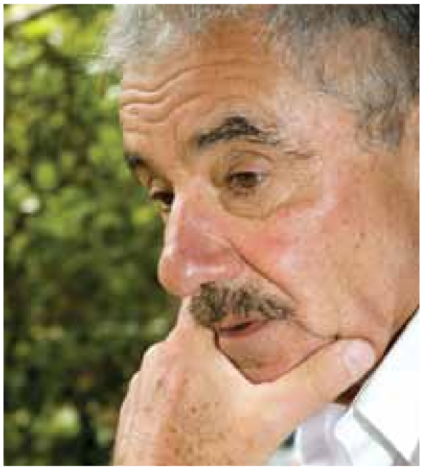
2015–2020

ARKANSAS CANCER PLAN

Cancer is Personal

GOALS, OBJECTIVES AND MEASURES



Arkansas Cancer Coalition
www.arcancercoalition.org

STATE OF ARKANSAS
ASA HUTCHINSON
GOVERNOR

Dear Arkansans:

Cancer is the second leading cause of death in Arkansas. The effect of this deadly disease is personal, but also has a profound impact on families, friends, and communities.

Newly revised for 2015-2020, the Arkansas Cancer Plan is an invaluable resource to guide our state in fighting cancer. The plan provides strategies to increase the detection, prevention and treatment of cancer, and identifies actions that can be taken at the state and local levels. The Arkansas Cancer Plan includes direction on how individual citizens, and the government, private, and non-profit sectors can coordinate their efforts to reduce the impact of cancer.

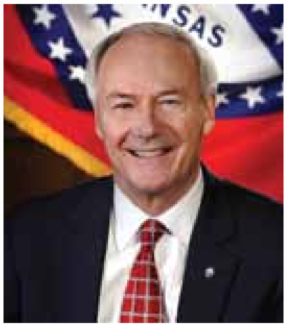
My hope is that you will find and utilize the evidence-based practices supporting the importance of comprehensive cancer control in Arkansas.

Here are a few ways you can join other Arkansans in the fight against cancer:

- Become a member of the Arkansas Cancer Coalition (ACC)
- Participate in ACC cancer work groups
- Share your stories and expertise with other coalition members
- Advocate for resources and encourage partnerships in the fight against cancer

As Governor, I applaud the efforts of the Arkansas Department of Health and the ACC. The process of revising this document demonstrates the effectiveness of partnering together in the fight against cancer. I am grateful for their efforts to ensure a better quality of life for all Arkansans.

Let us continue the fight by reducing the human suffering and economic burden from cancer for the citizens of Arkansas.



Sincerely,

Asa Hutchinson

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Arkansas Cancer Coalition
www.arcancercoalition.org

Introduction

PURPOSE

The purpose of the Arkansas Cancer Plan (ACP) is to serve as an outline for what can and should be done at the state and local levels for cancer prevention, detection, and care efforts in Arkansas. It identifies activities for coordinated action by government, the private sector, the nonprofit sector, and Arkansas's citizens and communities. This plan is a living document; and will serve as a guide for individuals and organizations in the fight against cancer.

Recognizing the need to dramatically impact the cancer burden in our state, the Arkansas Cancer Coalition (ACC), Arkansas's statewide comprehensive cancer control partnership, has updated the ACP.

WHO SHOULD USE THIS PLAN? ALL ARKANSANS!

- Business owners and employers
- Cancer survivors
- Caregivers
- Community-based organizations
- Consumers
- Corporations
- Educators
- Faith-based organizations
- Fraternities
- Government agencies
- Health-care organizations
- Media
- Minority and underserved populations
- Payers and insurance providers
- Physicians and health-care providers
- Professional organizations
- Public health departments
- Public policy advocates
- Sororities
- Universities and researchers

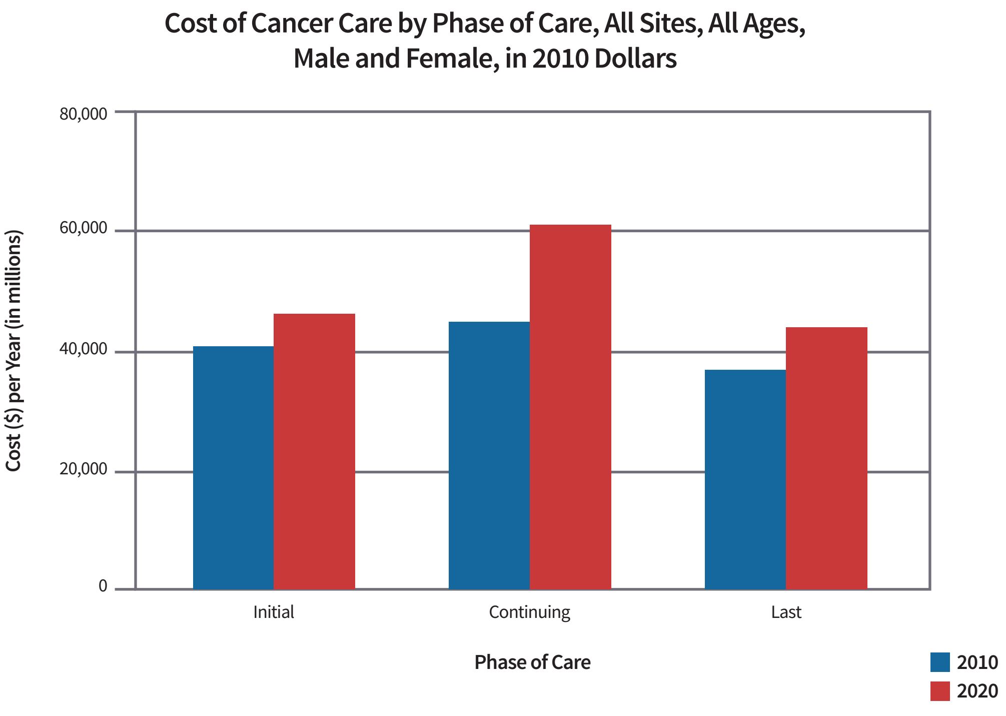
If you are not sure where to start, become a member of the ACC by visiting us online at www.arcancercoalition.org. Also, please turn to the index section on page 147 for examples of actions Arkansans can take to work toward the goals outlined in this plan.

THE BURDEN OF CANCER

Cancer is the second leading cause of death in our state, and if current trends continue, cancer may become the leading cause of death within the next decade, surpassing the current number one cause –cardiovascular disease. According to the American Cancer Society, one in four deaths is attributed to cancer. In 2015, an alarming 1,658,370 new cancer cases are estimated to be diagnosed, and 589,430 people are estimated to die due to cancer in the United States *(Cancer Facts & Figures 2015)*. Approximately 14,879 Arkansans were diagnosed with cancer, and 5,372 died of cancer in Arkansas in 2013 *(Arkansas Central Cancer Registry, n.d.)*.

THE COST OF CANCER

Besides the toll in human suffering from cancer, there are huge economic costs that result from the direct and indirect costs of the disease. Direct costs of cancer include medical costs associated with services that patients receive, including hospitalizations, surgery, physician visits, and radiation and chemotherapies. The National Institutes of Health (NIH) estimates that the overall cost of cancer in 2009 was $216.6 billion: $86.6 billion for direct medical costs (total of all health expenditures) and $130 billion for indirect mortality costs (cost of lost productivity due to premature death) *(Yabroff, Lund, Kepka, & Marioto, 2011)*.



PRIORITY CANCERS

The new ACP reflects emerging needs, new issues in cancer prevention, detection, and care, and an enhanced understanding of the process—an understanding that has been gained from years of experience working with stakeholder organizations in the state. In 2012, ACC members decided to focus efforts on seven priority cancers for this cancer plan:

- Breast
- Cervical
- Colorectal
- Lung
- Skin
- Oral
- Prostate

The coalition has added two emerging cancer focus areas:

- Bone metastasis
- Cancer genomics

After many months of discussion, review of the science, and reflection on past successes, it remains clear that the burden of cancer in Arkansas can be dramatically reduced if evidence-based practices in prevention, early detection, and care are made available to all Arkansans. Thus, the goal of the ACP is to coordinate and advance specific, proven cancer control strategies across the state by putting into practice goals and objectives in the following areas:

- Cancer disparities
- Evaluation
- Palliative care
- Prevention
- Professional education
- Screening and detection
- Survivorship
- Surveillance and reporting
- Treatment

References

American Cancer Society. (2015). *Cancer facts & figures 2015*. Retrieved from http://www.cancer.org/acs/groups/content/@editorial/documents/document/acspc-044552.pdf

Arkansas Department of Health. (n.d.). *The Arkansas central cancer registry.* Retrieved from http://cancer-rates.info/ar/

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ACC’s Role: Convening the Cancer Plan

ACC’s mission is to facilitate and provide partnerships to reduce the human suffering and economic burden from cancer for the citizens of Arkansas.

The Coalition works to:

- Provide an overview of the current status of cancer control in Arkansas
- Strengthen and sustain the cancer-control partnership and support network
- Provide and maintain a plan of goals and strategies through the ACP

ACC GOALS AND OBJECTIVES

Goal 1: Develop and maintain active partnerships.

Objective 1:1 From July 1, 2015 to June 30, 2020, maintain organizational infrastructure that complies with ACC policies and procedures and supports implementation of the ACP.

Goal 2: Enhance health-care professionals’ knowledge, skills, and practices regarding cancer prevention and early detection.

Objective 2:1 From July 1, 2015 to June 30, 2020, Increase educational and screening opportunities to improve healthcare professionals ability to prevent and detect cancer and navigate patients to treatment from 3 to 5.

Goal 3: Fully implement cancer surveillance in Arkansas.

Objective 3:1 From July 1, 2015 to June 30, 2020, develop and maintain a database to track and house cancer-control data from ACC grantees, work groups, and partners.

Goal 4: Ensure implementation of the Arkansas Cancer Plan.

Objective 4:1 From July 1, 2015 to June 30, 2020, provide technical assistance and funding to support the implementation of the ACP.

Additional Focus Areas

The ACC has two additional areas of focus to combat the burden of cancer in Arkansas:
- Health literacy
- Access to affordable health care

The ACC and the Partnership for Health Literacy in Arkansas (PHLA) worked together to ensure the third edition of the Arkansas Cancer Plan is user friendly and is written on a level suitable for all Arkansans. Based on focus group recommendations from our coalition members, ACC partnered with the UAMS Center for Health Literacy to have the ACP assessed and edited for readability and formatting, based on plain language guidelines. As a result, the ACP is now written at a high school level and is formatted by cancer chapters, with each chapter addressing specific issues in the cancer control continuum such as palliative care, prevention, treatment, and others.

Health Literacy

The PHLA was organized in July 2009 when a group of approximately 50 people interested in promoting health literacy in Arkansas gathered at the University of Arkansas Cooperative Extension offices to discuss the issues around low health literacy and plan next steps. The meeting was sponsored by the Arkansas Department of Health, Arkansas Children's Hospital, Arkansas Literacy Councils, and Cooperative Extension Services. PHLA formally became a section in the Arkansas Public Health Association (APHA) in May 2010 at the APHA annual meeting. This arrangement allows PHLA to have a fiduciary infrastructure and an affordable annual meeting venue.

The mission of PHLA is to improve health literacy among Arkansans by developing strategies and promoting collaboration to:
- Provide professional education and improve the health literacy of health-care organizations and systems;
- Provide education for the public through the adult education community and other networks serving Arkansans at risk for low health literacy;
- Increase awareness and use of evidence-based practices; and
- Increase capacity for conducting health literacy research in Arkansas.

Access to Affordable Health Care

THE HIGH COST OF TREATING CANCER

The cost of diagnosing and treating cancer is devastating. Direct expenses facing patients and families include time spent in the hospital, clinic visits, medicine, tests and procedures, home health services, and the services of doctors and other professionals. Families also face many other indirect expenses that go along with receiving treatment, including travel for treatment appointments, lodging during treatment, meals, extra child care costs, communication, special foods and nutritional supplements, and special equipment and clothing. Patients and family members may also lose time at work and part or all of their salary.

The ACC works to ensure that all Arkansans have access to affordable health care, with major focus on access to treatment and screenings for those that enter into cancer care.

THE AFFORDABLE CARE ACT

The Patient Protection and Affordable Care Act (PPACA)—also known as the Affordable Care Act or ACA—is the landmark health reform legislation passed by the 111th Congress and signed into law by President Barack Obama in March 2010. The legislation includes a long list of health-related provisions that began taking effect in 2010 and will continue to be rolled out for several years. Key provisions are intended to extend health insurance coverage to millions of uninsured Americans in order to implement measures that will lower health-care costs and improve system efficiency, and to eliminate health-care industry practices that include rescission and denial of coverage due to pre-existing conditions. According to the American Cancer Society, these are the top six ways the Affordable Care Act is helping cancer patients:

1. **More cancer survivors can now get care:** High-risk pools have been established in every state to provide coverage for the uninsured. The program launched on October 1, 2013 and is providing immediate access to coverage for people in every state who have been uninsured for six months or more and have cancer or another pre-existing condition.
2. **No more "doughnut holes:"** The Affordable Care Act is finally closing the Medicare Part D "doughnut hole". Immediately after enactment, the law provided a $250 rebate to seniors who hit the coverage gap in Medicare's prescription drug program. In addition, Medicare beneficiaries will receive discounts on brand-name drugs and the coverage gap will be closed completely by 2020.

3. **"The kids are all right:"** This mantra from the old song by The Who can be applied here. Health plans are prohibited from denying coverage to children up to age 19 with pre-existing conditions such as cancer. So if you have a child who is a survivor you will no longer have to worry about their insurance if you change jobs.
4. **The well won't run dry:** Health plans are banned from setting lifetime dollar limits on coverage, ensuring that people with cancer have access to needed care throughout their lifetimes. Annual dollar limits on coverage are tightly restricted for most plans and will be eliminated altogether in 2014. Patients no longer have to put off treatments waiting for the new plan year to start.
5. **In sickness and in health:** Just like marriage, your health plan now takes a vow to you when they take your business. Under the Affordable Care Act, health insurers are barred from dropping people from coverage when they get sick. In other words, you can't lose your insurance for developing cancer.
6. **Prevention, prevention, prevention:** Coverage is guaranteed and out-of-pocket costs have been eliminated in new insurance plans for proven preventive services, giving people access to lifesaving screenings for breast, cervical, and colorectal cancer *(Six Ways the Affordable Care Act is Helping Cancer Patients, n.d.).*

PASSAGE OF THE ARKANSAS HEALTH CARE INDEPENDENCE ACT OF 2013

On April 23, 2013, Governor Mike Beebe signed the Arkansas Health Care Independence Act (HCIP) into law. Act 1496 of 2013 allows for the Department of Human Services to pay for health insurance premiums for individuals who would otherwise qualify for Medicaid, adults ages 19–65 years old with an income of 138% or less of the Federal Poverty Level (FPL), with a current annual income of $15,414 for a single individual or $30,809 for a family of four. The funding to pay for the premiums will come from federal Medicaid funding, and by 2020 the State of Arkansas is expected to pay the maximum of 10%. A provision is written into Act 1496 that, should federal funding provisions change, the state can terminate the program within 120 days. Act 1496 also stipulates that at least two Qualified Health Plans (QHPs) be available in each county of the state.

CREATION OF A HEALTH INSURANCE MARKETPLACE

A key provision of the HCIP is the Health Insurance Marketplace (HIM), which was established to provide a mechanism for easy comparison of competing providers, each offering different qualified plans, and selection of a plan that best meets a consumer's needs.

All qualified plans must meet standards established and enforced by the HIM. Arkansas is among a handful of states that opted for a partnership marketplace. The state website is called Arkansas Health Connector, and it provides key dates for enrolling, frequently asked questions, and other information to help people understand their options for purchasing health insurance. State residents use the federal marketplace, HealthCare.gov, to compare plans, see if they qualify for subsidies, and purchase coverage. Each plan offered through the HIM is approved by the Arkansas Insurance Department (AID). By law, every plan must cover services included in the 10 Essential Health Benefits (EHBs):

There are 10 categories of EHBs.

1. Emergency services (emergency room visits)
2. Hospitalization
3. Laboratory services
4. Maternity and newborn care
5. Mental health and substance use services
6. Outpatient services
7. Pediatric services, including dental and vision care
8. Prescription drugs
9. Rehabilitative and habilitative services
10. Preventive and wellness services and chronic disease management

HELP FOR PEOPLE WITH CANCER

Even though America has some of the best health care in the world, for many years that care has gone to fewer and fewer people who can afford it. According to the AID, 572,000 Arkansans do not have health insurance. Prior to the ACA, cancer patients and survivors could be denied coverage because of pre-existing conditions. They often had to pay more than they could afford for care or learn that their health insurance did not cover the cost of screenings, treatments, or follow-up care. People with cancer were often afraid of losing health coverage if they lost their job, of having their coverage canceled if they got sick, or of limits on the amount of care their health plan would cover.

Under the ACA, people with cancer can no longer:

- Be denied coverage due to pre-existing conditions
- Be charged more for their coverage because of health status
- Be faced with annual or lifetime coverage limits that cause a sudden termination of care
- Have to choose between saving their life or their life savings because they lack access to affordable coverage

The ACA provides more quality care and makes health care more affordable, more easily available, and easier to understand by:

Providing More Coverage

The law provides more coverage that cancer patients, survivors, and their families can receive by:

- Requiring all health plans sold in new health insurance marketplaces to cover essential benefits that include cancer screenings, treatment, and follow-up care
- Making proven cancer screenings, such as mammograms and colonoscopies, and other preventive care available at no cost to people in new plans, in Medicare, or who are newly eligible for Medicaid
- Making sure that Medicare covers a yearly checkup to discuss disease preventions and ways to stay healthy
- Training health-care professionals to treat pain and other symptoms to help improve patients' quality of life
- Closing the hole in Medicare Part D that forced seniors to pay high costs for prescription drugs
- Making coverage available for patients who participate in clinical trials

Making Health Insurance Easier to Understand

The law makes health insurance easier to understand for many people by:

- Making more information available. Insurance companies are required to give consumers more information than before about their plans.
- Grouping health plans based on level of coverage. Plans offered in the health insurance marketplaces are labeled as platinum, gold, silver, or bronze based on the level of coverage they offer.
- Setting standard rules. These rules simplify the way consumers verify their eligibility, check claims status, and make payments.
- Giving patients new rights to appeal claims that are denied by their insurer *(Arkansas Health Connector, n.d.).*

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American Cancer Society. (n.d.). *Six ways the Affordable Care Act is helping cancer patients.* Retrieved from http://www.cancer.org/myacs/eastern/areahighlights/affordable-care-act-six-ways

Arkansas Insurance Department (Regulatory Health Link Division). (n.d.) *Arkansas health connector.*

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Arkansas Partnership for Health Literacy. (n.d.). *About PHLA.* Retrieved from http://phla.net/health-literacy/

Cancer Facts and Figures

ARKANSAS CENTRAL CANCER REGISTRY

The Arkansas Central Cancer Registry (ACCR) is a population-based registry whose goal is to collect timely and complete data on all cancer cases diagnosed in the state.

The registry is located within the Center for Public Health Practice of the Arkansas Department of Health and is responsible for maintaining a statewide cancer incidence reporting system; monitoring data accuracy, reliability, and completeness through systematic quality assurance procedures; analyzing cancer incidence and mortality data; disseminating cancer information; and facilitating studies related to cancer prevention and control.

Cancer registry data are used to identify populations at increased risk of cancer, investigate public concerns of suspected excesses of cancer due to environmental or other factors, and monitor trends in cancer incidence and mortality so that appropriate and timely interventions are undertaken.

A strong collaborative relationship exists between the ACCR and Arkansas's cancer control community. ACCR helped staff ACC work groups and provided data for the ACP, including the tables below. ACCR was also instrumental in ensuring that ACP objectives are written in S.M.A.R.T format—Smart, Measurable, Achievable, Realistic, and Timely—and that baselines and projections for data are available where possible.

Cancer Incidence, Arkansas 2012 (All Races, All Ages)		
Cancer Site	**Number of Cases**	**Rate per 100,000 population**
Lung and Bronchus	2,674	75.3
Colorectal	1,444	42.2
Breast, Female	2,386	133.5
Prostate	1,947	115.5
Oral Cavity and Pharynx	418	12.1
Melanoma of the Skin	1,130	33.8
Cervix Uteri	137	9.2

Source: The Arkansas Central Cancer Registry. Arkansas Department of Health.

Cancer Mortality, Arkansas 2013 Provisional Data (All Races, All Ages)		
Cancer Site	**Number of Deaths**	**Rate per 100,000 population**
Lung and Bronchus	1,731	48.3
Colorectal	512	14.5
Breast, Female	331	17.8
Prostate	226	16.1
Oral Cavity and Pharynx	92	2.7
Melanoma of the Skin	68	2.0
Cervix Uteri	46	2.8

Source: The Arkansas Central Cancer Registry. Arkansas Department of Health.

Reference

Arkansas Department of Health. (n.d.). *The Arkansas central cancer registry*. Retrieved from http://cancer-rates.info/ar/

Focus on Policy, Systems, and Environmental Change

The ACP includes strategies and interventions that are intended to encourage public health efforts in Arkansas to move toward a focus on policy, systems, and environmental (PSE) changes that will provide a foundation for population-wide change. Long-lasting and sustainable change in tobacco use, physical activity, and nutrition requires systems changes driven by new and improved policies.

PSE changes make it easier for individuals to adopt healthier choices than to choose unhealthy options as follows:

1. Policy interventions may be laws, resolutions, mandates, regulations, or rules.
   Example: The Clean Indoor Air Act, enacted in 2006, helps to protect individuals from secondhand smoke in the workplace and public places (except restaurants and bars that have applied for exemptions and that cater to patrons age 21 and over).

2. Systems interventions are changes that impact all elements of an organization, institution, or system. They may include a policy or environmental change strategy.
   Example: In counties where the Supplemental Nutrition Program for Women, Infants, and Children (WIC) Farmers' Market Nutrition Program (FMNP) is available, WIC program participants can get coupons for free, fresh, locally grown produce at approved farmers' markets.

3. Environmental interventions involve physical or material changes to the economic, social, or physical environment.
   Example: Growing Healthy Communities (GHC) is an initiative of the Arkansas Coalition for Obesity Prevention (ArCOP). Since 2009, ArCOP has been helping Arkansas communities build capacity to reduce obesity by increasing access to physical activity and healthy foods as well as implementing environmental and policy changes that support healthy living. This initiative has provided the following:
   - Bike routes
   - Community gardens
   - Land use plans
   - Sidewalks

Reducing Cancer Incidence through Prevention

GOAL

Reduce the number of new cancer cases, as well as the illness, disability, and death caused by cancer in Arkansas.

BACKGROUND

Healthy People 2020 is a national program to provide science-based, 10-year objectives for improving the health of all Americans. In Arkansas, the Coordinating Council of the Arkansas Chronic Disease Forum, the Chronic Disease programs of the Arkansas Department of Health, and their coalitions and partners developed a set of Arkansas-specific Healthy People 2020 (ARHP2020) objectives related to chronic disease prevention and control *(Healthy People 2020, 2013)*.

The goal of this process was to develop a set of objectives with Arkansas baseline data and target goals to be used to track progress towards HP2020 objectives in Arkansas. Using Arkansas-specific data, rather than the national target goals, allowed the ARHP2020 developers to set and pursue reasonable and achievable goals for the state.

According to the National Cancer Institute (NCI), cancer can be caused by a variety of factors, many of which are modifiable by adopting a healthy life-style, limiting exposure to potential carcinogens, and medical interventions to arrest cancer development. Risk factors causally associated with cancer include cigarette smoking and tobacco use, infections, radiation, and immunosuppression. Other factors have a less certain causal link to cancer but are associated with increased cancer risk; they include alcohol consumption, physical inactivity, and obesity *(Cancer Prevention Overview [PDQ®]: Risk Factors, 2014)*.

Other chapters in this plan discuss recommended screening and prevention strategies for specific cancer types. For instance, objectives and strategies for addressing tobacco use can be found in the chapter on lung cancer. This chapter addresses cancer risk factors that are modifiable through life-style choices and that are broadly associated with reduction of cancer risk. They are body weight, food choices, physical activity, and alcohol consumption. It concludes with information about healthy living objectives and strategies based on Healthy People 2020 (HP2020) recommendations.

Maintaining a Healthy Weight

The National Cancer Institute defines obesity as the condition of having a proportion of body fat that is considered abnormally high and unhealthy. According to the U.S. Centers for Disease Control and Prevention (CDC), obesity is associated with increased risk for chronic disease, not only cancer but also diabetes, stroke, coronary heart disease, and high blood pressure *(Obesity: Halting the Epidemic by Making Health Easier, 2011)*. The National Cancer Institute (NCI) found that being obese is associated with increased risk for cancer of the esophagus, breast, colon and rectum, kidney, pancreas, thyroid, and gallbladder, and possibly other types of cancer *(Obesity and Cancer Risk, 2012)*.

A study using NCI Surveillance, Epidemiology, and End Results (SEER) data estimated that in 2007, in the United States, about 34,000 new cases of cancer in men (4%) and 50,500 in women (7%) were due to obesity *(Obesity and Cancer Risk, 2012)*.

According to the CDC, obesity is best measured by the body mass index (BMI), which is a formula that takes into account one's weight and height. An adult is considered overweight if his or her BMI is 25 or above and obese if it is 30 or above. A BMI greater than 25 is closely associated with increased morbidity and mortality *(Defining Adult Overweight and Obesity, 2012)*.

In the past few decades, the percentage of overweight and obese children and adults has increased significantly. More than two-thirds (68.8%) of U.S. adults were overweight or obese in 2010. Of children, 38.8% were overweight or obese during the 2013–2014 school year *(Overweight and Obesity Statistics, 2012)*. The self-reported rate of Arkansas adults being overweight and obese was 69.9% in 2013 *(Arkansas: State Nutrition, Physical Activity, and Obesity Profile, 2012)*. Other data from the same survey found:

- Percentage of adults that are not overweight or obese: 30.1%
- Percentage of adults that are obese: 34.6%
- Percentage of children that are obese: 21.5%
- Percentage of adults that meet current physical activity guidelines (2008 guidelines): 13.8%
- Percentage of high school students active at least 60 minutes 7 days a week: 27.5%

According to a 2013 report published by Trust for America's Health, Arkansas was ranked third highest in the United States for its adult obesity rate of 34.6% *(Adult Obesity in the United States, 2013)*. Arkansas ranked sixth highest nationally for its 20% rate of obesity among young people ages 10–17 *(Key Health Data About Arkansas, 2013)*.

Surveillance and public education on the health impacts of unhealthy weight are key to addressing the obesity problem. In response to rising rates of Arkansas children aged 6–19 who are overweight or obese, health professionals and policymakers collaborated to measure and track BMI and take action to reverse the 30-year trend. Act 1220, passed in 2003 by the Arkansas legislature, laid the groundwork for what has become a national model for reversing childhood obesity by educating parents and children and improving the school environment *(Child Health Advisory Committee, n.d.)*.

Nutrition

Individuals whose diets are rich in fruits and vegetables and who consume less meat and refined sugars and grains generally have a lower BMI. They also may have a lower risk for cancers of the colon, mouth, esophagus, stomach, lungs, and possibly prostate gland *(Cancer Prevention Overview [PDQ®]: Risk Factors, 2014; Prostate Cancer Prevention [PDQ®], 2013)*.

Phytochemicals, chemical compounds that occur naturally in plants, have been found to have antioxidant and anticancer qualities, particularly when a variety of phytochemicals combine and interact (Liu, 2004). Because of these and other health benefits, some experts recommend between five and nine servings of fruits and vegetables daily.
The greatest benefits come from the combination and synergism of these with other whole foods like beans and grains.

Other studies have found additional dietary impacts on cancer prevention. A high intake of dietary fiber has been associated with reduced risk of colorectal cancer, while high dietary glycemic index and glycemic load have been associated with increased risk of selected cancers (Aune et al., 2011). Though more research is needed to definitively connect specific dietary factors with cancer prevention, the health benefits of eating balanced meals consisting of various whole foods are evident.

Eating a diet rich in fruits and vegetables can hinge on more than just a willingness to make healthy choices; dietary selections may come down to issues of both affordability and availability. Access to healthy foods is an important issue for many individuals and communities *(Make Healthy Food Affordable and Accessible, n.d.)*.

Physical Activity

Regular physical activity is associated with reduced risk of certain cancers. Research shows a strong association between physical activity and a lower risk for colorectal and breast cancers. Other studies show that physical activity is protective against endometrial cancer and lung cancer *(Physical Activity and Health, 2011)*.

