



## Massachusetts Statewide 2017-2021 Cancer Plan



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The Massachusetts Comprehensive Cancer Prevention and Control Network  
Massachusetts Department of Public Health  
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# Letter from the Steering Committee Co-chairs

Dear Cancer Partners,

As co-chairs of the Massachusetts Comprehensive Cancer Steering Committee, we would like to present the 2017-2021 Comprehensive Cancer Plan. This plan represents input from stakeholders from around the state including, survivors, health care professionals, community members, advocates and academic institutions.

Cancer is the leading cause of death in Massachusetts and represents a significant burden for all residents impacted by this disease. In the development of the plan, in addition to incidence and mortality data, issues experienced across the entire cancer continuum, lead to the identification of 4 areas of focus:

- Prevention
- Secondary Prevention
- Diagnosis and Treatment including Palliative Care
- Survivorship

Within this context, the plan identifies and builds upon current work being done within Massachusetts to address these areas. The plan seeks to implement innovative, evidence-informed strategies that focus on policy, systems and environmental changes that are potentially sustainable. The Steering Committee is committed to the development of an implementation plan to assure active engagement of stakeholders in meeting the plan's goals and objectives. Our ultimate goal is to reduce the cancer burden in Massachusetts and improve the health and quality of life of those who experience this condition.

We hope that you will find this plan useful in guiding your work in addressing the cancer burden in MA and we welcome you to partner with us to accomplish the goals set forth in the plan.

Respectfully,

**Anita Christie RN MHA CPHQ**  
MA Department of Public Health

**Stephenie Lemon, PhD**  
University of Massachusetts  
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# Letter from the Commissioner

Dear Colleague,

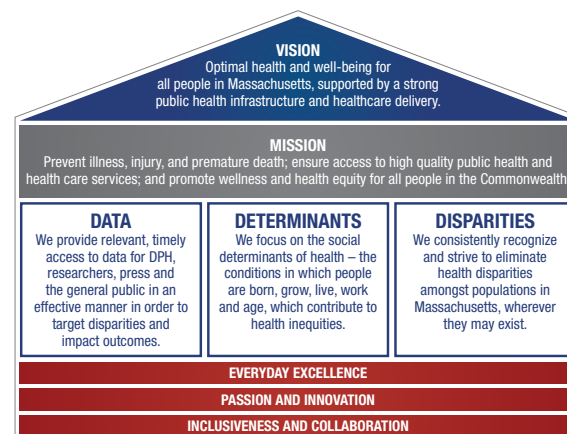
I am excited to introduce the *Massachusetts Statewide 2017-2021 Cancer Plan*, and to ask for your help in supporting its vital work. Created by the Massachusetts Comprehensive Cancer Prevention and Control Network, the Plan is a comprehensive 5-year guide to address cancer, the leading cause of death in the Commonwealth. Although the overall cancer incidence rate decreased in Massachusetts between 2009 and 2013, there is still an average of over 36,000 new cancer cases diagnosed each year and, on average, cancer causes nearly 13,000 deaths each year.

The Plan's action steps will guide the statewide efforts of the Network and its partners, and foster collaboration between agencies, nonprofits, healthcare providers, patient advocates, cancer survivors and others.

As a member of the Network, the Department of Public Health will use the Plan to work toward our vision of optimal health and well-being for all people in the Commonwealth, by:

- Preventing illness, injury, and premature death,
- Ensuring access to high quality public health and health care services, and
- Promoting wellness and health equity.

The Plan is also consistent with the three main pillars of what I refer to as the “DPH House,” which are key areas of focus that we use when addressing our goals:



- **Data:** DPH both provides and uses data in order to identify inequities, target our strategies, and impact outcomes
- **Determinants:** This refers to the Social Determinants of Health, the conditions in which people are born, grow, live, work and age, which contribute to health
- **Disparities:** DPH is committed to recognizing and eliminating unjust health disparities amongst populations in Massachusetts

I particularly want to thank the Network for highlighting in this plan the inequities in outcomes that are the result of racism within our communities, our organizations and our systems, including the healthcare system. African American men and women are especially impacted by this structural racism and it is only by recognizing and talking about racism and developing policies, programs and practices that address it that we can achieve justice and fairness in health. It is exciting to be part of a Network that is invested in such work.

Please read the Plan to see how you can contribute to its success, and help us reduce the burden of cancer in Massachusetts, as we work to eliminate unjust disparities, promote wellness and health equity, and raise the quality of life for all residents of the Commonwealth.

I look forward to hearing from you how this plan has helped your work.

Sincerely,

**Monica Bharel, MD, MPH**  
Commissioner

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# Acknowledgments

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# 01

## Introduction

**T**he Massachusetts Statewide 2017-2021 Cancer Plan sets forth a comprehensive cancer control blueprint for action to reduce the cancer burden in our state. It is designed as a guide for statewide, local, and community efforts in preventing and controlling cancer. It is for community health and faith-based coalitions, disease prevention and advocacy organizations, healthcare providers, researchers, policy makers, public health officials, cancer survivors, and individuals interested in cancer activities.

