

EVIDENCE-BASED STRATEGIES AND PREVENTIVE SERVICES



4/24/2013

to Reduce the Burden of Chronic Disease

EVIDENCE-BASED STRATEGIES AND PREVENTIVE SERVICES TO REDUCE THE BURDEN OF CHRONIC DISEASE

April 24, 2013

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Evidence-Based Strategies and Preventive Services

TO REDUCE THE BURDEN OF CHRONIC DISEASE

INTRODUCTION

Improving health outcomes is a goal of many communities and health systems. Strategies central to the achievement of better health outcomes target improving access to healthcare, decreasing preventable hospitalizations, delaying the complications of chronic diseases, and improving self-management of chronic diseases.

This guide presents evidence-based strategies, clinical guidelines, and innovative practices proven to improve population health. The role of scientific evidence in population health improvement is crucial to decision-making within the context of local communities and health systems. *Healthy People 2020*, the sentinel document of the nation's health goals for the next decade, calls for action "to strengthen policies and improve practices that are driven by the best evidence and knowledge." Jacobs and colleagues identified the key elements of evidence-based public health as "engaging the community in assessment and decision making; using data and information systems systematically; making decisions on the basis of the best available peer-reviewed evidence (both quantitative and qualitative); applying program-planning frameworks (often based on health behavior theory); conducting sound evaluation; and disseminating what is learned." Others view evidence-based public health as a process of integrating proven, science-based interventions with community preferences to improve the health of the population (Figure 1).

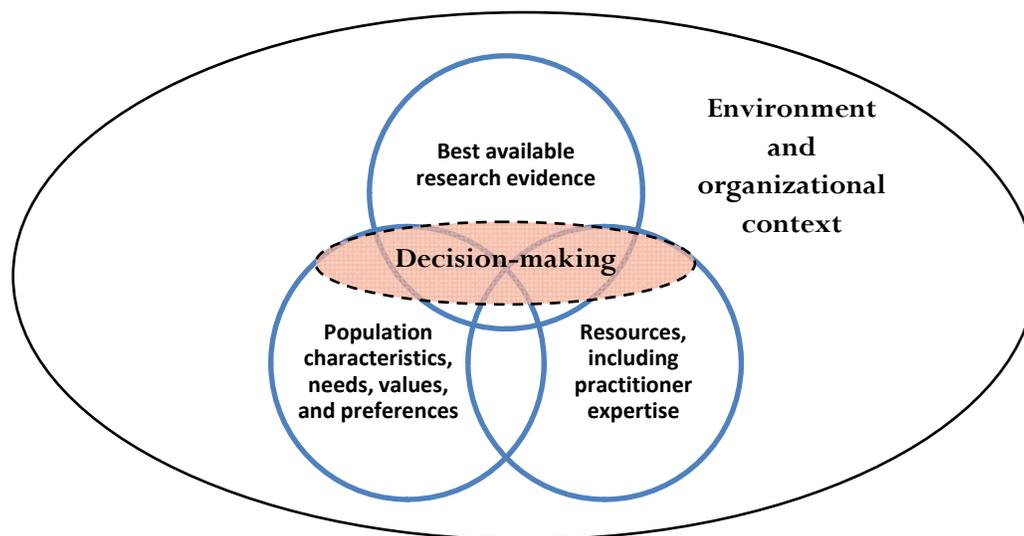


Figure 1. Evidence-Based Public Health. Source: Satterfield JM, Spring B, et al. Toward a Transdisciplinary Model of Evidence-Based Practice. *Milbank Q* 2009; 87(2):368-90.

This guide will assist communities and health systems with their decision-making to improve population health. “In most areas of public health and clinical practice, decisions on when to intervene and which program or policy to implement are not simple and straightforward.” Brownson et al. also stated that these decisions are based upon three fundamental questions:

- Should public health action be taken to address a particular public health issue?
- What action should be taken (based on evidence)?
- How can a particular program or policy most effectively be implemented and evaluated?

This guide helps communities and health systems answer the questions about evidence-based action and the effectiveness of select programs.

Success is based both in evidence-based strategies and in community ownership. Evidence-based strategies save valuable time and resources by using interventions proven to work. Funders often prefer the use of evidence-based solutions for program accountability, reduced trial and error, and saved resources. The evidence-based strategy implemented must fit with the community, its values, culture, and resources.

There is no magic bullet to improve the health of the community. Typically, the implementation of interventions in combination works to increase awareness, access, and demand for the service in the community. Interventions in the clinical and community settings can support and reinforce each other. Special attention must be paid to a community’s culture, values, and feeling of empowerment because each influences an intervention’s effectiveness.

Collaboration among multiple points in the community and in the health system is needed to improve health. The Expanded Chronic Care Model created by Barr and associates (Figure 2) emphasizes the need for linking community and clinical efforts.

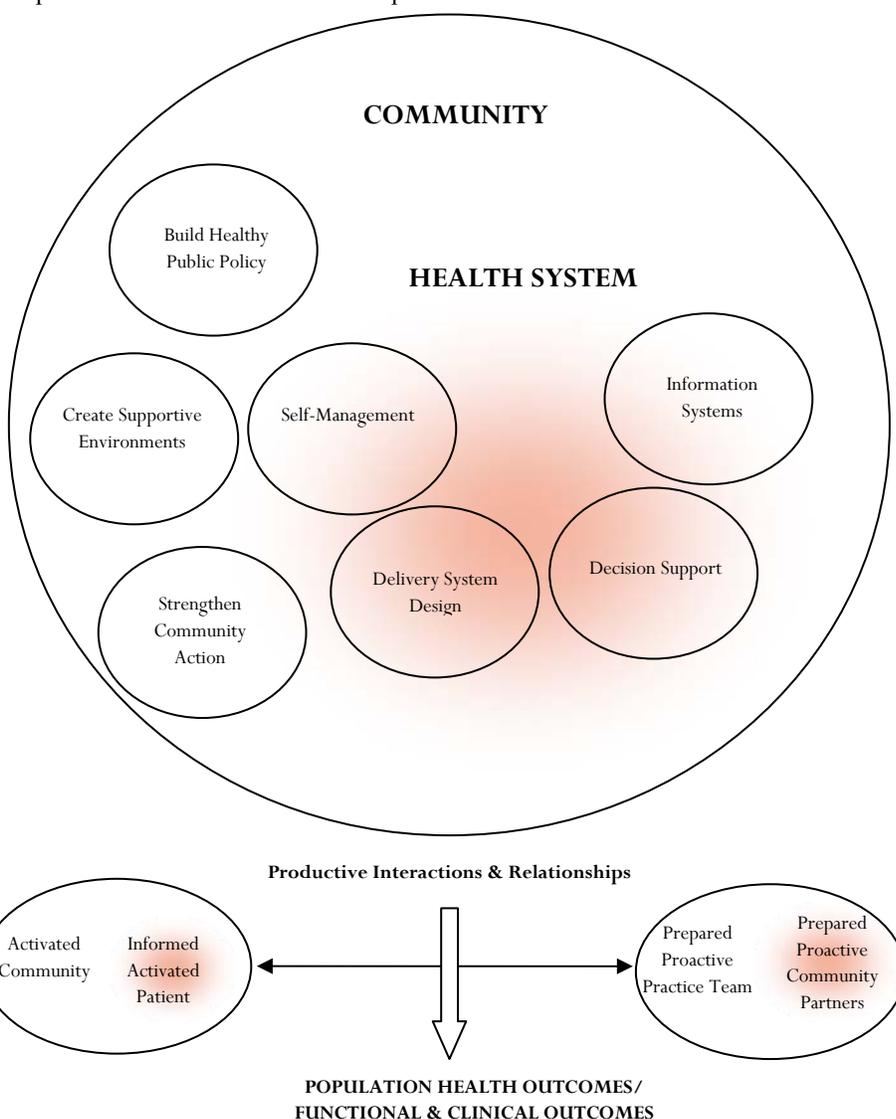


Figure 2. Expanded Chronic Care Model. Source: Barr VJ, Robinson S, et al. The Expanded Chronic Care Model. *Hospital Quarterly* 2003;7(1):73-82.

The model brings together the process of health promotion (enabling people to increase control over and improve their health) and redesigning healthcare for chronic conditions (using clinical practice guidelines, care coordination, active follow-up, and patients educated to manage condition). The health promotion focus is based on the Ottawa Charter for Health Promotion. The Ottawa Charter's five action areas are: 1) build healthy public policy, 2) create supportive environments, 3) strengthen community action, 4) develop personal skills, and 5) reorient health services. The key elements from the Chronic Care Model brought forward to the newer approach are self-management support, delivery systems design, decision support, and health information systems. The Expanded Chronic Care Model brings all of the elements together in collective responsibility with the sharing of ideas, resources, and people between the community and the health system to improve population health outcomes as well as functional and clinical outcomes.