The CDC provides guidelines for physical activity to maintain health. Recommended for adults are; a minimum of 30 minutes, 5 times or more per week, of moderate-intensity physical activity, or 75 minutes of vigorous-intensity physical activity per week. Children should engage in at least one hour of physical activity per day, with most activity either moderate or vigorous in intensity *(Physical Activity Basics, 2011)*.

Despite the benefits, the percentages of Arkansas adults and children who meet the CDC's recommendations for physical activity are in the minority, with state averages below those nationally. According to Behavioral Risk Factor Surveillance System (BRFSS) data, 47.3% of adults in 2009 met the recommendation, an increase from 45.2% in 2001 but below the national average of 51% *(The State of Physical Activity in Arkansas 2011, 2013)*.

According to Youth Risk Behavior Surveillance System (YRBSS) data, the percentage of Arkansas high school students who met the CDC recommendation for physical activity increased from 18.4% in 2005 to 26.7% in 2011. Arkansas had been above the national norm on this measure, but a significant increase in national levels between 2009 and 2011 led to fairly equal levels for Arkansas and the country as a whole in 2011 *(The State of Physical Activity in Arkansas 2011, 2013)*. That same year, only 31% of children in Arkansas engaged in the recommended daily vigorous physical activity *(2014 State Indicator Report on Physical Activity, 2014)*.

Alcoholic Beverage Consumption

Studies have shown that drinking alcohol is strongly associated with increased risk for cancer of the mouth, esophagus, larynx, and pharynx, and is also linked to breast cancer and colorectal cancer. There is evidence that drinking alcohol may also increase the risk of colorectal cancer in women as well as cancer of the liver, ovaries, and stomach *(Bagnardi, Blangiardo, La Vecchia, & Carrao, n.d.)*.

A 2013 study of alcohol consumption and cancer deaths in the United States concluded that alcohol use is a major contributor to cancer mortality, accounting for about 19,500 deaths, or 3.5% of all cancer deaths in 2009, including 15% of breast cancer deaths among women *(Nelson et al., 2013)*. The risk of cancer was found to be higher for persons consuming more than 40 grams (3 drinks) of alcohol a day, but about 30% of alcohol-attributable cancer deaths were among individuals whose daily alcohol consumption was 20 grams (1.5 drinks) or less.

The researchers of the study also suggest that claims about the cardiovascular health benefits of consuming alcohol may be the reason for the current guideline of one drink daily for women and up to two drinks daily for men *(Dietary Guidelines for Americans, 2010)*. They call for clear, consistent messaging from public health and medical organizations and providers about alcohol and cancer risk: that alcohol is a known carcinogen, and because there is no safe consumption level when it comes to cancer risk, alcohol should be limited or avoided altogether.

Tobacco Use

The impact of tobacco use is mentioned in almost every chapter, but is discussed in detail in the Lung Cancer Chapter on Page 24.

OBJECTIVES

The following objectives for cancer prevention through life-style change are taken from the ARHP2020.

1. By 2020, reduce the overall cancer death rate from 200.2 to 180.2 per 100,000
2. By 2020, increase the proportion of adults who are at a healthy weight from 27.7% to 30.5%
3. By 2020, reduce the proportion of adults who are obese from 30.0% to 20.0%
4. By 2020, reduce the proportion of children and adolescents who are obese from 21% to 18.9%

5. By 2020, increase the contribution of fruits to the diets of the population aged 2 years and older from 1.7 to 1.9 servings per day
6. By 2020, increase the contribution of total vegetables to the diets of the population aged two years and older from 2.2 servings to 2.4 servings per day
7. By 2020, increase the proportion of adults that meet current federal physical activity guidelines for aerobic physical activity and for muscle strength training from 41.2% to 51.2%
8. By 2020, increase the proportion of adolescents that meet current federal physical activity guidelines for aerobic physical activity and for muscle strength training from 24.3% to 26.7%

STRATEGIES

- Develop collaborative relationships with city planners and private developers, government officials, and grassroots citizens to increase the public's understanding of the level of importance of the built environment and tobacco-free policies.
- Utilize schools and work sites as health promotion venues, reaching Arkansas students and adults for the purpose of creating a culture of health and changing unhealthy behaviors around tobacco use, obesity, and physical inactivity.
- Implement a statewide campaign to increase public awareness of effects of obesity, physical inactivity, and tobacco use on health.
- Provide recommendations to Arkansans on how to include physical activity in their daily schedules.
- Encourage parent or family support through provision of information on environmental strategies to reduce access to television, video games, and computers.
- Encourage technology-supported, multicomponent weight coaching or counseling interventions intended to maintain weight loss.
- Improve access to affordable and nutritious foods in all communities (farmers' markets, community gardens, co-ops, farm-to-school/farm-to-table, local growers). Disclose where foods are grown.
- Encourage and assist organizations and state and local government entities to adopt healthy guidelines or policies for food and beverages for catered meals, events, and vending machines.

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce the overall cancer death rate	200.2 per 100,000 in 2007	180.2 per 100,000 in 2020	ADH Mortality Query System
OBJECTIVES	Increase the proportion of adults who are at a healthy weight.	27.7% of adult Arkansans are normal weight BRFSS 2013	30.5% Target setting method: 10% improvement	BRFSS
	Reduce the proportion of adults who are obese.	30.0% of adult Arkansans are obese BRFSS 2013	20.0% Target setting method: 10% improvement	BRFSS
	Reduce the proportion of children and adolescents who are obese.	AR Public School Students were obese in the 2009- 2010 school year. All 21% obese	All 18.9%	ACHI
	*Increase the contribution of fruits to the diets of the population aged 2 years and older.	For adults 18 and over: 1.7 servings or 0.9 servings per 1000 kcal† ARCHES 2007	For adults 18 and over: 1.9 servings or 1.0 servings per 1000 kcal Target setting method: 10% improvement	N/A

** Currently, local data available for tracking this objective is limited to adults 18 and over.*

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
OBJECTIVES	*Increase the contribution of total vegetables to the diets of the population aged 2 years and older.	For adults 18 and over: 2.2 servings or 1.2 servings per 1000 kcal ARCHES 2007	For adults 18 and over: 2.4 servings or 1.3 servings per 1000 kcal Target setting method: 10%	
	Increase the proportion of adults that meet current Federal physical activity guidelines for aerobic physical activity and for muscle strength training.	Percent of adults that meet current guidelines for physical activity (BRFSS): 2013 - 41.2%	51.2% Target setting method: trend	BRFSS
	Increase the proportion of adolescents that meet current physical activity guidelines for aerobic physical activity and for muscle-strengthening activity.	Percent Physically active at least 60 minutes per day 7 days per week: 2009 - 24.3%	26.7% Target setting method: 10% improvement	YRBS

** Currently, local data available for tracking this objective is limited to adults 18 and over.*

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Arkansas Priority Cancer Chapters

Goals, Objectives, and Strategies

① Lung Cancer
② Colorectal Cancer
③ Breast Cancer
④ Prostate Cancer
⑤ Oral Cancer
⑥ Skin Cancer
⑦ Cervical Cancer

Lung Cancer

GOAL

Reduce deaths from the lung cancer in Arkansas.

BACKGROUND

Introduction

Lung cancer is the leading cause of cancer death and the second most common cancer among both men and women in the United States. It kills more people than breast cancer, colorectal cancer, and prostate cancer combined. *(Division of Cancer Prevention and Control, Centers for Disease Control and Prevention,. 2015)*

Lung cancer has a unique feature—a known and avoidable cause. Tobacco smoke includes over 7,000 chemicals, including nicotine, an addictive poison. When tobacco is smoked, over 7,000 chemicals are inhaled, including nicotine, a deadly poison. *(Secondhand Smoke and Cancer, 2011)*. The CDC estimates that one out of every two smokers will die of a tobacco-related cause *(Adult Smoking in the U.S., 2011)*.

Smoking adds to many types of cancer. The evidence is sufficient to suggest or infer a causal relationship between tobacco smoke and breast, colorectal, and liver cancer, and higher death rates from prostate cancer in smokers than in nonsmokers. Smoking also causes adverse health outcomes in cancer patients and survivors *(Health Consequences of Smoking, 2014)*.

When the Master Settlement Agreement was signed in 1998, 9 out of 10 nicotine users had begun using tobacco before age 18. That number has not changed significantly despite assurances from the tobacco industry that they do not market to youth. A recent study showed that 67% of children aged 11–19 were aware of electronic smoking devices, including e-cigarettes, vape pens, e-cigarettes, and/or e-hookah pens. *(Pepper et al., 2013)*. A recent CDC paper also found that e-cigarette use in that same age group had doubled from 2011 to 2012 *(Notes from the Field, 2013)*, and that not only were youth using electronic smoking devices to initiate nicotine addiction but that the same youth also report using regular cigarettes, or dual usage. Youth exposure to nicotine is a key factor in the tobacco industry's continued success.

A major strategy of the tobacco industry has been to provide a wide range of tobacco products, some of which are marketed as being "harmless" or "cessation aids."

Examples of tobacco and nicotine products include:

- Chewing tobacco
- Cigarettes
- Cigars, including little cigars and cigarillos
- Dip
- Electronic cigarettes, including vape pens, e-cigars and e-hookahs
- Snuff

A 2011 report from the CDC shows that the most popular types of tobacco and nicotine products used by youth are cigarettes, smokeless tobacco, and cigars. Unfortunately, other tobacco products are not held to the same taxes, content, or marketing rules. For example, both cigars and e-cigarettes are available in flavors, which are banned in cigarettes. As a result, these products make it easier for a new person who has not smoked regularly to become addicted to smoking because flavorings mask the harshness and taste of tobacco. Additionally, the CDC reports the majority of kids who smoke flavored cigars did not plan to quit any time soon. Data show that about 13% of high school students used cigars in 2012 *(Tobacco Product Use Among Middle and High School Students, 2013)*. Of those students, 17% were black non-Hispanic males. Arkansas is one of 28 states that has laws about e-cigarette sales to minors. However, neither the FDA nor any state has any rules about what goes into e-cigarettes, and their ingredients are made without any supervision.

There are programs that help those who are using tobacco; the most impactful ones are those that comprehensively address tobacco cessation and prevention. An understanding of the tools used to promote tobacco use is imperative in the fight to eliminate the impact of tobacco use and make Arkansas smoke-free. Listed below are traditional and innovative uses of the following approaches:

- Education: Knowing about the dangerous effects of tobacco use is the first step of action.
- Surveillance: The tobacco industry employs over 7,000 tobacco lobbyists nationally who use their power to influence legislators and judges. This makes it hard to pass and enforce comprehensive actions to decrease tobacco use, because it is hard to stop what one cannot see. The tobacco control community uses watchdog efforts to bring tobacco company lobbying to light.
- Laws: The tobacco industry has used its' wealth to build political power. Pressure for anti-tobacco legislation needs to keep growing. We need to encourage our legislators to act for the public good.

- Advertising: This is a vital tool in the fight against tobacco use and disease. We need to stop tobacco industry-sponsored images from defining adulthood, freedom, and sex appeal.
- Images: The idea of tobacco being "normal" needs to be fought through images that reflect ugliness, death, disease, and lies.
- Lawsuit: The tobacco industry continues extensive marketing campaigns that include deceptive messaging about tobacco use, and it is critical to correct the myths the public has been led to believe. Lawsuits have proven to be helpful in exposing misleading and harmful information about tobacco use that has been falsely advertised and/or withheld from the public and requiring the tobacco companies to publicly admit and take responsibility for their actions.

PREVENTION

Principles, Evidence, and Action: The World Health Organization Framework Convention on Tobacco Control and the CDC's Best Practices for Comprehensive Tobacco Control Programs

Two concepts that are supported by worldwide and national groups have come together in evidence-based policy principles:

1. The growing knowledge of the widespread harm caused by tobacco
2. The belief in basic human rights

The Framework Convention on Tobacco Control (FCTC)

The FCTC (WHO Framework Convention on Tobacco Control, 2015) is the world's first public health treaty. It recognizes that tobacco is the world's leading cause of avoidable death. The FCTC also states that the two groups most likely to use tobacco are those with the least education and those living in the lowest socioeconomic settings. Built into the FCTC is the belief of unalienable human rights *(Development Planning and Tobacco Control, 2014)* which provide safety from the attacks of the tobacco industry that applies to the young, the poor, and the poorly educated. It is easy to understand why Arkansas, which has the fifth-highest poverty rate in the United States and a lower-than-average educational level, remains a prime target for the tobacco industry.

The FCTC stresses five evidence-based steps for fighting the spread of tobacco (WHO Framework Convention on Tobacco Control, 2015):

1. Adopt tax and price measures to cut tobacco use
2. Ban tobacco advertising, promotion, and sponsorship
3. Make smoke-free work and public spaces
4. Put clear health warnings on tobacco packages
5. Fight dishonest trade in tobacco products

Best Practices for Tobacco Control

The CDC states in the *Best Practices for Comprehensive Tobacco Control Programs* (2014) that a statewide tobacco control program can redefine social norms with regard to tobacco use by:

- Preventing initiation among youth and young adults
- Promoting quitting among adults and youth
- Eliminating exposure to secondhand smoke
- Identifying and eliminating tobacco-related disparities among population groups
- Research shows that comprehensive tobacco control interventions are the most effective and should include clinical, economic, educational, regulatory, and social strategies for tobacco control. Laws and rules in tobacco control are powerful tools that help to:
- Increase the unit price of tobacco products, making them more costly
- Protect the public from secondhand smoke exposure by implementing smoke-free laws that prohibit smoking in places such as bars, restaurants, vehicles, and work sites
- Limit access to tobacco products by minors
- Encourage smoke-free living in private settings, such as apartments

Effective interventions should combine direct interventions with tobacco users and rules to change social norms, networks, and systems.

Arkansas Department of Health (ADH) Tobacco Prevention and Cessation Program (TPCP)

The Initiated Tobacco Settlement Proceeds Act, which passed in 2000, paved the way for the establishment of the ADH TPCP, a comprehensive, evidence-based tobacco prevention and cessation program which has yielded several successes. According to Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Arkansas ranks 49th in the adult smoking rate (25%). Our youth smokeless tobacco rate (26%) is higher than our adult smoking rate. Recent data show that Arkansas has had the following successes in preventing tobacco use among adults and youth:

- First nationwide in having a smoke-free medical grounds law in 2005
- First nationwide in passing a smoke-free car law in 2006 (the law was amended in 2011)
- Third nationwide in passing a smoke-free psychiatric buildings/grounds law in 2013
- Fifth in reducing youth tobacco use rates since the program started. This ranking is compared to other states that participated in the 2011 Youth Risk Behavior Survey (YRBS) over the same period (n=31).
- One of the first states to limit sales to minors of electronic cigarettes and electronic nicotine products in 2013
- Decreases in the number of people admitted to the hospital for heart disease and stroke between 1999 and 2010 *(Tobacco Prevention and Cessation Program, 2014)*

Toll of Tobacco Use in Arkansas in 2015 (Campaign for Tobacco-Free Kids)

- Each year 5,800 Arkansans die prematurely from sicknesses caused by tobacco.
- About 68,700 Arkansas youth may die early as a result of tobacco.
- Secondhand smoke kills about 510 non-smoking Arkansans each year.
- Each year tobacco use costs Arkansas more than $1.2 billion. This makes up at least $242 million in state-funded Medicaid health-care costs.
- Lost productivity costs Arkansas $1.4 billion.
- Tobacco companies spend over $119 million selling their products to Arkansans each year.

SCREENING AND DETECTION

Screening for lung cancer has been studied for about 40 years. It always led to finding more cancers than were found without screening. Finding more cancers, however, did not translate into more lives saved. The same number died in the screened group as in the non-screened. This basic fact led to two key understandings about lung cancers:

1. Some cancers are relatively mild. If left alone, they will not cause or lead to death. To find them and operate raises risk without helping the patient.
2. Some lung cancers are relatively deadly. Even when discovered at a small size, they spread and kill despite all treatments.

After 40 years of studies, the National Lung Screening Trial (NLST) found an advantage to screening for lung cancer (National Lung Screening Trial Research Team, 2011). The study involved the following factors:

- National Cancer Institute centers throughout the country were the screening centers.
- Patients aged 55–74 who had smoked at least 30 pack-years were studied.
- Screening was by low-dose computed tomography (LDCT) once a year for three years.
- The control arm was patients screened with routine chest X-rays, a modality felt not to lower deaths from lung cancer.
- Masses greater than four millimeters in size were deemed "positive."
- There was no set approach to "positive" masses when results were gathered. Each doctor and hospital was free to approach any mass as they felt proper.
- Control and screened patients were followed up for lung cancer deaths.

Over 53,000 patients were entered into this study. Six years later, there had been 443 lung cancer deaths in the control group. There were 56 deaths from lung cancer in the screened group. Therefore, screening could stop one of five deaths from lung cancer in a high-risk group. High risk was defined as persons aged 55–74 years with lengthy smoking histories. The authors did not make policy proposals at that time. They did state that "Before public policy recommendations are crafted, the cost-effectiveness of LDCT screening must be rigorously analyzed."

In 2013, the United States Preventive Services Task Force (USPSTF) shared its goal to support lung cancer screening based on the NLST study *(Lung Cancer: Screening, 2013)*. It found that yearly screening for lung cancer using the LDCT can stop many deaths linked to lung cancer. This applied particularly to those at a higher risk of death from lung cancer.

The USPSTF now suggests yearly screening for lung cancer with LDCT. Adults aged 55–80 with a 30-pack-per-year smoking past who currently smoke should get screened. Screening is also urged for those who have quit within the past 15 years. Screening should be stopped once a person has not smoked for 15 years. Screening should also be stopped if they have a health problem that:

- Limits life expectancy
- Limits the ability or willingness to have curative lung surgery

Screening cannot stop most deaths linked to lung cancer, and quitting smoking is vital.

USPSTF Summary of Recommendations and Evidence

Population	Recommendation	Grade
Adults Aged 55–80, with a History of Smoking	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55–80 years who have a 30-pack-per-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery (PulmCCM, 2012).	B The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.

TREATMENT

Quitting Tobacco Use

Tobacco/nicotine dependence is a condition that often requires repeated treatments, and effective treatments and helpful resources exist. Smokers can and do quit smoking and other tobacco products. In fact, today, the United States has more former smokers than current smokers *(Quitting Smoking, n.d.)*.

The 2008 update to Treating Tobacco Use and Dependence, a Public Health Service-sponsored Clinical Practice Guideline (The Guideline), included these conclusions about the efficacy of tobacco dependence.

- Brief tobacco intervention (BTI) treatment is effective.
- Individual, group, and telephone counseling are effective, and their effectiveness increases with treatment intensity.
- Telephone quitline counseling is effective with diverse populations and has broad reach.
- Seven first-line medications (five nicotine and two non-nicotine) reliably increase long-term smoking abstinence rates:
  - Bupropion SR
  - Nicotine gum
  - Nicotine inhaler
  - Nicotine lozenge
  - Nicotine nasal spray
  - Nicotine patch
  - Varenicline
- Counseling and medication are effective when used by themselves for treating tobacco dependence. The combination of counseling and medication, however, is more effective than either alone.

Health-care providers with direct patient contact can help tobacco users quit. The Guideline made specific recommendations to clinicians and called on health-care systems, insurers, and consumers to assist clinicians in making effective treatments available to all smokers. The Guideline included these recommendations to clinicians and health-care delivery systems:

- Tobacco dependence treatments are both clinically effective and highly cost effective relative to interventions for other clinical disorders. Providing coverage for these treatments increases quit rates. Insurers and purchasers should ensure that all insurance plans include the counseling and medication identified as effective as covered benefits.
- It is essential that clinicians and health-care delivery systems consistently identify and document tobacco-use status and treat every tobacco user seen in a health-care setting.
- Clinicians should also take the following steps:
    - Offer every patient who uses tobacco at least the brief treatments shown to be effective
    - Encourage every patient willing to make a quit attempt to use the counseling treatments and medications recommended
    - Encourage medication use by all patients attempting to quit smoking—except when medically contraindicated or with specific populations for which there is insufficient evidence of effectiveness
    - Both clinicians and health-care delivery systems should ensure patient access to quitlines and promote quitline use. The Arkansas Tobacco Quitline can be reached at 1-800-QUIT-NOW

QUALITY OF CARE

Lung cancer is a deadly disease. Many patients are diagnosed only after their cancer has spread. Even though the NLST study using LDCT screening to diagnose early lung cancer showed gains, four out of five patients with lung cancer still died. At this time, only 16% of people who have lung cancer survive five years after their diagnosis. For advanced non-small-cell lung cancer, the average increase in life expectancy from widely used chemotherapy is three months *(Breathnach et al., 2001)*.

Some lung cancers have set pathways that can be treated with set drugs. Common words for this approach are “targeted medicine” and “personalized medicine.” This line of research and care is showing promise in lengthening life and may even cure some patients with lung cancer. Clinical tests to identify these possibilities should be supported. It should be understood that prevention is the strongest tool against lung cancer and against other deadly illnesses linked to tobacco use.

PALLIATIVE CARE

Palliative care or specialized medical care provides patients with relief from the stress, symptoms, and pain of serious illness and is a part of improving the quality of care. Only 16% of people found to have lung cancer survive more than five years. And while lung cancer makes up 14% of all new cancer diagnoses, it makes up 27% of all cancer deaths *(What Are the Key Statistics About Lung Cancer?, 2015)*. These facts need to be understood in order to provide quality care for patients with lung cancer. One must treat the person as well as the cancer, with consideration for the quality of life and the quality of death.

Palliative care spans this range by focusing on the quality of life regardless of the person's health status. Palliative care avoids the "one size fits all" plan used in traditional chemotherapy and values the uniqueness of each human life.

Lastly, palliative care should be thought of as a form of care. There is evidence that a palliative care plan increases quality and length of life as much as traditional chemotherapy does *(Temel et al., 2010)*.

DISPARITIES

According to the American Legacy Foundation, tobacco use is not an equal opportunity killer. Our most vulnerable and socially underprivileged populations disproportionately bear the burden of the tobacco epidemic.

Data from the Behavioral Risk Factor Surveillance System (BRFSS) show that cigarette smoking among African-American males grew from 2011 to 2012, while that of Caucasian and Hispanic males declined slightly. Among females, smoking among Hispanics grew, while that of Caucasians and African-Americans experienced a slight decline.

In the United States, the tobacco industry targets marketing in African-American communities. Rates are highest among African-American youth who prefer the brand Newport. About 1.6 million African-Americans alive today who are now under the age of 18 will become regular smokers, and about 500,000 of them will die early from a disease linked to tobacco. Each year 45,000 African-Americans die from smoking-related diseases *(Tobacco Use Among African Americans, 2015)*.

Minority-Focused Tobacco Control Programs

The Initiated Act of 2000 also directed a portion of Arkansas's Master Tobacco Settlement revenue to the ADH specifically for tobacco prevention and cessation programs in minority communities and this led to the inception of the Addiction Studies Program, the Minority Initiative Sub-Recipient Grant Office (MISRGO) (About MISRGO, n.d.), and the Minority Research Center.

These programs collaborate with local organizations or community affiliations in the fight against tobacco consumption. Their mission is to reduce tobacco use in minority communities and to reduce the negative economic, health, and social impact of tobacco use currently felt in Arkansas's minority communities.

MISRGO Goals

Specifically, MISRGO's goals align with the CDC's Best Practices for Tobacco Control as follows:

- Preventing the initiation of tobacco use among youth
- Promoting cessation among youth and adults
- Eliminating exposure to secondhand smoke
- Identifying and eliminating disparities in tobacco use among different population groups

SURVIVORSHIP

Compared with other types of major cancers, lung cancer has the lowest survival rates. Depending on how survival is defined, lung cancer survivors are a relatively small group. The American Cancer Society has published a list of issues which covers priorities of those who are survivors *(Systems Policy and Practice, n.d.)*.

These are some of the key concepts:

- Set-up of a lasting care plan at the end of care. This would be part of the normal management of all patients with cancer.
- Education of health-care experts
- Setting up a point of contact for the survivor's care for each patient
- Adding a survivor's input into their care plans
- Establishing open channels of communication

The concepts above were made into performance indicators. These indicators have been tailored for the lung cancer objectives and strategies listed below:

OBJECTIVES AND STRATEGIES

Objective 1: Increase barriers to youth and young adult access to tobacco products and Electronic Smoking Devices (ESD), and promote tobacco abstinence.

Strategy 1:1 Activate TPCP leadership to increase partnerships with state agencies, institutions, and nonprofits to create systems change to include the integration of tobacco prevention and secondary intervention among youth and young adults.

Strategy 1:2 Collaborate with media partners to develop communications that are designed to discourage initiation among youth and that include appropriate messages for women who are in the pre-pregnancy stage.

Strategy 1:3 Collaborate with media partners and subgrantees to denormalize tobacco/ESD use through educational and interactive projects at the local and state level.

Strategy 1:4 Engage and empower young people to recognize and react to tobacco industry marketing and promotion through media literacy and investigation of the truth initiative's Tobacco Documents Library.

Strategy 1:5 Advocate and encourage significantly increased penalties for violations of tobacco-free laws.

Strategy 1:6 Advocate for significant tobacco tax increases and significant increases in retail permit fees for all tobacco products, including ESDs.

Strategy 1:7 Advocate for increasing the legal age to purchase nicotine products.

Strategy 1:8 Advocate and encourage policies to regulate and limit product placement and point-of-purchase advertising.

Objective 2: Reduce tobacco/ESD use and associated disease burden by changing systems to incorporate clinical practice guidelines for treating tobacco use and dependence.

Strategy 2:1 Increase the number of practitioners who have received nationally accredited training on tobacco treatment.

Strategy 2:2 Expand reach and capacity for tobacco/ESD cessation treatment through professional development training.

Strategy 2:3 Promote expansion of insurance coverage and utilization of proven tobacco/ESD cessation treatments to the benefit level defined in the Federal Employees Health Benefits Program.

Strategy 2:4 Integrate standardized evidence-based cessation curricula at all colleges and universities including medical, nursing, dental, mental health, substance abuse, and allied health programs to address tobacco/ESD use.

Strategy 2:5 Integrate Clinical Practice Guidelines for Treating Tobacco Use and Dependence
and ensure that Brief Tobacco Interventions are implemented at all existing medical, dental, mental health, and substance abuse facilities.

Strategy 2:6 Integrate Clinical Practice Guidelines for Treating Tobacco Use and Dependence through all federal- and state-supported agencies and institutions to include disparate populations.

Objective 3: Promote quitting nicotine and other tobacco-related products, including smokeless products, through multimedia communications and environmental and system changes.

Strategy 3: Engage and empower nicotine addicts to face the challenges of cessation.

Strategy 3:2 Educate health-care professionals as to the necessity for treatment of nicotine addiction as an essential part of any medical issue.

Strategy 3:3 Engage stakeholders on opportunities for increased knowledge and an expanded awareness of the treatment and prevention of lung cancer.

Strategy 3:4 Recognize and challenge industry efforts to gain weight-based spit tobacco taxes.

Strategy 3:5 Recognize and challenge harm reduction marketing strategies of spit and electronic nicotine delivery.

Strategy 3:6 Increase utilization of the Arkansas Tobacco Quitline and its services including individual (age/ethnicity/special populations) confidential phone/web-based counseling, pharmacotherapy (patches, gum, lozenges, Varenicline, and others), and written resource materials.

Strategy 3:7 Increase partnerships with other state agencies, institutions, and nonprofits to create systems changes to include the integration of tobacco/ESD cessation.

Strategy 3:8 Advocate and encourage policies requiring that 1-800-Quit-Now be prominently displayed at every tobacco and nicotine retail register.

Strategy 3:9 Conduct robust industry-focused counter marketing in all media.

Objective 4: Increase the number of Arkansans who report learning, living, playing, working, and worshipping in smoke-free and vapor-free environments.

Strategy 4:1 Advocate for adoption of and compliance with smoke-free policies and include ESD in those policies.

Strategy 4:2 Advocate for adoption of and compliance with tobacco and ESD-free policies, including the establishment of smoke-free and ESD-free multi-unit housing.

Strategy 4:3 Advocate for and encourage reform of the Clean Air Act of 2006 from being complaint-driven to license-dependent.

Strategy 4:4 Conduct robust industry-focused counter marketing in all media.

Strategy 4:5 Assess and evaluate enforcement of all tobacco-free laws and policies.