As a collective of stakeholders, the Massachusetts Comprehensive Cancer Prevention and Control Network (MCCPCN) developed the Plan as the centerpiece of comprehensive cancer control efforts in the state over the next five years.

According to the Centers for Disease Control and Prevention (CDC), comprehensive cancer control is a coordinated and strategic approach to preventing or minimizing the impact of cancer in communities. It involves cooperative input and concerted action to reduce cancer risk, find cancer earlier, improve and increase access to quality cancer care, especially palliative care, and improve the health and well-being of cancer survivors.

Building on the previous five-year plan from 2012-2016, this Plan applies a Policy, Systems, and Environmental (PSE) change framework to address the challenges along every aspects of the cancer continuum. This Plan also continues the previous commitment to achieving health equity and strives to broaden the reach of the state's cancer prevention and control activities by calling on a wide range of individuals and organizations throughout the Commonwealth to take action and contribute to the Plan's success.

## Our Framework: Policy, Systems, and Environmental Change

Using a framework of Policy, Systems, and Environmental change offers new ways of thinking about how to effectively improve

health in a community. Many of the policies, systems, and environments of our neighborhoods, workplaces, schools, and healthcare settings shape our lives and our health (Table 1).

For example, evidence demonstrates that healthy choices about nutrition, physical activity and tobacco can be influenced by policy and environmental factors such as which neighborhood a person lives in, access to healthy food, requirement of physical activity in schools, or the intensity of tobacco industry targeting of youth.

The Plan intends to address the social determinates and related risk factors that contribute to cancer in our communities by considering the policies, laws, and environments that impact our behavior and create social and physical environments that promote good health for all.

**TABLE 1. EXAMPLES OF POLICY, SYSTEMS AND ENVIRONMENTAL CHANGES.**

	DEFINITION	SETTING	EXAMPLES
<b>POLICY</b>	Interventions that create or amend laws, ordinances, resolutions, mandate, regulations, or rules.	State legislatures, city councils / boards of selectman, boards of health, other government administrations, worksites, schools, organizations, healthcare institutions.	Prohibiting the sale of tobacco in pharmacies and other health care institutions.
<b>SYSTEMS</b>	Interventions that impact all elements of an organization, institution, or system.	Health care institutions, insurance organizations, schools, worksites, transportation, communities, neighborhood groups.	Institutionalizing provider education on shared decision making at major health care delivery institutions in the state.
<b>ENVIRONMENT</b>	Interventions that involve physical or material changes to the economic, social, or physical environment.	Parks, schools, neighborhoods, stores, doctor's offices.	Incorporating sidewalks, paths and recreation areas into community planning and design in low-income neighborhoods.

# 3 Cross-Cutting Themes

Within the framework of Policy, Systems, and Environmental change, the Plan identifies and promotes three important cross-cutting themes. These common elements represent a form of operating principles woven throughout each objective and strategy to help ensure successful implementation of the Plan.



## HEALTH EQUITY AND ACCESS

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Disadvantages that create inequitable or unequal access to resources and opportunities result in disparities or differences in health and health outcomes for certain groups of people. Our Plan's five-year objectives seek to address root causes for these differences and to achieve equity by increasing access to quality services, healthcare, and resources in a timely manner and creating environments for people to achieve their highest health potential.



## DATA-DRIVEN AND EVIDENCE-BASED

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Research and practice-tested strategies and interventions offer ideas that are vital for expanding and building knowledge based on innovative, effective, and evaluated practices. Our strategies are developed using local or state-level data with known evidence of progress in implementation. Consistent and comprehensive evaluation of our Plan's performance measures will allow us to monitor progress and the overall effectiveness of the Plan's five-year goals and objectives.



## COMMUNICATION

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Effective messaging, interaction and exchange of ideas are the critical connection we have across collaborations and with each and every group we need to reach to accomplish our comprehensive cancer control goals and objectives. Strategies focus on steps to educate partners and stakeholders about emerging issues; disseminate and promote health information through social media and earned media; encourage advocacy and community mobilization on key strategies; and prioritize communication that is responsive to cultural differences, languages, and health literacy needs.

**“** *The MCCPCN Steering Committee made an intentional decision to focus on the PSE framework because it allows us to broadly reach as many people as possible who are at risk for and affected by cancer. This is hugely powerful with regard to collaboration on multiple levels and maximizing our resources to impact the most lives.”*

*—Stephenie Lemon, PhD, MCCPCN Steering Committee Co-Chair*





# 02

## Summary of 2017-2021 Cancer Plan Goals and Priorities

**T**he Massachusetts Statewide 2017-2021 Cancer Plan outlines goals, objectives, and priority strategies organized into four areas of focus to reduce the burden of cancer in Massachusetts over the next five years.

## ■ PRIMARY PREVENTION

**Goal 1:** To reduce the risk factors related to cancer by advancing policy, systems, and environmental change that support, promote, and enhance equity.