Evidence in the Guide

This guide contains evidence supported by systematic reviews. Systematic reviews on specific issues begin with the assembling of an exhaustive collection of studies. The collection of studies is narrowed by inclusion and exclusion criteria such as time frame, study design, level of analysis, and type of analysis. Evidence, including positive findings, negative findings, and neutral findings, is consolidated. Experts in the topic and methods assess the methodological quality of the studies, weigh the evidence, and draw conclusions. The systematic review culminates with a meaningful summary of relevant findings. A systematic review is an essential part of developing clinical guidelines. The recommendations are based on systematic reviews of the evidence related to the benefits and potential harms of clinical preventive services.

Sources

Together, two sources identify strong evidence-based interventions that span the prevention spectrum: The *Guide to Community Preventive Services (Community Guide)* and the *Guide to Clinical Preventive Services*.

- The *Community Guide* is an essential resource on what works in public health. The Community Preventive Services Task Force, an independent, nonfederal, unpaid body of public health and prevention experts, develops the recommendations based on systematic reviews of the scientific literature. It provides evidence-based findings and recommendations about public health interventions and policies to improve health and promote safety. The categories of findings are: recommended, recommended against, and insufficient evidence. In the following sections, only recommended interventions that have strong or sufficient evidence that the intervention strategy is effective are presented.
- The *Guide to Clinical Preventive Services* contains recommendations on the use of screening, counseling, immunizations, preventive medicines, and counseling services that are delivered in primary care settings. The U.S. Preventive Services Task Force (USPSTF), an independent panel of private-sector experts in prevention and primary care, develops the Clinical Preventive Services Guidelines. There are five grades assigned to the clinical preventive services: A, B, C, D, and I. Grades A and B mean that there is high certainty that the net benefit is moderate to substantial. High certainty means that the available evidence includes consistent results from well-designed, well-conducted studies in representative primary care populations that assess the effects of the preventive service on health outcomes. In the following sections, only interventions with the highest levels of evidence (Grade A and B) are presented.

While not all are listed in the *Community Guide* or the *Guide to Clinical Preventive Services*, examples of emerging evidence-based strategies and practices are available at:

- County Health Rankings and Roadmaps - community examples of evidence-based strategies. Available at <http://www.countyhealthrankings.org/what-works-for-health>. Accessed 2/5/2013.
- Agency for Healthcare Research and Quality (AHRQ) Health Care Innovations Exchange - healthcare practice examples and tools to improve quality and reduce disparities. Available at <http://www.innovations.ahrq.gov/index.aspx>. Accessed 2/6/2013.

Chapter Outline

Each of the following chapters starts with a short overview of the chronic disease. Individual risk factors and population risk factors associated with complications and increased hospitalizations are listed. Following the risk factors is a short paragraph on what communities can do to create supportive environments and build healthy public policy. The next section of the chapter presents the evidence-based strategies and preventive services for the chronic disease and/or its risk factors. The *Community Guide* strategies and interventions are listed first in the evidence section. Sidebars contain guides and other resources that are available to help with translating the recommendations into programs, policies, and practices. The *Clinical Preventive Services* for the chronic disease and/or its risk factors are listed second in the evidence section. Next is the resource section that contains links to the most current clinical practice guidelines and other reference material. In addition, links to references and resources are contained throughout each section. Closing out the section are success stories that illustrate how evidence-based strategies or preventive services were implemented in Oklahoma. Contact information is provided at the close of each success story.

Connections

Keep in mind the relationships that exist between chronic diseases, risk factors, populations at risk, age groups, and preventive services. These connections should influence how and where the evidence-based strategies and preventive services are incorporated into the community and health systems.

It is estimated that one in four Americans have multiple chronic conditions (MCC). MCC are two or more chronic conditions that affect a person at the same time. These conditions can be a combination of conditions that are physical (diabetes, cancer, heart disease, etc.) and mental or cognitive disorders (depression, substance addiction, dementia, etc.). Individuals with MCC are at greater risk of experiencing hospitalizations that could have been prevented with outpatient care; receiving conflicting advice from healthcare providers; having poor day-to-day functioning; having increased medical expenses; and dying. Diabetes and cardiovascular disease are one set of the most common MCC. Those with long-term illnesses such as heart disease, stroke, diabetes, or cancer commonly experience depression. There is even a linkage between cancer and diabetes. For more information on MCC, see the web page of the U.S. Department of Health and Human Services (HHS), Office of the Assistant Secretary of Health, Multiple Chronic Conditions Initiative. Available at <http://www.hhs.gov/ash/initiatives/mcc/index.html>. Accessed 2/4/2013.

If risk factors were eliminated, 40-80% of all heart disease, stroke, type 2 diabetes, and cancer would be prevented (Table 1). Changing the conditions or context of the environment has the ability to influence more lives than trying to change behavior through individual medical intervention or education. This is a paradigm shift from focusing on

individuals having to work at being healthy to individuals having to work at not benefitting from their healthy school, workplace, business, or community environment. System and environmental change initiatives that make healthy choices

Table 1.	Cardiovascular	Cancer	Lung Disease	Diabetes
Tobacco use and secondhand smoke	+	+	+	
Alcohol use	+	+		
Poor nutrition	+	+		+
Physical inactivity	+	+		+
Obesity	+	+		+
Occupation		+	+	
Pollution	+	+	+	
Low socioeconomic status	+	+	+	+

Table 1. Leading Chronic Diseases and their Modifiable Risk Factors. Source: Remington PL, Brownson RC, and Wegner MV, Chronic Disease Epidemiology and Control, 3rd Edition, 2010, p.6

available, accessible, and affordable will likely prove most effective in combating obesity and reducing tobacco use and exposure. For communities, the Centers for Disease Control and Prevention (CDC) and the Institute of Medicine (IOM) have developed recommended strategies for encouraging healthy eating, physical activity, and tobacco use prevention that include comprehensive approaches, including social and environmental changes through sustainable efforts. However, additional efforts are needed that focus on high-risk populations, especially those who are experiencing chronic disease.

According to the CDC, “By 2015, one of every five Americans will be between the ages of 50 and 64. As they enter this age group, 70% will already be diagnosed with at least one chronic condition and nearly half will have two or more.” Even with recommended, proven clinical preventive services to detect disease, delay onset of disease, or identify disease at the most treatable stage, the percentage of adults who are up-to-date on the services is low. Those with chronic disease are in need of preventive services specific to their condition and some for overall health. Some preventive service guidelines, such as vaccinations for the flu, pneumonia, and shingles, have special recommendations for those with chronic disease, such as heart disease, chronic lung disease, and diabetes. Creative, sustained collaboration between healthcare and communities is needed to promote and support the delivery of essential preventive services.

Resources

Jacobs JA, Jones E, Gabella BA, Spring B, and Brownson RC. Tools for implementing an evidence-based approach in public health practice. *Preventing Chronic Disease* 2012; 9:110324. Available at <http://dx.doi.org/10.5888/pcd9.110324>. Accessed 1/11/2013.

Satterfield JM, Spring B, Brownson RC, Mullen EJ, Newhouse RP, Walker BB, et al. Toward a transdisciplinary model of evidence-based practice. *Milbank Quarterly* 2009; 87(2):368-90.

Brownson RC, Baker EA, Leet TL, and Gillespie KN. *Evidence-Based Public Health*. Oxford University Press, 2003.

Institute of Medicine. *An Integrated Framework for Assessing the Value of Community-Based Prevention*. National Academy of Science. 2012. Available at <http://www.iom.edu/Reports/2012/An-Integrated-Framework-for-Assessing-the-Value-of-Community-Based-Prevention.aspx>. Accessed 2/12/2013.

Brownson RC, Fielding JE, and Maylahn CM. Evidence-based public health: A fundamental concept for public health practice. *Annual Review of Public Health*. 2009; 30:175-201.

Barr VJ, Robinson S, et al. The Expanded Chronic Care Model. *Hospital Quarterly* 2003;7(1):73-82.

Community Preventive Services Task Force. *Guide to Community Preventive Services*. Available at www.thecommunityguide.org/. Accessed 2/11/2013.

U.S. Preventive Services Task Force. *Recommendations*. Available at <http://www.uspreventiveservicestaskforce.org/recommendations.htm>. Accessed 2/11/2013.

Centers for Disease Control and Prevention, AARP, American Medical Association. Promoting Preventive Services for Adults 50-64: Community and Clinical Partnerships. Atlanta, GA: National Association of Chronic Disease Directors; 2009. Available at www.cdc.gov/aging. Accessed 2/15/2013.

Agency for Healthcare Research and Quality (AHRQ). *Guide to Prevention Quality Indicators: Hospital Admissions for Ambulatory Care Sensitive Conditions*. October 2001, Version 3.1 (March 12, 2007). Available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V31/pqi_guide_v31.pdf. Accessed 1/29/2013.