Strategy 4:6 Integrate efforts to eliminate secondhand and third-hand smoke-related disparities among Arkansans.

Strategy 4:7 Advocate and encourage policies establishing smoke-free and tobacco-free multi-unit housing.

Objective 5: Ensure that all lung cancer patients in Arkansas have access to a mutual and excellent quality of care.

Strategy 5:1 Help establish Health Insurance Marketplaces in Arkansas to expand access to coverage for individuals and small businesses, reduce administrative expenses, and increase competition.

Strategy 5:2 Provide coverage with premium and cost-sharing assistance through the Health Insurance Marketplace for people who cannot afford to purchase insurance on their own.

Strategy 5:3 Work with the Arkansas Legislature, Department of Health, and Department of Human Services to expand Medicaid coverage for more low-income Americans.

Strategy 5:4 Reduce the prescription drug coverage gap (the "donut hole") for those receiving the Medicare Prescription Drug benefit.

Strategy 5:5 Work with states, communities, private organizations, and grantees to provide outreach and enrollment assistance and to enforce the market reform provisions of the Affordable Care Act.

Objective 6: Present annual symposia of advocates and physicians with the purpose of encouraging communication between patients and caregivers, helping both groups more fully understand the disease.

Strategy 6:1 Facilitate and organize effective gatherings of stakeholders.

Objective 7: Educate stakeholders on the availability of board-certified physicians and caregivers and treatment options in Arkansas.

Strategy 7:1 Create and publicize a database of board-certified physicians and other caregivers related to tobacco use and lung cancer treatment in Arkansas.

Strategy 7:2 Encourage and facilitate all opportunities for clinical trials in lung cancer.

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce lung cancer death rates	58.9 per 100,000	53.0 per 100,000 Target setting method: 10% improvement	ADH Query System, ICD-10 Causes of Death Reports for 2012 accessed August 13, 2015, provisional data
OBJECTIVES	**Reduce tobacco use by adults.** (1.1) Cigarette smoking (1.2) Smokeless tobacco products (1.3) Cigars	(1.1) 25.9% BRFSS 2013 (1.2) 6.9% BRFSS 2013 (1.3) Not Available	(1.1) 23.3% Target setting method: 10% improvement (1.2) 6.2% Target setting method: 10% improvement (1.3) Not Available	(1.1) BRFSS (1.2) BRFSS (1.3) Not Available
	Reduce tobacco use by adolescents. (2.1) Tobacco Products (past month) (2.2) Cigarettes (past month) (2.3) Smokeless tobacco products (2.4) Cigars	(2.1) 26.5% YRBS 2013 (2.2)19.1% YRBS 2013 (2.3) 14.8% YRBS 2013 (2.4) 17.1% YRBS 2013	(2.1) 23.9% Target setting method: 10% improvement (2.2) 17.2% Target setting method: 10% improvement (2.3) 13.3% Target setting method: 10% improvement (2.4) 15.4% Target setting method: 10% improvement	YRBSS

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
OBJECTIVES	**Increase smoking cessation attempts by adult smokers** (3.1) Increase smoking cessation attempts in the past 12 months by adult smokers (3.2) Increase smoking cessation attempts using evidence-based strategies by adult smokers (Developmental)	(3.1) 58.4% BRFSS 2013 (3.2) Data Unavailable	(3.1) 64.4% Target setting method: 10% improvement (3.2) Data Unavailable	BRFSS
	Increase recent smoking cessation success by adults smokers (4.1) Increase smoking cessation success by adults smokers (4.2) Increase smoking cessation attempts using evidence-based strategies by adult smokers (Developmental)	(4.1) 27.3% for tobacco users who used NRT and/or counseling through the Arkansas Tobacco Quitline UALR IOG 2013 (4.2) Data Unavailable	(4.1) 30% Target setting method: 10% improvement (4.2) Data Unavailable	Arkansas Tobacco Quitline Evaluation Report FY2013 UALR IOG

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
OBJECTIVES	Increase smoking cessation attempts by adolescent smokers	48.8% YRBS 2013	53.7% Target setting method: 10% improvement	YRBSS
	Increase comprehensive Medicaid insurance coverage of evidence-based treatment for nicotine dependency.	AR Medicaid covers patch, gum, Bupropion, Varenicline, counseling	All NRT, All FDA-approved medication, and counseling without barriers	AR Medicaid
	Reduce the illegal sales rate to minors through enforcement of laws prohibiting the sale of tobacco products to minors	(7) 3.4% Synar FY2011	(7) 3.1% Target setting method: 10% improvement	Synar FY 2011

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Colorectal Cancer

GOAL

Reduce deaths from colorectal cancer in Arkansas.

BACKGROUND

The American Cancer Society (ACS) estimates 1,420 new cases and 620 deaths in 2015 from colorectal cancer in Arkansas. Currently, our rates exceed national incidence and mortality rates; ACS data show that between 2007 and 2011, of Arkansans that were diagnosed with colorectal cancer, 55% were men and 39% were women compared to the rates of 50% and 38% of men and women who were diagnosed with colorectal cancer nationally. For the same period, of those Arkansans who died of colorectal cancer, 23% were men and 16% were women, compared to the 19% and 24% for men and women who died of colorectal cancer nationally *(Cancer Facts and Figures 2015)*.

PREVENTION

There are many things that raise or lower the risk of getting colorectal cancer. Some of these can be changed, but others cannot. The risks that cannot be changed are:

- Age: While young adults can develop colorectal cancer, the chances increase greatly after age 50. About nine out of 10 people diagnosed with colorectal cancer are at least 50 years old.
- A family or personal history of colorectal cancer: People who have had colorectal cancer, non-cancerous growths, or those with family members that have had the disease, are at increased risk.
- Personal history of inflammatory bowel disease (IBD): People that have IBD have an increased risk for colorectal cancer and may need to be screened more frequently.
- Racial and ethnic background: African-Americans have the highest colorectal cancer incidence and mortality rates of all racial groups.
- Type 2 diabetes: People with type 2 diabetes have an increased risk of developing colorectal cancer.

Changes that can lower the risk of colorectal cancer are:

- Exercising more often and at an increased level
- Losing weight if you are over your ideal weight
- Eating less red or processed meats
- Quitting smoking or other tobacco products
- Limiting alcohol use
- Eating more vegetables and fruits
- Increasing calcium and vitamin D levels

A new study found that about 25% of colorectal cancer cases could be prevented by following the changes listed above. These changes are part of a healthy life-style. *(Colorectal Cancer Facts & Figures 2014–2016, 2014)*.

PREVENTION

Men and women who are at a normal risk for getting colorectal cancer should start getting screened at age 50. Screening can help find cancer at an early stage. It can also help find polyps that need to be removed.

In 2008, ACS joined with other organizations to make recommendations for screening. These recommendations point out that there is a difference between tests that can only find cancer and those that can find both cancer and polyps that can turn into cancer. The recommendations also say that screening is vital. There are many screening choices that are different from each other because of how much preparation is needed before the screening can be performed. Screenings also differ because of what the provider is able to find through their use, how often they should be given, and how much they cost. For more information on colorectal cancer screening choices, see *Colorectal Cancer Facts & Figures 2014–2016* (2014); for the ACS's screening suggestions for colorectal cancer, see page 68 of *Cancer Facts & Figures 2014* (2014) or CDC Screen for Life http://www.cdc.gov/cancer/colorectal/sfl/index.htm.

The United States Preventive Services Task Force (USPSTF) suggests three options:

- **High-sensitivity fecal occult blood test (FOBT or FIT),** which checks for hidden blood in three stool samples, should be done every year. The low cost of FOBT makes it easier for use in poor areas and in areas that are far from a big hospital.
- **Flexible sigmoidoscopy,** where physicians use a soft, lighted tube (sigmoidoscope) to look at the inside of the rectum and part of the colon. This test should be done every five years in combination with FOBT or FIT every three years.
- **Colonoscopy,** where physicians use a soft, lighted tube (colonoscope) to look at the inside of the rectum (anus) and the entire colon (gut), should be done every 10 years. During this test, a small piece from your colon may be taken to be looked at closely, or polyps may be removed.

People at higher risk of getting colorectal cancer should begin screening at a younger age, and they may need to be screened more often.

USPSTF Summary of Recommendations and Evidence

Population	Recommendation	Grade
Adults, beginning at age 50 years and continuing until age 75 years	The USPSTF recommends screening for colorectal cancer using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years. The risks and benefits of these screening methods vary.	A The USPSTF recommends the service. There is high certainty that the net benefit is substantial.
Adults age 76 to 85 years	The USPSTF recommends against routine screening for colorectal cancer in adults 76 to 85 years of age. There may be considerations that support colorectal cancer screening in an individual patient.	C The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small.
Adults older than age 85 years	The USPSTF recommends against screening for colorectal cancer in adults older than age 85 years.	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.
Computed Tomographic Colonography and Fecal DNA testing as screening modalities	The USPSTF concludes that the evidence is insufficient to assess the benefits and harms of computed tomographic colonography and fecal DNA testing as screening modalities for colorectal cancer.	I The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

QUALITY SCREENING

Health-Care Professionals

Endoscopists should follow steps given by professional groups at the national level. These include:

- The National Colorectal Cancer Roundtable
- The American Cancer Society
- The American Society for Gastrointestinal Endoscopy
- The American College of Gastroenterology
- The American Gastroenterological Association
- The United States Multi-Society Task Force on Colorectal Cancer

Quality measures for screening colonoscopy recommended by these groups include:

- Adequacy of prep
- Cecal intubation
- Withdrawal time
- Adenoma detection rate

Data collection and evaluation should continue to determine the level of quality of screenings processes and outcomes and to give providers information needed to make improvements.

General Public

A sigmoidoscopy or colonoscopy should be done by a skilled endoscopist. This provider is most likely called a gastroenterologist. In Arkansas, there are also family practice physicians who are well trained in doing endoscopies.

According to a report by the Arkansas Foundation for Medical Care (AFMC) *(Enhancing the Use of Quality Screening Colonoscopy, 2014)*, few studies or plans in Arkansas have focused on providers’ use of evidence-based recommendations for doing colonoscopies. The AFMC and CMS Special Innovation Project looked at this topic by checking the knowledge, attitudes, and habits of:

- Primary care doctors who send patients for screening colonoscopies
- Doctors doing the colonoscopies
- People on Medicare, and the general public who get the test

Joint efforts of AFMC and community partners helped get patients and doctors to increase screening and document the screenings through organized care plans. Studying the rates of colonoscopies and reasons that make it hard for people to get tested has been enlightening. Studying how testing is done and how well the results have been implemented has given an idea of how well the care plans have worked. Information regarding barriers to discovery of polyps was revealed.

Results show that family doctors do not know when testing is needed for patients. They show that the specialists who do the testing keep poor notes in patients' charts. It was also found that patients who should get tested because of their age and risk factors do not know that getting tested is important.

The study asks for more research that looks at how well colonoscopies are performed and shows how well colonoscopies find adenomas (small nodes that can turn into cancer). The study also stresses that evidence-based steps should be followed: It should take doctors the same amount of time to do the test, people should be given the same method to get ready for the test, and the best testing should be done for all Arkansans.

TREATMENT

Most people with colon cancer will have some type of surgery to remove the tumor. Adjuvant therapy (additional treatments after surgery) may also be used. Adjuvant chemotherapy (anticancer drugs) or radiation for colon cancer works as well in patients aged 70 and older who are healthy. It also works for younger patients.

DISPARITIES

Colorectal cancer attacks men, women, and all ethnic groups. Colorectal cancer affects more African-Americans in new cases of cancer and death from cancer *(Arkansas Cancer Facts & Figures 2011, 2011)*. Colorectal cancer is a cause of worry in places that are far from a big hospital or clinic. It is also a cause of worry for people who do not have regular doctor visits.

Other reasons for being in a high-risk group are:

- Being poor
- Not speaking English
- Having low education
- Having low literacy levels
- Not having health insurance

There is not enough data on colorectal cancer rates in people who have a mental or physical disability. An international study found colorectal cancer to be slightly higher in adults with disabilities. In addition, people with disabilities or other medical problems may require more help in getting ready for a colonoscopy test because the regular preparation process may be difficult for them to follow. Assistance should be provided to make it easier for them to get ready for the test. So far there are no evidence-based steps that are geared to people with disabilities.

PALLIATIVE CARE

Follow-up care after treatment for colorectal cancer is important. Even when the cancer has been removed, it can come back if cancer cells were missed. Doctors should look for signs that the cancer may come back.
Checkups help to make sure that any changes in the patient's health are seen and that the right care is provided. Checkups may include:

- A physical exam (including a digital rectal exam [DRE])
- Colonoscopy
- CT scans
- Lab tests (including fecal occult blood test [FOBT] and carcinoembryonic antigen [CEA] test)
- X-rays

Patients with health concerns should be encouraged to contact their doctor.

SURVIVORSHIP

Colorectal cancer survival rates depend on the stage at diagnosis. Based on 2001–2008 Arkansas incidence and death data *(Arkansas Cancer Facts & Figures 2011, 2011)*, the overall five-year survival rate is 69%. Survival rates by stage are:

FIVE-YEAR SURVIVAL RATE 2001–2008

Stage of Cancer	Percent
Localized	89
Regional	72
Distant	23

OBJECTIVES AND STRATEGIES

Objective 1: By 2020, increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines from 61.5% to 67.7%.

Strategy 1:1 Facilitate the dissemination of appropriate educational material to include prevalence and risk of colorectal cancer, in communities, work sites, and organizations with significant minority populations, through public health agencies, the internet, and social media.

Strategy 1:2 Collaborate with partner organizations to disseminate educational materials to include signs and symptoms and screening guidelines on colorectal cancer, and promote them to the public, community, and health professionals.

Strategy 1:3 Partner with other cancer-focused community organizations to promote education and colorectal cancer screening programs for at-risk and underserved populations.

Strategy 1:4 Identify and utilize a symbol (similar to breast cancer pink ribbon) to increase colorectal cancer awareness.

Strategy 1:5 Support patient navigator programs that address cultural, access, and economic barriers to colorectal cancer screening, and direct patients in need to further services with timely and appropriate follow-up care.

Strategy 1:6 Support and promote targeted intervention programs that promote colorectal cancer screening.

Strategy 1:7 Educate and increase trained work force who can perform quality CRC screenings.

Strategy 1:8 Develop regional colorectal cancer screening referral lists.

Strategy 1:9 Target appropriate disparate populations for screening and education.

Objective 2: By 2020, decrease the incidence of invasive colorectal cancer by increasing early detection from 41.5 per 100,000 to 37.4 per 100,000.

Strategy 2:1 Increase public awareness about colorectal cancer.

Strategy 2:2 Educate legislators and policymakers on the importance of colorectal cancer prevention and early detection.

Strategy 2:3 Collect data from existing programs and services that provide colorectal screening to show needs in rural areas of state.

Strategy 2:4 Utilize state Standard Mortality Ratios (SMR) data (*Arkansas Cancer Facts & Figures 2011*) to target counties with rates of CRC mortality higher than statewide rates.

MEASURES

Goal/Objective		Baseline	Target	Data Source
GOAL	Reduce deaths from colorectal cancer	14.5 per 100,000 in 2013 (provisional mortality data)	13.1 per 100,000 in 2020	ADH Query System
OBJECTIVE	Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines.	61.5% in 2012	67.7 % in 2020	BRFSS
	Decrease incidence of invasive colorectal cancer	41.5 per 100,000 in 2011	37.4 per 100,000 in 2020	Arkansas Cancer Registry Query System

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Breast Cancer

GOAL

Reduce deaths from female breast cancer in Arkansas.

BACKGROUND

The 2015 American Cancer Society (ACS) Facts & Figures projects that about 2,090 Arkansas women will be diagnosed from breast cancer and 410 will die from the disease in 2015. The predicted number of new cases is 231,840 and 40,290 deaths in the United States in 2015. Breast cancer is the most common cancer in women in Arkansas and the second leading cause of cancer death in women (after lung cancer) in Arkansas and the United States.

PREVENTION

A woman can lower her chance of getting breast cancer by:

- Limiting alcohol use
- Quitting smoking and other tobacco products
- Keeping a healthy weight by eating well and staying active
- Being physically active
- Breastfeeding
- Avoiding hormone exposure
- Avoiding pollution, radiation, and exposure to secondhand smoke
- Doing monthly self-breast exams (Breast Cancer Prevention, 2012)

A woman can also lower her chances of being diagnosed with late-stage breast cancer by:

- Knowing what's normal for her and seeing a doctor if she sees any of the signs and symptoms listed later in this chapter
- Knowing her risk factors
- Following the accepted guidelines for screening *(Breast Cancer Prevention and Early Detection, 2015)*

SCREENING AND DETECTION

Screening exams for early breast cancer are used to find cancers before they start to cause symptoms. Screenings are tests and exams used to find cancer in people who do not have any symptoms. Early detection is screening that discovers breast cancer earlier. Understanding this is vital because breast cancers that are found because they are causing problems tend to be larger. By this time they are also more likely to have spread to other parts of the body. Breast cancers found during screening exams are more likely to be smaller and still only in the breast. The size of a breast cancer and how far it has spread are two of the main things in predicting the quality of life and survival of a woman with this disease *(Breast Cancer Prevention and Early Detection, 2015)*.

There are many sets of guidelines for screening among different groups.

American Cancer Society (ACS)

(See below for guidelines for women at higher than average risk.)

Women ages 40 to 44 should have the choice to start annual breast cancer screening with mammograms if they wish to do so. The risks of screening as well as the potential benefits should be considered.

Women age 45 to 54 should get mammograms every year.

Women age 55 and older should switch to mammograms every 2 years, or have the choice to continue yearly screening.

Screening should continue as long as a woman is in good health and is expected to live 10 more years or longer.

All women should be familiar with the known benefits, limitations, and potential harms associated with breast cancer screening. They should also be familiar with how their breasts normally look and feel and report any changes to a health care provider right away.

United States Preventive Services Task Force (USPSTF)

The USPSTF says there is proof that screening with film mammography lowers breast cancer death. The strongest evidence for the greatest benefit is among women aged 60–69 years.

USPSTF Summary of Recommendations and Evidence

Population	Recommendation	Grade
Women, Aged 50–74 Years	The USPSTF recommends biennial screening mammography for women 50–74 years.	B
Women ages 40 to 49 years	The decision to start screening mammography in women prior to age 50 years should be an individual one. Women who place a higher value on the potential benefit than the potential harms may choose to begin biennial screening between the ages of 40 and 49 years. • For women at average risk for breast cancer, most of the benefit of mammography will result from biennial screening during ages 50 to 74 years. Of all age groups, women ages 60 to 69 years are most likely to avoid a breast cancer death through mammography screening. Screening mammography in women ages 40 to 49 years may reduce the risk of dying of breast cancer, but the number of deaths averted is much smaller than in older women and the number of false-positive tests and unnecessary biopsies are larger. • All women undergoing regular screening mammography are at risk for the diagnosis and treatment of noninvasive and invasive breast cancer that would otherwise not have become a threat to her health, or even apparent, during her lifetime (known as "overdiagnosis"). This risk is predicted to be increased when beginning regular mammography before age 50 years. • Women with a parent, sibling, or child with breast cancer may benefit more than average-risk women from beginning screening between the ages of 40 and 49 years. Go to the Clinical Considerations section for information on implementation of the C recommendation.	C
Women age 75 years and older	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening mammography in women age 75 years and older.	I
All Women	The USPSTF concludes that the current evidence is insufficient to assess the benefits and harms of tomosynthesis (3-D mammography) as a screening modality for breast cancer.	I
Women with dense breasts	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of adjunctive screening for breast cancer using breast ultrasound, magnetic resonance imaging (MRI), tomosynthesis, or other modalities in women identified to have dense breasts on an otherwise negative screening mammogram.	I

Summary Chart for Comparison of Screening Mammogram Recommendations

Age	American Cancer Society	US Preventative Services Task Force	AR Department of Health BreastCare
Under 40	Not recommended	Not recommended	Not recommended
40-49	40-44: The decision should be up to each woman. Women should talk with their doctor about the risks and benefits. 45-49: Annually	The decision should be up to each woman. Women should talk with their doctor about the risks and benefits.	The decision should be up to each woman. Women should talk with their doctor about the risks and benefits.
50 & Over	50-54: Annually 55 and over: Every two years	Every two years	Every one to two years

Women at High Risk

Women with a higher risk of breast cancer should talk with their doctors about the best approach for them. This might mean starting mammograms when they are younger, having extra tests, or having more frequent exams.

Signs and Symptoms of Breast Cancer

Using screening mammograms helps find breast cancer before there are symptoms. Some breast cancers are not found by mammograms. This phenomena may be because the test was not done correctly or because mammograms do not always find all breast cancers. The most common symptom of breast cancer is a new lump or mass. A mass that is painless, hard, and has edges that are not even is more likely to be cancerous. But breast cancers can be tender, soft, or rounded also. They can even be painful. So, it is important to have any new breast mass or lump or breast change checked by a health-care expert who is good at finding breast diseases. Other likely signs of breast cancer are:

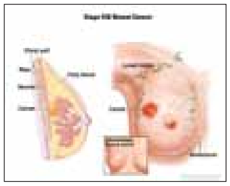
- A nipple discharge other than breast milk
- Breast or nipple pain
- Nipple turning inward
- Redness, scaliness, or thickening of the nipple or breast skin
- Skin irritation or dimpling
- Swelling of all or part of a breast (even if you don't feel a lump)

Sometimes a breast cancer can spread to lymph nodes under the arm or around the collarbone and cause a lump or swelling there. This can happen even before the first tumor in the breast is large enough to be felt.

Although any of the above symptoms can be caused by things other than breast cancer, a person who has them should tell his or her doctor so that he or she can find the cause *(Breast Cancer Prevention and Early Detection, 2015)*.

Tools That Can Be Used to Find Breast Cancer
Diagnostic tools such as MRI, PET scan, CT scan, and radiation are used to find the spread of disease.
The most common methods to aid in breast cancer screening and diagnosis are:

- **Clinical Breast Exam (CBE).** This is an exam by a doctor or nurse who uses his or her hands to feel for lumps or other changes.
- **Mammogram.** This is a breast X-ray. Mammograms are the best method to find breast cancer early.
- **Magnetic Resonance Imaging (MRI).** A MRI uses magnetic fields to make cross-sectional images of the body. MRI is sometimes used with mammography to find breast cancer.
- **Breast Ultrasound.** Breast ultrasound is a method of imaging that uses sound waves. Ultrasound is used with mammography to check findings that are not normal *(Breast Cancer Prevention and Early Detection, 2015)*.



Here are some new technologies that may be used to screen for and find breast cancer:

- **Tomosynthesis.** Breast tomosynthesis, also called 3D mammography, is a new type of breast X-ray that makes a 3D picture of the breast *(Breast Cancer Screening With 3-D Technology, 2014)*.
- **Whole Breast Screening Ultrasound.** Automated Breast Ultrasound System (ABUS™) is a scan of all of the breast tissue, either by a technologist or by an automated machine with a technologist's help. It uses ultrasound, or high-frequency sound waves, to find cancer. A breast ultrasound is often used to evaluate breast problems that are found during a mammogram or a physical exam *(Breast Cancer Prevention and Early Detection, 2015)*.
- **Elastography.** Breast elastography is a new sonographic technique that gives extra information on breast lesions over normal sonography and breast X-rays. This technique provides data about the strain or hardness of a lesion *(Goddi, Bonardi, & Alessi, 2012)*.

- **Molecular Breast Imaging.** Molecular Breast Imaging (MBI) is a diagnostic tool mostly used with breast X-rays. It uses a small injection of a radiotracer that finds metabolically active breast tumors. It is used for women with dense breast tissue, breast implants, or free silicone. It can also be used for women who cannot have a breast MRI. This could be because of pacemakers or other ferromagnetic implants, kidney problems, fear of closed spaces, body size, or some allergies *(O'Connor, Rhodes, & Hruska, 2009)*.

What a Women Should Expect When Getting a Mammogram

- She must undress above the waist; she will receive a wrap to wear.
- A technologist will be there to position her breasts in the right place for the mammogram. She and the technologist are the only ones in the room during the breast X-ray. Most technologists are women.
- To get a high quality mammogram picture, the breast needs to be flattened slightly. The technologist places the breast on the mammogram machine's lower plate. The upper plate is lowered to flatten the breast for a few seconds while the picture is taken.
- The whole process takes about 20 minutes. The breast compression only lasts a few seconds.
- She may feel some discomfort when her breasts are flattened. She should try not to plan a mammogram when her breasts might be tender, like just before or during her period.
- She will get her results within 30 days. She may be contacted within 5 working days if there is a problem with the mammogram.
- Being called back for more testing does not mean that she has cancer. In fact, less than 10% of women who are called back for more tests have breast cancer. Being called back happens pretty often and it just means some other image or an ultrasound needs to be done to take a closer look. This is more common for first mammograms (or when there is no other breast X-ray to look at) and in mammograms done in women before menopause.
- Only 2 to 4 screening mammograms in 1,000 lead to a diagnosis of breast cancer *(Mammograms and Other Breast Imaging Tests, 2015)*.

Risk Factors for Women

- Gender: Being a woman is the greatest risk factor for breast cancer, but men can get breast cancer.
- Age: The risk of developing breast cancer goes up with age.
- Genetic defects: About 5 to 10% of breast cancer cases are thought to be hereditary, which means they are a result of gene defects inherited from a parent.
- Family history: Breast cancer risk increases if a woman has a close relative such a mother, sister, or daughter who has had the disease.
- Personal history of breast cancer: A woman with cancer in one breast has an increased risk of developing cancer in the other breast or part of the same breast.
- Race and ethnicity: Overall, white women are slightly more likely to develop breast cancer than African-American women, but African-American women are more likely to die of the disease.
- Dense breast tissue: Women with dense breasts on mammograms have a breast cancer risk of 1.2 to 2 times that of women with average breast density. Dense breast tissue also makes mammograms less accurate.
- Benign breast conditions: Women diagnosed with benign breast conditions may have an increased risk of breast cancer *(What Are the Risk Factors for Breast Cancer?, 2015).*

Life-style-related risk factors

- Having children: Never having children or having a first child after age 30
- Using oral contraceptives: Studies have found that women using oral contraceptives have a slightly greater risk of breast cancer than women who have never used them.
- Hormone therapy after menopause: Post-menopausal hormone therapy with estrogen and progesterone therapy has been shown to increase the risk of getting breast cancer and may also increase the risk of dying from it.
- Drinking alcohol: The use of alcohol is clearly linked to an increased risk of developing breast cancer, and the risk increases with the amount of alcohol consumed.
- Being overweight or obese: Being overweight after menopause increases the risk of breast cancer.
- Physical activity: Evidence is growing that physical activity reduces breast cancer risk even though studies vary as to how much exercise is needed.
- Smoking: Studies have found an increased breast cancer risk among women who smoke, especially those who start smoking before they have their first child *(Study Links Smoking to Breast Cancer Risk, 2013).*

TREATMENT

Breast cancer is treated in many ways. Treatment is based on the kind of breast cancer and how far it has spread. People with breast cancer often get more than one kind of treatment.

Treatment Options	
Surgery	An operation where doctors remove tissue that is not normal
Chemotherapy	Using special medicines to shrink or kill the cancer
Hormonal therapy	Blocking cancer cells from getting the hormones they need to grow or stopping the production of hormones
Biological therapy	Working with your body's immune system to help it fight cancer or to control side effects from other cancer treatments
External Beam Radiation	Using high-energy rays (similar to X-rays) to kill the cancer
Brachytherapy	Using radioactive seeds or pellets placed near the cancer site

Doctors from different specialties often work together to treat breast cancer *(How Is Breast Cancer Treated?, 2015*):

- Surgeons are doctors who perform operations
- Medical oncologists are doctors who treat cancer with medicine
- Radiation oncologists are doctors who treat cancer with radiation

Medicines that Lower Breast Cancer Risk

When drugs are used to lower the risk of cancer in healthy people, it's called chemoprevention. Many studies have shown that the drugs tamoxifen and raloxifene lower the risk of breast cancer in women who have a higher risk *(Medicines to Reduce Breast Cancer Risk, 2014)*. Other studies are looking at newer drugs called aromatase inhibitors to find out if they can help lower risk. Herbs and dietary supplements are also being studied to find out if they may help lower risk. So far, none have been shown to be helpful.

DISPARITIES

A disparity means unequal. New cases of cancer, treatments, and death are not equal in different groups. Researchers are finding that race, religion, socioeconomic status, and ancestry are the most commonly reported factors.