**Priorities:** Decrease tobacco use and obesity, increase human papilloma virus (HPV) and hepatitis B vaccinations to prevent infectious disease-related cancers, and reduce exposure to radon and other harmful environmental elements to reduce the risk of cancer.

## ■ SECONDARY PREVENTION

**Goal 1:** Ensure the optimal implementation of evidence-based interventions for promoting appropriate cancer screening and shared decision making for all Massachusetts residents.

**Goal 2:** Ensure that all Massachusetts residents have equal access to the interventions that are effective in promoting cancer screening and to screening tests, especially groups with higher than average mortality and low screening rates.

**Priorities:** Promote shared decision making, increase evidence-based screening rates, and ensure access to cancer screening tests and follow up to find cancer early and reduce late-stage diagnosis.

## ■ TREATMENT AND PALLIATIVE CARE

**Goal 1:** Ensure equity in access to timely and high-quality treatment for all Massachusetts residents.

**Goal 2:** Ensure that all Massachusetts residents have access to palliative care upon diagnosis of cancer.

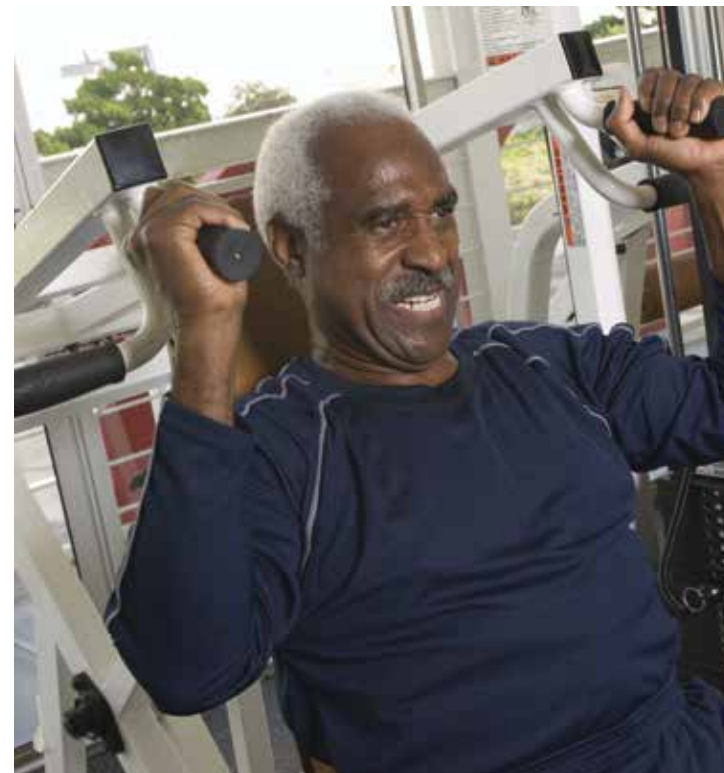
**Priorities:** Reduce barriers to treatment, decrease disparities in prostate cancer and breast cancer deaths, and improve access to and public awareness of palliative care.

## ■ SURVIVORSHIP

**Goal 1:** Optimize the health outcomes, including medical and psychosocial, for all Massachusetts residents who are living with, through and beyond cancer.

**Goal 2:** Promote high quality, equitable, and affordable systems of care for cancer survivors in Massachusetts.

**Priorities:** Improve health and wellness of cancer survivors by reducing smoking and obesity rates, promoting access to care plans and treatment summaries, and increasing knowledge of health care providers to manage survivorship as a distinct phase of cancer care.





# 03

## **From Planning to Action: What You Can Do to Impact the Burden of Cancer in Massachusetts**

**A** successful Massachusetts Statewide 2017-2021 Cancer Plan starts with you! Everyone has a role to play, and our progress depends on a valuable statewide network and important partnerships among dedicated individuals, professionals, communities, and cancer survivors who work in concert, sharing their expertise and resources.

Using this Plan as a guide, you can take action in many ways to help advance our statewide goals to prevent cancer and reduce the burden of cancer in Massachusetts.

## INDIVIDUALS CAN

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- Eat healthy and be active.
- Avoid tobacco and limit alcohol.
- Practice sun safety and get appropriate screenings.

● *Joseph Feaster, a prostate cancer survivor, took charge of his journey by focusing on things he could control. He maintains his physical health by walking and shared his story in the Wellness Guide for Cancer Survivors.*

## ACADEMIC PARTNERS CAN

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- Inform diagnostic and treatment decision tools.
- Collect and manage data.
- Train the next generation of healthcare providers, including specialty care like survivorship and palliative care.

● *The UMASS Medical School established prostate cancer screening guidelines, which include the use of shared decision making and were adopted by the Massachusetts Health Quality Partners. The prostate cancer work group developed shared decision making tools to help promote the guidelines.*

## EMPLOYERS CAN

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- Implement workplace wellness approaches.
- Promote a tobacco-free workplace and provide tobacco cessation benefits to employees.
- Influence healthcare policies, reimbursement, and industry practices to support the fight against cancer.

## HOSPITALS CAN

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- Understand barriers to care.
- Develop interventions to help facilitate access to timely screening and treatment of cancer.
- Establish systems to provide the best care for cancer patients, including palliative care and survivorship programs.