Centers for Disease Control and Prevention. Adults with Medical Conditions - Immunization Schedule. Available at <http://www.cdc.gov/vaccines/schedules/hcp/imz/adult-conditions.html>. Accessed 2/15/2013.

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Introduction

COPD is a serious lung disease characterized by decreased flow in the airways of the lungs. It consists of two related diseases - chronic bronchitis and emphysema - each with distinct causes, treatments, and outcomes. With access to high quality, community-based care, hospitalizations from COPD often are preventable.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH COPD AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- SMOKING STATUS
- SOCIOECONOMIC STATUS
- DISEASE SEVERITY
- AGE

POPULATION RISK FACTORS ASSOCIATED WITH COPD AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- ENVIRONMENTAL AND OCCUPATIONAL EXPOSURES
The National Heart, Lung, and Blood Institute estimates that 10% - 20% of COPD cases may be due to environmental or occupational exposures (certain chemicals, dust, or fumes).
- ACCESS TO CARE
Geographic areas with high rates of COPD admissions also tend to have high rates of hospital admissions for diseases that require ongoing self-management and medical care. Areas may wish to use chart reviews to understand more clearly whether admissions are a result of the lack of access to high quality outpatient care or other problems. Combining community level emergency room and inpatient data may give a more accurate picture of the access to care issues.
- LOWER SOCIOECONOMIC AREAS
Studies have found that low-income ZIP code areas have nearly 6 times the rate of COPD hospitalizations than high-income ZIP code areas. More than 25% of the difference between the rates of hospitalizations in low-income and high-income areas is explained by self-reported limited access to care.

Communities can potentially prevent hospitalizations by encouraging education on smoking cessation. COPD can often be controlled in an outpatient setting with physician adherence to practice guidelines and patient compliance with treatment plan. Local communities may want to examine COPD and adult asthma in a combined review.

Source: Agency for Healthcare Research and Quality (AHRQ). *Guide to Prevention Quality Indicators: Hospital Admissions for Ambulatory Care Sensitive Conditions*. October 2001, Version 3.1 (March 12, 2007). Available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V31/pqi_guide_v31.pdf. Accessed 1/29/2013.

Evidence-Based Strategies and Preventive Services

Community Guide

TOBACCO USE (SMOKING) CESSATION

These community interventions are designed to increase the number of people who stop using tobacco. Approaches range from providing support to people trying to quit to increasing the cost of tobacco products.

- **INCREASING THE UNIT PRICE OF TOBACCO PRODUCTS**
Cost increases make the continued use of tobacco products less attractive to users.
- **MASS MEDIA CAMPAIGNS WHEN COMBINED WITH OTHER INTERVENTIONS**
Campaigns use brief, recurring messages to inform and motivate tobacco users to quit. Message content is developed through formative research, and the campaigns use paid and/or donated time and space. Campaigns can be combined with other interventions, such as an increase in excise tax, or additional community education efforts.
- **MOBILE PHONE-BASED INTERVENTIONS**
Interventions use interactive features to deliver evidence-based information, strategies, and behavioral support directly to tobacco users interested in quitting. Typically, participants receive text messages that support their quit attempt, and the message content changes over the course of the intervention.
- **PROVIDER REMINDERS WHEN USED ALONE**
This strategy includes efforts to identify patients/clients who use tobacco products and to prompt providers to discuss and/or advise clients about quitting. Reminders may be stickers, vital sign stamps, medical record flow sheets, and checklists.
- **PROVIDER REMINDERS WITH PROVIDER EDUCATION**
This strategy includes efforts to educate and to prompt providers to identify and intervene with tobacco-using clients, as well as to present a provider education program.
- **QUITLINE INTERVENTIONS**
The telephone intervention provides evidence-based behavioral counseling and support to help tobacco users who want to quit. Counseling is provided by trained cessation specialists who follow standardized protocols that may include several sessions delivered over one or more months.
- **REDUCING OUT-OF-POCKET COSTS FOR EVIDENCE-BASED TOBACCO CESSATION TREATMENTS**
Reducing tobacco users' out-of-pocket costs involves policy or program changes that make evidence-based treatments, including medication, counseling, or both, more affordable.

The Action Guide, Working with Healthcare Delivery Systems to Improve the Delivery of Tobacco-Use Treatment to Patients, translates specific recommendations from the Community Guide into “how to” guidance.



Available at

<http://www.cdc.gov/healthychommunitiesprogram/tools/index.htm#ag>

Visit the *Guide to Community Preventive Services* for more information.

- Tobacco cessation. Available at <http://www.thecommunityguide.org/tobacco/cessation/index.html>. Accessed 1/29/2013.

Clinical Preventive Services

TOBACCO USE SCREENING

Clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco.

- Combination therapy with counseling and medications is more effective at increasing cessation rates than either component alone. Intensity of counseling matters: brief one-time counseling works; however, longer sessions or multiple sessions are more effective. Telephone counseling “quit lines” also improve cessation rates.
- Successful implementation strategies for primary care practice include:
 - Instituting a tobacco user identification system,
 - Promoting clinician intervention through education, resources, and feedback, and
 - Dedicating staff to provide treatment, and assessing the delivery of treatment in staff performance evaluations.

Go to the *Guide to Clinical Preventive Services* for more information:

- Tobacco use screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspstbac2.htm>. Accessed 1/29/2013.

Resources

The Global Initiative for Chronic Obstructive Lung Disease (GOLD), *Global Strategy for the Diagnosis, Management and Prevention of COPD*, Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2011. Available at <http://www.goldcopd.org/>. Accessed 1/29/2013.

National Guideline Clearinghouse (NGC) -public resource for evidence-based clinical practice guidelines. Available at <http://www.guideline.gov/>. Accessed 2/6/2013.

U. S. Department of Health and Human Services, National Heart, Lung, and Blood Institute - *COPD*. Available at <http://www.nhlbi.nih.gov/health/public/lung/copd/>. Accessed 1/29/2013.



Tobacco Use Screening and Quitline Intervention

Beginning in 2009, the Oklahoma Hospital Association (OHA) and INTEGRIS Health collaborated to create hospital system-wide changes to insure a sustainable system of evidence-based tobacco use treatment using the 5-As model. Some of the process steps included:

- A multi-disciplinary clinical team mapped out a plan to implement a customized 5-As model.
- Key screening questions were added to the patient health history to identify all tobacco users and determine their level of nicotine dependence. Upon admission, patients are advised they cannot use tobacco while they are in the hospital, but that medications can be prescribed to alleviate their nicotine withdrawal symptoms.
- A system was established for nursing to automatically refer any tobacco-using patient for a treatment consultation.
- A system was established for respiratory therapy to complete the bedside intervention, including systems for prescribing cessation medication and for fax referral to the Oklahoma Tobacco Helpline (OTH).
- About 500 clinical staff from various professions were trained on the process and on how to talk with patients in a manner to help motivate them to quit.
- With patient referrals, the OTH calls the patient to start the process and sends a confirmation to the hospitals on the status of the referral.
- At discharge, patients are advised to follow-up with the physicians to provide them with additional support.
- An electronic medical record that includes the same embedded treatment is being rolled out to all hospitals.
- INTEGRIS Employee Wellness developed cessation employee benefits, at little or no cost with the same 5 A's process for employees.

From October 2010 through December 2012, the INTEGRIS Health system has made 4,494 fax referrals to the OTH - including 3,882 hospital inpatient referrals, 595 outpatient referrals through INTEGRIS affiliated clinics, and 77 employee fax referrals through Employee Health and Wellness. Among those who enrolled with the OTH and received medications, 35% remained tobacco-free after one year – seven times higher than rate for those who quit with no assistance (5%).

The OHA work with 20 large and small hospitals to develop similar systems was made possible with support from the Oklahoma Tobacco Settlement Endowment Trust (TSET) and the Center for the Advancement of Wellness at the Oklahoma State Department of Health (OSDH). For more information, contact the Cessation Program in the Center at 405-271-3619 or OHA at 405-427-9537.

ASTHMA

Introduction

Asthma occurs when air passages of the lungs become inflamed and narrowed and breathing becomes difficult. Asthma is treatable, and most flare-ups and deaths can be prevented using medications and limiting trigger exposures.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH ASTHMA AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- RACE
Minorities have higher asthma admission rates, even when adjusting for income and age. However, it is unclear whether this health disparity is due to differences in severity of disease or inadequate access to care.

POPULATION RISK FACTORS ASSOCIATED WITH ASTHMA AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- TOBACCO SMOKE EXPOSURE AND SMOKING
- ALLERGENS
- OUTDOOR AIR POLLUTION
- OCCUPATION (WORKSITE EXPOSURES)
- LOWER SOCIOECONOMIC AREAS
Studies have found that low-income ZIP code areas have around 6 times more asthma hospitalizations per capita than high-income areas.

