

ICSI Primary Prevention of Chronic Disease: Selected Literature Review

-- *The Institute for Clinical Systems Improvement (ICSI) has published guidelines that seek to promote effective clinical management of lifestyle factors responsible for the development of chronic disease. Some of the evidence on which these recommendations are based follows:*

In a prospective cohort study of 15,708 participants, members of the study were divided into two groups: those who adopted healthy lifestyles [as defined by 5 or more fruits and vegetables daily, regular exercise, BMI 18.5-29.9 kg/m², no current smoking] and those who did not. During the following four years, individuals who adopted the healthy lifestyles had lower overall mortality and fewer cardiovascular disease events.

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.

A prospective study of 34,192 Seventh Day Adventists concluded that diets high in vegetable intake, regular vigorous exercise, low body mass index and tobacco abstinence can account for differences in life expectancy of up to ten years as compared to other white Californians.

Fraser GE, Shavlik DJ. Ten years of life: Is it a matter of choice? Arch Intern Med 2001 Jul 9;161(13):1645-52.

During a 12-year prospective study of 1507 healthy men and 832 healthy women aged 70 to 90 years, researchers found that adherence to a Mediterranean diet [i.e. consumption of more than seven daily servings of fruits and vegetables, whole grains, limited red meat and healthy fats], regular physical activity, moderate alcohol intake and abstinence from tobacco use were associated with lower risk of mortality due to all causes, including coronary heart disease, cardiovascular disease and cancer.

Knoops KT, de Groot LC, Kromhout D, Perrin AE, Moreiras-Varela O, Menotti A, van Staveren WA. Mediterranean diet, lifestyle factors, and 10-year mortality in elderly European men and women: the HALE project. JAMA. 2004 Sep 22;292(12):1433-9.

-- *The ICSI guidelines recommend engagement of patients through their primary care clinics, either through programs administered directly by the clinic or via referral to community-based programs. The rationale for patient engagement in clinic or community-based programs follows from the findings of several studies:*

A randomized controlled trial of 914 participants found that patients who received advice from a physician which encourages greater physical activity, improved diet, and smoking cessation prior to receiving educational materials on those topics were more likely to remember the materials and apply them. Participants who received advice were also more likely to act on the advice by making immediate changes in their lives.

Kreuter MW, Chheda SG, Bull FC. How Does Physician Advice Influence Patient Behavior? Evidence for a Priming Effect. Arch Fam Med. 2000;9:426-433.

In a randomized controlled trial of 310 patients with type II diabetes and a BMI greater than 25, patients in the intervention group received brief motivational interviewing from a physician along with a computer-generated physical activity goals worksheet during routine care visits over the course of 12 months. The percentage of patients who achieved the recommended level of physical activity following consultation increased from 26% to 53% over the course of the study. The control group saw no statistically significant increase.

Christian JG, Bessesen DH, Byers TE, Christian KK, Goldstein MG, Bock BC. Clinic-Based Support to Help Overweight Patients With Type 2 Diabetes Increase Physical Activity and Lose Weight. Arch Intern Med. 2008;168(2):141-146

A randomized controlled trial of 456 patients that studied participants who received recommendations for regular physical activity from a primary care physician either verbally only or verbally and written jointly. Six weeks following the recommendations, the number of participants engaging in physical activity increased significantly for both groups while an additional increase of 10% was found for the group that received written and verbal physical activity prescriptions.

Swinburn BA, Walter LG, Arroll B, Tilyard MW, Russell DG. The Green Prescription Study: A Randomized Controlled Trial of Written Exercise Advice Provided by General Practitioners. Am J Public Health. 1998;88:288-291.

A randomized controlled trial of 255 patients found that 3-5 minutes of structured physical activity counseling by physicians resulted in a significant increase in physical activity for the intervention group – 37 minutes per week – compared to the control group – 7 minutes per week. The intervention model used the “Stages of Change” theory and follow-up phone calls by nurses to augment physician counseling.

Calfas KJ, Long BJ, Sallis JF, Wooten WJ, Pratt M, Patrick K. A Controlled Trial of Physician Counseling to Promote the Adoption of Physical Activity. Preventive Med. 1996;25:225-233.