Breast cancer is the second leading cause of cancer deaths among all women in the United States, but:

- Non-Hispanic white women have the highest number of new cases of breast cancer, yet black women are 40% more likely to die from it.
- Black women are the largest group of women under 40 years old who are diagnosed with breast cancer.
- Breast cancer deaths are going down faster among non-Hispanic white women than any other group.
- Black women have the highest breast cancer death rates.
- Black women are diagnosed at later stages of breast cancer than white women.
- Women with physical disabilities are more likely to have had a breast X-ray but are less likely to receive follow-up treatment.
- Gay and bisexual women are less likely to get regular breast X-rays.
- Breast cancer is the top cause of cancer deaths among Hispanic women.
- Hispanic women who receive chemotherapy are about 1.5 times more likely to die than non-Hispanic whites who receive chemotherapy *(Breast Cancer Facts & Figures 2013–2014, 2013; Breast Cancer in African American Women, n.d.; Arkansas Cancer Facts & Figures 2011, 2011)*

Factors that may contribute to this difference are:

- Not knowing the right screening age for some ethnic groups. Some groups may be not represented enough in clinical trials.
- Black women often have cancers that grow faster and are harder to treat.
- Black women and women with disabilities often have fewer resources than non-Hispanic white women in Arkansas.
- Black women and women with disabilities are less likely to get quick follow-up care when their breast X-rays show something that is not normal.
- Black women are less likely to get good treatment if they have cancer.
- Black women are more likely to be diagnosed with other illnesses such as high blood pressure, diabetes, or heart disease at the time of their first breast cancer diagnosis.
- Hispanic women are more likely to get breast cancer at a younger age and more likely to get triple negative breast cancer. This is associated with a higher risk of recurrence and lower survival rates *(Disparities in Breast Cancer Screening, 2015; Breast Cancer in African American Women, n.d.; Merten, Pomeranz, King, Moorhouse, & Wynn, 2015).*

Other barriers to mammography screening under active study include:

- Have a low income
- Lack of access to care
- Lack of a recommendation from a provider to get screened
- Lack of awareness of breast cancer risks and screening methods
- Cultural and language differences
- Lack of trust in the health-care system
- Lack of health insurance or not enough coverage *(Disparities in Breast Cancer Screening, 2015)*

The ACA says that health insurance plans should fully cover age-appropriate screening mammograms. This means there is no out-of-pocket expense for screening mammograms for women with a health insurance plan. For possible assistance with screening, diagnosis, or treatment, contact the BreastCare program or visit arbreastcare.com.

SURVIVORSHIP

The number of people surviving cancer keeps increasing because early detection and treatment are getting better. Breast cancer survivors are the most common type of survivor today. According to the American Cancer Society, as of January 1, 2012, the total number of cancer survivors living in the United States was nearly 14.5 million with approximately 3.1 million having breast cancer *(Cancer Treatment & Survivorship Facts & Figures 2014–2015, 2014)*. This group has unique issues as a result of treatments including lumpectomy, mastectomy, and axillary dissection. Side effects that may occur from surgery are dependent on many factors. For example, women who have had a lumpectomy or mastectomy may have emotional issues linked to femininity or sexuality. This is due to the body changes caused by the surgery. Some women who have had a lot of lymph nodes taken out in one area may have a lot of swelling or pain of the limb that the removed lymph nodes drained.

Breast cancer survivors can improve the quality of their lives beyond breast cancer diagnosis and treatment through:

- Access to information
- Support programs and groups for emotional healing
- Prosthetic devices to help improve appearance
- Management of lymphedema

OBJECTIVES AND STRATEGIES

Objective 1: By 2020, increase the proportion of women aged 40 years and older who have received a breast cancer screening from 67% to 78%.

Strategy 1:1 Reduce structural barriers such as hours of operations and lack of transportation that make it harder for women to receive screenings.

Strategy 1:2 Encourage system changes that promote provider-based reminders, follow-up, and case-management systems.

Strategy 1:3 Promote work-site wellness policies that facilitate breast cancer prevention and screening efforts, such as work-time release to obtain cancer-related screening services.

Strategy 1:4 Collaborate with local organizations to promote public awareness and outreach that are plain language and culturally appropriate, especially targeting women who are never or rarely screened.

Strategy 1:5 Increase professional development aimed at health-care professionals promoting dissemination of clinical guidelines for breast cancer screening and follow-up. Work with health-care professionals utilizing Electronic Health Records (EHRs) to make sure all recommended cancer screenings are up to date with all patients they see on a regular basis.

Strategy 1:6 Develop messaging and/or targeted outreach for use by the media and providers to increase prevention and breast cancer screening rates, incorporating steps to target identified disparate populations (age, income, disability, rural–urban location, and race or ethnic status) and groups that experience high mortality rates from breast cancer, including African-American and Hispanic women.

Strategy 1:7 Evaluate the impact of stage-shift with correlation of the Affordable Care Act and receipt of insurance including the Arkansas private-option enrollees and any future Medicaid-expansion enrollees.

Strategy 1:8 Work with all health insurance companies covering Arkansans to secure screening data and work with them to increase utilization.

Strategy 1:9 Assist work sites with cancer screening awareness of their employees and work with them to increase screening utilization by their employees.

Strategy 1:10 Increase awareness of assistance and support available to women through the Arkansas Department of Health BreastCare™ program or the American Cancer Society.

Objective 2: By 2020, decrease the incidence of late-stage disease of female breast cancer from 6.7 per 100,000 to 5.5 per 100,000 for women of all ages who have been diagnosed with breast cancer.

Strategy 2:1 Advocate for adequate funding for patient navigation (screening and diagnostic services and treatment) through BreastCare for uninsured and underinsured women.

Strategy 2:2 Promote coverage and access to counseling for risk reduction strategies (such as weight management and exercise, genetic counseling and testing when appropriate, chemoprevention, avoiding or reducing combination hormone therapy after menopause, risk-reducing surgery, minimizing radiation exposure, and other strategies as they develop).

Strategy 2:3 Increase research to identify modifiable risk factors for breast cancer.

Strategy 2:4 Provide appropriate follow-up care to women with inherited cancer syndromes associated with an increased risk of breast cancer.

Strategy 2:5 Promote patient navigation through professional education and formalization of a task force on patient navigation.

Strategy 2:6 Develop and implement a data collection plan that shows the value of patient navigation.

Strategy 2:7 Raise awareness of the efficacy and efficiency of navigation to advocate for reimbursement of patient navigation.

Strategy 2:8 Work with the ACS on their Community Health Advisor program to increase awareness and expansion in Arkansas.

Objective 3: By 2020, increase the number of women living in rural communities who have received breast cancer screening and diagnostic services and appropriate treatment.

Strategy 3:1 Develop a comprehensive breast cancer screening program and statewide mammography coordination plan to address the 27 counties that are without facilities or that aren't covered by the five mobile units in the state. (Measure change in screening and outcomes in these counties.)

Strategy 3:2 Improve access to services through transportation grants.

Strategy 3:3 Provide funding to maintain, repair, or purchase mammography equipment for hospitals or clinics in rural communities.

Objective 4: By 2020, increase the proportion of breast cancer survivors who are living five years or longer after diagnosis. Baselines vary by stage-at-diagnosis.

Strategy 4:1 Increase the number of women utilizing community resources (by making sure they are listed in the ACS Cancer Resource Network), support groups, and programs like the ACS Reach to Recovery and Look Good Feel Better programs.

Strategy 4:2 Provide access to and funding for lymphedema education, management, and treatment, and increase availability of prosthetic devices to mastectomy patients.

Objective 5: By 2020, increase the number of appropriate referrals of women with breast cancer diagnosis meeting current guidelines for genetic counseling and genetic testing.

Strategy 5:1 Educate health-care providers, policymakers, and community support groups about guidelines for genetic counseling and genetic testing.

Strategy 5:2 Advocate for all commercial health insurance plans to cover mammograms for women starting at age 40 and cover BRCA1 and BRCA2 genetic testing and counseling for women who have a family history of breast and ovarian cancer.

Strategy 5:3 Advocate for funding to cover genetic counseling and testing.

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce the female breast cancer death rate	17.8 per 100,000 in 2013 (provisional mortality data)	16 per 100,000 in 2020. Target setting method: 10% decrease.	ADH Mortality Query System
OBJECTIVES	Increase the proportion of women aged 40 years and older who have received a breast cancer screening in the past two years.	67% in 2012	78% in 2020	BRFSS
	Decrease the incidence of late-stage disease of female breast cancer.	6.7 per 100,000 in 2011 (distant stage)	5.5 per 100,000 in 2020 (distant stage)	Arkansas Cancer Registry
	Increase the number of women living in rural communities who have received breast cancer screening and diagnostic services and appropriate treatment.	To be developed	Not available	Not available
	Increase the proportion of breast cancer survivors who are living five years or longer after diagnosis.	5-year overall survival of female breast cancer in Arkansas: 90% between 2001–2008	5-year overall survival of female breast cancer in Arkansas: 99%. Target setting method: 10% increase	Arkansas Cancer Facts and Figures 2011.
	Increase the number of appropriate referrals of women with breast cancer diagnosis meeting current guidelines for genetic counseling and genetic testing.	To be developed	Not available	Not available

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Prostate Cancer

GOAL

Reduce the deaths from prostate cancer in Arkansas.

BACKGROUND

The American Cancer Society (ACS) projects that:

- 220,800 American men will be told they have prostate cancer in 2015. Arkansas will have 2,050 of those cases.
- Around 27,540 American men will die from prostate cancer in 2015. Arkansas will have 290 of those deaths *(Cancer Facts & Figures 2015, 2015)*.

In 2007, 23.5 men out of 100,000 died from prostate cancer in the United States. Arkansas had 28 men out of 100,000 die from prostate cancer in that same year *(Healthy People 2020, 2013)*.

Prostate cancer is the second most common cancer in men and the second leading cause of death from cancer. If it is found before there are signs, the five-year survival rates are over 90% in Arkansas *(Arkansas Cancer Facts & Figures 2011, 2011)*.

PREVENTION

Prevention starts with awareness and education. The Arkansas Prostate Cancer Foundation (APCF) was founded in 2000 to help with awareness and education. The APCF's stated mission is to promote awareness, encourage timely detection, and support improved treatment of prostate cancer in Arkansas.

Awareness and education are vital to make sure that all Arkansans know about prostate cancer. The APCF sponsors ways to raise awareness and public education programs in the state. They can be found at health fairs, work sites, churches, sporting events, and sportsmen's expos. The APCF also has a Prostate Health Resource Center in Little Rock. It gives prostate cancer education materials to prostate cancer survivors and health-care experts across the state free of charge. The APCF website, www.arprostatecancer.org, has prostate cancer facts and support. They also have a toll-free number, 1-800-338-1383.

SCREENING AND DETECTION

Signs and Symptoms

In the early stages of prostate cancer, there are no signs. In the later stages, common symptoms are:

- Weak urine flow
- Urine flow that stops randomly
- Not being able to urinate
- Trouble starting and stopping urine flow
- Needing to urinate often, especially at night
- Blood in your urine.
- Pain or burning when you urinate

The above symptoms can also happen when no cancer is present. They can be caused by problems with the prostate or an infection.

In the later stages, prostate cancer can spread to the bone. This can cause pain in the hips, spine, ribs, and other areas *(Arkansas Cancer Facts & Figures 2011, 2011).*

Early Detection and Screening

The prostate-specific antigen test (PSA blood test) and the digital rectal exam (DRE) are common ways to screen for prostate cancer. However, these tests sometimes show that men have prostate cancer when they have a tumor that will not cause problems. It is still important that all men learn about prostate cancer and the risks and benefits of early screening. It is also important for men to learn about new tests that can help determine if a biopsy is needed for an elevated PSA.

Early screening has led to fewer deaths from prostate cancer. It has also helped stop the disease from spreading in some men. It is still controversial. Right now, there are no set rules for when and whom to screen.

- In 2012, the United States Preventive Services Task Force (USPSTF) decided that men with no prostate cancer symptoms should not use PSA-based screening unless they have a high risk of developing the disease *(Prostate Cancer: Screening, 2012)*.
- The American Cancer Society says that men with no symptoms who are expected to live at least 10 more years should be able to decide with the help of their doctor whether or not they should be screened *(Cancer Facts & Figures 2014, 2014)*.
- The American Urological Association says that men aged 55–69 who are thinking about getting screened should be able to make the decision with their doctor instead of the doctor making the decision for them *(Detection of Prostate Cancer: Guidelines, n.d.)*.
- The 2015 National Comprehensive Cancer Network Guidelines for the Early Detection of Prostate Cancer say that men should be able to make decisions about screening for prostate cancer with their doctor starting at age 45 *(Clinical Practice Guidelines, 2015)*.

Cancer control experts in the state need to keep teaching Arkansas men and health-care providers about prostate cancer.

USPSTF Summary of Recommendations and Evidence

Population	Recommendation	Grade
Men, Screening with PSA	The U.S. Preventive Services Task Force (USPSTF) recommends against prostate-specific antigen (PSA)-based screening for prostate cancer.	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.

TREATMENT

The most common treatment methods are active surveillance (watching the cancer, testing regularly, and stepping in if the cancer progresses); prostatectomy (removing the prostate); external beam radiation therapy; brachytherapy; and androgen deprivation therapy.

SURVIVORSHIP

Five-year survival rates depend on how far the cancer has spread when it is diagnosed.

Five-Year Survival Rate

Category	Percent
Localized	97
Regional	93
Distant	33
Overall	93

According to the American Cancer Society, there are about 2.5 million prostate cancer survivors in the United States.

It is important to pay attention to survivorship when planning treatment for prostate cancer. There are patient navigators, who talk one-on-one with patients and help remove barriers to cancer-related care. They also help make sure that care is delivered quickly and help support quality of life. The APCF has a patient navigator to help provide patients with various support services. They help men who may have prostate cancer get the best possible care. They help men understand their diagnosis and treatment options and answer any questions they may have. They can also help find ways to pay for treatment. After treatment, the patient navigator helps the survivor and family members with emotional, spiritual, physical, financial, and practical changes in their lives. They help survivors make healthy decisions and help them cope with life changes.

Peer support is also important to survivorship. The APCF has a Peer Network of men and women who have dealt with the problems resulting from prostate cancer. There are support group meetings where survivors and their family members can talk freely, share concerns, ask questions, and share knowledge and support. There are also survivor–mentors who give one-on-one support to fellow survivors.

DISPARITIES

Race

Prostate cancer is more common in some racial and ethnic groups than in others. The risk of prostate cancer in African-American men is 1.5 times higher than in white men *(Arkansas Cancer Facts & Figures 2011, 2011)*. Death rates have gone down for both white and African-American men since the early 1990s, but African-American men in Arkansas are still almost three times (2.8) more likely to die from prostate cancer than whites *(Arkansas Cancer Facts & Figures 2011, 2011)*.

Age

Prostate cancer is very rare in men younger than 40, but the chance of having prostate cancer rises rapidly after age 50. About 6 in 10 cases of prostate cancer are found in men over age 65 *(Cancer Facts & Figures 2015, 2015)*.

Family History

Prostate cancer seems to run in families. Having a father or brother with prostate cancer more than doubles a man's risk of developing this disease. The risk is much higher for men with several affected relatives, particularly if their relatives were young at the time the cancer was found *(Cancer Facts & Figures 2015, 2015)*.

Health Literacy

Health literacy is the ability to read and understand health information and instructions. Many Arkansans do not have the reading skills they need to understand and be able to use the health-care system.

OBJECTIVES AND STRATEGIES

Objective 1: Increase awareness and public education about prostate cancer.

Strategy 1:1 Develop initiatives to raise awareness of prostate cancer risk factors and symptoms of prostate health issues.

Strategy 1:2 Collaborate with key stakeholders (APCF volunteers, advocacy groups, health-care organizations, faith-based groups, workplaces) to provide public education about prostate cancer within communities across the state, especially in underserved populations.

Strategy 1:3 Educate in a culturally sensitive way and distribute targeted information to men at higher risk of prostate cancer, specifically African-American males and men with a family history of one or more first-degree relatives diagnosed with prostate cancer.

Strategy 1:4 Distribute prostate cancer educational information to health-care providers and to the general public addressing differences in culture, age, and health-literacy level.

Strategy 1:5 Enlist statewide media support to provide consumer-centered awareness messages.

Strategy 1:6 Monitor the dissemination of emerging information on prostate cancer detection, diagnosis, treatment, and survivorship, including new biomarkers that may improve detection of aggressive disease.

Objective 2: Increase the proportion of men who have discussed with their health-care provider whether or not to have a prostate-specific antigen (PSA) test to be screened for prostate cancer *(Healthy People 2020, 2013).*

Strategy 2:1 Outline the benefits and risks of screening for dissemination to health-care professionals, community leaders, the general public, and men who are considering screening, referencing the USPSTF's guidelines.

Strategy 2:2 Evaluate, promote, and distribute decision tools that promote informed consent.

Objective 3: Increase the utilization of prostate-cancer-specific support services to enhance survivorship from risk assessment through diagnosis, treatment, and recovery.

Strategy 3:1 Provide a prostate-cancer-specific patient navigator to:

- i. Educate men with abnormal prostate-specific antigen or digital rectal exam results about diagnostic procedures and encourage timely and appropriate follow-up, including use of emerging biomarkers that may improve detection of aggressive disease
- ii. Educate men diagnosed with prostate cancer about treatment options, including active surveillance and treatment after-effects, and encourage timely follow-up for appropriate intervention if needed
- iii. Identify and mitigate patient and systems barriers while facilitating and supporting patients' actions in dealing with the disease, including effective interface with health-care providers
- iv. Monitor emerging technologies on prostate cancer diagnosis, treatment, and survivorship for documentation and dissemination to prostate cancer survivors or prostate cancer advocates

Strategy 3:2 Collaborate with hospitals and other health-care organizations or providers to provide prostate-cancer-specific navigation services and/or tools.

Strategy 3:3 Refer men and their families for assistance in enrolling in health insurance under the ACA.

Strategy 3:4 Raise awareness about clinical trials and community-based participatory research where appropriate.

Strategy 3:5 Identify and collaborate with community points of contact to increase awareness among the general public, survivors, providers, and others about survivorship issues and resources.

Strategy 3:6 Disseminate information about quality-of-life resources and services, support groups, and other resources for men diagnosed with prostate cancer and their loved ones.

Strategy 3:7 Provide and facilitate peer support through support groups and survivor–mentor services for men diagnosed with prostate cancer and their loved ones

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce deaths from prostate cancer in Arkansas	21.9 deaths per 100,000 in 2011 in Arkansas	19.7 deaths per 100,000 in 2020 in Arkansas: 10% reduction from baseline	ADH Mortality Query System
OBJECTIVES	Increase awareness and public education about prostate cancer.	To be developed	Not available	APCF Progress Reports
	Increase the proportion of men who have discussed with a health-care provider whether or not to have a prostate-specific antigen (PSA) test to be screened for prostate cancer.	Question 16.1: Advantages of PSA discussed 55.6% yes Question 16.2: Disadvantages of PSA discussed 20.5% yes	Question 16.1 – 61.1%: 10% increase from baseline Question 16.2 – 22.5%: 10% increase from baseline	BRFSS
	Increase the utilization of prostate-cancer-specific support services to enhance survivorship from risk assessment through diagnosis, treatment, and recovery.	398 men navigated by APCF during DOH FY 2014	5% annual increase in number of men navigated	APCF Progress Reports

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Oral Cancer

GOAL

Reduce deaths from oral cancer in Arkansas.

BACKGROUND

Oral cancer is cancer of the mouth and surrounding tissues. It includes:

- The lips
- The inside lining of the lips and cheeks
- The gums
- The tongue
- The floor of the mouth below the tongue
- The hard palate (roof of the mouth)
- The area behind the wisdom teeth

Oral cancer also includes the base of the tongue, soft palate (roof of the mouth behind the hard palate), tonsils, and sides and back wall of the throat.

Approximately 90% of all oral cancers are squamous cell carcinomas, and the remainder are salivary gland tumors and lymphomas. Oral squamous cell carcinomas generally develop after a long period of time from precancerous red-colored patches (erythroplakia) and, to a lesser extent, from white-colored patches (leukoplakia) in the mouth or on the lips. These cancers are primarily caused by tobacco use alone or in combination with heavy alcohol use.

The most common sites for oral cancers are the tongue, including the side of the tongue near the back and base (25% of all oral cancers), tonsils (10–15%), lips (10–15%), and salivary glands (10–15%) with the remainder in the floor of the mouth, gingiva, and other sites *(What is Oral Cancer?, n.d.)*.

Approximately 429 Arkansans were diagnosed with oral cavity and pharynx cancers in 2011, and 92 died of the disease in 2013 *(Arkansas Central Cancer Registry, n.d.)*.

PREVENTION

Several risk factors increase the chances of developing oral cancer, including the following:

Tobacco and Alcohol Use

The primary risk factors for oral cancer are past and present use of tobacco products including cigarettes, smokeless tobacco, cigars, and alcohol *(Mashberg, Boffetta, Winkelmann, & Garfinkel, 1992; Mashberg, Boffetta, Winkelmann, & Garfinkel, 1993; Blot, McLaughlin, Devesa, & Fraumeni, 1996)*. Tobacco and alcohol use account for 75% of all oral cancers.

Compared to nonsmokers, smokers have up to an 18-fold risk of developing oral cancer. Individuals who engage in heavy driving (men who drink more than four standard drinks per day or more than fourteen per week and women who drink more than three per day or more than seven per week) *(Helping Patients Who Drink Too Much, 2005)* and/or who smoke more than one pack of cigarettes a day are at an even higher risk for oral cancer. It is believed that alcohol acts as a facilitator for the penetration of tobacco carcinogens into the soft tissues of the mouth. In addition, evidence suggests that marijuana use may also increase the risk for oral cancer *(Young, 1986)*.

The CDC states that many smokeless tobacco products contain cancer-causing chemicals. Smokeless tobacco can cause white or gray patches inside the mouth called leukoplakia that can lead to cancer. In Arkansas, smokeless tobacco use rates are highest among white males *(Smokeless Tobacco, 2014)*.

Other types of tobacco use specific to Southeast Asia and India but increasing in the United States (such as paan, bidis, and betel or areca nut use) have been found to give rise to submucous fibrosis, a precancerous condition consisting of generalized fibrosis of the oral soft tissues *(Canniff, Harvey, & Harris, 1986; Mehta, Gupta, & Pindborg, 1981; Sankaranarayanan, Duffy, Day, Nair, & Padmakumary, 1989)*.

Sun Exposure

Unprotected exposure to UV radiation is the primary risk factor for lip cancer *(Winn et al., 1998)*. Farmers, construction workers, and others who spend time in the sun are especially susceptible to lip cancer.

Viruses

Viruses such as human papillomavirus (HPV), herpes simplex type 1, and Epstein–Barr Virus (EBV) are risk factors *(Silverman, S., 2001; Oral Health in America, 2000)*. Viruses are capable of producing cancer-causing genes called oncogenes. Many oncogenes have been found in oral cancers and are thought to develop through an array of genetic mutations and alterations. Various types of the herpes virus have been discovered in oral cancers including Kaposi's sarcoma, a rare cancer found in AIDS patients that is often first detected in the oral cavity *(Park, Sapp, & Herbosa, 1986; Epstein & Scully, 1992)*. In addition to these viruses acting as etiologic agents in oral cancer development, fungal infections caused by strains of Candida Albicans may cause oral cancer through the development of carcinogenic nitrosamines in the oral soft tissues *(Field, Field, & Martin, 1989)*.

HPV has been isolated in oropharyngeal precancerous and squamous cell carcinoma lesions and is known to act as a co-factor in cancer development in both cervical and oral cancers *(Gillison et al., 2000; Fouret, Monceaux, Temam, Lacourreye, & St. Guily, 1997)*. Targets for HPV-associated oral cancer include the tonsils and base of the tongue. Cancer at these sites appears to be more prevalent in younger, non-smoking individuals, who have a different risk profile than groups traditionally at risk for oral cancer.

The risk factors for HPV infection preceding oral and cervical cancer development include having multiple sex partners, having a partner who has had numerous partners, and having a weakened immune system *(Syrjänen, 2007)*.

Approximately 25% of all head and neck cancers (primarily cancers of the base of the tongue and tonsil) are caused by HPV. A recent study showed that 34% of head and neck cancers were HPV positive in white patients, whereas only 4% of head and neck cancers were HPV positive in black or African-American patients. This may contribute to poor treatment outcomes in the black or African-American population because HPV-positive tumors are more sensitive to treatment than HPV-negative tumors. African-American patients are less likely to develop an HPV-positive cancer, which responds better to treatmen *(Settle et al., 2009)*.

Diet

Poor dietary intake of essential nutrients from fruits and vegetables may also be a risk factor for oral cancer *(Winn, 1995)*. A diet consisting of daily intake of fruits, vegetables, and dietary fibers may protect against early oral cancers and precancerous lesions, especially among smokers. In addition, the role of antioxidants—including vitamins A, C, and E, dietary selenium, folate, and certain carotenoid and retinoid compounds—is being studied. If such a link is definitively established, dietary nutrients could play a major role in helping prevent oral cancer development *(Enwonwu & Meeks, 1995; Garewal, 1995)*.

SCREENING AND DETECTION

Tumors diagnosed at early stages (localized) are often curable. Most oral cancers in Arkansas are diagnosed at the latest stages of disease, and men are more likely to have tumors diagnosed later than women. In order to detect tumors early, the American Cancer Society recommends that primary care doctors, dentists, and dental hygienists examine the mouth and throat as part of routine cancer prevention-related care. According to the American Dental Hygienists Association, most oral premalignant lesions and cancers are detectable at the time of a comprehensive oral exam. These lesions often present as a white patch, or less frequently, a red patch, and progression from premalignant lesions to cancer usually occurs over several years *(Cancer of the Oral Cavity and Pharynx, 2013)*.

USPSTF Summary of Recommendations and Evidence

Population	Recommendation	Grade
Asymptomatic Adults	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for oral cancer in asymptomatic adults.	I The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

TREATMENT

If not detected early, squamous cell carcinomas in the mouth can extend into nearby tissues and metastasize to regional lymph nodes in the head and neck. Treatment for oral cancer at all stages can cause disfigurement and dysfunction, but once oral cancer spreads, the course of treatment can cause severe disfigurement, pain, and dysfunction that affects speech, chewing, swallowing, and general quality of life.

DISPARITIES

The average age of most people diagnosed with oropharyngeal cancers is 62. Oral cancers are about twice as common in men as in women. In Arkansas, from 1998 to 2012, men were 3.2 times more likely to be diagnosed with oral cancer than women: 16.4 per 100,000 for men and 6.2 per 100,000 for women. The higher incidence among men can be attributed to the increases in risk factors associated with oral cancers: smoking, use of smokeless tobacco, cigars, alcohol use, and an increased prevalence of HPV *(Arkansas Central Cancer Registry, n.d.; Oral Cavity and Oropharyngeal Cancer, 2014).*

SURVIVORSHIP

Survival largely depends on the stage in which the cancer was diagnosed. Based on U.S. data from 2004 to 2011, the overall five-year survival rate was 63.2% *(Oral Cavity and Pharynx Cancer, n.d.)*. Percent survival rates by stage at diagnosis are as follows:

Five-Year Survival Rate 2004-2010

Stage of Cancer	Percent
Localized	31
Regional	47
Distant	18

WORK FORCE DEVELOPMENT

Incorporating routine oral cancer examinations (and other screening methods for oral cancer) into the daily practice of health-care practitioners can increase the likelihood of earlier detection of oral cancer. However, there is no evidence that such early detection can decrease oral cancer mortality *(Gooch et al., 2002)*. Nevertheless, routine examinations for early detection of oral cancer should still be recommended because:

- Oral cancer is a serious yet treatable disease in its early stages.
- Treatment in the early stages of oral cancer is generally better tolerated compared with later treatment of symptomatic patients.
- Screening examinations are inexpensive and safe *(Goodman, Yellowitz, & Horowitz, 1995).*

The oral cancer examination can be performed easily and takes no more than two minutes *(American Dental Association, 2001)*. Although dentists and dental hygienists are the ideal health practitioners to perform this examination, other providers (i.e., nurse practitioners, physician assistants, and physicians) can and should provide oral cancer examinations as part of routine physical examinations. Because individuals at high risk for oral cancer are more likely to visit these providers than to visit a dentist or dental hygienist, non-dental health-care providers may be critically important to screening efforts.