Communities can potentially prevent hospitalizations by encouraging people to learn how to recognize particular warning signs of asthma attacks. Treating symptoms early can result in prevented or less severe attacks, and most cases can be managed with proper ongoing therapy on an outpatient basis. The cost of medications may be a factor in the use of hospitals and emergency rooms for care.

Source: Agency for Healthcare Research and Quality (AHRQ). *Guide to Prevention Quality Indicators: Hospital Admissions for Ambulatory Care Sensitive Conditions*. October 2001, Version 3.1 (March 12, 2007). Available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V31/pqi_guide_v31.pdf. Accessed 1/29/2013.

AHRQ's My Quality Improvement is a portal to improving the quality of care of asthma in the community.

The goals - close the gap between current and best medical practice, improve access to care, and eliminate disparities.

<http://www.monahrq.ahrq.gov/myqi/asthma.shtml#why>

Evidence-Based Strategies and Preventive Services

Community Guide

HOME-BASED INTERVENTIONS

Home-based multi-trigger, multi-component interventions for children and adolescents have been shown to improve asthma symptoms and reduce the number of school days missed due to asthma.

- **INTERVENTIONS WITH AN ENVIRONMENTAL FOCUS**

The aim is to reduce exposure to multiple indoor asthma triggers (allergens and irritants). These interventions involve home visits by trained personnel to conduct two or more environmental (home assessment/education/remediation) and non-environmental (self-management education/social services/coordinated care) activities.

- **ADULT INTERVENTIONS**

Research is needed regarding the use and impact of home-based multi-trigger, multi-component interventions for adults with asthma.

SMOKING BANS

There is strong evidence of effectiveness that smoking bans and restrictions, whether used alone or as part of a multi-component community or workplace intervention, reduce exposure to secondhand smoke.

TOBACCO USE CESSATION

Another evidence-based strategy is tobacco use cessation (see COPD section).

Visit the *Guide to Community Preventive Services* for more information:

- Home-based interventions. Available at <http://www.thecommunityguide.org/asthma/multicomponent.html>. Accessed 1/29/2013.
- Smoking bans. Available at <http://www.thecommunityguide.org/tobacco/environmental/smokingbans.html>. Accessed 1/29/2013.
- Tobacco cessation. Available at <http://www.thecommunityguide.org/tobacco/cessation/index.html>. Accessed 1/29/2013.

Clinical Preventive Services

TOBACCO USE SCREENING

Clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco. See the COPD - Clinical Preventive Services section for more information.

Visit the *Guide to Clinical Preventive Services* for more information:

- Tobacco use screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspstbac2.htm>. Accessed 1/29/2013.

Resources

U.S. Department of Health and Human Services, National Heart, Lung, and Blood Institute. Guidelines for the Diagnosis and Management of Asthma (EPR-3) July 2007. Available at <http://www.nhlbi.nih.gov/guidelines/asthma/>. Accessed 1/29/2013.

National Guideline Clearinghouse (NGC) -public resource for evidence-based clinical practice guidelines. Available at <http://www.guideline.gov/>. Accessed 2/6/2013.

Success



Story

Improving Quality of Asthma Care through Guideline Adoption

The Cherokee Nation STEPS program worked with the Oklahoma Asthma Initiative (OAI) to improve awareness and asthma management among Native American patients. The OAI reviewed medical charts to assess documented asthma care. Assessment results were used to develop and implement a policy for the use of a standardized action plan for asthma patients. An asthma action plan is a written plan developed by the healthcare provider and patient to help control and manage asthma. The action plan includes what kind of medicine is taken and when it is taken. It describes how to control asthma in the long term, how to handle worsening asthma, and when to call the doctor or go to the emergency room. After implementing the policy, completed asthma action plans were documented for 87% of pediatric patients at the Muskogee clinic location.

The St. Francis Health System and the OAI worked together to implement an asthma education intervention in the emergency room (ER), urgent care center, and Children's Hospital. St. Francis produced an asthma management video that followed the National Asthma Education and Prevention Program (NAEPP) guidelines. The video provides education on the signs and symptoms, triggers, administering medication, and emergency protocol for asthma. Patients visiting the ER or urgent care center received the sixteen-minute asthma management video and an asthma action plan. A certified asthma educator reviewed with the families of children who were hospitalized the child's history of symptoms, triggers, delivery devices, the asthma management video, and a customized asthma action plan. Hospital records showed a decrease in hospital readmissions and a decrease in the length of stay for inpatients who received individualized asthma education. The evaluation results were used to expand the intervention to other hospital sites. Additionally, St. Francis started a free outpatient clinic for families of asthmatics.

Contact the Asthma Team, Chronic Disease Service, Oklahoma State Department of Health at 405-271-4072 for more information.

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CARDIOVASCULAR DISEASE

Introduction

Cardiovascular disease includes a variety of conditions. The effective management of cardiovascular disease may reduce the occurrence of major cardiac events. Angina, congestive heart failure, and hypertension (high blood pressure) are three conditions that may result in hospitalizations that may have been prevented through access to quality care in the outpatient and community setting.

ANGINA

Angina is chest pain that occurs when a narrowing or blockage of a coronary artery prevents sufficient oxygen-rich blood from reaching the heart muscle. Both stable and unstable angina are symptoms of potential coronary artery disease. Effective management of coronary artery disease reduces the occurrence of major cardiac events such as heart attacks, and may reduce hospital admission rates for angina.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH ANGINA AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- SMOKING
- HIGH CHOLESTEROL
- HIGH BLOOD PRESSURE
- DIABETES
- ELDERLY AGE (OVER 70)
- MALES

POPULATION RISK FACTORS ASSOCIATED WITH ANGINA AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- ACCESS TO CARE
Areas with high rates of angina admissions also tend to have high rates of admissions for other disease that require ongoing self-management and medical care. Combining emergency room and inpatient chart data may give a more accurate picture of the issues in the community.
- LOWER SOCIOECONOMIC AREAS
Studies have found that low-income ZIP code areas have nearly 2-3 times the rate of angina hospitalizations than high-income ZIP code areas.

Communities can potentially prevent hospitalizations by encouraging regular physical activity; smoking cessation; controlling diabetes, high blood pressure, and abnormal cholesterol; maintaining appropriate body weight; and daily administration of an anti-platelet medication (like low-dose aspirin) in most individuals with known coronary artery disease. The patient populations that contribute the most to the overall area rate for angina may be a starting point for interventions.

CONGESTIVE HEART FAILURE (CHF)

CHF occurs when the heart muscle is unable to function well enough to meet the demands of the rest of the body. CHF can be controlled in an outpatient setting for the most part; however, the disease is a chronic progressive disorder for which some hospitalizations are appropriate.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH CHF AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- SMOKING
- DIABETES
- HIGH CHOLESTEROL
- HIGH BLOOD PRESSURE
- ALCOHOL ABUSE
- USE OF ILLEGAL DRUGS
- CORONARY ARTERY DISEASE
- RACE

POPULATION RISK FACTORS ASSOCIATED WITH CHF AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- ACCESS TO CARE
Areas with high rates of CHF admissions also tend to have high rates of admissions for other disease conditions that require ongoing self-management and medical care.
- LOWER SOCIOECONOMIC AREAS
Studies have found that low-income ZIP codes had 5 to 6 times more CHF hospitalizations per capita than high-income ZIP codes.

Communities can potentially prevent hospitalizations by encouraging individuals to reduce risk factors such as coronary artery disease, diabetes, high cholesterol, high blood pressure, smoking, alcohol abuse, and use of illegal drugs. Patient age, clinical measures such as heart function, and other management issues may affect admission rates. Communities may wish to review CHF patient records to identify precipitating causes and potential targets for intervention.

HIGH BLOOD PRESSURE

High blood pressure is a medical condition that occurs when excess force is exerted on the vessel walls as blood moves through the body. This condition is often without symptoms and has multiple causes. High blood pressure increases the risk for heart disease and stroke. High blood pressure is often controllable with appropriate use of drug therapy, medical care, and self-management.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH HIGH BLOOD PRESSURE AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- SMOKING
- ACCESS TO CARE
Studies have found that self-rated access to care explained nearly one-quarter of hospital admissions for high blood pressure.
- SALT AND SODIUM INTAKE
- MEDICATION ADHERENCE
- ALCOHOL CONSUMPTION
- DIABETES
- GENDER
- AGE

POPULATION RISK FACTORS ASSOCIATED WITH HIGH BLOOD PRESSURE AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- LOWER SOCIOECONOMIC AREAS
Low-income ZIP codes had nearly 8 times more high blood pressure related hospitalizations than high-income ZIP codes.