● *Based on findings from a Cancer Disparities Project needs assessment conducted by the Greater Lowell Health Alliance (GLHA), the Lowell General Hospital increased access to tobacco cessation programs for vulnerable populations by training bi-cultural and bilingual staff to provide tobacco cessation services.*



## HEALTHCARE PROVIDERS AND ASSOCIATIONS CAN

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- Share best practices that ensure patients get the best quality of care related to screening and diagnostic care.
- Provide follow up care for cancer survivors that includes treatment summaries and care plans.
- Refer to palliative care at the point of diagnosis.

## HEALTH INSURANCE PLANS AND POLICYMAKERS CAN

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- Understand the cancer burden in Massachusetts.
- Encourage and support use of evidenced-based screening guidelines and promote prevention messages.
- Provide reimbursement and support access to and coverage of smoking cessation benefits, nutrition programs, and appropriate cancer treatment.

## LOCAL PUBLIC HEALTH ORGANIZATIONS AND COMMUNITY LEADERS CAN

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- Disseminate information to their stakeholders about healthy lifestyles that prevent cancer.
- Disseminate information about appropriate cancer screenings and increase public awareness of palliative care.
- Mobilize their communities to advocate for healthy environments.

- *To promote colon cancer screening among the Hispanic population, the Greater New Bedford Allies engaged trusted community leaders and community health workers to provide education on FOBT/FIT kits for colorectal cancer screening, including an educational video to demonstrate how to successfully complete a FIT kit. As a result, there was a significant increase in the number of returned FIT kits for colorectal screening.*



**“** *The work set out in this Plan is part of a longer, continuous effort to reduce the cancer burden in Massachusetts. Policies that improve public health and community engagement to get more people involved will have significant impact on this work.”*

—Anne Levine, M. Ed., MBA,  
Steering Committee

**“** *In prevention, we can't change factors like our family history, but we can eat healthier, be more physically active, and live tobacco free to reduce the risk of cancer and other chronic health conditions. Many of our Plan's goals highlight work with communities to implement changes they want—changes that promote health and well-being, but also link back to prevention.”*

—Gerry Thomas, MPH,  
Steering Committee

# 04

## The Last Five Years: Progress and Accomplishments

### STRUCTURAL REORGANIZATION

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In 2013, the Massachusetts Department of Public Health in conjunction with the Comprehensive Cancer Prevention and Control Program conducted a strategic review of the structure of the state partnership leading to the implementation of the following changes:

- Improvements in plan tracking, communication, and visibility of the MCCPCN.
- New partnership levels with three tiers of engagement, including an expanded Steering Committee of 25 members focused on plan implementation, accountability, and visibility of the partnership; a stronger Work Group level focused on implementation of key initiatives and projects; and a new Network level to connect and leverage efforts across the state.
- A change in name to the Massachusetts Comprehensive Cancer Prevention and Control Network.

## HEALTH EQUITY

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The MCCPCN Disparities/Health Equity Work Group led numerous efforts to increase access to care and increase education among high risk and vulnerable populations.

Through the Cancer Disparities Project, MCCPCN assisted three community-based organizations to:

- Build a collection of evidence-informed strategies to improve equity.
- Develop a cancer needs assessment, an action plan, a sustainability plan, and increased evaluation capacity.
- Implement community-based interventions in collaboration with trusted partner organizations and academic and clinical institutions that resulted in increased education of colorectal cancer screening among Hispanic and Portuguese communities; increased access to smoking cessation and nutrition programs among the Khmer community; additional cultural competency and sensitivity training for local providers at all levels; and a program to identify and track patients at high risk of poor prostate cancer outcomes.

## PRIMARY PREVENTION

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MCCPCN forged new partnerships with four Mass in Motion communities (Chelsea, Somerville, Weymouth, and Waltham) to put local strategies addressing obesity and the increased risk of cancer into action for populations at highest risk. As a result:

- Improved local walking trails, increased CSA shares, increased access to nutrition counseling, new healthy community gardens, and a new park with exercise equipment were developed in the Mass in Motion communities.

- Media campaigns in these communities demonstrated increased knowledge of the link between obesity and cancer.

Other prevention activities elevated key prevention messages about the HPV vaccine, including:

- School based health centers provided HPV education for students.
- The newly created HPV/oral health task force educated and mobilized dentists and dental hygienists to share information about the importance of the HPV vaccination and early detection of oral cancer.

## SECONDARY PREVENTION

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MCCPCN joined the Women's Health Network Care Coordination Program to better understand the factors that influence cervical cancer care delays in non-Hispanic Black women:

- Focus groups revealed that fear, cultural beliefs, and compounding factors related to poverty, gender roles, and health system barriers create delays to screening and follow-up care for Black women. In addition, unconscious bias among providers, therapeutic delays, and miscommunication were important factors impacting continuity of care.
- Improved cervical cancer programming provided culturally-specific cervical cancer prevention education initiatives and interventions for Black women, as well as strategies to improve patient-provider relationships.
- A "Talk to Your Provider" communications campaign was launched and focused in areas of the state with low breast cancer screening rates.