First, a careful health history must be completed, assessing risk factors such as past and present tobacco and alcohol use, diet and life-style, prior cancer history, sun exposure experience and behaviors, surgeries, medications, and sexual practices (to discern possible HPV exposure) *(Scuibba, 2001)*.

More evidence-based information is needed to evaluate and compare the practice patterns of primary care and dental providers, and to assess the effectiveness of existing oral cancer prevention programs. Currently, funding to expand ongoing oral cancer research and the development of more sensitive and specific oral cancer screening tools is limited. Additional resources are needed for this and for research that aids our understanding of the etiologic pathways from potential viral, environmental, behavioral, and familial sources.

OBJECTIVES AND STRATEGIES

Objective 1: By 2020, increase the proportion of oral and pharyngeal cancers detected at the earliest stage (localized), in line with the Arkansas Healthy People 2020, Oral Health Objective (OH)-6.

Strategy 1:1 Increase detection of oral cancer through increased utilization of primary care health-care professions. Work with professional organizations to teach and encourage physicians, dentists, dental hygienists, nurse practitioners, nurses, and physicians' assistants to conduct oral cancer screening as part of routine physical and oral exams.

Strategy 1:2 Develop an oral cancer education/early detection program to target health-care providers at Federally Qualified Health Centers, local health departments, other community health centers, and Veterans Administration hospitals to ensure oral cancer screening is conducted during routine visits and to reduce the number of late-stage oral cancer diagnoses.

Strategy 1:3 Provide health-care providers with referral mechanisms for oral cancer by identifying local and state referral resources.

Strategy 1:4 Develop a method to measure the number of Arkansas adults who have been screened in the past year for oral cancer.

Strategy 1:5 Develop, test, and implement an oral cancer education program to target African- American adults about prevention and early detection of oral cancers.

Strategy 1:6 Work with the Arkansas Department of Health's Southeast Targeted Area Resources for Health (STAR) initiative to increase funding for community oral cancer programs, to conduct oral cancer exams in minority and underserved communities, and to develop and distribute community-based and culturally relevant oral cancer programs and messages that target minority and underserved communities.

Strategy 1:7 Encourage health-care providers to engage in oral cancer volunteerism by providing continuing education credits or other potential incentives for participating in community oral cancer screenings.

Objective 2: Increase the proportion of adults who receive preventive interventions in dental offices in line with Arkansas Healthy People 2020, OH-14, by 2020 (developmental).

Strategy 2:1 Establish baseline data to measure the percentage of all health-care providers who report adequate training for conducting oral cancer exams.

Strategy 2:2 Work with University of Arkansas for Medical Services (UAMS) to ensure oral cancer literacy and exam training procedures are included in the curriculum for all UAMS health-care students.

Strategy 2:3 Encourage and support professional organizations to include oral cancer prevention and early detection as a topic at educational seminars and meetings.

Strategy 2:4 Develop a statewide educational campaign designed to increase the demand for oral cancer screening by encouraging individuals to ask health-care providers for an annual oral cancer exam as part of routine health exams.

Strategy 2:5 Increase the oral cancer knowledge of the public about oral cancer risk factors and high-risk activities (such as tobacco use, alcohol use, and HPV infection) by developing targeted and culturally relevant oral cancer messages in plain language.

Strategy 2:6 Encourage and promote an annual observance of Oral Cancer Awareness Week.

Objective 3: By 2020, decrease the prevalence of the oral cancer risk factors of tobacco use (cigarettes, smokeless tobacco, and cigars) and alcohol use among adults 18 years and older in Arkansas.

Strategy 3:1 Encourage, increase, and review research to determine effects of current and emerging risk factors.

Strategy 3:2 Partner with other chronic disease programs who share risk factors to maximize effectiveness of resources in addressing reduction of oral cancer mortality rates in Arkansas, including the ACC and ADH's Family Branch and TPCP program, and others. Activities could include:

- Sponsoring oral cancer continuing education for dental providers in conjunction with the ACC, thus stressing the importance of cancer screening and early detection
- Sponsoring oral cancer continuing education for dental providers in conjunction with tobacco intervention programs such as TPCP

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce Oral Cancer mortality rates	2.7 per 100,000 in 2013	2.4 per 100,000	ADH Mortality Query System
OBJECTIVES	By 2020, increase the proportion of oral cancers detected at the earliest stage (localized).	Overall: 34.1% White Males: 33.4% Black Males: 18.0% White Females: 40.7% Black Females: 33.3% Combined 2007 - 2011 data	Overall: 37.5% White Males: 36.7% Black Males: 19.8% White Females: 44.7% Black Females: 36.6% Target setting method: 10% increase.	Arkansas Central Cancer Registry
	By 2020, increase the proportion of adults who received oral and pharyngeal cancer screening from a dentist or dental hygienist in the past year.	Developmental	Developmental	
	By 2020, reduce tobacco use by adults. Reduce alcohol use by adults.	Cigarette use: 25.0% in 2012 Smokeless use: 7.1% in 2012 Alcohol Use: 4.1% in 2012 (Heavy drinkers)	Cigarette Use: 22.5% Smokeless tobacco use: 6.4% Alcohol Use: 3.7% Target setting	BRFSS

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Skin Cancer

GOAL

Reduce deaths from melanoma in Arkansas

BACKGROUND

Skin cancer is the most common type of cancer (Skin Cancer Prevention and Early Detection, 2015). The three main types are basal cell, squamous cell, and melanoma. Basal cell and squamous cell cancers are the most common skin cancers.

Melanoma is the deadliest form of skin cancer. It can be found anywhere on the body. It is also more likely to spread to other parts of the body and become life-threatening.

Melanoma is very rare in black populations, so the melanoma statistics below are about whites residing in Arkansas.

- In 2011, 555 white people were diagnosed with melanoma.
- In 2011, 93 people died of melanoma.
- From 2008 to 2012, 18.1 per 100,000 white people developed melanoma. During that time, 14.5 women per 100,000 and 23.1 males per 100,000 developed melanoma.
- From 2007 to 2011, 3.0 people per 100,000 died from melanoma. During that time, 4.7 males per 100,000 and 1.7 females per 100,000 died from melanoma *(Arkansas Central Cancer Registry, n.d.)*.
- Around 360 people are projected to be diagnosed with melanoma in Arkansas in 2015 (*Cancer Facts & Figures 2015)*.

Exposure to ultraviolet (UV) rays is a major risk factor for most skin cancers. Some sources are:

- Sunlight
- Tanning lamps
- Tanning beds

PREVENTION

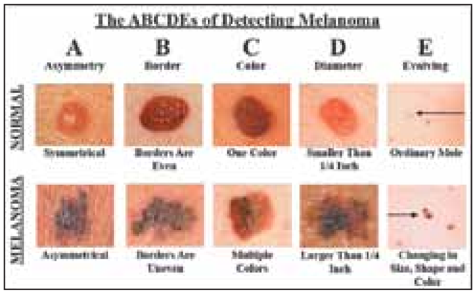
The best way to prevent skin cancer is by protecting your skin from UV rays. You can limit exposure by:

- Wearing sunscreen with protection against UVA and UVB rays and with sun protection factor (SPF) of 30 or higher
- Not using tanning salons or sunbathing
- Wearing clothing and hats to cover the skin when outside
- Wearing sunglasses with 99-100% UVA/UVB protection when outside
- Staying in the shade between 10 A.M. and 4 P.M. *(Skin Cancer Prevention and Early Detection, 2015)*

SCREENING AND DETECTION

Most skin cancers can be found early by doctor's exams and checking the skin.

- Basal cell carcinomas look like flat, firm, pale areas or small, raised, pink or red, translucent, shiny, pearly bumps. They may bleed after a minor injury. Large basal cell carcinomas may have oozing or crusted areas.
- Squamous cell carcinomas may look like growing bumps, often with a rough, scaly, or crusted surface. They may also appear as flat reddish patches in the skin that grow slowly.
- Actinic keratosis, also known as solar keratosis, are small (less than ¼ inch across), and look like rough or scaly spots that may be pink-red or skin colored. Some grow into squamous cell cancers, but others may stay the same or even go away on their own. These areas should be looked at by a doctor.
- Melanoma is a new spot on the skin or an old spot that's changed in size, shape, or color. Melanoma is common on a man's chest and back and on a woman's legs. It can also be found on the neck or face, and when one first gets it, it may look like a small mole. Using the ABCDE guidelines can help you tell if you may have melanoma.
  - A = Asymmetry (one half of a mole or birthmark does not match the other)
  - B = Border (edges are irregular, ragged, notched, or blurred)
  - C = Color (change in color, or more than one color on the mole)
  - D = Diameter (bigger than a pencil eraser)
  - E = Evolving (the mole is changing in size, shape, or color)



USPSTF Summary of Recommendations and Evidence		
Population	**Recommendation**	**Grade**
Children, Adolescents, and Young Adults aged 10 to 24, Fair Skinned	The U.S. Preventive Services Task Force (USPSTF) recommends counseling children, adolescents, and young adults aged 10 to 24 years who have fair skin about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer.	B The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantialgrade.
Adult General Population	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of using a whole-body skin examination by a primary care clinician or patient skin self-examination for the early detection of cutaneous melanoma, basal cell cancer, or squamous cell skin cancer in the adult general population.	I The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

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TREATMENT

Treatment can include:

- Surgery
- Immunotherapy, which uses your body's immune system to fight the cancer
- Targeted therapy, or drugs that fight skin cancer
- Chemotherapy
- Radiation

The treatment used depends on the size and stage of the cancer.

DISPARITIES

People are more likely to get melanoma as they get older. The median age at diagnosis is 65 years and the median age at death is 68 years *(Arkansas Cancer Facts & Figures 2011)*. Older men are more likely than older women to die from melanoma. Before age 55, men and women have almost the same chance of dying of melanoma.

SURVIVORSHIP

Most melanoma cases are diagnosed at early stages of disease. Finding the disease early leads to high five-year survival rates. From 2001 to 2008, the five-year survival rates for melanoma of the skin by stage of disease were:

Five-Year Survival Rate 2004-2010

Stage of Cancer	Percent
In Situ	99
Localized	95
Regional	61
Distant	36
Overall	91

OBJECTIVES AND STRATEGIES

Objective 1: Increase awareness among youth regarding the dangers of unprotected exposure to UV rays—including indoor tanning—and the corresponding recommended practices for reducing risk of skin cancer.

Strategy 1:1 Promote awareness through distribution and use of existing sun safety materials, through promotional pieces placed in journals, newsletters, websites, and through other media that target young adults aged 10 to 24 years.

Strategy 1:2 Assess available shade on elementary school playgrounds and community areas.

Strategy 1:3 Evaluate school policies on sun exposure on playgrounds.

Strategy 1:4 Include sun safety programs in school. Use *CDC's Sun Safety Youth Toolkit and Guidelines for School Programs*.

Strategy 1:5 Educate students in schools and community groups on the dangers of unprotected exposure.

Strategy 1:6 Support sunscreen education programs and partnerships with Parent Teacher Associations (PTAs).

Strategy 1:7 Implement "shade project" collaboration between the schools and communities (PTA/PTO). Have sunscreen listed as a recommended school supply.

Objective 2: Collect data on sun exposure behaviors—including indoor tanning—in youth and adults.

Strategy 2:1 Conduct a needs assessment.

Strategy 2:2 Assess existing sun/UV safety programs in schools and communities.

Strategy 2:3 Disseminate data collected and provide a synopsis of need.

Objective 3: Identify potential funding sources such as CDC, private foundations, and sun product manufacturers and retailers to address sun safety measures in Arkansas.

Strategy 3:1 Identify partnerships with sun safety product manufacturers.

Strategy 3:2 Find matching funds from organizations that address sun safety measures.

Objective 4: Identify existing policies and partnerships to promote sun safety measures.

Strategy 4:1 Explore existing policies and requirements on tanning.

Strategy 4:2 Partner with local civic groups and organizations to include policies on sun safety measures.

Strategy 4:3 Review school policies on sun exposure and access to sun screen on playgrounds to improve them.

Objective 5: Increase the number of educational opportunities on skin cancer screening and sun safety measures.

Strategy 5:1 Work with organizations that provide programs on sun safety measures and skin cancer screening to providers across the state.

Strategy 5:2 Encourage clinicians and other providers to skin cancer prevention, screening and education.

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce the melanoma cancer death rate.	2.3 deaths per 100,000 in 2013 in AR	2.1 deaths per 100,000 in 2020: Target setting method: 10% decrease	ADH Mortality Query System
OBJECTIVES	Reduce the proportion of adolescents in grades 9–12 who report sunburn (Developmental)	Data not available	Date not available	Potential source: YRBSS or APNA
	Reduce the proportion of adults 18 years and older who report sunburn	34.7% in Arkansas, BRFSS 2013 (U.S. Data: 37.5% reported at least one sunburn in the last 12 months before the survey, 2010 NHIS)	33%	BRFSS state-added question
	Reduce the proportion of adolescents in grades 9-12 who report using artificial sources of ultraviolet light for tanning.	AR Not Available (U.S. Data: 13.3% of students had used an indoor tanning device one or more times during the last 12 months before the survey, 2011 YRBS)	AR Not Available	Potential source: YRBSS or APNA
	Reduce the proportion of adults 18 years and older who report using artificial sources of ultraviolet light for tanning	6.6% in Arkansas, BRFSS 2013 (U.S. Data: 5.6% reported using artificial sources of UV light for tanning, NHIS 2010)	6.3%	BRFSS state-added question
	Increase the proportion of adults 18 years and older who follow protective measures that may reduce the risk of skin cancer.	26.3% in Arkansas, protective measures include regular sunscreen use only, BRFSS, 2013.	27.6%	BRFSS state-added question

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Cervical Cancer

GOAL

Reduce deaths from cervical cancer in Arkansas.

BACKGROUND

Cervical cancer is highly preventable with regular screening tests and appropriate follow-up care. It can also be cured when found early and treated. Cervical cancer is almost always caused by the human papillomavirus (HPV), and vaccines are available to protect against the types of HPV that most often cause cancer *(January Is Cancer Awareness Month, n.d.)*.

In the United States in 2015, an estimated 12,900 women will be diagnosed with invasive uterine cancer and about 4,100 will die from it. In Arkansas, an estimated 150 women will be diagnosed with cervical cancer *(Cancer Facts & Figures 2015)*. In 2011, 48 Arkansas women died from cervical cancer *(Arkansas Central Cancer Registry, n.d.)*.

Most cervical cancers begin in the cells lining the cervix. These cells do not suddenly change into cancer. Instead, the normal cells of the cervix first gradually develop precancerous changes that turn into cancer. Doctors use several terms to describe these precancerous changes, including cervical intraepithelial neoplasia (CIN), squamous intraepithelial lesion (SIL), and dysplasia. These precancerous lesions can stay the same or change over 15 to 20 years into invasive cancer. Because of the slow progression of cancer, screening and intervention can save lives.

Rates of cervical cancer are higher in women aged 40 and older, because the time from infection with human papillomavirus (HPV) to invasive cancer is 15 to 20 years.

PREVENTION

HPV Vaccination Recommendations

- HPV vaccination with HPV9 or HPV2 is recommended in a three-dose series for females at age 11 or 12 years and for those aged 13–26, if not previously vaccinated.
- Vaccination with HPV9 is recommended in a three-dose series for males at age 11 or 12 years and 13–21 if not previously vaccinated. Males aged 22–26 may be vaccinated.
- The CDC Advisory Committee on Immunization Practices (ACIP) recommendations for HPV vaccination may change as new vaccines become available. The most recent recommendations can be found on the CDC website at www.cdc.gov/hpv/vaccine.html.

SCREENING

Cervical Cancer Screening Recommendations

- Cervical cancer screening begins at age 21.
- Ages 21–29: cytology every three years.
- Ages 30–64: cytology and HPV testing every three years.
- Screening ends at age 65 for women with good results from their previous screenings.
- Since there are several screening pathways for women to follow based on their age, risk factors, and the results of their previous screenings, women should ask their doctor at each visit about the cervical cancer screening pathway that is right for them.
- The recommended frequency of screening is ever-changing and the most up-to-date information can be found at http://www.asccp.org, which is the website for the American Society for Colposcopy and Cervical Pathology.

USPSTF Summary of Recommendations and Evidence		
Population	**Recommendation**	**Grade**
Women 21–65 (Pap Smear) or 30–65 (in Combo with HPV Testing)	The USPSTF recommends screening for cervical cancer in women aged 21–65 with cytology (Pap test) every three years or, for women aged 30–65 who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every five years. See the Clinical Considerations for discussion of cytology method, HPV testing, and screening interval.	A The USPSTF recommends the service. There is high certainty that the net benefit is substantial.
Women Younger Than 30 years, HPV Testing	The USPSTF recommends against screening for cervical cancer with HPV testing, alone or in combination with cytology, in women younger than 30 years.	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.
Women Younger Than 21	The USPSTF recommends against screening for cervical cancer in women younger than 21 years.	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.
Women Older Than 65, Who Have Had Adequate Prior Screening	The USPSTF recommends against screening for cervical cancer in women older than age 65 who have had adequate prior screening and are not otherwise at high risk for cervical cancer. See the Clinical Considerations for discussion of adequacy of prior screening and risk factors.	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.
Women Who Have Had a Hysterectomy	The USPSTF recommends against screening for cervical cancer in women who have had a hysterectomy with removal of the cervix and who do not have a history of a high-grade precancerous lesion (cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer *(Cervical Cancer: Screening, 2012)*	D The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.

OBJECTIVES AND STRATEGIES

Objective 1: By 2020, increase the proportion of women who receive cervical cancer screening based on the most current cervical cancer screening guidelines.

Strategy 1:1 Educate health-care professionals and patients about the screening recommendations.

Strategy 1:2 Work with health-benefit providers and wellness educators to educate clients on available services.

Strategy 1:3 Collaborate with community organizations to promote public awareness.

Strategy 1:4 Assist businesses to promote awareness among their employees.

Objective 2: By 2020, increase the proportion of teens who complete the HPV vaccine series.

Strategy 2:1 Educate health-care professionals about the ACIP recommendation for the HPV vaccine.

Strategy 2:2 Educate parents about HPV and the availability of the vaccine for male and female children aged 11–26.

Strategy 2:3 Provide HPV tool kits for schools and community outreach groups. The tool kits will provide educational resources for the instructors and participants.

Strategy 2:4 Increase awareness regarding other HPV-related illnesses.

Objective 3: By 2020, increase access to treatment services across the state of Arkansas for pre-invasive lesions of the cervix.

Strategy 3:1 Develop information resources for providers regarding available diagnostic and therapeutic services for pre-invasive lesions of the cervix.

Strategy 3:2 Promote patient navigation for patients needing diagnostic and therapeutic services for pre-invasive lesions of the cervix.

Strategy 3:3 Work with payers to help ensure that recommended diagnostic and therapeutic treatments are reimbursed.

Strategy 3:4 Provide educational programs and training to health-care professionals to learn or update their skills in colposcopy and excisional biopsies.

Objective 4: By 2020, increase early access to medical specialists who treat invasive cervical cancer.

Strategy 4:1 Develop information resources for providers related to treatment referrals for invasive cervical cancer.

Strategy 4:2 Promote patient navigation for patients once they enter treatment.

STRATEGIES (GENERAL)

Cervical cancer has risk factors that are the same as certain other health problems, including other cancers. Therefore working with people, groups, and organizations that are addressing these other problems will help to decrease the incidence and death rate related to cervical cancer.

General strategies to address these common risk factors are listed here:

1. Establish the Cervical Cancer Task Force according to Arkansas Statute 20-9-1103 (*Cervical Cancer Task Force*, n.d.).
2. Pursue both public and private funding for a cervical cancer education program.
3. Support joint education offered to health professionals on cervical cancer and its risk factors.
4. Support programs that help to decrease risk factors for cervical cancer, such as reducing tobacco use and preventing HIV and other sexually transmitted diseases.
5. Support programs that provide services for patients and their families that address their need for transportation to health-care appointments.
6. Support programs that enhance cancer survivorship for patients and their families.

MEASURES

	Goal/Objectives	Baseline	Target	Data Source
GOAL	Reduce the death rate from cervical cancer in Arkansas	3.1 deaths per 100,000 population	2.8 deaths per 100,000 population	ADH Mortality Query System
OBJECTIVES	Reduce the incidence of cervical cancer in Arkansas	8.0 diagnoses per 100,000 population	7.5 diagnoses per 100,000 population	SEER, 2011
	Increase the proportion of teens who complete the HPV vaccine series	HPV Vaccination Rate (AR) ≥3 doses Girls: 23.4% Boys: 11.4%	HPV Vaccination Rate (AR) ≥3 dose Girls: 80% Boys: 80%	NIS, 2014
	Increase the proportion of women who receive cervical cancer screening based on the most current cervical cancer screening guidelines	74.8% of eligible women received screening within the last 3 years	83% of eligible women will have received screening within the previous 3 years by 2020	AR, BRFSS, 2010

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Additional Cancer Focus Areas

1. Palliative Care
2. Survivorship
3. Evaluation

Palliative Care

GOAL

To improve access to quality palliative care for patients with cancer living in Arkansas.

BACKGROUND

Introduction

Palliative care is specialized medical care for people with serious illnesses. It focuses on providing patients with relief from the symptoms, pain, and stress of serious illness—whatever the diagnosis. The goal is to improve quality of life for the patient and the family. Palliative care is provided by a team of doctors, nurses, and other specialists who work together with the patient's other doctors to provide an extra layer of support. It is appropriate at any age and at any stage in a serious illness and can be provided along with curative treatment.

Palliative care is especially appropriate and beneficial to patients with cancer at any stage. Cancer patients often have significant palliative needs, including pain and other symptoms, along with psychosocial and spiritual needs throughout their illness. Providing quality palliative care addresses these needs and can be provided alongside curative or palliative treatments such as surgery, chemotherapy, and radiation. For patients with advanced or terminal cancer, palliative and hospice care play an even greater role in improving quality of life for patients and supporting families and caregivers.

In the United States, the number of hospitals that have palliative care programs has grown substantially. For instance, the 2011 American Hospital Association survey by the Center to Advance Palliative Care (CAPC) found that 85% of hospitals with more than 300 beds have an active palliative program *(America's Care of Serious Illness, 2011).* In addition, many cancer patients use hospice at the end of life. In 2011, 37.7% of hospice patients had a cancer diagnosis *(NHPCO's Facts and Figures, 2013).*

Despite the increasing availability of hospice and palliative care, there continue to be barriers to their timely use. One of the most common of these barriers is the persistent association of palliative care and hospice with imminent death. Neither hospice nor palliative care programs are designed or restricted to those patients who are imminently dying, and this perception can limit acceptance of appropriate palliative care interventions.

Palliative care can and should be delivered concurrently with a patient's cancer treatments. The National Comprehensive Cancer Network (NCCN) guidelines report: "The goal of palliative care is to prevent and relieve suffering and to support the best possible quality of life for patients and their families, regardless of the stage of disease or the need for other therapies. Palliative care can be delivered concurrently with life-prolonging care or as the main focus of care."

Several national and international organizations such as the Institute of Medicine, American Society of Clinical Oncology (ASCO), and the NCCN recommend integration of palliative care practices into the cancer care continuum *(Clinical Practices in Oncology, n.d.; Smith et al., 2012)*. Several models of simultaneous oncology and palliative care have been studied. The benefits include increased rates of hospice enrollment and earlier hospice utilization, decreased emergency room visits and hospitalizations, improved quality of life, and possible cost savings *(Muir et al., 2010; Bakitas et al., 2004; Temel et al., 2010)*.

Palliative care is also playing a greater role in cancer survivorship. Many patients continue to have symptoms related to the cancer or cancer treatments for years after they are free of disease.

In summary, patients can benefit from concurrent palliative care throughout the cancer continuum, which may include end-of-life care or care as part of a survivorship plan.

Access to Palliative Care in Arkansas

In 2011, there were 25 Hospice and Palliative Medicine (HPM) board-certified physicians, two National Board for Certification of Hospice and Palliative Nurses (NBCHPN) board-certified Advance Practice Nurses and 92 NBCHPN board-certified RNs in the entire state. In perspective, that is one HPM-certified physician for every 775 Medicare deaths in the state. There is currently one Accreditation Council for Graduate Medical Education (ACGME)-accredited fellowship training program for physicians in the state.

In 2011, a report entitled America's Care of Serious Illness: A State-by-State Report Card on Access to Palliative Care in Our Nation's Hospitals was released by the Center to Advance Palliative Care with data from the American Hospital Association. This report examined prevalence and geographic variations in access to palliative care in U.S. hospitals. Arkansas received a "D" grade. Thirty-eight (38%) of hospitals with more than 50 beds had a palliative care program (compared to 63% nationally). This translated to a ranking of 45th in the nation.

There are several developing palliative care programs in the state, mostly in Central and Northwest Arkansas, and most have been active for less than ten years. The University of Arkansas for Medical Sciences (UAMS) is currently the only hospital in the state certified by The Joint Commission for Palliative Care and is the site of the state's only fellowship program.

The Hospice and Palliative Care Association of Arkansas (HPCAA) has grown in the past few years and is very active in bringing hospice and palliative care groups together, providing statewide education initiatives, and advocating for palliative care issues around the state.

Needs of Cancer Patients

Patients with cancer need aggressive pain and symptom management in order to maintain function, tolerate treatments, and maximize quality of life. Barriers to timely quality pain management include patient and clinician misperceptions about abuse and addiction to opioids, lack of training for providers, and regulatory fears. Providers cannot ignore the fact that misuse and abuse of drugs in this country is a problem; however, we should continue to strive to balance the responsibility to our communities and state while also ensuring access to pain medications for patients living with pain.

Patients have various psychological, social, and spiritual needs after being diagnosed with cancer and can benefit from interdisciplinary support. Palliative care has a "whole person" approach to care for both patients and their families. Improving access to social work, mental health professionals, and pastoral care can have a profound effect on quality of life for patients *(Preyde, Macdonald, & Seegmiller, 2014; Wynne, 2013; Skalla, Smith, Li, & Gates, 2013)*.

Advance Care Planning and End-of-Life Care

In completing advance directives (living wills), patients identify a surrogate decision-maker for health care (a health-care proxy or health-care power of attorney) and document their wishes for care at the end of life in case they become unable to express those wishes. All patients, regardless of illness, are encouraged to complete an advance directive. This becomes even more important for patients with advanced cancer. Advance directives serve as a guide for families and physicians to understand what a patient would want during a serious illness and at the end of life. Advance directives ensure patients will have a voice no matter what stage of illness they are in, and they help care teams provide the best possible patient-centered care.

Arkansas remains one of six states without a developed POLST (Physician Orders for Life-Sustaining Treatment) program. The POLST forms do not replace advance directives and are designed for patients with a one- to two-year life expectancy. These orders specify choices for resuscitation and certain medical interventions near the end of life. Completing this form is likely to enhance communication between patients with advanced disease and their families and health-care providers about their choices for types and sites of care.

Hospice provides expert palliative care for patients in the terminal phase of illness. It involves an interdisciplinary approach to medical care, emotional and spiritual support, as well as assistance with social services for patients with a life expectancy of six months or less. Hospice can be provided in a patient's home, nursing home, or inpatient facility. Many patients with end stage cancer can benefit from timely hospice enrollment as a way to maximize quality of life and provide support for their families.

OBJECTIVES AND STRATEGIES

Objective 1: Increase access to palliative care in Arkansas.

Strategy 1:1 Increase the number of Hospice and Palliative Medicine board-certified physicians by supporting training programs and recruitment efforts for ACGME-accredited fellowships. The goal would be to have at least 50 HPM board-certified physicians in Arkansas by 2020.

Strategy 1:2 Create a plan to promote APN and RN palliative care certification throughout the state, particularly in underserved areas.

Strategy 1:3 Increase the number of palliative care programs in hospitals across the state. The goal would be to meet or exceed national percentages.

Strategy 1:4 Advocate for provider reimbursement for complex care provided by palliative care teams.

Objective 2: Improve advance care planning for patients with cancer.

Strategy 2:1 Support efforts to promote advance care planning for cancer patients.

Strategy 2:2 Support legislative efforts to develop a POLST program for the state as part of standard medical practice.

Objective 3: Provide education that will enhance the understanding and quality of palliative care in the cancer continuum.

Strategy 3:1 Increase public awareness of palliative care through community-based initiatives.

Strategy 3:2 Provide and promote palliative care education for all providers that care for cancer patients, particularly for those in underserved areas. This could include telemedicine/telehealth as outreach initiatives.