Communities can potentially prevent hospitalizations by encouraging an increased level of aerobic physical activity, maintaining a healthy weight, limiting the consumption of alcohol to moderate levels for those who drink, reducing salt and sodium intake, and eating a reduced-fat diet high in fruits, vegetables, and low-fat dairy food.

Source: AHRQ. *Guide to Prevention Quality Indicators: Hospital Admissions for Ambulatory Care Sensitive Conditions*. October 2001, Version 3.1 (March 12, 2007). Available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V31/pqi_guide_v31.pdf. Accessed 1/29/2013.

Most of the sodium we consume is in the form of salt in processed and restaurant foods. Too much sodium can increase your blood pressure and your risk for a heart attack and stroke.



The Sodium Reduction in Communities Program's goal is to reduce sodium intake by helping create healthier food environments at the local level.

http://www.cdc.gov/dhds/p/programs/sodium_reduction.htm

Evidence-Based Strategies and Preventive Services

Community Guide

TEAM-BASED INTERVENTIONS

Team-based interventions are an evidence-based intervention for high blood pressure. Team-based interventions include activities to:

- Facilitate communication and coordination of care support among various team members,
- Enhance use of evidence-based guidelines by team members,
- Establish regular, structured follow-up mechanisms to monitor patients' progress and schedule additional visits as needed, and
- Actively engage patients in their own care by providing them with education about hypertension medication, adherence support (for medication and other treatments), and tools and resources for self-management (including health behavior change).

REDUCING OUT-OF-POCKET COSTS

Reducing out-of-pocket costs (ROPC) for patients with high blood pressure and high cholesterol includes program and policy changes that make preventive services more affordable. Examples of these services are: medications, nutritional counseling, and behavioral support (e.g., community-based weight management programs, gym membership). Costs can be reduced by providing new or expanded treatment coverage and lowering or eliminating patient co-payments, coinsurances, deductibles, etc. in clinical and community settings.

TOBACCO CESSATION

Community interventions designed to increase the number of people who stop using tobacco are described in the COPD - *Community Guide* section. The listed approaches range from providing support to people trying to quit to increasing the cost of tobacco products.

PREVENTING EXCESSIVE ALCOHOL CONSUMPTION

The *Community Guide* recommends several evidence-based interventions to decrease excessive alcohol consumption, ranging from reducing heavy drinking, binge drinking, or any drinking by underage youth and pregnant women. The interventions listed below are limited to those with the most direct effect on chronic disease.

- **ELECTRONIC SCREENING AND BRIEF INTERVENTION**
Use of electronic devices to facilitate delivery of key elements of traditional screening and brief intervention techniques that can be applied in a variety of settings (healthcare systems, universities, communities, etc.).

Million Hearts™ - Preventing Heart Attacks and Strokes - combines many of the evidence-based strategies and preventive services in a single campaign and promotes community and clinical linkage.



"The Million Hearts™ word and logo marks, and the Be One in a Million Hearts™ slogan and logo marks and associated trade dress are owned by the U.S. Department of Health and Human Services (HHS). Use of these marks does not imply endorsement by HHS. Use of the Marks also does not necessarily imply that the materials have been reviewed or approved by HHS."

Team-based care, low-dose aspirin use, blood pressure and cholesterol control, smoking cessation, use of prevention-oriented electronic health records, and removing barriers are highlighted for clinical care. For the community, emphasis is on facilitating healthy choices, especially in the areas of nutrition and physical activity. Helpful links:

<http://millionhearts.hhs.gov/index.html> and <http://millionhearts.hhs.gov/resources/toolkits.html>.

- **REGULATION OF ALCOHOL OUTLET DENSITY**
Outlet density is associated with excessive alcohol consumption and related effects. Limiting outlets density is often implemented through zoning or licensing processes.
- **MAINTAINING LIMITS ON HOURS OF SALE**
Limits access by regulating the hours during which alcohol can be sold.
- **MAINTAINING LIMITS ON DAYS OF SALE**
Limits access by limiting the days when alcohol can be sold.
- **INCREASING ALCOHOL TAXES**
Affects the price based upon the amount of alcohol purchased with the intention to reduce alcohol-related harms and raise revenue.

Visit the *Guide to Community Preventive Services* for more information:

- Reducing cost. Available at <http://www.thecommunityguide.org/cvd/ROPC.html>. Accessed 1/29/2013.
- Team-based care. Available at <http://www.thecommunityguide.org/cvd/teambasedcare.html>. Accessed 1/29/2013.
- Tobacco cessation. Available at <http://www.thecommunityguide.org/tobacco/cessation/index.html>. Accessed 1/29/2013.
- Alcohol use prevention. Available at <http://www.thecommunityguide.org/alcohol/index.html>. Accessed 1/29/2013.

Clinical Preventive Services

TOBACCO USE SCREENING

Clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco. See the COPD - *Clinical Preventive Services* section for more information.

ALCOHOL MISUSE SCREENING

Screening can identify patients whose alcohol consumption meets the criteria for alcohol dependence or places them at risk for increased morbidity and mortality.

BLOOD PRESSURE SCREENING

All adults 18 years or older should be screened for high blood pressure. Screening test criteria, treatment, and other relevant recommendations are listed in the guide.

LIPID DISORDERS (CHOLESTEROL)

Cholesterol screening is recommended for several populations:

- Men 35 years and older,
- Women 45 years and older who are at increased risk for coronary heart disease,
- Men 20-35 years who are at increased risk for coronary heart disease, and
- Women 20-45 years who are at increased risk for coronary heart disease.

ASPIRIN FOR PREVENTION OF CARDIOVASCULAR DISEASE

Aspirin use is encouraged when the potential cardiovascular disease benefits outweighs potential harm or gastrointestinal hemorrhage in select populations. Grade A recommendations are for the following populations:

- Men 45 to 79 years and
- Women 55 to 79 years.

Visit the *Guide to Clinical Preventive Services* for more information:

- Tobacco use screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspstbac2.htm>. Accessed 1/28/2013.
- Alcohol misuse screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspdrin.htm>. Accessed 1/28/2013.
- Blood pressure screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspshype.htm>. Accessed 1/28/2013.
- Cholesterol screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspchol.htm>. Accessed 1/28/2013.
- Aspirin prophylaxis. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspasmi.htm>. Accessed 1/28/2013.

Resources

Joint National Committee on Prevention, Evaluation, and Treatment of High Blood Pressure - clinical practice guidelines based on evidence from rigorous systematic review and synthesis of published medical literature. Available at <http://www.nhlbi.nih.gov/guidelines/hypertension/>. Accessed 2/6/2013.

National Guideline Clearinghouse (NGC) -public resource for evidence-based clinical practice guidelines. Available at <http://www.guideline.gov/>. Accessed 2/6/2013.

Million Hearts Initiative™ - Innovations highlight success and best practices in heart disease and stroke. Available at <http://millionhearts.hhs.gov/aboutmh/innovations.html>. Accessed 2/6/2013.

Third Report of the National Cholesterol Education Panel (NCEP) on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), Final Report. National Heart, Lung, and Blood Institute, National Institutes of Health, 2002. Available at: http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3_rpt.htm. Accessed 2/11/2013.

Success



Story

Intervention Promoting Aspirin for the Prevention of Cardiovascular Disease

During a six-month period, a multifaceted education intervention to raise public and clinician awareness about low-dose aspirin use for cardiovascular disease prevention was initiated in Stephens County. Educational materials were designed and widely distributed throughout the community, including in physician offices and pharmacies. Public service announcements and billboard signs were utilized for the campaign. Physicians and pharmacists were urged to counsel patients who met treatment criteria about the use of low-dose aspirin. Aspirin sales increased significantly following the campaign.

Source: Mallonee S, Daniels C, Mold J, and Cline TL. Increasing Aspirin Use Among Persons at Risk for Cardiovascular Events in Oklahoma. *J Okla State Med Assoc.* 2010 Jul;103(7):254-60.

A campaign guidebook was developed and is available online at <http://www.ok.gov/health2/documents/Low%20Dose%20Aspirin%20Guidebook%20COMPLETE.pdf> or contact the Cardiovascular Team, Chronic Disease Service, Oklahoma State Department of Health at 405-271-4072 for more information.

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DIABETES

Introduction

Diabetes includes a group of conditions in which the body does not produce and/or use insulin properly. Insulin is a hormone that is needed to store dietary sugar in a form that the body can utilize to obtain the energy it needs for daily life. Diabetes has a wide range of short-term to long-term complications that may result in a hospitalization.