MCCPCN established a Prostate Cancer Work Group in 2013 to provide balanced information for men and providers about the new Massachusetts prostate cancer screening guidelines, which promote the use of shared decision making:

- The Prostate Cancer Work Group produced a video, an online shared decision making tool and a prostate cancer screening website to help men understand how to talk to their doctor about the PSA test. The Work Group also developed a continuing medical education module about shared decision making for providers.

## TREATMENT AND PALLIATIVE CARE

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In 2013, Hunt et al. published a paper that demonstrated large and growing disparities among Black women in breast cancer mortality in the United States and many of its largest cities during the period 1990–2009. As a result:

- MCCPCN joined and participated in the newly formed Boston Breast Cancer Coalition to further explore the disparities in breast cancer mortality outcomes for Black women in Boston.

The Palliative Care Work Group survey of healthcare providers in Massachusetts found that access, quality, and delivery of palliative care services are fragmented at best. As a result:

- Seven regional action planning forums were convened across the state to engage stakeholders in identifying community needs and assets and to build capacity for community partnerships that increase access to quality palliative care.

## SURVIVORSHIP

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The MCCPCN Survivorship Work Group led multiple projects to improve the health and well-being of cancer survivors, including the following:

- A Health Behaviors for Cancer Survivors in Massachusetts data bulletin was created in collaboration with the Massachusetts Behavioral Risk Factor Surveillance System (BRFSS), focusing on health-related behaviors and other health measures for cancer survivors.
- A Wellness Guide for Cancer Survivors was developed to help survivors navigate and communicate their needs and to help providers understand and anticipate the needs of cancer survivors. The Guide presents valuable information across the six dimensions of wellness, including: Physical, Emotional, Social, Spiritual, Work, and Thinking. The Guide also features inspiring video stories of Massachusetts cancer survivors and empowering expert interviews.





**“** *We are blessed in Massachusetts with so much that is needed for good health outcomes, yet at the same time, when we look at the data, we see there is so much more to be done to reduce the unequal burden of cancer on those who are disproportionately affected. Projects like Faces of Faith help us begin to break down the silence that exists in some communities around having the cancer. When we keep the doors to conversation open, we keep health equity at the top of our agenda.”*

*—Karen Burns White, MS,  
Steering Committee*

# 05

## The Burden of Cancer in Massachusetts

**T**he burden of cancer in both the United States and Massachusetts remains high. In fact, according to the American Cancer Society, one in two men and one in three women will develop cancer at some point in their lives.<sup>1</sup>

In 2006, cancer surpassed heart disease as the leading cause of death in Massachusetts, and today more people die from cancer than from any other cause of death.<sup>2</sup> In addition, cancer has high economic costs. Massachusetts spent \$3.3 billion in 2010 in total direct medical costs; accounting for inpatient hospital stays, outpatient care, and prescription medications, and is projected to spend \$6.1 billion by 2020.<sup>3</sup>

## Cancer Incidence and Mortality

Cancer incidence is the number of new cancer cases diagnosed in a year. Although the overall cancer incidence rate decreased in Massachusetts between 2009 and 2013, there is still an average of over 36,000 new cancer cases diagnosed each year. The age-adjusted incidence rate for all cancers combined in Massachusetts was 480.4 cases per 100,000 during this period, with men having higher cancer incidence rates than women.<sup>4</sup>

On average cancer caused 12,909 deaths each year in Massachusetts between 2009 and 2013, and the number of cancer deaths was higher among men than among women. The age-adjusted mortality rate for all cancers combined in the state was 162.9 deaths per 100,000.

Cancer deaths overall decreased in Massachusetts during this time, and the Massachusetts age-adjusted cancer mortality rates were significantly lower than national rates for both males and females.<sup>5</sup>

## Leading Cancers in Massachusetts

According to the American Cancer Society, cancer is not just one disease. There are more than 100 types of cancers, which can start almost anywhere in the body.<sup>6</sup>

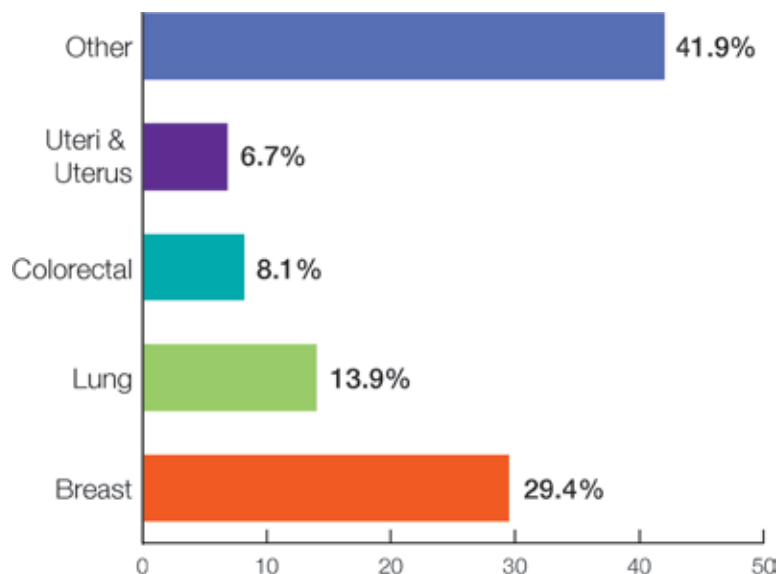
Different cancers are caused by different risk factors, and can grow or spread in different ways. Four cancers in particular are the most common and cause the greatest number of cancer deaths in Massachusetts—lung cancer, breast cancer, prostate cancer, and colorectal cancer.