An analysis of data from the Behavior Risk Factor Surveillance System indicates that patients who receive advice from their health care providers are 2.8 times more likely to attempt to lose weight than those who do not.

Abid O, Galuska D, Khal KL, et al. Are health care professionals advising obese patients to lose weight? A trend analysis. Medscape Gen Med 2005;7:3-12.

“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 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.

MINNESOTA Health Care News

July 2008 • Volume 6 Number 7

Battling the Big Four of chronic disease

The culprits: inactivity, poor nutrition, smoking, and hazardous drinking

By Cally Vinz, RN, and Melissa Marshall, MBA

Fact: According to the National Vital Statistics Report 2000, seven of the 10 leading causes of death in the U.S. are chronic diseases: heart disease, cancer, stroke, chronic lower respiratory tract disease, unintentional injury, diabetes, and Alzheimer's disease.

Fact: The Journal of the American Medical Association (JAMA) says these diseases share four root causes—physical inactivity, poor nutrition, smoking, and hazardous drinking.

Fact: There is strong evidence that even a modest intervention that lowers each of these risk factors can help reduce the prevalence of chronic diseases.

Speed up those interventions, you might say. Well, that is easier said than done.

Challenges

Behavior. Chronic diseases result from behavioral choices. While individuals understand that risk factors contribute to chronic diseases, market research indicates they aren't moved to take preventive measures. Most people don't consider themselves at risk until they are older.

Risk factors. These four root causes are pervasive across the U.S. Any solutions to influence healthier lifestyles that

reduce these risks must have a broad reach and be affordable and feasible.

Health care system. Our medical system focuses more on treating chronic diseases in their later stages than on preventing them. Our medical system also lacks sufficient reimbursement or payment to support preventive care. As a result, physicians don't have the time and resources to educate or motivate at-risk individuals to adopt healthier lifestyles.

Community support. Employers and other groups are offering healthy lifestyle choices and creating environments that help reduce chronic diseases. However, only about 40 percent to 50 percent of employees use preventive service benefits, and employers report they are unsure of where to focus.

Searching for solutions

It's evident that the health care delivery system needs to tackle chronic diseases in a new fashion. The Institute for Clinical Systems Improvement (ICSI) set out to do just that. ICSI is an independent organization that brings together medical groups, hospitals, health plans, employers, and consumers to create patient-centered, value-driven health care solutions. In its 15-year history, ICSI has developed more than 50 evidence-based guidelines for preventing, diagnosing, treating, and managing a wide range of health conditions.

To develop a guideline for the primary prevention of chronic disease risk factors, ICSI acknowledged that medical groups alone could not effect lifestyle changes. Community networks,

physical and social environments, and public policy must also play a role.

Interventions

ICSI brought together medical groups, the Minnesota Department of Health, and employers to develop its guideline. In preparation, feedback from focus groups made up of employers, patients, and providers was presented to the guideline work group. An extensive review of the literature on chronic disease revealed that health risk assessments (HRAs), tailored face-to-face counseling, phone counseling, and timely, computerized feedback all contribute to changing behaviors and improving patient outcomes. (See table on back page.)

ICSI determined that using pre-existing networks is an efficient way to reach many individuals. The guideline calls for providers to establish a relationship with community resources and employers to promote annual HRAs for their employees. HRAs are standardized surveys that can measure an individual's changes in attitudes, skills, and behaviors, as well as health status, likely need for health care services, and readiness to change habits. An HRA can heighten an individual's awareness of risk factors and provide appropriate advice on how to decrease them. If HRA results are shared and discussed by the individual and his or her physician, communication about interventions can improve identified risks. Therefore, another key objective of the guideline is to increase the percentage of patients whose HRAs are updated each year.

Additional aims of the guideline include increasing the number of individuals whose medical records indicate that they have been given information about healthy lifestyle behaviors, and asking patients to report back on their follow-through with recommended interventions. A final goal is to develop relationships with the community that foster education and resources around healthier lifestyles.

All of these goals require a redesign of the current health care system, and a different type and level of interaction between health care professionals and the community. Individual providers, for example, should encourage patients to use community resources more effectively, and should publicly support new, evidence-based interventions to change the physical and social environment. Employers can positively affect the health and well-being of employees through coordinated HRA and health education programs.