Uncontrolled diabetes and short-term complications of diabetes can be life-threatening conditions, such as ketoacidosis, hyperosmolarity, and coma. Long-term complications from diabetes include kidney, nerve, and circulatory disorders. Diabetes is a risk factor for lower-limb amputation due to infection, nerve damage, and microvascular disease. High-quality disease management and care has been shown to lead to reductions in almost all types of serious preventable hospitalizations.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH DIABETES AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- OVERWEIGHT

- LOWER SOCIOECONOMIC STATUS

One study found that two-thirds of admissions were due to cessation of insulin therapy - over half of the time for financial or other difficulties obtaining insulin.

- ACCESS TO CARE

A study found that uninsured patients had more than 2 times the risk of admission for diabetic ketoacidosis and coma than privately insured patients.

- LOW HDL CHOLESTEROL OR HIGH TRIGLYCERIDES, HIGH BLOOD PRESSURE

- DURATION OF DISEASE

- FAMILY HISTORY OF DIABETES

- WOMEN WHO HAD GESTATIONAL DIABETES

- AGE

- RACE

Minorities (Native Americans, Blacks, and Hispanics) have higher rates of diabetes, experience poorer glycemic control and more complications. It is unclear whether poor glycemic control arises from poor quality medical care, noncompliance of patients, lack of education, or lack of access to care.

AHRQ's My Quality Improvement is a portal to improving the quality of care of diabetes in the community.

The goals - close the gap between current and best medical practice, improve access to care, and eliminate disparities.

<http://www.monahrq.ahrq.gov/myqi/diabetes.shtml>

POPULATION RISK FACTORS ASSOCIATED WITH DIABETES AND HIGHER HOSPITAL ADMISSIONS INCLUDE:

- **ACCESS TO CARE**
Studies have found that areas with high rates of diabetes admissions also tend to have high rates of admissions for other disease conditions that require ongoing self-management and medical care. Areas with self-reported low access to care also reported higher hospital admissions for diabetes.
- **RACE**
Minorities have higher rates of diabetes. Areas with higher minority populations may have higher rates of hospitalization.
- **SYSTEMIC BIAS**
Administrative coding by health facilities in certain areas may create a bias for hospitalization rates for diabetes.

Communities can potentially prevent hospitalizations by encouraging the regular monitoring and managing of diabetes in the outpatient healthcare setting and encouraging patient compliance with treatment plans.

Source: AHRQ. *Guide to Prevention Quality Indicators: Hospital Admissions for Ambulatory Care Sensitive Conditions*. October 2001, Version 3.1 (March 12, 2007). Available at http://www.qualityindicators.ahrq.gov/Downloads/Modules/PQI/V31/pqi_guide_v31.pdf. Accessed 1/29/2013.

Evidence-Based Strategies and Preventive Services

Community Guide

There are several evidence-based recommendations from the *Community Guide* in the areas of Healthcare System and the Self-Management Education.

HEALTHCARE SYSTEM LEVEL INTERVENTIONS

- **CASE MANAGEMENT INTERVENTIONS TO IMPROVE GLYCEMIC CONTROL**
 - Involves planning, coordinating, and providing healthcare for those affected by diabetes,
 - Directed to people who are likely to have to use too much of their income to pay for related healthcare services, who are not receiving those services that give them the best chance to stay healthy, or who are receiving services that are not well coordinated with one another, and
 - Shown to improve provider monitoring of blood sugar levels when delivered in combination with disease management programs.

One study found that the greatest average blood sugar reduction occurred when case managers could make medication adjustments without physician approval. And using a multi-disciplinary team reduced HbA1c by 0.37% more than interventions without such a team.

*Source: The Journal of Family Practice
<http://www.ncbi.nlm.nih.gov/pubmed/16868301>*

▪ DISEASE MANAGEMENT PROGRAMS

- Organized, proactive, multi-component approach to healthcare delivery for people with diabetes,
- Focused on and integrated across the spectrum of the disease and its complications, the prevention of multiple chronic conditions, and the relevant aspects of the delivery system,
- Identifies all clients or patients affected by the disease and determines the most effective ways to treat the disease, and
- Shown to improve:
 - Glycemic control,
 - Provider monitoring of blood sugar levels, and
 - Screening for diabetes-related eye damage, lower extremity nerve damage, and vascular changes, protein in the urine, and monitoring of lipid concentrations.

SELF-MANAGEMENT EDUCATION

Diabetes self-management education (DSME) is the process of teaching people to manage their diabetes to control their rate of metabolism, to prevent short- and long-term disease complications, and to achieve the best possible quality of life. DSME interventions can be implemented in

- Community gathering places for adults with type 2 diabetes and
- Homes of children and adolescents who have type 1 diabetes.

OBESITY PREVENTION AND CONTROL

The *Community Guide* contains recommendations for several evidence-based interventions. Recommended interventions most closely linked to chronic disease prevention are listed in the following bullets.

- TECHNOLOGY-SUPPORTED, MULTI-COMPONENT COACHING OR COUNSELING INTERVENTIONS
 - May include computers, video conferencing, pedometers with computer interaction, computerized telephone system interventions,
 - Facilitates interactions between a coach or counselor and an individual or group,
 - Influences weight-related behaviors or weight-related outcomes, and
 - May include other components.

The American Diabetes Association, Stanford University, and the Centers for Disease Control and Prevention sponsor diabetes self-management programs (SMP) based on the research of Stanford University.

All are six-week community based programs with content that include healthy eating, physical activity, managing pain, use of medication, and communicating with healthcare providers.

An Oregon study of 4,000 participants served by SMP found that they avoided 557 emergency department visits, 557 hospitalizations, and 2,783 hospital days, saving more than \$6.5million in healthcare costs. The average cost to provide the 6-week program in Oregon is \$455, a minimal expense compared with the thousands of dollars it costs to treat a preventable severe medical event.

<http://www.ahrq.gov/about/casestudies/pcm/pcm2012g.htm>

- WORKSITE PROGRAMS

- One or more approaches to support behavioral change including informational/educational, behavioral/social, and policy and environmental strategies,
- Informational/educational strategies aimed to increase knowledge about a healthy diet and physical activity,
- Behavioral/social strategies for awareness, self-efficacy, and social factors that affect behavior changes, and
- Policy and environmental strategies aimed to make healthy choices easier and targeted to the entire workforce.

Visit the *Guide to Community Preventive Services* for more information:

- Diabetes. Available at <http://www.thecommunityguide.org/diabetes/index.html>. Accessed 1/28/2013.
- Obesity prevention and control. Available at <http://www.thecommunityguide.org/obesity/communitysettings.html>. Accessed 1/28/2013.

Clinical Preventive Services

SCREENING FOR TYPE 2 DIABETES MELLITUS

Screening is recommended for asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg.

SCREENING FOR AND MANAGEMENT OF OBESITY

Screening is recommended for all adults with intensive, multi-component behavioral interventions being offered or referred to those with a body mass index (BMI) of 30 or higher.

Visit the *Guide to Clinical Preventive Services* for more information:

- Diabetes screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspsdiab.htm>. Accessed 1/28/2013.
- Obesity screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspsobes.htm>. Accessed 1/28/2013.

Toolkits are timesaving aids that provide customizable solutions to help with program plans, implementation, and evaluation. The Healthier Worksite Initiative (HWI) for CDC's employees focuses on making a work site where "healthy choices are easy choices" and shares its lessons learned.



<http://www.cdc.gov/nccdphp/dnpao/hwi/toolkits/index.htm>

The toolkits cover the topics of general workforce health promotion, nutritious eating, physical activity, preventive health screenings, and healthy choices.

Resources

National Guideline Clearinghouse (NGC) - public resource for evidence-based clinical practice guidelines, <http://www.guideline.gov/>. Accessed 2/6/2013.

American Diabetes Association - resources for advocates, patients, healthcare providers, <http://www.diabetes.org/>. Accessed 2/6/2013.

Stanford Chronic Disease Self Management Program - resources for self-management, <http://patienteducation.stanford.edu/programs/cdsmp.html>. Accessed 1/29/2013.

Diabetes Training and Technical Assistance Center, Emory Centers for Training and Technical Assistance, technical assistance and training for organizations to develop highly effective diabetes prevention and control programs, <http://www.dttac.org/index.html>. Accessed 1/29/2013.

Success



Story

Promoting Diabetes Disease Management Programs

On November 2, 2012, the Harold Hamm Diabetes Center at the University of Oklahoma Health Sciences Center presented the Diabetes Update, a training event sponsored by the University of Oklahoma (OU) College of Medicine, OU College of Pharmacy, the Chickasaw Nation, and the OSDH. Over 200 health providers -physicians, nurse practitioners, physician assistants, registered nurses, licensed practical nurses, registered dietitians, behavioral health professionals, certified diabetes educators, certified medical aides, and medical assistants - participated in the training. Many of those who attended provide diabetes management and self-management education in communities throughout the state. The course combined best practice strategies and education through case studies and lectures. Contact the Diabetes Team, Chronic Disease Service, Oklahoma State Department of Health at 405-271-4072 for more information.