Among women, breast cancer was the most commonly diagnosed cancer from 2009 to 2013, representing almost one-third of all new cancer cases in women. Prostate cancer was the leading cancer among men, accounting for one-quarter of new cancer cases from 2009 to 2013.<sup>7</sup> The top cause of cancer deaths in both men and women in Massachusetts between 2009 and 2013 was lung cancer (Figure 1).<sup>8</sup>

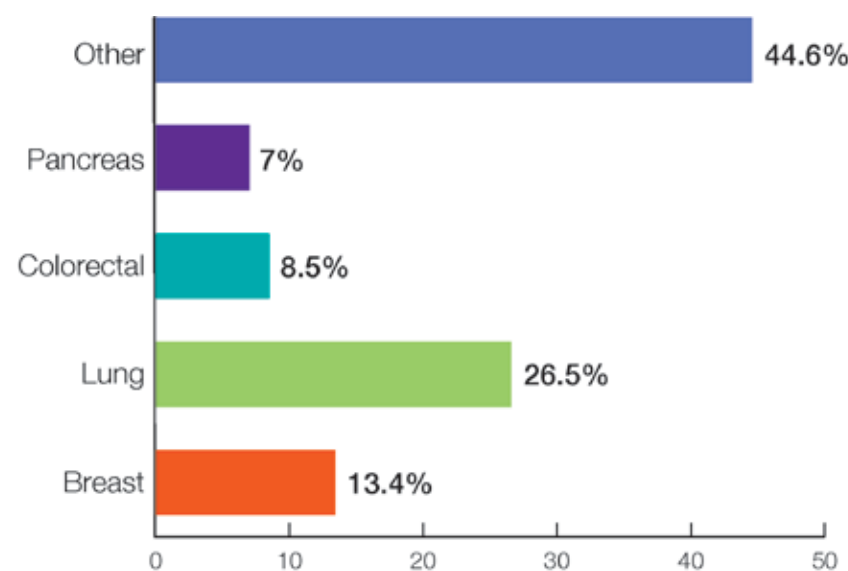
**FIGURE 1. LEADING CANCER INCIDENCE AND MORTALITY BY GENDER, 2009-2013**

Data sources: Massachusetts Cancer Registry, Massachusetts Vital Statistics

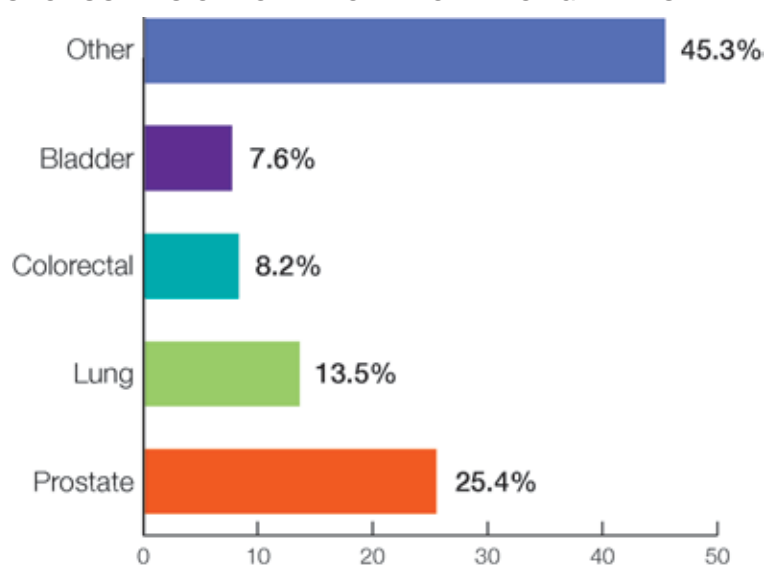
**MASSACHUSETTS CANCER INCIDENCE AMONG FEMALES**



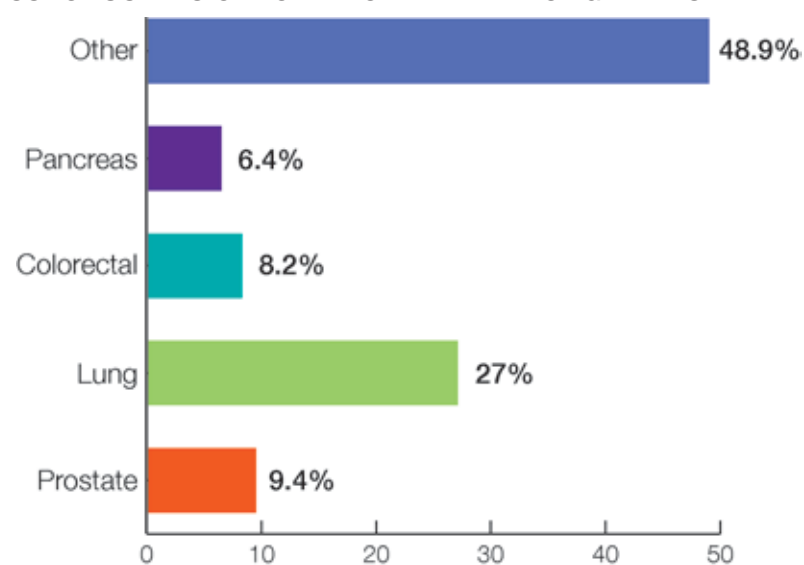
**MASSACHUSETTS CANCER MORTALITY AMONG FEMALES**



**MASSACHUSETTS CANCER INCIDENCE AMONG MALES**



**MASSACHUSETTS CANCER MORTALITY AMONG MALES**



## Cancer Stage at Diagnosis

The stage of cancer refers to the extent of the cancer based on indicators such as where a tumor is in the body, how large a tumor is, or if it has spread. Some cancers, such as melanoma, prostate cancer, and female breast cancer, were most often diagnosed at earlier stages in Massachusetts, compared to lung cancer, which was usually diagnosed at a later stage after cancer cells spread away from the primary tumor (Figure 2).