Elements of a changed health care system

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

- Systems to provide timely clinical information and feedback to patients.
- Decision-support systems such as evidence-based guidelines and protocols and specialist expertise integrated into primary care.
- A delivery system that includes multi-disciplinary teams and partnerships, use of proactive planned strategies, and systematic follow-up.
- Support of a patient-centered, collaborative process between patient and provider, along with tailored education and psychosocial support.
- Community resources for the maintenance of healthy lifestyles that include measurable goals, benefits to individuals, incentives to providers, visible support from senior leadership, and improvement strategies that drive comprehensive system change.

To help individuals change to healthier behaviors, the ICSI guideline recommends they be provided with self-management support. This can take the form of standardized assessments of their knowledge, skill, confidence, and supports to overcome any barriers;

Risk factor	Statistics	Resulting diseases	Example of an evidence-based solution and its impact
Physical inactivity	The Centers for Disease Control (CDC) says 50 percent of U.S. adults don't engage in physical activity at recommended levels, and that nearly 25 percent of the U.S. population is completely sedentary.	Cardiovascular disease High blood pressure High cholesterol Type 2 diabetes Obesity Constipation Some cancers	A study reported on in JAMA found that pedometer users increased physical activity by 27 percent over baseline, decreasing body mass index by 0.38 and significantly reducing systolic blood pressure by 3.8 mm Hg.
Nutrition	JAMA reports that poor diets continue to increase rapidly as actual causes of death.	Cardiovascular disease High blood pressure Type 2 diabetes Obesity Osteoporosis Constipation Diverticular disease Iron-deficiency anemia Oral disease Malnutrition Some cancers	A study reported on in the Journal of Nutrition noted that adoption of desirable dietary behaviors (increase in fruit and vegetable consumption by 0.6 servings/day and a corresponding 7.3 percent decrease in calories from fat) lowered mortality rates in men and women by 16 percent and 9 percent, respectively.
Smoking	The CDC says smoking accounts for 20 percent of deaths (400,000) each year in the U.S. JAMA reports more deaths are caused each year by tobacco use than by human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined.	Based on 2004 U.S. Surgeon General's Report: Abdominal aortic aneurysm Acute myeloid leukemia Cataracts Pneumonia Periodontitis Cancers Lung diseases Coronary heart and cardiovascular disease	A U.S. Public Health Service report indicates there is a strong dose-response relationship between the intensity of tobacco dependence intervention and its effectiveness. Pharmacotherapy and treatments involving person-to-person contact (via individual, group, or proactive telephone counseling) are very effective.
Alcohol	According to the CDC, excessive alcohol use is the third leading lifestyle-related cause of death for people in the U.S. each year.	Liver disease High blood pressure Cardiovascular disease	Brief intervention at a primary care facility resulted in four fewer drinks per week at six and 12 months, according to a report in the Archives of Internal Medicine.

emphasis on the individual's active and central role in changing behavior; and providing collaborative care planning.

One of the important aspects of successful behavioral change is creating a social and physical environment that reinforces the intervention. Given the high percentage of sedentary workers, employees would benefit from encouragement and incentives to become physically active.

Incentives to bike or walk to work, exercise facilities, time to take part in physical activity each day, and point-of-decision prompts all have been encouraged in the Annual Review of Public Health. A report in the Journal of Occupational Environmental Medicine concluded that a financial incentive for use of an online physical activity program proved effective.

Improving quality of life

There is tremendous potential to save lives and improve life quality for countless individuals if these types of guidelines are followed. Annual deaths attributed to the four root risk factors break down roughly into 400,000 for smoking, 300,000 split between physical inactivity and poor diet, and 100,000 to alcohol

overuse. If current technology and use of clinical evidence could reduce smoking by 40 percent, and poor diet, physical inactivity, and hazardous drinking by 5 percent, the combined reduction would be 180,000 deaths a year.

There would also be cost savings for the patient and to health care. The American Journal of Preventive Medicine concluded from several studies that successful interventions yield a return of \$3 to \$6 on each dollar invested over a period of two to five years.

These findings suggest that community-wide initiatives to prevent the development of risk factors for chronic disease could significantly improve the health of Americans. ■

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