Objective 4: Promote timely hospice enrollment for patients with end-stage cancer.

Strategy 4:1 Provide hospice benefit education for the public and health providers and dispel myths concerning hospice that serve as barriers to care.

Strategy 4:2 Design outreach programs and partner with Arkansas oncologists to increase access and enrollment for eligible patients who may benefit from hospice.

MEASURES

Objective	Strategy	Current	Target	Data Source
Increase Access to Palliative Care in Arkansas	Increase number of HPM board-certified physicians in Arkansas	25	50	CAPC report card
	Create a plan to promote APN and RN palliative care certification throughout the state	2 APNs 92 RNs	5 APNs 150 RNs	
	Increase the number of palliative care programs in hospitals across the state	38% (15/39) of hospitals in AR with 50 or more beds have a palliative care program	63% (24/39) of hospitals in AR with 50 or more beds have a palliative care program (would meet national averages)	
	Advocate for provider reimbursement for complex care provided by palliative care teams	Establish a baseline	Data needs to be collected	(11)

MEASURES

Objective	Strategy	Current	Target	Data Source
Improve Advance Care Planning for Patients with Cancer	Support efforts to promote advance care planning for cancer patients	Establish a baseline	Data needs to be collected	
	Support legislative efforts to develop a POLST program in Arkansas	1 of 6 states without POLST		
Provide Education that will Enhance the Understanding and Quality of Palliative Care in the Cancer Continuum	Increase public awareness of palliative care through community based initiatives	Establish a baseline	Data needs to be collected	
	Provide and promote palliative care education for all providers that care for cancer patients	Establish a baseline	Data needs to be collected	

MEASURES

Objective	Strategy	Current	Target	Data Source
Promote Timely Hospice Enrollment for Patients with End-Stage Cancer	Provide hospice benefit education for the public and health-care providers and dispel myths concerning hospice that serve as barriers to care	Establish a baseline	Data needs to be collected	
	Design outreach programs and partner with Arkansas oncologists to increase access and enrollment for eligible patients who may benefit from hospice	Establish a baseline	Data needs to be collected	

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Survivorship

GOALS

Reduce the number of cancer deaths in Arkansas.
Increase the number of cancer survivors who are living five years longer after diagnosis.

BACKGROUND

According to the American Cancer Society (ACS), a cancer survivor is any person who has been diagnosed with cancer *(Cancer Treatment and Survivorship Facts and Figures, 2012)*. A survivor is not just someone who has beaten cancer and is now cancer-free *(Gerlach, Gambosi, & Bowen, 1990)*. A person becomes a cancer survivor from the time the cancer diagnosis is made. The National Cancer Institute (NCI) definition of survivor includes family members, friends, and caregivers *(A National Action Plan for Cancer Survivorship, n.d.)*.

Survivorship covers the economic, emotional, physical, and psychosocial issues of cancer. Survivors face issues of:

- Health-care access
- Follow-up
- Long-term care plans
- Side effects
- New cancers
- Quality of life

Some cancer survivors get better and have a new sense of life and purpose. But the effect of cancer treatment on health, ability to live a normal life, sense of safety, and well-being is substantial.

Long-term effects of care may show up shortly after the patient is treated or years later. Bonds with friends, family, and caregivers may change. Employers may treat the person differently. The survivor may need to change his or her work schedule. The survivor's health is changed forever.

Survivorship Facts

- ACS estimates there are 14.5 million people in the United States living with cancer today. In 2003, there were only 10.5 million.
- Almost half (45%) of cancer survivors are older than 70 years. Only 5% are younger than 40 years.
- There has been a rise in the number of survivors. This is mostly because of prevention and early detection of certain cancers. There is now more screening of the general public and those at risk for getting certain health problems.
- Age is the most important risk for cancer. The older you are, the more likely you are to develop cancer.

Improving Care and Quality of Life

The Institute of Medicine (IOM) defined quality care for cancer survivors in its report titled From Cancer Patient to Cancer Survivor: Lost in Transition (2005) and stated that each cancer patient should get their own care summary and survivorship care plan. The summary and care plan should have:

- Cancer characteristics
- Care information
- Possible results of care
- Symptoms and risk of the cancer coming back
- Doctor contact information

The aim is to improve cancer survivorship by assisting the patient and his or her health-care providers with important information needed to ensure proper survivorship care. Due to this report, many groups have made or are making different types of “care plans” to help make the quality of care of survivors better after their cancer treatment.

The Commission on Cancer (CoC) is a group that pledged to improve survival and quality of life for cancer patients. It does that through standard setting, prevention, research, education, and the monitoring of quality care. The CoC requires accredited programs to give a treatment summary or survivorship care plan to each cancer patient getting treatment. The CoC requires accredited programs to give a treatment summary or survivorship care plan to each cancer patient getting treatment and to ensure that patients are monitored for the rest of their lives.

In Arkansas, only four hospitals are accredited by the CoC:

- Fayetteville VA Medical Center
- Mercy Hospital Fort Smith/ Hembree Mercy Cancer Center
- CHI St. Vincent Hot Springs
- Central Arkansas Veterans Healthcare System in Little Rock

Many issues affect a patient care plan or whether a patient is able to get nationally recognized survivorship care plans:

1. Patients getting diagnostic and cancer care in many facilities need more staff to decide on diagnostic/treatment information. These clinics may not have access to one complete record of cancer traits (stage, histology, tumor markers, etc.) or cancer care (surgery, chemotherapy, radiation, etc.).
2. When patients get cancer care away from the place where their cancer was diagnosed, special plans have to be made to make sure their health records are gathered, shared, and easy for the patient and primary care providers to understand.
3. In the past, most cancer registries within the hospitals performed yearly checkups on all cancer cases in their facilities. Each case would be reviewed for date last seen, added treatment/recurrence, disease stage, and more. If current information could not be found within their own buildings, registry staff would place calls or send letters to outside providers asking for updates on patient care and disease stage. Due to funding shortfalls, staffing and time constraints, and perceived value, many non-CoC accredited places have stopped all follow-up efforts.
4. Access to and reporting of cancer data is vital to survivorship. However, full compliance with the cancer reporting law is still an issue.
5. The Health Insurance Portability and Accountability Act of 1996 (HIPAA) made communication between registries/clinical staff difficult. Before then, cancer information was shared easily, which made it possible for registries to collect more information on cancer treatment and follow-up data.

OBJECTIVES AND STRATEGIES

Objective 1: Promote and increase the use of nationally recognized survivorship care plans.

Strategy 1:1 Increase the number of Arkansas facilities accredited by the CoC by promoting the importance of accreditation in improving quality of care for cancer patients that utilize and follow standardized survivorship care plans.

Strategy 1:2 Advocate for access to reported cancer data for health-care providers who need to create first-course treatment summaries and survivorship care plans.

Strategy 1:3 Support hospitals, oncologists, and other cancer treatment providers working to develop survivorship care plans by providing access to training, technical assistance, resources, and funding.

Strategy 1:4 Support the development of additional survivorship clinics that are designed to follow survivors after treatment and to provide them with comprehensive survivorship care plans to address their unique needs.

Objective 2: Educate health-care providers on their role in survivorship by addressing cancer survivors' needs and care-related issues to improve survivorship care.

Strategy 2:1 Educate health-care professionals on the importance of utilizing and following nationally recognized/standardized survivorship care plans.

Strategy 2:2 Provide education on complications and late effects of cancer treatment such as long-term side effects of anti-cancer agents, surgical, and radiation treatments.

Strategy 2:3 Raise awareness about ACC's directory of survivorship resources (currently in development) to health-care providers.

Strategy 2:4 Research and develop appropriate methods to educate health-care providers on survivorship issues. Trainings could be offered through large educational conferences or symposia, smaller regional workshops, in-service meetings, and online webinars.

Strategy 2:5 Encourage collaboration between institutions that are committed to survivorship and provide funding to facilitate such collaboration.

Objective 3: Enhance awareness of cancer survivorship and provide information and resources for cancer survivors and their caregivers.

Strategy 3:1 Develop a directory of survivorship resources featuring information on survivorship needs such as support groups, services, information hotlines, site-specific follow-up care plans, the late effects of treatment, signs/symptoms of recurrence, and other important survivorship resources.

Strategy 3:2 Support and promote the development of a multimedia public service campaign to empower survivors and their caregivers to be informed, proactive consumers of health care and to ask their doctors about treatment summaries and survivorship care.

Strategy 3:3 Improve communication/collaboration between the patient and his or her cancer care team through the use of treatment summaries and survivorship care plans.

Objective 4: Improve Arkansas' cancer surveillance system by eliminating barriers affecting cancer data reporting and help allow access and use of consolidated data.

Strategy 4:1 Increase legislative awareness of low facility compliance with reporting law.

Strategy 4:2 Educate health-care facilities and providers on the need for improved cancer surveillance systems to include 100% facility compliance with cancer incidence reporting, first course of treatment, and annual follow-up documentation, and how this improves overall survivorship.

Strategy 4:3 Research HIPAA and define appropriate access and use of cancer patient data for survivorship purposes.

Strategy 4:4 Promote state and facility-level cancer registry data research to ensure that Arkansans diagnosed with cancer are treated according to national standards of care.

Strategy 4:5 Advocate for access to reported cancer data for health-care providers who need to create first-course treatment summaries and survivorship care plans.

Objective 5: Address the needs of cancer survivors and their families to improve survivorship care.

Strategy 5:1 Educate survivors on benefits provided by Medicaid, Medicare, and the Affordable Care Act. Also educate Coalition members so that they can educate survivors.

Strategy 5:2 Promote user-friendly transportation assistance programs to help patients get to and from treatment and medical appointments, support groups, education sessions, and other support services.

Strategy 5:3 Provide incentives such as tax credits for organizations and individuals donating transportation or cancer-related services for cancer patients.

Strategy 5:4 Address the unique needs of survivors in rural counties, including the challenges involved in access to care, transportation, and follow-up treatment.

Strategy 5:5 Provide support for programs directly benefitting the needs of cancer patients and/or their caregivers.

MEASURES

Goals	Baseline	Target	Data Source
Reduce the overall cancer death rate	152.5 per 100,000 in 2013 (provisional mortality data)	137.25 per 100,000 in 2020. Target setting method 10% reduction.	ADH Mortality Query System
Increase the proportion of cancer survivors who are living five years longer after diagnosis.	*Estimated five-year survival, all cancer sites, all stages at diagnosis = 57.2%, 2013.	62.9%	American Cancer Society state estimates based on observed survival among cases diagnosed in SEER 18 areas during 2002–2008.

* Caution should be exercised in interpreting increasing trends in survival rates. Increases in cancer screening rates can artificially improve survival statistics by shifting diagnosis earlier (e.g., lead time bias) and detecting indolent cancers (e.g., overdiagnosis). Survival also depends on stage of the cancer at diagnosis.

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Surveillance & Evaluation

GOALS

Assist the Arkansas Central Cancer Registry in achieving at least 90% completeness of 12-month case reporting as evaluated by the CDC National Program of Cancer Registries (NPCR).

Increase the dissemination and use of surveillance data.

Surveillance data provide the background and make the case for priority setting and program management in cancer control. Cancer surveillance activities in Arkansas can be grouped into three main categories: cancer incidence (newly diagnosed cancers), cancer mortality (deaths), and risk behavior information. The Arkansas Department of Health, Arkansas Central Cancer Registry (ACCR), and the Health Statistics Branch conduct these cancer surveillance activities.

The ACCR is a population-based registry program whose goal is to collect timely and complete data on all cancer cases diagnosed in the state. Information about newly diagnosed in situ and invasive cancers, excluding squamous and basal cell carcinoma of the skin and in situ of the cervix cancers, are collected. First-course treatment and death data are also reported to the ACCR.

The Health Statistics Branch provides information about cancer deaths using death certificates. The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based health survey carried out by the Health Statistics Branch that annually collects information on health behaviors, including cancer risk and screening information. It is important to have accurate and timely data to make informed decisions on how to best use resources to address the cancer burden. The purposes of these surveillance tools are to:

- Monitor cancer risk, incidence, and mortality trends over time
- Look for cancer patterns in different groups of people
- Guide planning and evaluation of cancer control programs
- Help set priorities for allocating health resources
- Advance clinical, epidemiologic, and health-services research

OBJECTIVES AND STRATEGIES

Objective 1: Provide activities to support the ACCR on issues related to case ascertainment on cases diagnosed in Arkansas

Strategy 1:1 Maintain membership in the ACCR's Cancer Advisory Committee.

Strategy 1:2 Provide training opportunities for cancer registrars and other collectors of cancer-related data.

Strategy 1:3 Provide awareness regarding compliance of cancer registry rules and regulations to cancer reporting facilities.

Strategy 1:4 Educate members about the laws and rules at the state level, to determine impact on the objective and what changes should be proposed.

Objective 2: Advocate for funding of and support for the ACCR through legislation and policy development.

Strategy 2:1 Identify, engage, and involve interested public and private parties, institutions, and agencies to garner ongoing support.

Strategy 2:2 Educate legislators and staff about the importance of sustaining a strong registry and strengthening reporting requirements.

Objective 3: Utilize the data to direct initiatives, activities, and interventions within the ACC.

Strategy 3:1 Distribute new data to coalition members as it becomes available.

Strategy 3:2 Design materials that take advantage of ACCR's surveillance tools to measure project outcomes.

Strategy 3:3 Provide educational opportunities that address the importance of evidence-based outcome measures.

Strategy 3:4 Create opportunities for cancer-related education, research, and policy development utilizing data from the surveillance systems.

Strategy 3:5 Educate the members about ACCR data request requirements and data use policies.

Objective 4: Develop evaluation tools to measure the impact of cancer interventions.

Strategy 4:1 Design an evaluation plan that includes processes, methods, and tools that can be used to guide intervention efforts.

Strategy 4:2 Emphasize the evaluation process as a requirement in coalition documentation.

Objective 5: Educate the coalition about the availability of cancer risk, cancer incidence, and mortality data through the ACCR's Query Tool and the Arkansas BRFSS.

Strategy 5:1 Provide educational opportunities that address the accessibility and usability of cancer surveillance tools.

Strategy 5:2 Promote the ACCR and BRFSS to cancer-related organizations through personal communication, public appearances, and printed materials.

Emerging Priorities

① Bone Metastasis

② Genomics

Bone Metastasis

GOALS

Reduce morbidity and mortality from bone metastasis.

BACKGROUND

Many patients with cancer will have a "metastasis" somewhere in the body. For most solid tumor types, the chance of metastasis occurring in a particular patient correlates with the size of the cancer. Growing undetected, larger tumors are more likely to have cells spread to other areas of the body. This relationship of original tumor size and risk of metastasis is the driving force behind ACC's efforts to detect cancer early through screening. Metastasis occurs when tumor cells escape from a cancerous primary tumor and travel through the bloodstream and/or lymph vessels to other organs, soft tissues, or bone. Empirical evidence demonstrates that smaller cancers are less likely to have spread to other areas in the body and require less surgery, less chemotherapy, and less radiation to treat than larger tumors. In the case of bone metastasis, the growth of tumor cells within bone provides additional quality-of-life issues for patients, since the cancer-damaged bone is often painful, may disrupt the body's chemistry, and with continued growth can become prone to fracture.

Many cancers metastasize to different parts of the body, but certain cancers such as breast, prostate, lung, thyroid, and kidney are more likely to spread to the bone. In people with breast and prostate cancer, the bone is often the first distant site of cancer spread. More than two out of three breast and prostate cancers that spread to other parts of the body also spread to the bones. Indeed, during their lifetimes, up to 74% of breast cancer patients will develop skeletal involvement. Of lung, thyroid, and kidney cancers that metastasize to other parts of the body, about one out of three will spread to the bones.

When cancer cells spread to other parts of the body, they have to go through a variety of important changes:

1. They have to escape from the original tumor and enter the bloodstream or lymph system, which transports them to another part of the body.
2. At some point in the travel to the distant site, they must attach to the wall of a blood vessel and move through it and into the new target organ, for example, bone. Once resident there, the cancer cells need to be able to grow and thrive in their new location.
3. All these events are taking place while circulating tumor cells avoid the patient's immune system.

Proceeding through all these important steps means that the tumor cells that start new tumors at the metastatic site may no longer be exactly the same as the ones in the primary cancer. Such changes in the tumor's makeup and behavior often require changes in therapy in order to effectively stop or control further growth and spread of the cancer.

Where a cancer metastasizes depends on its type and where it started in the body. Some cancer cells have cell surface molecules that allow them to adhere to different organs. Cancer cells that spread to bone likely attach better to the cells and supporting network in the bone and bone marrow. These cancer cells also release molecules that affect how the resident bone cells work, providing the basis for cancer cells to get a "foothold" in bone. In fact, the cancer cells get the normal bone cells to release molecules and hormone-like factors that help some cancer cells grow. Research discoveries about the interactions between cancer cells and normal bone cells are the focus of novel ways to treat or even prevent bone metastasis.

SCREENING AND DETECTION

Signs and Symptoms

Even in those cancers that will commonly spread to the bone, there is no way to accurately predict which specific patients will develop a bone metastasis. In the majority of cases metastatic lesions are found sometime after the original diagnosis of a cancer. However in some cases, metastatic lesions are identified at the same time that the primary cancer is first diagnosed, during the testing done for "staging" that type of tumor. In other cases, the metastasis can be found first, as the presenting symptom. This occurs often because the primary tumor may be asymptomatic but the secondary bone lesions often cause pain or the patient presents with an unexpected or pathologic fracture. In this situation, that of an unknown primary tumor, screening to identify where the cancer originated will be needed, since the primary tumor site and tumor histology guide the available treatment options.

In most scenarios, no metastases are seen when the cancer is first identified. Instead, metastases appear later, often after the patient has been treated and may have been thought to be cancer-free. How or why these events occur is currently unknown. When cancer reappears after treatment, it's called "recurrence". Recurrence is not the same as metastases—recurrence may occur at or near the primary tumor site. If the tumor does reappear as metastasis, it is often referred to as a distant recurrence. For a cancer to present as metastatic disease, cancer cells must have escaped from the primary tumor, survived the initial treatment, and started growing in new locations. Such a patient may present as advanced disease with multiple areas of involvement.

Early-stage skeletal metastasis may have symptoms such as bone pain, but because the bone damage may be minimal early on, appropriate treatment may prevent additional bone loss, the resulting mechanical damage, and potential pathologic fractures of the involved bones.

Appropriate Use of Radiology

Following the attributes of acceptable medical practice guidelines used by the Agency for Healthcare Research and Quality, the American College of Radiology (ACR) has created *ACR Appropriateness Criteria* (1995) for the diagnosis of metastatic bone disease. Fourteen common clinical presentations and their appropriate choice of imaging are available:

1. Stage 1 carcinoma of the breast. Initial presentation, asymptomatic.
2. Stage 2 carcinoma of the breast. Initial presentation, with back and hip pain.
3. Breast carcinoma. Follow-up bone scan reveals single "hot" lesion in spine.
4. Breast carcinoma. Three "hot" areas in spine revealed by bone scan. No back pain.
5. History of treated breast carcinoma. Now has single "hot" lesion in the sternum revealed by bone scan.
6. Patient with known bone metastatic disease (carcinoma of the breast). Presenting with pathological fracture of a femur on radiography.
7. Prostate nodule on physical examination proven to be a well- or moderately differentiated carcinoma and PSA <20 mg/ml. Patient asymptomatic.
8. Prostate nodule on physical examination proven to be a poorly differentiated carcinoma or PSA ≥20 mg/ml. Patient asymptomatic.
9. Patient with known malignancy, with back pain and partially collapsed vertebra on radiography. Otherwise healthy.
10. 1 cm lung nodule. Non–small-cell carcinoma found at needle biopsy. Now coming for staging and resection.

11. Patient with multiple myeloma presenting with acute low back pain.
12. Young patient with osteosarcoma of long bone, coming for staging. Chest CT normal. Looking for bone metastases.
13. Osteosarcoma, resected clear margins. Chemotherapy, asymptomatic. Six-month follow-up after treatment to rule out bone metastases.
14. Female, 8 weeks pregnant, with known primary, now suspected of having bone metastasis. She wants to continue with the pregnancy.

Types of Bone Metastasis

Although any bone may be affected (and often is), the axial skeleton (skull, pelvis, spine, and ribs) is more frequently involved than the appendicular skeleton. Pathologic fractures are common and are estimated to occur in large numbers of breast cancer patients with bone metastases (in some cases up to 40%). Skeletal metastases are also very common in prostate cancer, where approximately 84% of men with prostatic adenocarcinoma have skeletal metastases. In contrast to lung and breast cancers, the metastatic lesions in prostate cancer are less likely to fracture but still have an adverse effect of the patient's quality of life with metabolic disruptions and bone pain. In addition skeletal metastases are generally associated with poor prognosis, with only 23% of prostate cancer patients surviving five years from initial diagnosis and a 10-year survival rate of 10%.

A variety of different tumor types have a predilection to metastasize to bone. Since the primary tumor types vary, the diagnosis and treatment of these tumor types are also different, which is why identification of the primary tumor site is so critical for patient evaluation and appropriate treatment. Similarly, the skeletal location dictates treatment options for the metastatic tumor. For this reason, treatment options are discussed below in the context of specific skeletal location.

Long Bones (Extremities) Metastasis

For long bone metastases (tibia, femur, humerus), closed or intramedullary nailing provides supportive fixation and is often the least invasive option when a significant risk of fracture exists. This technique is also commonly recommended for pathologic fractures and can return patients to a much more functional state quickly *(Bickels, Dadia, & Lidar, 2009; Frassica & Frassica, 2003; Bashore & Temple, 2000)*. Because the tumor is not removed in this type of operation, post-operative radiation remains the primary adjuvant and is recommended whenever feasible.

Spine Metastasis

The spine is the most common skeletal site involved in metastatic breast cancer. The most widely recognized surgery indications for the treatment of spinal metastases are unbearable pain, neurologic impairment, spinal instability, and failure of previous medical treatment or radiation therapy. In the case of the spine, the goals of treatment are primarily pain management, improvement (or the prevention of worsening) of neurologic function, and vertebral column stabilization. Many surgical and minimally invasive image-guided interventions such as vertebroplasty and kyphoplasty options exist and should be explored with the treatment team *(Hortobagyi et al., 1996)*.

Pelvis Metastasis

The pelvis is also a common site for the spread of metastatic disease. Surgical intervention is not common except in the case of a tumor involving the acetabulum (hip joint). In this case, surgical goals include pain reduction, functional improvement, and improved mechanical stability to facilitate maximal possible weight bearing and locomotion.

Impending and Pathologic Fractures

Breast cancer is the predominant cause of pathologic fractures due to metastatic disease, accounting for around 50% of all cases requiring surgery in the metastatic patient population *(Manabe, Kawaguchi, Matsumoto, & Tanizawa, 2005)*. Indeed, pathologic fracture is often the first symptom of patients with metastatic cancer. Metastatic cancers affect bone strength, and pathologic fracture of a weight-bearing bone is a clear indication for operative intervention. As such, the ability to identify an impending fracture and thus prophylactic fixation for the patients with metastatic bone disease is a critically important issue that has significant impact on patient quality of life *(Ward, Holsenbeck, Dorey, Sprang, & Howe, 2003; Saad et al., 2007)*. Despite much discussion and investigation into the management of patients with skeletal metastasis, the need for clinical judgment about fracture is paramount and underlies the multidisciplinary approach required to optimize cancer patient care.

TREATMENT

For most patients the therapeutic strategy for bone metastasis is palliative in nature. Many bone lesions progress and may require surgical stabilization, in addition to tumor bed irradiation administered either before or after the surgery. Most people with bone metastases, particularly if identified early, will also have had some type of surgery to remove the primary tumor. The diagnosis of a metastatic tumor commonly mandates systemic treatment to prevent, limit, or delay additional spread *(Suva, Brander, & Makhoul, 2011)*. Thus multi-modality care is needed for these individuals, along with local (surgical) intervention targeting the primary tumor.

Although there has been progress resulting in early detection and improved adjuvant therapy, as well as radiation therapy, the prognosis of cancer patients is still limited by the occurrence of distant metastases. When these lesions are identified at some time distant from the original tumor treatment, the metastatic deposits result from clinically occult, micro-metastases that remain undetected until they increase in size and damage the adjacent tissue, such as the cancellous or cortical bone. Depending on the type of primary tumor, the amount of metastatic disease, and the patient’s associated medical condition, the clinical course of metastatic bone disease can be relatively lengthy (measured in years). The patient’s clinical course is complicated by increasing skeletal complications which include nerve entrapment, bone pain, hypercalcemia, spinal cord compression, and pathologic fractures.

Reducing the development of relapses is an important goal for the adjuvant therapy prescribed in many cancers. Because the development of distant bone metastases has been consistently associated with considerable clinical morbidity, reduction in quality-of-life measures, and eventual mortality, a reduction of distant metastatic spread is a primary goal for systemic therapy. Serological testing, which can evaluate for subclinical metastatic lesions, may serve as a valuable surrogate marker for survival. A secondary advantage may be that such testing will provide earlier results from clinical trials, testing new types of adjuvant therapy. Agents such as bisphosphonates have steadily increased in use and can effectively inhibit bone resorption in metastatic lesions, especially when used in combination with traditional therapy targeting cancer cells. Additional treatment options with immunotherapy modulation or specific protein and enzyme inhibitors hold promise for the treatment of metastatic disease. Such “targeted” therapies have been introduced in specific cancers, such as melanoma, and further research is searching for specific targets in other tumors. The results of these new approaches alone or in combination can be influenced by the extent of the patient’s systemic disease at the time of treatment and requires individualization of therapy, finding the best option for every patient affected, not only by the original tumor but also the spread of the cancer.

DISPARITIES

Bone metastases occur in men, women, and all ethnic groups. It is a concern in all Arkansas's communities, especially rural and medically underserved communities.

PALLIATIVE CARE

Follow-up care after treatment for bone metastasis is important. Even in patients in which the metastasis seems to have been completely removed or destroyed, or under control, the disease may reappear. Diligence and ongoing care are required to monitor recovery and/or recurrence. Frequent checkups help ensure that any changes in health are noted and responded to appropriately.

Checkups may include a physical exam, lab tests (serum bone resorption marker test), X-rays, CT scans, bone density, or other tests. If there are any health problems between checkups, a patient should contact his or her doctor.

OBJECTIVES AND STRATEGIES

Objective 1: By 2020, identify and increase the proportion of cancer patients who have been screened for the presence of bone metastasis.

Strategy 1:1 Improve utilization of screening exams for common cancers so that more patients are diagnosed earlier and have less chance of developing a bone metastasis.

Strategy 1:2 Identify cancer survivors in Arkansas with bone metastases.

Strategy 1:3 Educate patients with metastasis to promote improved treatment and management.

Strategy 1:4 Collaborate with local organizations to increase public awareness and outreach using plain language that is culturally appropriate.

Strategy 1:5 Develop and introduce professional development tools aimed at health-care professionals that promote dissemination of clinical guidelines for bone metastasis diagnosis, treatment, and follow-up.

Objective 2: By 2020, increase the proportion of cancer survivors who are living five years or longer after a diagnosis of bone metastasis.

Strategy 2:1 Provide appropriate diagnosis and follow-up care to patients with bone metastasis.

Strategy 2:2 Provide patients with education and access to state-of-the-art treatments (systemic and otherwise) for the management of bone metastasis.

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Cancer Genomics

GOALS

Reduce cancer prevalence and death from genetic conditions.

BACKGROUND

Genetics is the study of genes and the way traits are passed on from generations. Genomics is the study of one's complete set of genes and the way a particular gene interacts with other genes and the environment. In public health, genomics can show how behavior, genes, and the environment are risks for long-term health issues *(Frequently Asked Questions About Genetics, 2014)*.

Genomics is involved in nine of the ten leading causes of death in the United States *(Genomics and Health Resources, 2015)*. All humans are 99.9% the same in DNA. Differences in the remaining 0.1% may hold clues to finding causes of disease *(Frequently Asked Questions About Genetics, 2014)*.

While all cancer is caused by changes in genes, most of these changes (75–80%) only happen in the person who has cancer. About 5–10% of all cancers are passed down from a parent with the same condition. Some other 10–15% of cancers are named familial because there is a family record of similar cancers. These cancers may be caused by things in the environment that are shared by the family, by undetermined family traits, or both *(Review of Cancer Genetics, 2012)*.

The most common cancers that are passed down are breast, prostate, and colorectal cancer. These types may be linked to other cancer syndromes which predispose individuals to these types of cancer *(Review of Cancer Genetics, 2012)*.