Staging helps healthcare providers determine appropriate treatment plans. Tracking the stage at diagnosis for common cancers is also an effective way to monitor the impact of cancer screening to detect cancers early.

### CANCER STAGE DEFINITIONS

**UNKNOWN:** There is not enough information available to determine the stage.

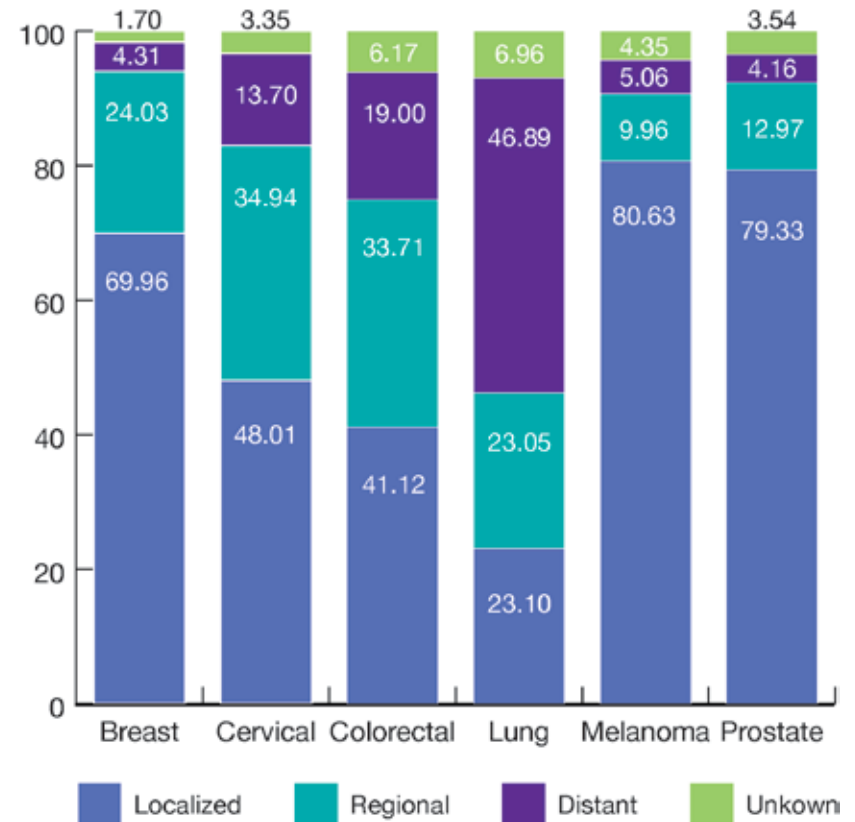
**DISTANT:** Cancer cells have broken away from the primary tumor and spread to other parts of the body.

**REGIONAL:** The tumor has spread to nearby tissue, organs, or lymph nodes.

**LOCALIZED:** The cancer is limited to the place where it started.<sup>9</sup>

**FIGURE 2. CANCER STAGE AT DIAGNOSIS, % OF TOTAL CANCER CASES BY TYPE, 2009–2013**

Data source: Massachusetts Cancer Registry





## Cancer Disparities

The burden of cancer varies by race and ethnicity as well as among men and women, and the reasons for these variations are complex. Understanding where the disparities exist is important to identifying the appropriate interventions that can help address the differences and gaps in health outcomes.