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CANCER

Introduction

Cancer is a term that includes more than 100 types of diseases in which abnormal cells divide out of control and can invade other tissues. Most cancers are named for the body organ or cell type in which the disease starts. Quitting smoking, eating a healthy diet, and exercising may help prevent some cancers. Additionally, some cancers can be detected before symptoms are experienced and perhaps at an early stage of development. Finding cancer at an early stage can improve the prognosis. The three cancers for which screening is widely recommended are breast, cervical, and colorectal. Skin cancer education is recommended as an evidence-based practice.

BREAST CANCER

Breast cancer forms in the tissues of the breast, milk ducts, and milk glands. Breast cancer can occur in both women and men; however, breast cancer in men is rare.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH BREAST CANCER INCLUDE:

- OBESITY AFTER MENOPAUSE
- ALCOHOL USE
- COMBINED HORMONE THERAPY AFTER MENOPAUSE
- FAMILY HISTORY
- HEREDITY
- RACE/ETHNICITY
White women are more likely to develop breast cancer, and African American women are more likely to die from it.
- ESTROGEN
Estrogen levels are influenced by early menstruation, late menopause, and/or late pregnancy.
- RADIATION THERAPY
- FEMALE GENDER
- INCREASING AGE

Source: National Cancer Institute, Breast Cancer Prevention, PDQ Patient Version. Available at <http://www.cancer.gov/cancertopics/pdq/prevention/breast/Patient/page3>. Accessed 1/29/2013.

American Cancer Society, Learn About Cancer. Available at <http://www.cancer.org/cancer/index>. Accessed 2/14/2013.

CERVICAL CANCER

Cervical cancer is a slow-growing cancer in women that may not have any symptoms.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH CERVICAL CANCER INCLUDE:

- HUMAN PAPILLOMAVIRUS (HPV) INFECTION
- SMOKING
- IN UTERO EXPOSURE TO DIETHYLSTILBESTROL (DES), A SYNTHETIC FORM OF ESTROGEN
- FAMILY HISTORY
- HEREDITY
- GENDER (FEMALES)

Source: National Cancer Institute, Cervical Cancer Prevention, PDQ Patient Version. Available at <http://www.cancer.gov/cancertopics/pdq/prevention/cervical/Patient>. Accessed 1/29/2013.

American Cancer Society, Learn About Cancer. Available at <http://www.cancer.org/cancer/index>. Accessed 2/14/2013.

COLORECTAL CANCER

Colorectal cancer occurs in both men and women. This form of cancer develops in the longest part of the large intestines and/or the last few inches of the large intestines.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH COLORECTAL CANCER INCLUDE:

- SMOKING
- OBESITY
- ALCOHOL USE
- INFLAMMATORY BOWEL DISEASE
- FAMILY HISTORY
- HEREDITY
- AGE (OVER 50)

Source: National Cancer Institute, Colorectal Cancer Prevention, PDQ Patient Version. Available at <http://www.cancer.gov/cancertopics/pdq/prevention/colorectal/Patient/page3>. Accessed 1/29/2013.

American Cancer Society, Learn About Cancer. Available at <http://www.cancer.org/cancer/index>. Accessed 2/14/2013.

SKIN CANCER

Skin cancer is the most common type of cancer. Basal and squamous cell are the most common types, while melanoma is a less common but more invasive cancer. Skin cancers share similar risk factors.

INDIVIDUAL RISK FACTORS ASSOCIATED WITH MOST COMMON TYPES OF SKIN CANCER INCLUDE:

- EXPOSURE OVER TIME TO NATURAL SUNLIGHT OR TANNING BEDS
- HISTORY OF MANY BLISTERING SUNBURNS, ESPECIALLY AS A CHILD OR TEENAGER
- FAIR COMPLEXION
Characteristics of a fair complexion include: fair skin that freckles and burns easily, does not tan, or tans poorly; blue or green or other light-colored eyes; and/or red or blond hair.
- SEVERAL LARGE OR MANY SMALL MOLES
- PAST TREATMENT WITH RADIATION
- FAMILY HISTORY
- GENDER

Source: National Cancer Institute, Skin Cancer Prevention, PDQ Patient Version. Available at <http://www.cancer.gov/cancertopics/pdq/prevention/skin/Patient/page3#Keypoint10>. Accessed 2/14/2013.

American Cancer Society, Learn About Cancer. Available at <http://www.cancer.org/cancer/index>. Accessed 2/14/2013.

Communities can help prevent cancer by being involved with community groups that help friends and neighbors get screened. Giving information to community members through newsletters, brochures, and pamphlets is an effective way to increase use of screening services. Communities can also help their members reduce their cancer risk by helping them exercise, maintain a healthy weight, and be tobacco-free.

Source: Centers for Disease Control and Prevention, Breast Cancer Prevention. Available at http://www.cdc.gov/cancer/breast/basic_info/prevention.htm. Accessed 1/29/2013.

The AHRQ February 13, 2013, issue of the Health Care Innovations Exchange describes three programs that used innovative strategies to increase colorectal, cervical, and skin cancer screening rates among specific target populations. Featured is a toolkit to help healthcare professionals improve cancer screening rates in their practice and resources for healthcare consumers and communities to promote screening. Visit <http://www.innovations.ahrq.gov> for more information.

Evidence-Based Strategies and Preventive Services

Community Guide

There are several evidence-based recommendations from the Community Guide for healthcare systems and communities.

SCREENING EDUCATION

■ GROUP EDUCATION FOR BREAST CANCER SCREENING

- Conveys information on indications for, benefits of, and ways to overcome barriers to screening,
- Informs, encourages, and motivates participants to seek recommended screening,
- Is conducted by health professionals or by trained laypeople who use presentations or other teaching aids in a lecture or interactive format,
- Often incorporates role modeling or other methods, and
- Is presented to a variety of groups, in different settings, and by different types of educators with different backgrounds and styles.

■ ONE-ON-ONE EDUCATION FOR BREAST, CERVICAL, AND COLORECTAL CANCER SCREENING

- Delivers information to individuals about indications for, benefits of, and ways to overcome barriers to cancer screening,
- Informs, encourages, and motivates them to seek recommended screening,
- Uses messages delivered by healthcare workers or other health professionals, lay health advisors, or volunteers,
- Is conducted by telephone or in person in medical, community, worksite, or household settings, and
- Often uses small media (e.g., brochures) and/or client reminders along with one-on-one education.

The National Cancer Institute hosts a searchable database of research-tested intervention programs (RTIPs) that directly link to the recommendations in the Community Guide. Only experimental or quasi-experimental design interventions that produced one or more significant positive outcomes, and had their outcome findings published in a peer-reviewed journal are included in RTIPs.

<http://rtips.cancer.gov/rtips/index.do>

Implementation guides, program manuals, kits, materials, etc. are available for the RTIPs.

REMOVING BARRIERS TO CARE

■ CLIENT REMINDERS FOR BREAST, CERVICAL, AND COLORECTAL CANCER SCREENING

- Written (letter, postcard, email) or telephone messages (including automated messages) advising people they are due for screening.
- May be enhanced by follow-up printed or telephone reminders; additional text or discussion with information about indications for, benefits of, and ways to overcome barriers to screening, and/or assistance in scheduling appointments.

■ REDUCING STRUCTURAL BARRIERS FOR BREAST AND COLORECTAL CANCER SCREENING

- Facilitates access by reducing time or distance for service delivery,
- Modifies hours of service,
- Offers services via mobile mammography vans at worksites or in residential communities,
- Simplifies or eliminates administrative procedures and other obstacles, and
- Often includes supporting measures, such as printed or telephone reminders, education about cancer screening, information about screening availability (e.g., group education, pamphlets, or brochures), and measures to reduce out-of-pocket costs.

- REDUCING OUT-OF-POCKET COSTS FOR BREAST CANCER SCREENING
 - Reduces costs through a variety of approaches, including vouchers, reimbursements, reduction in co-pays, or adjustments in federal or state insurance coverage.
 - Efforts to reduce client costs may be combined with measures to provide client education, information about program availability, or measures to reduce structural barriers.

PROVIDER ORIENTED INTERVENTIONS

- PROVIDER ASSESSMENT AND FEEDBACK FOR BREAST CANCER SCREENING
 - Evaluates provider performance in delivering or offering screening to clients (assessment) and presents providers with information about their performance in providing screening services (feedback).
 - Feedback may describe the performance of a group of providers (e.g., mean performance for a practice) or an individual provider, and may be compared with a goal or standard.

- PROVIDER REMINDER AND RECALL SYSTEMS FOR BREAST CANCER SCREENING
 - Informs healthcare providers when it is time for a client’s cancer screening test (called a “reminder”) or that the client is overdue for screening (called a “recall”).
 - Provided in different ways, such as in client charts or by e-mail.