The Arkansas Central Cancer Registry of the Arkansas Department of Health (ADH) forms tables and maps of cancer rates in Arkansas, using data from 1996 through 2007. While the registry does not have the means to sort cancers that are passed down from the larger data sets, we may use these tables to make a rough guess.

PREVENTION

Early Detection Through Appropriate Testing

Changes in genes lead to the growth of all cancers. Most of these changes happen during a person's lifetime, but some can be passed down from parents. Mutations that have been passed down from parents play a major role in the growth of about 5–10% of all cancers. These mutations are linked to more than 50 cancer syndromes that are passed on from parents. Genetic tests can help tell if a person from a family with one of the syndromes has one of these changes in genes *(Genetic Testing for Cancer, 2013)*.

Family Health History

One of the most useful tools in cancer genomics is for a patient to know their family's health history and to share it with his or her doctor *(Genetic Testing for Cancer, 2013)*.

Life-style Habits

A "genetic predisposition" for a type of cancer does not necessarily mean that a person will get that cancer. Sometimes, it's the environment that the person is exposed to that will decide if the cancer gene is "turned on" and will start to grow. Life-style habits and the environment you work and live in may play a very big role in deciding whether a certain type of cancer develops. Some things that are known to raise a person's chances of getting cancer (meaning that they can harm DNA and cause problems with a person's genes) are:

- Smoking and using other tobacco products
- Exercising too little or not at all
- Eating foods that are not healthy
- "Personalized" medications

The emerging fields of pharmacogenetics and nutrigenetics may help our health by tailoring our food and the medications we take to fit the changes in our genes. Direct-to-user genetic testing is making this resource more available, at lower cost, to the public. As these technologies appear more and more, genetics experts will be needed to teach the public about their own health risks.

SCREENING AND DETECTION

More than 950 genetic tests are available for clinical testing. Most are used to identify a rare single gene, and a few are being used for newborn screenings. However, a growing number of genetic tests may have population-based applications, which includes determining the risk of developing a disease or condition in the future (e.g., predictive testing for breast cancer or cardiovascular disease), and showing genetic variations that can alter response to medications (pharmacogenomics) *(Burke, Tarini, Press, & Evans, 2011)*.

About 5–10% of the common cancers are due to genetic risk:

- 5–10% of breast cancer is inherited.
- Almost 3 to 5% of colorectal cancers can be traced to hereditary nonpolyposis colorectal cancer, also called Lynch Syndrome *(Lynch Syndrome, 2013)*.
- Almost 40% of women who inherit a harmful BRCA1 mutation and 11 to 17% of women who inherit a harmful BRCA2 mutation will develop ovarian cancer by age 70 (BRCA1 and BRCA2, 2015).

What Genetic Testing Is

Genetic testing is using health exams to look for changes (mutations) in a person's genes or chromosomes. Hundreds of genetic tests are used today, and more are being developed.

Genetic Testing for Cancer Risk

Genetic tests used to find cancer are often done to predict one's chances of developing the disease. They may be used:

- To see if a person has had any change in genes known to raise the risk for a certain cancer (or cancers)
- To confirm a suspected gene change in a person or family
- To test cancer cells for genetic changes

Sometimes after a person is diagnosed with cancer, the doctor will order tests to look for gene changes in a small amount of the cancer cells. These tests can give tips on a person's outlook and can sometimes help tell whether certain types of care might be useful. These types of tests look for gene changes only in the cancer cells that are taken from the patient. These tests are not the same as the tests used to find out about the risk of cancers passed on from parents *(Genetic Testing for Cancer, 2013)*.

Risk Assessment

The first step in genetic testing is to find out how likely a person is to get a certain disease. This risk is based on the pattern of disease in his or her family (called a family history) and other things. A person's risk may be reviewed by a doctor, nurse, or trained genetic counselor.

A person will be asked about his or her reasons for wanting genetic testing. The person's family past will be studied in depth so the doctor can find patterns of disease in the family. He or she should be sure of the illnesses in their family by using health records and/or death certificates. If the genetic testing is for a certain type of cancer, a person may also be asked about his or her own health record. This may involve early detection habits, gynecologic records (for women), life-style factors, and exposure to things that can cause cancer (carcinogens). A person may also have a physical exam for the cancer in his or her family.

It is often helpful for people to look at their family's attitudes about cancer and the chance of a family member being "blamed" for the cancer. Cultural beliefs, support systems, and income levels may also play a role in how their family views cancer *(Genetic Testing for Cancer, 2013)*.

Genetic Counseling

Genetic counselors have special training and education in their field. Some doctors and advanced practice oncology nurses with special training may also do genetic counseling.

The purpose of genetic counseling is to provide information so that individuals and their families can make their own choices about whether to get tested. Sometimes the need for testing is clear, and a doctor will suggest testing and checkups after the exam. But even if that's the case, a person has the right to say no to being tested. He or She may feel better about making a choice after talking with a genetic counselor. Some insurance plans may require genetic counseling before genetic testing will be covered.

The counselor will provide information about how families get cancers and how genes are passed on to children. He or she will also provide information about the types of cancer seen in the family and the person's cancer risk. The pros and cons, cost, and limits of testing are discussed too, as well as who in the family should be tested. More than one family member may be offered testing.

If testing shows that the person has a high cancer risk, the counselor may also talk about the best ways to handle it. This may involve life-style changes, early detection, watching for signs and symptoms of cancer, medications to reduce cancer risk, or even surgery to keep him or her from getting the disease.

Many of these issues call for an expert. A high risk of cancer, mainly for children, and the potential for discrimination can be scary. The counselor will look at ways to cope and talk about fears and concerns. A person's doctor can send he or she to a genetic counselor near you. If not, counselors can be identified on the websites of the National Society of Genetic Counselors or the National Cancer Institute *(Genetic Testing for Cancer, 2013).*

People Who Should Think about Getting Genetic Testing for Cancer Risk

Many experts suggest genetic testing for cancer risk when all three of the items below are met:

1. The person being tested or his/her family has a cancer history that can be linked back to several generations.
2. The test results clearly demonstrate whether a genetic change has occurred.
3. The results provide information that will help guide a person's future health care *(Genetic Testing for Heredity Cancer Syndromes, 2013)*.

The parts of one's personal or family health record that may suggest a hereditary cancer syndrome are:

1. Cancer found at a very young age
2. Many types of cancer in the same person
3. Cancer formed in both organs in a set of paired organs, such as both kidneys or both breasts
4. Many blood family members that have the same type of cancer (for example, a mother, daughter, and sister with breast cancer)
5. Unusual cases of a cancer type (for example, breast cancer in a man)
6. Having birth-related errors that are known to be linked to cancer passed down from parents
7. Being a member of a racial or ethnic group that has a higher chance of getting a certain health issue in addition to one or more of the above features as well

It is best that a person who is thinking about getting genetic testing speak with a professional before making his or her final choice. These professionals can be doctors, genetic counselors, and other health-care providers (such as nurses, psychologists, or social workers). Genetic counseling can help people weigh the risks, benefits, and limits of genetic testing in their situation. Sometimes the genetic professional finds that testing is not needed.

Genetic counseling involves a full review of the individual and family health record linked to possible cancer risk. Counseling also includes discussions about issues such as:

1. Whether genetic testing is proper, which test(s) might be used, and if the test is right
2. The medical implications of a positive or a negative test result
3. The chance that a test result might not be useful in making health-care choices
4. The mental risks and benefits of learning one's genetic test results
5. The risk of passing on a mutation (seen in a parent) to children

Learning about these issues is a key part of giving informed consent. Written informed consent is strongly urged before a genetic test is ordered. People give their okay by signing a form saying that they have been told about, and know:

- The purpose of the test
- Medical implications
- The risks and benefits of the test
- Other options to the test
- Their privacy rights

Unlike most other medical tests, genetic tests can show information not only about the person being tested but also about that person's family members. Having a harmful genetic change in one family member makes it more likely that other blood family members may also carry the same change. Family relationships can change when one member of a family receives genetic test results that may have implications for other family members. Family members may have many views about how useful it is to learn whether they do or do not have a mutation linked to a disease. Health discussions may be hard to have when some family members know their genetic status, while other family members do not choose to know their test results. A talk with genetics professionals may help family members know the hard choices they may face.

Informed Consent

After risk assessment and genetic counseling, if a person decides to be tested he or she will be asked to give approval in writing. The steps to informing them and their family about testing should cover:

The purpose of the genetic test:

- The reason for giving the test to them and/or other family members
- The health issue for which testing is being done
- Test accuracy
- Pros and cons of testing (including the limits of what the results might tell the person being tested)
- Other testing options that could be used
- Treatment options that may be based on the test results
- Further choices that may need to be made once the results are back
- The possible consent to use the results for research after the test
- Availability of counseling and support
- The right to say no to testing *(Genetic Testing for Cancer, 2013)*

Who Pays for Genetic Testing?

Genetic testing is complex, and it can be expensive. The federal Affordable Care Act (ACA) says that genetic testing should be covered for women who have a greater chance of getting breast and/or ovarian cancer. The amount of coverage depends on the health plan, so knowing what is on the plan is important *(Genetic Testing for Cancer, 2013)*.

DISPARITIES

Cancer genomics health disparities data reflect the following:

- 8.3–10.2% of carriers of BRCA1 genetic mutations are Ashkenazi Jewish
- 3.5% are Hispanic
- 1.3–1.4% are African-American
- 0.5% are Asian
- 2.2–2.9% are non-Ashkenazi Caucasian
- 2.6% of carriers of BRCA2 genetic mutations are African-American, and 2.1% are Caucasian
- Men who carry mutations in BRCA1 or BRCA2 are more likely to develop prostate cancer, facing up to a 20% lifetime risk (most BRCA2 carriers) *(About BRCA1, BRCA2, n.d.)*.

Barriers to Genetic Services

Possible barriers to getting genetic services:

- Lack of knowledge by health-care providers and patients of the availability of genetics care, changes in referrals for specialty care
- Distance: not having a ride, expense of car fuel, public transit, time off from work
- Cost of care: lack of insurance coverage, refusal of third-party payers to cover genetic testing, high costs of parental testing, other at-risk family members
- Transition of teens into adult care, concerns of losing adult patients to follow-up, and availability of follow-up care for adult genetics patients
- Privacy concerns
- Religious or cultural beliefs
- Trouble speaking or understanding language in patient health-care provider communication
- Fear of "knowing", and not being able to deal with the genetic diagnosis and what it means for the individual and family
- Stigma and guilt *(Sussner, Thompson, & Valdimarsdottir, 2013; Genetic Testing for Cancer, 2013)*

Table 8

Cancer Incidence Rates in Arkansas, 2012

Type of Cancer	Population at Risk	Total Cases	Crude Rate/100K	Age-Adjusted Rate (standardized to US 2000 population)
Breast	2,830,557	2,413	81.8	71.5
Colorectal	2,830,557	1,421	48.2	41.5

At a rate of 5–10%, we can estimate that approximately 120 to 250 cases of breast cancer and approximately 75 to 150 cases of colorectal cancer in Arkansas in 2012 were inherited. Community education on family history awareness, inheritance patterns, and early screening may promote preventive screening in at-risk family members, may create awareness in the family, and possibly prevent future occurrences of cancers.

OBJECTIVES AND STRATEGIES

Objective 1: Improve access to and quality of genetic services.

Strategy 1:1 Promote the use of evidence-based practice for people with genetic conditions.

Strategy 1:2 Increase the use of telemedicine and other technological methods for improved access to genetic services.

Strategy 1:3 Strengthen supports for individuals and families with genetic conditions.

Objective 2: Collect and utilize population-level data on cancer with a genetic component as funding and priorities allow for assessment.

Strategy 2:1 Encourage genetic testing and follow-up health care.

Strategy 2:2 Provide access and utilization of genetic services.

Strategy 2:3 Use family history to screen for genetic conditions.

Strategy 2:4 Encourage risk-reducing behaviors.

Strategy 2:5 Utilize direct-to-consumer marketing of genetic tests and personalized medicine.

Objective 3: Increase awareness about how genomics influences health, and empower the public and providers to make informed decisions about the use of genomics in health care.

Strategy 3:1 Educate health-care providers about the relevance of genomic medicine to primary and specialty care.

Strategy 3:2 Develop partnerships with state health professional organizations and advocacy groups to educate Arkansas health-care providers.

Strategy 3:3 Encourage the use of genetic risk assessment among health-care providers.

Strategy 3:4 Encourage the use of genetic diagnosis and testing among health-care providers.

Strategy 3:5 Provide options for reducing risk for those with increased genetic susceptibility to disease.

Strategy 3:6 Provide access to and referral for genetic services.

Strategy 3:7 Develop and implement a communications and education strategy to engage and inform key stakeholders and explain the value of genomics to health in primary and specialty care. Target groups include:

- Primary-care and specialty health-care providers
- State health professional organizations
- Public health professionals

Strategy 3:8 Develop and implement a culturally and linguistically competent communications and education strategy to engage and inform the public about the relationships between genomics and health. Target groups include:

- General public
- Individuals and families who are affected by genetic conditions
- Sub-populations who are disproportionally impacted by or at risk for genetic conditions
- Advocacy groups

Objective 4: Promote a supportive policy environment for genomics and health.

Strategy 4:1 Monitor and recommend public policy to safeguard the public from detrimental use of genomic information.

Strategy 4:2 Develop and implement a communications and education strategy to engage and inform policymakers about relationships between genomics and health.

Strategy 4:3 Promote the systematic use of clinical genetics practice guidelines and tools for health-care providers and health systems.

Strategy 4:4 Promote reimbursement for genetic services by private and public payers.

Strategy 4:5 Promote capacity building of genetic services to achieve equal geographic, cultural, and socioeconomic access to services.

Strategy 4:6 Monitor and recommend public policy to safeguard the public from detrimental use of genomic information.

Strategy 4:7 Improve quality and sustainability of genetic services though passage of legislation for licensing genetic counselors.

Objective 5: Collaborate with the Arkansas Genetic Health Committee to develop an Arkansas Genetic Plan in accordance with the CDC's Priorities for Public Health Genomics 2012–2017 report.

Strategy 5:1 Create an ongoing evaluation planning process for the Arkansas Genetics Program.

Strategy 5:2 Identify and secure funding to support strategic plan implementation.

Strategy 5:3 Monitor national, regional, and state genomics research and translation.

Strategy 5:4 Reduce morbidity and mortality from genetic conditions through establishment of data systems.

Strategy 5:5 Improve access to and quality of care of genetic services.

Strategy 5:6 Develop policies related to genomics.

Strategy 5:7 Integrate genomics into other public health programs.

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Partnerships Contributors

The more members and interconnections our network has, the more valuable membership in the network becomes. As the coalition continues to grow, more expertise, insight, perspectives, opportunities and resources are gained. In turn, these assets are promptly shared throughout the coalition, making possible the collaboration on ideas that will lead to Arkansas' next big breakthrough on cancer control. We would like to acknowledge ACC's workgroup members, staff and board members who devoted their time and talents this past year to revise the third edition of the Arkansas Cancer Plan (ACP3).

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Who should use this plan?

ALL ARKANSANS!

Business owners and employers
Cancer survivors
Caregivers
Community-based organizations
Consumers
Corporations
Educators
Faith-based organizations
Fraternities
Government agencies
Health-care organizations
Media
Minority and under-served populations
Payers and insurance providers
Physicians and health-care providers
Professional organizations
Public health departments
Public policy advocates
Sororities
Universities and researchers

If you are not sure where to start, become a member of the Arkansas Cancer Coalition. See examples of actions Arkansans can take to work toward the goals outlined in this plan:

Hospitals or health-care organizations can

- Collaborate to sponsor community screening programs.
- Implement office-based reminders that identify patients due for cancer prevention and screening services.
- Offer clinical cancer research efforts across the state.
- Provide a meeting space for cancer support groups.

Health-care providers can

- Add clinical trials.
- Make earlier referrals to hospice for end-of-life care.
- Provide cancer patients with a written summary of their care plan.
- Recommend appropriate cancer screening tests.
- Refer patients to smoking-cessation services and nutrition programs.
- Routinely ask patients about healthy lifestyle factors including tobacco use, physical activity, diet, and in-home radon testing.
- Participate in Systems Training Outreach Program (STOP).

Local health departments can

- Provide access to low-cost radon test kits and cancer screenings.
- Provide cancer awareness education.
- Support community wellness campaigns.

Community-based organizations can

- Collaborate to provide community prevention programs.
- Create a local action plan to reduce barriers to cancer screenings.
- Provide cancer awareness information to Arkansans.
- Provide community-based educational forums to address the specific and unique needs of cancer survivors.

Professional organizations can

- Inform professional members of the importance and benefits of providing cancer clinical trials.
- Provide education to members on survivor needs and best practices.
- Support policy changes and increased funding for survivorship services.

Businesses and employers can

- Encourage employees to increase physical activity.
- Provide full financial coverage for recommended cancer screenings, and time off for employees to get screened.
- Provide healthy foods and beverages in vending machines and cafeterias.
- Provide information to cancer survivors and their co-workers about issues faced as survivors return to work.
- Provide protective clothing to employees applying fertilizers, pesticides, and insecticides.
- Provide sun-protective gear to individuals working outside.

Schools and universities can

- Include cancer prevention messages in health classes.
- Increase physical education requirements.
- Make campuses tobacco-free environments.
- Open facilities for walking in bad weather.
- Provide healthy foods and beverages in vending machines and cafeterias.
- Provide information to cancer survivors and schools about issues faced as survivors return to school.

Survivors can

- Consider joining an advocacy group or organization working to improve survivors' experiences.
- Mentor other survivors.
- Share personal experiences to help educate the public about the needs of survivors.

Legislators can

- Ensure that all Arkansans have access to health care.
- Appropriate funding for the Arkansas Cancer Plan.
- Sponsor or support legislation that promotes cancer prevention and control.
- Raise awareness about cancer prevention and control programs and help establish new programs where needed.
- Support cancer research efforts across the state.
- Support full funding of all cancer prevention programs.
- Support or establish a cancer caucus in the Arkansas General Assembly to provide the most up-to-date cancer information to all members of the legislature.

All Arkansans can

- Become a member of the Arkansas Cancer Coalition.
- Eat more fruits and vegetables, and maintain a healthy weight.
- Increase daily physical activity.
- Know when to be screened and do it on a schedule.
- Show support and care for those who are diagnosed with cancer.
- Stop smoking or never start.
- Support cancer control legislation.
- Test homes for radon.
- Wear protective clothing when applying fertilizers, pesticides, and insecticides.
- Wear sunscreen, seek shade, and wear protective eye wear and clothing when outdoors.

Source: Iowa Cancer Plan 2012-2017.. Retrieved July 15, 2014 from www.wicancer.org.

Estimated 1-5 Year Cancer Survivors by State, 2013

STATE	2013 Estimate Cases	2012 Estimate Cases	1 Year Survival	2011 Estimate Cases	2 Year Survival	2010 Estimate Cases	3 Year Survival	2009 Estimate Cases	4 Year Survival	2008 Estimate Cases	5 Year Survival	Estimated 1-5 Year Survivors
AL	27,080	26,440	77.4%	25,530	69.2%	23,640	64.2%	24,090	60.4%	22,340	57.2%	80,640
AK	3,290	3,640	77.4%	3,090	69.2%	2,860	64.2%	2,530	60.4%	2,650	57.2%	9,840
AZ	34,010	31,990	77.4%	31,550	69.2%	29,780	64.2%	27,600	60.4%	25,540	57.2%	96,990
AR	16,330	16,120	77.4%	16,070	69.2%	15,320	64.2%	14,800	60.4%	14,840	57.2%	50,860
CA	171,330	165,810	77.4%	163,480	69.2%	157,320	64.2%	152,170	60.4%	156,530	57.2%	523,910
CO	23,410	22,820	77.4%	22,390	69.2%	21,340	64.2%	20,340	60.4%	18,900	57.2%	69,950
CT	21,180	21,530	77.4%	21,440	69.2%	20,750	64.2%	20,650	60.4%	19,190	57.2%	68,270
DE	5,370	5,340	77.4%	5,130	69.2%	4,890	64.2%	4,690	60.4%	4,590	57.2%	16,280
DC	2,920	2,980	77.4%	2,830	69.2%	2,760	64.2%	2,600	60.4%	2,560	57.2%	9,070
FL	118,320	117,580	77.4%	113,400	69.2%	107,000	64.2%	102,210	60.4%	101,920	57.2%	358,210
GA	49,280	48,130	77.4%	44,580	69.2%	40,480	64.2%	39,080	60.4%	36,980	57.2%	138,850
HI	6,650	6,610	77.4%	6,710	69.2%	6,670	64.2%	6,400	60.4%	6,310	57.2%	21,520
ID	7,670	7,720	77.4%	7,520	69.2%	7,220	64.2%	6,800	60.4%	6,430	57.2%	23,600
IL	66,090	65,750	77.4%	65,610	69.2%	63,890	64.2%	60,960	60.4%	59,130	57.2%	207,950
IN	35,550	35,060	77.4%	34,050	69.2%	33,020	64.2%	31,320	60.4%	29,550	57.2%	107,720
IA	17,480	17,010	77.4%	17,500	69.2%	17,260	64.2%	16,740	60.4%	16,150	57.2%	55,710
KS	14,370	14,090	77.4%	14,070	69.2%	13,550	64.2%	13,080	60.4%	12,520	57.2%	44,400
KY	25,100	25,160	77.4%	25,010	69.2%	24,240	64.2%	24,060	60.4%	23,270	57.2%	80,190
LA	24,930	23,480	77.4%	22,780	69.2%	20,950	64.2%	22,170	60.4%	23,360	57.2%	74,140
ME	9,190	8,990	77.4%	8,820	69.2%	8,650	64.2%	9,000	60.4%	8,140	57.2%	28,710
MD	30,680	31,000	77.4%	28,890	69.2%	27,700	64.2%	26,650	60.4%	27,380	57.2%	93,530
MA	38,250	38,470	77.4%	37,470	69.2%	36,040	64.2%	36,080	60.4%	34,470	57.2%	120,350
MI	57,560	57,790	77.4%	57,010	69.2%	55,660	64.2%	53,550	60.4%	51,150	57.2%	181,520
MN	28,410	28,060	77.4%	27,600	69.2%	25,080	64.2%	23,670	60.4%	23,160	57.2%	84,460
MS	15,830	15,190	77.4%	14,990	69.2%	14,330	64.2%	14,150	60.4%	13,400	57.2%	47,540
MO	33,950	33,440	77.4%	32,740	69.2%	31,160	64.2%	30,090	60.4%	29,390	57.2%	103,530
MT	5,450	5,550	77.4%	5,690	69.2%	5,570	64.2%	5,340	60.4%	5,090	57.2%	17,950
NE	9,060	9,030	77.4%	9,430	69.2%	9,230	64.2%	8,810	60.4%	8,710	57.2%	29,740
NV	13,830	13,780	77.4%	12,800	69.2%	12,230	64.2%	12,020	60.4%	11,370	57.2%	41,140
NH	8,470	8,350	77.4%	8,210	69.2%	7,810	64.2%	7,630	60.4%	7,030	57.2%	25,790
NJ	49,440	50,650	77.4%	49,080	69.2%	48,100	64.2%	47,920	60.4%	45,900	57.2%	159,250

STATE	**2013 Estimate Cases**	**2012 Estimate Cases**	1 Year Survival	**2011 Estimate Cases**	2 Year Survival	**2010 Estimate Cases**	3 Year Survival	**2009 Estimate Cases**	4 Year Survival	**2008 Estimate Cases**	5 Year Survival	**Estimated 1-5 Year Survivors**
NM	10,090	9,640	77.4%	9,630	69.2%	9,210	64.2%	8,830	60.4%	8,260	57.2%	30,100
NY	108,760	109,440	77.4%	107,260	69.2%	103,340	64.2%	101,550	60.4%	97,130	57.2%	342,170
NC	53,200	51,860	77.4%	48,870	69.2%	45,120	64.2%	42,270	60.4%	40,420	57.2%	151,580
ND	3,510	3,510	77.4%	3,560	69.2%	3,300	64.2%	3,200	60.4%	3,090	57.2%	11,000
OH	66,610	66,560	77.4%	65,060	69.2%	64,450	64.2%	62,420	60.4%	56,840	57.2%	208,130
OK	20,160	19,210	77.4%	18,980	69.2%	18,670	64.2%	18,110	60.4%	17,860	57.2%	61,140
OR	21,720	21,370	77.4%	21,180	69.2%	20,750	64.2%	19,210	60.4%	19,230	57.2%	67,120
PA	79,560	78,340	77.4%	78,030	69.2%	75,260	64.2%	74,170	60.4%	70,110	57.2%	247,850
RI	6,280	6,310	77.4%	6,090	69.2%	5,970	64.2%	6,250	60.4%	6,120	57.2%	20,210
SC	27,620	26,570	77.4%	25,510	69.2%	23,240	64.2%	22,100	60.4%	20,740	57.2%	78,350
SD	4,570	4,430	77.4%	4,430	69.2%	4,220	64.2%	4,120	60.4%	4,080	57.2%	14,030
TN	36,580	35,610	77.4%	34,750	69.2%	33,070	64.2%	32,570	60.4%	29,390	57.2%	109,320
TX	112,230	110,470	77.4%	105,000	69.2%	101,120	64.2%	98,200	60.4%	96,320	57.2%	337,490
UT	10,810	10,620	77.4%	10,530	69.2%	9,970	64.2%	8,880	60.4%	7,760	57.2%	31,710
VT	4,200	4,060	77.4%	3,950	69.2%	3,720	64.2%	3,550	60.4%	3,530	57.2%	12,430
VA	40,870	41,380	77.4%	38,720	69.2%	36,410	64.2%	34,150	60.4%	35,590	57.2%	123,180
WA	37,290	35,790	77.4%	35,360	69.2%	34,500	64.2%	32,290	60.4%	32,380	57.2%	112,340
WV	11,450	11,610	77.4%	11,080	69.2%	10,610	64.2%	10,230	60.4%	10,250	57.2%	35,510
WI	31,590	31,920	77.4%	30,530	69.2%	29,610	64.2%	27,560	60.4%	27,590	57.2%	97,270
WY	2,700	2,650	77.4%	2,680	69.2%	2,540	64.2%	2,500	60.4%	2,570	57.2%	8,520

Survival is assumed to be similar across states and is based on observed survival among cases diagnosed in SEER 18 areas during 2002-2008, followed through Dec 2009. The estimated 1-5 Year survivors do not include 2013 cases because survival is defined here as those surviving at least 1 year. The number of 1-5 year survivors is estimated by the summation of 5 products: 2008 estimated cases multiplied by the 5-year survival rate, 2009 estimated cases multiplied by the 4-year survival rate, 2010 estimated cases multiplied by the 3-year survival rate, 2011 estimated cases multiplied by the 2-year survival rate, and 2012 estimated cases multiplied by the 1-year survival rate.

80% by 2018

Communities
working together to save lives

Colorectal cancer is the second leading cause of cancer death in the United States among men and women combined, yet it's one of the most preventable.

It is estimated that one in three adults over the age of 50 – about 23 million people – is not tested as recommended.

Join the national effort to get 80% of adults ages 50 and older regularly tested for colon cancer by 2018.

80% by 2018 is a National Colorectal Cancer Roundtable initiative in which more than 140 organizations have committed to eliminating colorectal cancer as a major public health problem and are working toward the shared goal of 80% of adults ages 50 and older being regularly screened for colorectal cancer by 2018.

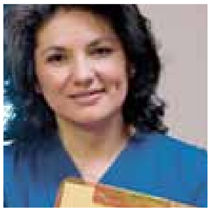
THE OFFICIAL SPONSOR OF BIRTHDAY.

As a trusted community organization, you have the opportunity to educate and rally your members and stakeholders to help prevent colon cancer or find it early, when treatment is most effective.

Here are five things that you can do to reach 80% by 2018:

1. Partner with neighborhood organizations, physicians, hospitals, and local public health officials to make 80% by 2018 a community-wide goal.

- Rally with other local organizations to prioritize this effort.
- Promote colon cancer testing at walk/runs, health fairs, and other community events.
- Download videos, handouts, postcards, etc., from cancer.org/colon, cdc.gov/cancer/dcpc/publications/colorectal.htm, or nccrt.org/about/public-education/blue-star-marketing-kit.and share this information with your constituents.
- Set a goal of partnering on 80% by 2018 with five other community organizations or businesses over the next six months.



