\* Available to ICSI members only.