SKIN CANCER PREVENTION EDUCATION

- EDUCATION IN PRIMARY SCHOOL SETTINGS FOR SKIN CANCER PREVENTION
 - Increases sun-protective knowledge, attitudes, and intentions, and affects behavior among children from kindergarten through eighth grade, and
 - Focuses on some combination of increasing application of sunscreen, scheduling activities to avoid peak sun hours, increasing availability of shade and encouraging children to play in shady areas, and encouraging children to wear sun-protective clothing.

- EDUCATION IN OUTDOOR RECREATION OR TOURISM SETTING FOR SKIN CANCER PREVENTION
 - Increases sun-protective knowledge, attitudes, and intentions, and affects behaviors among adults and children, and

Ultraviolet (UV) rays are present in sunlight and light from various artificial sources. Overexposure to UV rays can lead to skin cancer, one of the most common cancers in Oklahoma.



The SunWise Program is an environmental and health education program that aims to teach children and their caregivers how to protect themselves from overexposure to the sun. With classroom, school, and community components, SunWise seeks to develop sun-safe behaviors. Curriculum and toolkit are available at <http://www.epa.gov/sunwise>.

Shade Planning for Schools helps schools maintain a physical environment that supports sun safety by ensuring that school grounds have adequate shade. Source: <http://cdc.gov/cancer/skin>

- Includes educational brochures (e.g., culturally relevant materials, photographs of skin cancer lesions); sun-safety training for, and role modeling by lifeguards, aquatic instructors, and recreation staff; sun-safety lessons, interactive activities, and incentives for parents and children; increasing available shaded areas; provision of sunscreen; and point-of-purchase prompts.

COMMUNITY-WIDE SKIN CANCER PREVENTION

- MULTI-COMPONENT COMMUNITY-WIDE INTERACTIONS FOR SKIN CANCER PREVENTION
 - Uses combinations of individual-directed strategies, mass media campaigns, and environmental and policy changes across multiple settings within a defined geographic, in an integrated effort to influence UV-protective behaviors and delivers with a defined theme, name, logo, and set of messages.

TOBACCO USE CESSATION

Another evidence-based strategy is tobacco use cessation - see the COPD, *Community Guide* section for more information.

OBESITY PREVENTION AND CONTROL

Another evidence-based strategy involves interventions in community settings - see the Diabetes, *Community Guide* section for more information.

PREVENTING EXCESSIVE ALCOHOL CONSUMPTION

See the Cardiovascular Disease, *Community Guide* section for more information on evidence-based strategies to reduce alcohol consumption.

Visit the *Guide to Community Preventive Services* for more information:

- Cancer prevention. Available at <http://www.thecommunityguide.org/cancer/index.html>. Accessed 1/29/2013.
- Tobacco cessation. Available at <http://www.thecommunityguide.org/tobacco/cessation/index.html>. Accessed 1/29/2013.
- Obesity prevention. Available at <http://www.thecommunityguide.org/obesity/communitysettings.html>. Accessed 1/29/2013.
- Alcohol prevention. Available at <http://www.thecommunityguide.org/alcohol/index.html>. Accessed 1/29/2013.

Clinical Preventive Services

There are several recommended screening and risk assessment topics related to certain cancers in the *Guide to Clinical Preventive Services*.

- BREAST CANCER SCREENING
 - Screening mammography for women aged 40 and older every 1-2 years and for women aged 50 to 74 years, every 2 years.
- CERVICAL CANCER SCREENING
 - Screening every 3 years for women, who have a cervix, aged 21-65 years or women aged 30-65 years who want to lengthen the screening interval to every 5 years with the addition of human papillomavirus (HPV) testing.
- COLORECTAL CANCER SCREENING
 - Fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy for adults beginning at age 50 and continuing until age 75. The risks and benefits of these screening methods vary.
- BREAST AND OVARIAN CANCER RISK ASSESSMENT
 - Women whose family history is associated with an increased risk for changes in BRCA 1 or BRCA 2 genes referred for genetic counseling and evaluation for BRCA testing.
 - Clinicians discuss chemoprevention with women at high risk for breast cancer and at low risk for adverse effects of chemoprevention. Clinicians should inform patients of the potential benefits and harms of chemoprevention.

Visit the *Guide to Clinical Preventive Services* for more information:

- Breast cancer screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspbrca.htm>. Accessed 1/29/2013.
- Cervical cancer screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm>. Accessed 1/29/2013.
- Colorectal cancer screening. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspcolo.htm> . Accessed 1/29/2013.
- Genetic risk assessment and BRCA mutation testing. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspbrgen.htm>. Accessed 1/29/2013.
- Chemoprevention of breast cancer. Available at <http://www.uspreventiveservicestaskforce.org/uspstf/uspbrpv.htm>. Accessed 1/29/2013.

Resources

National Guideline Clearinghouse (NGC) -public resource for evidence-based clinical practice guidelines. Available at <http://www.guideline.gov/>. Accessed 2/6/2013.



Education in Outdoor Recreation/Tourism Setting for Skin Cancer Prevention

The Oklahoma City Zoo held a “Don’t Fry Day,” the Friday before Memorial Day in 2012. Zoo staff and volunteers assisted 4,151 visitors with event activity stations. Parents and children enjoyed hands-on activity that included:

- Using visual aids, handouts, and educational materials from “Don’t Fry Day” and the *SunWise* curriculum,
- Making UV bead bracelets,
- Identifying sun protection gear (hat, sunglasses, sunscreen, long sleeve shirt, umbrella, etc.)
- Applying personal sunscreen towelettes, and
- Interacting with animal artifacts and posters of *SunWise* animals – e.g., elephant, cheetah, tortoise, warthog, giraffe and touching faux hippo slime, simulated in color and texture of a hippo’s sun protecting secretion.

The Education Department at the Zoo incorporated the materials and activities into the Zoo’s 35 summer camps that reached 700 campers.

The 750 Zoo staff and volunteers who attended a presentation that incorporated humor and animals during the July Zoo-wide town hall meeting improved their basic awareness of sun safety. Special focus was given to using melanoma mole maps and FDA changes to sunscreen labels. The next step in the initiative was to provide easy access to sunscreen. Throughout the 103-acre Zoo campus, 22 sunscreen dispensers were placed in various behind-the-scenes keeper areas. Sunscreen for visitors is sold in the Zoo’s gift shops.

Following the training, a Graphics Technician for the OKC Zoo stated, “Just wanted to say thanks! I learned some new things today. It got our crew talking, even discussing the need to see a doctor. I love the partnership with the Health Department and the idea of the sunscreen dispensers.... How cool is that?”

Plans include the Zoo applying for a grant to build a permanent shade structure for their new ADA-accessible children’s playground. Jointly the Zoo and Oklahoma Comprehensive Cancer Control Program [Chronic Disease Service, OSDH] are preparing a follow-up employee evaluation, adding signage to the park regarding sun safety, including how animals take solace from the UV rays, and working with a local dermatologist to provide skin screenings at a future employee meeting.

For more information, contact the Cancer Team, Chronic Disease Service, Oklahoma State Department of Health at 405-271-4072 for more information.



Reducing Out-of-Pocket Costs for Breast Cancer Screening and Increasing Cervical Cancer Screening

In 2012, 65 healthcare providers in 28 counties collaborated with the Take Charge! Program to provide clinical breast exams, mammograms, Pap tests, and pelvic examinations for low-resource women. The general program guidelines are:

- Women 50-65 years of age,
- Income at or below 185% of current federal poverty guidelines,
- Underinsured or uninsured, and
- Resident of Oklahoma.

Diagnostic testing is provided if screening results are abnormal. When a woman needs treatment, a bilingual patient navigator assists with Medicaid enrollment to receive appropriate treatment for the cancer.

During the last year, 5,009 Oklahoma women received screening services through the Take Charge! partnerships. Among those women, 15 were diagnosed with breast cancer and 145 diagnosed with cervical dysplasia and invasive cervical cancer.

Through a combination of state and federal funds, the services are provided through a contractual agreement in a variety of settings that includes federally qualified health centers and private physicians' offices. If you are interested in more information about Take Charge!, please call the Chronic Disease Service at the Oklahoma State Department of Health at 405-271-4072 for more information.

This publication was issued by the Oklahoma State Department of Health, as authorized by Terry L. Cline, Ph.D., Commissioner of Health. 250 copies were printed in April 2013 at a cost of \$1,707.50. Copies have been deposited with the Publications Clearinghouse of the Oklahoma Department of Libraries. Funding provided by the Coordinated Chronic Disease Prevention and Health Promotion Cooperative Agreement with the Centers for Disease Control and Prevention. Contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.