2. Learn your community's colon cancer testing rate, and set a goal for improvement

- By assessing where you are, you can measure and track your community's progress and celebrate success!
- You can also use this assessment to understand which groups in your community are not getting tested. This can help you target your efforts to reach those who are most in need of hearing the message about getting tested.
- The National Colorectal Cancer Evaluation 101 Toolkit[1] offers advice about how to conduct a community assessment, lists state and national testing data that is available, and suggests ways to adapt those tools for local use.

3. Leverage local dignitaries/leaders, such as the mayor, a local news anchor, or a respected religious leader, to communicate with those in your community who are less likely to get tested and those who have a higher risk of colon cancer:

- People less likely to get tested are those ages 50 to 64, Hispanics, American Indians, Alaska Natives, rural populations, men, and those with lower education and income.
- African Americans are at a higher risk for colon cancer, have higher death rates, and are diagnosed at a younger age than any other population.
- Work with others in your community to develop a plan to get colon cancer testing education and resources to members of these high-need groups in your community. Local American Cancer Society staff,[2] local health departments, and comprehensive cancer control coalitions[3] are some partners who will want to work with you!

4. Designate relevant spokespeople.

- Physicians are an important avenue for delivering the message about getting tested.
  - People who have been tested often say they did so because their doctor told them to do it.
  - "My doctor didn't tell me to get tested" is the primary reason given by African Americans and the third most common reason given by Hispanics for not getting tested.
- Help make testing relevant and personal. Local survivors can be especially compelling messengers.
  - People who have not been tested for colon cancer are much less likely to have a close friend or family member with cancer than those who have been tested.
  - Local survivors can help make the importance of testing real for those who have not otherwise been affected by cancer.

5. Commit to educating your community on colon cancer testing options,[4] reimbursement,[5] and local resources.

- Communicate the importance of colon cancer testing to everyone 50 years of age and older, providing materials that educate them on these important facts about colon cancer and testing options.
  - Colon cancer tests can find precancerous polyps, and in some cases, cancer can be prevented by finding and removing these growths.
  - When people get tested for colon cancer, it can often be found early, at a stage when treatment is most effective.
  - There are several recommended testing options, including: colonoscopy, stool tests (guaiac fecal occult blood test [FOBT] and fecal immunochemical test [FIT]).
  - Colon cancer testing is covered by insurance under the Affordable Care Act's preventive services section, usually with no out-of-pocket costs.
- Know the resources and support available in your area to recommend affordable options for testing.

Your organization has the power to have a huge impact on testing rates!

Visit **cancer.org/colon** or **nccrt.org/about/80-percent-by-2018** to learn more about how to act on the preceding recommendations and be part of 80% by 2018.

Sources

[1] nccrt.org/about/public-education/evaluation-toolkit.

[2] cancer.org.

[3] apps.nccd.cdc.gov/dcpc_Programs/default.aspx?NPID=2.

[4] cancer.org/colon and http://www.uspreventiveservicestaskforce.org/uspstf08/colocancer/colcancs.pdf.

[5] cancer.org/cancer/colonandrectumcancer/moreinformation/colonandrectumcancerearlydetection/colorectal-cancer-early-detection-screening-coverage-laws.

Updated Recommendations for Client- and Provider-Oriented Interventions to Increase Breast, Cervical, and Colorectal Cancer Screening

Community Preventive Services Task Force

Summary: The Community Preventive Services Task Force (Task Force) recommends increasing screening for breast cancer through use of group education, one-on-one education, client reminders, reducing client out-of-pocket costs, and provider assessment and feedback; increasing screening for cervical cancer through use of one-on-one education, client reminders, and provider assessment and feedback; and increasing screening for colorectal cancer through use of one-on-one education, client reminders, reducing structural barriers to screening, and provider assessment and feedback. The Task Force found insufficient evidence to determine the effectiveness of increasing screening for breast cancer through use of client incentives, mass media, or provider incentives; for cervical cancer screening through use of group education, client incentives, mass media, reducing client out-of-pocket costs, reducing structural barriers, or provider incentives; and for colorectal cancer screening through use of group education, client incentives, mass media, reducing client out-of-pocket costs, or provider incentives. Details of these findings, and some considerations for use, are provided in this article.

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Introduction

In 2008, the Community Preventive Services Task Force (Task Force) published recommendations for ten interventions to increase screening for breast, cervical, and colorectal cancer.[1] Interventions were in three primary strategic objective areas[2]: increasing community demand for cancer screening services, increasing community access to screening services, and increasing screening service delivery by healthcare providers. The Task Force recently updated its recommendations in this critical area, based on an expanded review of the literature (through October 2008) and systematic reviews of all evidence.

These updated recommendations cover nine interventions to increase screening for breast, cervical, and colorectal cancer. These fall into two strategic areas: client-oriented interventions (combining increasing community demand for screening and increasing community access to screening services) and provider-oriented interventions. Seven client-oriented intervention reviews were updated: group education, one-on-one education, client incentives, client reminders, mass media, reducing out-of-pocket costs, and reducing structural barriers. Two intervention reviews to increase provider delivery of cancer screening services were updated: provider assessment and feedback, and provider incentives.

Overall, the new data changed findings for three interventions: group education to increase breast cancer screening is now recommended on the basis of sufficient evidence of effectiveness (previously, insufficient evidence to determine effectiveness had been found); one-on-one education to increase colorectal cancer screening is now recommended on the basis of sufficient evidence of effectiveness (previously, insufficient evidence to determine effectiveness had been found); and client reminders to increase colorectal cancer screening are now recommended on the basis of strong evidence of effectiveness (previously, this intervention was recommended on the basis of sufficient evidence of effectiveness). Findings, by intervention and cancer site, are presented below, and the evidence on which these findings are based is provided in the accompanying article in this issue of the *American Journal of Preventive Medicine*.[3]

Names and affiliations of the Task Force members can be found at www.thecommunityguide.org/about/task-force-members.html.

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An updated review for small media interventions is underway. An initial review of provider reminders recently was published.[4] The current updated recommendations represent the work of the independent, nonfederal Community Preventive Services Task Force (Task Force). The Task Force is developing the *Guide to Community Preventive Services* (the *Community Guide*) with the support of DHHS in collaboration with public and private partners. The CDC provides staff support to the Task Force for development of the *Community Guide*, but the opinions and recommendations resulting from the reviews are those of the Task Force. General methods for conducting *Community Guide* evidence reviews, and specific methods for conducting cancer screening reviews, have been published elsewhere.[5,6]

The selected community and healthcare system interventions on which this report is based were developed, in part, to help meet goals of lowering cancer mortality set by *Healthy People 2020* (www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=5). The cancer objectives for *Healthy People 2020* reflect the importance of increasing screening for breast, cervical, and colorectal cancer by measuring use of effective screening tests identified in the U.S. Preventive Services Task Force (USPSTF) recommendations (see below).

Information from Other Advisory Groups

The U.S. Preventive Services Task Force issues recommendations for screening of breast, cervical, and colorectal cancer. USPSTF recommendations for breast cancer screening were updated in December 2009 (www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm). USPSTF recommendations for cervical cancer screening were updated in March 2012 (www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm). The USPSTF made its most recent recommendations on colorectal cancer screening (www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm) in 2008.

Intervention Recommendations

A Community Preventive Services Task Force recommendation is based primarily on effectiveness of the intervention as determined by the systematic literature review process. In making a recommendation, however, the Task Force balances information on effectiveness with information on other potential benefits or harms of the intervention. The Task Force also considers the applicability of effective interventions to various settings and populations in determining the scope of the intervention.

Here, the Task Force presents the recommendations from updated reviews on interventions designed to increase community demand for and access to breast, cervical, and colorectal cancer screening services and to increase provider referral for and delivery of cancer screening. Effectiveness of client-oriented interventions was studied separately for increasing breast cancer screening by mammography, cervical cancer screening by Pap test, and colorectal cancer screening by fecal occult blood test (FOBT), flexible sigmoidoscopy, or colonoscopy; effectiveness of provider-oriented interventions was studied across all three cancer sites.

Client-Oriented Interventions

Group education. Group education conveys information on indications for, benefits of, and ways to overcome barriers to screening with the goal of informing, encouraging, and motivating participants to seek recommended screening. Group education usually is conducted by health professionals or by trained lay people who use presentations or other teaching aids in a lecture or interactive format, and often incorporate role-modeling or other methods. Group education can be given to a variety of groups, in various settings, and by various types of educators with various backgrounds and styles.

The Task Force recommends group education (www.thecommunityguide.org/cancer/screening/client-oriented/RRgroupeducation_a.html) on the basis of sufficient evidence that these interventions are effective in increasing screening for breast cancer. There was insufficient evidence, however, to determine the effectiveness of group education in increasing screening for cervical cancer and colorectal cancer, based on small numbers of studies with methodologic limitations and inconsistent findings.

One-on-one education. One-on-one education conveys information by telephone or in person on indications for, benefits of, and ways to overcome barriers to screening with the goal of informing, encouraging, and motivating people to seek recommended screening. These messages are delivered by healthcare workers or other health professionals, lay health advisors, or volunteers and are conducted by telephone or in person in medical, community, worksite, or household settings. Interventions can be untailored to address the overall target population or tailored, based on individual assessments to address the recipient's individual characteristics, beliefs, or perceived barriers to screening. As defined by this review, one-on-one education may be accompanied by a small media or client reminder component.

The Task Force recommends the use of one-on-one education (www.thecommunityguide.org/cancer/screening/client-oriented/RROneonOneEducation_a.html) to increase screening for breast and cervical cancers on the basis of strong evidence of effectiveness. The Task Force also recommends the use of one-on-one education to increase colorectal cancer screening with FOBT based on sufficient evidence of effectiveness. Evidence is insufficient, however, to determine the effectiveness of one-on-one education in increasing colorectal cancer screening with other tests, because only two studies assessed colonoscopy, with inconsistent results, and one study for flexible sigmoidoscopy found no effect.

Client incentives. Client incentives are small, noncoercive rewards (e.g., cash or coupons) to motivate people to seek cancer screening for themselves or to encourage others (e.g., family members, close friends) to seek screening. Incentives are distinct from interventions designed to improve access to services (e.g., transportation, child care, reducing client out-of-pocket costs). The Task Force finds insufficient evidence to determine the effectiveness of using client incentives (www.thecommunityguide.org/cancer/screening/client-oriented/RRincentives_a.html) to increase screening for breast, cervical, or colorectal cancers because only one study for breast cancer and no studies for cervical and colorectal cancers were identified.

Client reminders. Client reminders are textual (letter, postcard, e-mail) or telephone messages advising people that they are due (reminder) or overdue (recall) for screening. Client reminders may be enhanced by one or more of the following: 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. Interventions can be untailored to address the overall target population or tailored with the intent to reach one specific person, based on characteristics unique to that person, related to the outcome of interest, and derived from an individual assessment.

The Task Force recommends the use of client reminders (www.thecommunityguide.org/cancer/screening/client-oriented/RRreminders_a.html) to increase screening for breast and cervical cancers on the basis of strong evidence of effectiveness. The Task Force also recommends the use of client reminders to increase colorectal cancer screening with FOBT based on strong evidence of effectiveness. Evidence is insufficient, however, to determine effectiveness of client reminders in increasing colorectal cancer screening with other tests (colonoscopy, flexible sigmoidoscopy) because of inconsistent evidence.

Mass media. Mass media—including TV, radio, newspapers, magazines, and billboards—are used to communicate educational and motivational information in community or larger-scale intervention campaigns. Mass media interventions, however, almost always include other components or attempt to capitalize on existing interventions and infrastructure. The updated review[3] evaluated the effectiveness of mass media used alone, or its individual contribution to the effectiveness of multicomponent interventions.

The Task Force finds insufficient evidence to determine the effectiveness of mass media interventions (www.thecommunityguide.org/cancer/screening/client-oriented/RRmassmedia_a.html) in increasing screening for breast, cervical, or colorectal cancers. Although additional studies were found during the updated review,[3] there continue to be too few studies to determine effectiveness for breast, cervical, or colorectal cancer screening.

Reducing out-of-pocket costs. These interventions attempt to minimize or remove economic barriers that impede client access to cancer screening services. Costs can be reduced through a variety of approaches, including vouchers, reimbursements, reduction in copays, 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.

The Task Force recommends reducing client out-of-pocket costs (www.thecommunityguide.org/cancer/screening/client-oriented/RRoutofpocket_a.html) to increase screening for breast cancer on the basis of sufficient evidence of effectiveness. There is insufficient evidence to determine the effectiveness of reducing out-of-pocket costs in increasing screening for cervical or colorectal cancer because too few (cervical cancer) or no (colorectal cancer) studies were identified. Nonetheless, the consistent, favorable results for interventions that reduce costs for breast cancer screening and several other preventive services suggest that such interventions are likely to be effective for increasing cervical and colorectal cancer screening as well.

Reducing structural barriers. Structural barriers are non-economic burdens or obstacles that impede access to screening. Interventions designed to reduce these barriers may facilitate access by reducing time or distance between service delivery settings and target populations; modifying hours of service to meet client needs; offering services in alternative or nonclinical settings (e.g., mobile mammography vans at worksites or in residential communities); and eliminating or simplifying administrative procedures and other obstacles (e.g., scheduling assistance or patient navigators, transportation, dependent care, translation services, limiting the number of clinic visits). Such interventions often include one or more secondary supporting measures, such as printed or telephone reminders; education about cancer screening; information about cancer screening availability (e.g., group education, pamphlets, or brochures); or measures to reduce client out-of-pocket costs. Interventions principally designed to reduce client costs are considered to be a separate class of approaches.

The Task Force recommends reducing structural barriers to increase screening (www.thecommunityguide.org/cancer/screening/client-oriented/RRreducingstructualbarriers_a.html) for breast and colorectal cancers (by mammography and FOBT, respectively) on the basis of strong evidence of effectiveness. Evidence is insufficient, however, to determine whether reducing structural barriers is effective in increasing colorectal cancer screening by flexible sigmoidoscopy or colonoscopy because only one study using these screening procedures was identified. Evidence is also insufficient to determine the effectiveness of the intervention in increasing screening for cervical cancer because only three relevant studies were identified, and these had methodologic limitations.

Increasing Provider Delivery

Provider assessment and feedback. Provider assessment and feedback interventions both evaluate provider performance in offering and/or delivering screening to clients (assessment) and present 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 individual providers, and may be compared with a goal or standard.

The Task Force recommends provider assessment and feedback interventions (www.thecommunityguide.org/cancer/screening/provider-oriented/RRpaf_a.html) on the basis of sufficient evidence of effectiveness in increasing screening for breast cancer (mammography); cervical cancer (Pap); and colorectal cancer (FOBT). Evidence remains insufficient, however, to determine effectiveness of this intervention in increasing colorectal cancer screening using methods other than FOBT.

Provider incentives. Provider incentives are direct or indirect rewards intended to motivate providers to perform cancer screening or make appropriate referral for their patients to receive these services. Rewards are often monetary, but can include nonmonetary incentives also (e.g., continuing medical education credit). Because some form of assessment is needed to determine whether providers receive rewards, an assessment component may be included in the intervention.

The Task Force finds insufficient evidence to determine the effectiveness of provider incentives (www.thecommunityguide.org/cancer/screening/provider-oriented/RRincentives_a.html) in increasing screening for breast, cervical, or colorectal cancers. Evidence is insufficient because of a small magnitude of effect across studies and because data from healthcare systems that include provider incentives as part of their strategies for administration and provider compensation have not been published.

Using the Recommendations and Findings

These recommendations are intended to highlight effective interventions, which should be considered over alternatives without documented effectiveness when deciding among possible approaches to increasing cancer screening. These recommendations are neither intended nor expected to be applicable in all situations. Decision makers and implementers should bear in mind that an understanding of local context—including known barriers to screening in the target population(s), available resources, and what can be implemented effectively—is essential to the process of identifying appropriate strategies and selecting feasible intervention approaches for a specific setting or population.

The systematic collection of qualitative and quantitative data can be an extremely helpful tool for developing a more thorough understanding of the local context. Once that context is understood clearly, the recommendations presented here and the evidence on applicability in the accompanying evidence review[3] can be used to help select appropriate interventions. Some key considerations in using recommended interventions are noted below.

Choosing Interventions to Meet Community Needs

It is important to consider the characteristics of the target population carefully when considering implementing any intervention, and this need is particularly strong for interventions intended to educate and increase awareness about cancer screening (e.g., one-on-one education, group education, mass media). For example, when baseline screening rates are high, group education or mass media campaigns directed at the general population may not be the most appropriate intervention. Such interventions may be most appropriate when directed at populations or subpopulations with relatively low screening rates, and when their messages are directed at the most relevant issues for the specific group or individual addressed.

Considering the specific characteristics of the target population is also important for implementing appropriate interventions to increase cancer screening by reducing structural barriers. Many options for reducing structural barriers are available, and questions remain about whether some of these approaches are more or less effective or appropriate for use within specific settings or with specific populations—such as with people who have never been screened or who may be hard to reach for screening. In the absence of such research, specific intervention approaches should be selected and implemented only after careful consideration of the most important barriers to screening for the target population.

Implementing Multiple Interventions

In many situations, it may be appropriate to implement two or more interventions, because a single intervention might not address adequately multiple barriers that contribute to low screening rates within a community or that prevent people from adhering to screening recommendations.

The updated reviews found some evidence that implementing an intervention such as one-on-one education as part of a multicomponent intervention that includes other approaches to increasing cancer screening can provide incremental benefits. Decisions about when to use such a multicomponent approach, and which specific combinations of interventions to implement, should be based not only on the characteristics of the target population and the most important barriers to screening but also on whether adequate resources and infrastructure exist to deliver all components with fidelity.

Considering the Healthcare System Context

Recent changes in healthcare systems are making it increasingly necessary to consider single-component interventions, such as provider assessment and feedback, within a broader context of how care is delivered in a given healthcare system. Some changes, such as increased integration of computerized medical records into practice, may make it easier to implement and sustain such interventions. Further, it is appropriate to consider the role that provider assessment and feedback can play to improve the delivery of recommended cancer screenings in relationship to other elements of the specific healthcare system, such as provider compensation policies.

Although the Task Force found insufficient evidence to determine the effectiveness of provider incentives in increasing cancer screening, many healthcare systems include provider incentives as part of a comprehensive strategy for administration and provider compensation. However, studies of the effects of such strategies were not available for evaluation and thus could not contribute to Task Force findings on their effectiveness.

Additional Information and Assistance

Additional information and assistance in selecting and implementing appropriate interventions to increase cancer screening are available through online tools, such as those available at Cancer Control P.L.A.N.E.T. (cancercontrolplanet.cancer.gov/). Its links provide helpful sources of information for determining cancer control program priorities, identifying potential partners, exploring various intervention approaches, finding research-tested intervention programs and products, and planning and evaluating the intervention program. Although such tools can be invaluable resources, it is also helpful to draw on direct technical assistance and advice from people with experience in implementing the interventions of interest.

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Terminology

ACS: American Cancer Society

ACCR: Arkansas Central Cancer Registry

Age-adjusted mortality rate: A standardizing procedure for rates or measures of association in which the effects of differences in composition for variables(s) among populations being compared have been removed by mathematical procedures. Most often, adjustment is performed on rates. Age is the variable for which adjustment is most often carried out.

Adjuvant therapy: Chemotherapy drugs (including hormones) given after surgery or radiation or both to help prevent the cancer from coming back. Alternative medicine: Therapeutic approaches taken in place of traditional medicine and used to treat or ameliorate disease.

Asymptomatic: Presenting no signs or symptoms of disease.

Baseline: An initial or known value (e.g. Body Mass Index) in which later measurements can be compared.

Benign: Non-cancerous tumor.

Bias: In general, any factor that distorts the true nature of an event or observation. In clinical investigations, a bias is any systematic factor other than the intervention of interest that affects the magnitude (i.e., tends to increase or decrease) an observed difference in the outcomes of a treatment group and a control group.

Body Mass Index (BMI): Weight in kilograms divided by height in meters squared, and offers an easily obtainable quantification of the relationship between height and weight.

BRFSS: The Behavioral Risk Factor Surveillance System (BRFSS) is the nation's premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services.

Cancer: A general term for more than 100 diseases that are characterized by uncontrolled, abnormal growth of cells. Cancer cells can spread locally or through the blood stream and lymphatic system to other parts of the body. All cancers have the capacity to move and form secondary tumors at other sites in the body.

CDC: Center for Disease Control and Prevention works 24/7 to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

Carcinogen: Any substance that is known to cause cancer.

Chemotherapy : A treatment program for cancer, using drugs.

Chronic disease: A disease or condition that persists or progresses over a long period of time.

Clinical trials: Research studies that involve patients. Each study is designed to find better ways to prevent, detect, diagnose, or treat cancer and to answer scientific questions.

CT scan: A series of detailed pictures of areas inside the body taken from different angles; the pictures are created by a computer linked to an X-ray machine. Also called computerized tomography and computerized axial tomography (CAT) scan.

Digital Rectal Exam (DRE): An exam to detect cancer. A healthcare provider inserts a lubricated, gloved finger into the rectum and feels for abnormal areas.

Dysplasia: Abnormal pathological development of cells indicating possibility of malignancy.

Epidemic: Affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time. Epidemiology: The study of disease incidence and distribution in populations, as well as the relationship between environment and disease. Cancer epidemiology is the study of cancer incidence and distribution in the population and of how physical surroundings, occupational hazards, and personal habits such as tobacco use and diet may contribute to the development of cancer.

Ethnicity: A group that shares a common ancestry, history, or culture.

Fecal Occult Blood Test (FOBT): A test to check for small amounts of hidden blood in the stool.

Five-year survival: Five-year survival is a term commonly used as the statistical basis for successful treatment. A patient with cancer is generally considered cured after five or more years without recurrence of disease.

Genetic: Inherited; having to do with information that is passed from parents to offspring through genes in sperm and egg cells.

Genetic susceptibility: An inherited increase in the risk of developing a disease.

Health disparities: Differences in the incidence, prevalence, mortality and burden of cancer and related adverse health conditions that exist among specific population groups in the United States.

High risk: When the chance for developing cancer is greater for an individual or a group of people than it is for the general population, that individual or group is considered to be at high risk. People may be considered to be at high risk from many factors or combination of factors, including a family history of disease, personal habits, or exposure to carcinogens in the environment or in the workplace.

Human Papillomavirus (HPV): More than 100 types of viruses that cause various human warts (as the common warts of the extremities, plantar warts, and genital warts) including some associated with the production of cancer. More than 30 of these papillomaviruses are sexually transmitted and high-risk HPV include types: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, and 69. HPVs are now recognized as the major cause of cervical cancer.

Incidence: Incidence is the number of times a disease occurs in a given population. Cancer incidence is the number of new cases of cancer diagnosed each year. The Arkansas Central Cancer Registry, housed at the Arkansas Department of Health, maintains cancer incidence data in Arkansas.

Incidence rate: A measure of the rate at which new events occur in the population. The number of new cases of a specified disease diagnosed or reported during a defined period of time, is the numerator, and the number of persons in the stated population in which the cases occurred is the denominator.

Magnetic Resonance Imaging: Magnetic Resonance Imaging (MRI) is an imaging method that uses magnetic fields, radio waves, and a computer to produce a detailed crosssectional picture of the inside of the body.

Malignancy (or malignant): Cancerous; can invade nearby tissue and spread to other parts of the body.

Mammogram: An X-ray of the breast. Managed Care: Any system that manages healthcare delivery to control costs.

Master Settlement Agreement: In 1998, 46 states and the four major tobacco companies signed the Master Settlement Agreement (MSA), which stipulated that the tobacco companies pay states $206 billion over 25 years and take steps to reduce youth smoking. The remaining states settled separately.

Medically Underserved Areas: Medically Underserved Areas (MUA) are areas within the United States that have limited or no access to primary healthcare. Melanoma: Cancer of the cells that produce pigment in the skin. Melanoma usually begins in a mole.

Metastatic cancer: Cancer that has spread from the place in which it started to other parts of the body.

Morbidity: Any departure, subjective or objective, from a state of physiological or psychological well being. In this sense, sickness, illness, and morbid condition are similarly defined and synonymous.

Mortality rate: A rate expressing the proportion of a population who die of a disease, or of all causes. The numerator is the number of persons dying; the denominator is the total population (usually the midyear population) in which the deaths occurred. The unit of time is usually a calendar year. To produce a rate that is a manageable whole number, the fraction is usually multiplied by 1,000 to produce a rate per 1,000. This rate is also called the “crude death rate.”

Multidisciplinary: Involving many particular fields of study.

The National Institutes of Health (NIH)

Obesity: A condition in which a person has abnormally high amounts of unhealthy body fat; medically defined as a Body Mass Index of 30 or higher.

Palliative care: Care that does not alter the course of a disease, but improves the quality of life.

Pap Smear: A cytological test developed by the late George N. Papanicolaou for the detection of cervical cancer and changes in the cervix that may lead to cancer.

Prevalence: In medical terminology, prevalence typically has been defined as the number of cases of a disease that are present in a population at a point in time. In the case of smoking prevalence in a population, the term is used to define the number of people in that population who are regular smokers.

Prevention: The reduction or control of factors believed to be causative for a health problem and includes reducing risk factors such as smoking to prevent lung cancer or sex education to reduce sexually transmitted diseases, and environmental exposures such as reducing ambient lead to prevent intellectual impairment. This category also includes health-service interventions, such as vaccinations or such preventive “therapy” tools as fluoridated water supplies or dental sealants.

Prostate-Specific Antigen: A protein whose level in the blood goes up in some men who have prostate cancer or benign prostatic hyperplasia. Also known as PSA.

Psychosocial: Involving both psychological and social aspects of a person.

Quality of life: In cancer treatment, quality of life is the concept of ensuring that cancer patients are able to lead the most comfortable and productive lives possible during and after treatment. New treatment techniques and social and emotional support groups are adding to the quality of life for cancer patients as well as to their survival.

Risk factor: Anything that has been identified as increasing an individual’s chance of getting a disease is a risk factor.

Secondhand smoke: Smoke that comes from the burning end of a cigarette and smoke that is exhaled by smokers. Also called ETS or environmental tobacco smoke. Inhaling ETS is called involuntary or passive smoking.

Sigmoidoscopy: A procedure in which a physician or healthcare provider looks inside the rectum and the lower part of the colon (sigmoid colon) through a flexible lighted tube. The physician may collect samples of tissue or cells for closer examination (also called proctosigmoidoscopy).

Socioeconomic: Of, relating to, or involving a combination of social and economic factors.

Stage: A distinct phase in the course of a disease. Stages of cancer are typically defined by containment or spread of the tumor: in situ, localized, regional or distant spread.

Staging: Doing exams and tests to learn the extent of the cancer, especially whether it has spread from its original site to other parts of the body.

Surveillance: Close and continuous observation, screening, and testing of those at risk for a disease.

Survival: Average period of time from diagnosis to death.

Survivorship: (as defined by the National Coalition for Cancer Survivorship (NCCS) and the Office of Cancer Survivorship at NCI): The experience of living with, through, or beyond cancer; a continual, ongoing process that begins at the moment of diagnosis and continues for the remainder of life; composed of stages or phases of survival.

Policy, Systems and Environment: Working with systems, which are defined as a network of interdependent parts that work together to try to accomplish the goals of the system. Systems have a quality of interdependence where the changes in one aspect of the system reverberate and create impact throughout the system. Some examples of systems are a school district, a business, a community, a church, or hospital. Working with systems can provide the best utilization of volunteers, staff, and other resources in achieving a common goal.

UALR: University of Arkansas at Little Rock

UAMS: University of Arkansas for Medical Sciences

Ultrasound: Ultrasound uses high frequency sound waves and their echoes to create a picture of the interior of the body. A microphone-like instrument called a transducer that emits and receives sound waves is passed over the part of the body being examined. The echo patterns are converted by a computer to an image that is viewed on a monitor.

USPSTF: the U.S. Preventive Services Task Force is an independent, volunteer panel of national experts in prevention and evidence-based medicine. The Task Force works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications. All recommendations are published on the Task Force’s Web site and/or in a peer-reviewed journal.

Winthrop P. Rockefeller Cancer Institute: Formerly the Arkansas Cancer Research Center (ACRC).

YRBSS: The Youth Risk Behavior Surveillance System (YRBSS) monitors six types of health-risk behaviors that contribute to the leading causes of death and disability among youth and adults, including—

Behaviors that contribute to unintentional injuries and violence

- Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection
- Alcohol and other drug use
- Tobacco use
- Unhealthy dietary behaviors
- Inadequate physical activity

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