Looking specifically at cancer incidence in Massachusetts, the disparities are evident. Between 2009 and 2013, Black non-Hispanic men and White non-Hispanic women had the highest incidence rate of all cancer types combined among all racial/ethnic groups. During the same period, Black non-Hispanic women had the highest colorectal and cervical cancer incidence rates among all racial/ethnic groups.

Disparities in mortality rates for the leading cancer sites are prevalent as well. Black non-Hispanic men had the highest mortality rate of all cancer types combined compared to other racial/ethnic groups between 2009 and 2013, while White non-Hispanic and Black non-Hispanic women had the highest mortality rate among women. Black non-Hispanic men in Massachusetts had significantly higher prostate cancer mortality rates compared to the other racial/ethnic groups in the state between 2009 and 2013. Similarly, despite having lower breast cancer incidence, Black non-Hispanic women had significantly elevated breast mortality rates compared to the other racial/ethnic groups.



**TABLE 2. AGE-ADJUSTED INCIDENCE AND MORTALITY RATES\* FOR SELECTED CANCER SITES AMONG MASSACHUSETTS MALES BY RACE, 2009-2013**

CANCER SITE	ALL RACES	WHITE, NON-HISPANIC	BLACK, NON-HISPANIC	ASIAN, NON-HISPANIC	HISPANIC
INCIDENT RATE					
All Sites	523	520.4	575.6	331.7	424.2
Prostate	125.1	115.2	215.5	65.1	138.9
Lung	72.8	74.3	74.3	60	43.8
Colorectal	43.9	43.8	51.8	34.2	36
Melanoma	26.3	28.2	†	†	†
MORTALITY RATE					
All Sites	195.9	199.4	220.6	120.4	128.7
Prostate	19.3	19	40.3	7.5	14.7
Lung	52.9	54.4	51.6	37.6	26.6
Colorectal	16.1	16.4	19	9.1	12.1
Melanoma	4.2	4.6	†	†	†

**TABLE 3. AGE-ADJUSTED INCIDENCE AND MORTALITY RATES\* FOR SELECTED CANCER SITES AMONG MASSACHUSETTS FEMALES BY RACE, 2009-2013**

CANCER SITE	ALL RACES	WHITE, NON-HISPANIC	BLACK, NON-HISPANIC	ASIAN, NON-HISPANIC	HISPANIC
INCIDENT RATE					
All Sites	453.8	466.3	401.8	300.9	325.6
Breast	135.8	141.4	119.3	87.4	89.9
Lung	61.8	65.4	44.8	32.1	26.9
Colorectal	34.9	34.9	38	29.3	26.9
Cervical	5.2	4.7	8.7	6.8	8.5
Melanoma	17.9	19.7	†	†	†
MORTALITY RATE					
All Sites	141.1	145.3	145.8	78.7	88.5
Lung	38.4	41	27.7	15.7	12.6
Breast	19.2	19.7	23.5	8.4	10.8
Colorectal	11.4	11.3	14.2	9.8	9.9
Cervical	1.3	1.3	2.2	†	†
Melanoma	1.9	2.2	†	†	†

\*Rates are age-adjusted to the 2000 U.S. Standard Population, per 100,000

†An age-adjusted incidence rate was not calculated when there were fewer than 20 cases.

Source: Massachusetts Cancer Registry, Massachusetts Vital Statistics



**“** When we look at all cancers across the cancer landscape, we see the biggest disparity in the burden of prostate cancer among Black men; a disparity larger than in any other major cancer. Black men are diagnosed with prostate cancer 60 percent more often than Caucasian men and Black men die 2.3 times more often. This trend in mortality is inching downward, partially due to effective approaches to shared decision making and vocal efforts to educate the public and providers about prostate health.”

—Mark Kennedy, MBA, Co-chair of the Prostate Cancer Work Group

**“** It’s important for cancer survivors to maintain relationships with all the doctors involved in their care. Their primary care physician can answer many of the questions that come up following treatment, watch for side effects related to treatment, and monitor routine things, like blood pressure or cholesterol levels, to help keep them healthy.”

— Jacques Carter, MD, MPH, FACP, Prostate Cancer Work Group

# 06

## Goals, Objectives, and Recommended Strategies

**T**he goals, objectives, and strategies of the Massachusetts Statewide 2017-2021 Cancer Plan provide a roadmap for action to address the burden of cancer in Massachusetts. Informed by state-specific data patterns of cancer incidence, mortality, disparities, and screening, the Plan outlines key strategies based on evidence and best practices. Performance measures and targets (Appendix A) offer benchmarks for measuring progress over the five-year timeframe of this Plan, from 2017-2021.

The information in this section is organized within four main focus areas:

- Primary Prevention
- Secondary Prevention
- Treatment: Diagnosis through Palliative Care
- Survivorship



## ■ Primary Prevention

Preventing cancer before it starts is essential to reducing the cancer burden in Massachusetts. Many distinct factors contribute to an increased cancer risk, from age and family history to lifestyle and environmental hazards.

The Plan is focused on changes that allow more people to benefit from healthier choices in their communities to help prevent or limit known cancer risks. Such interventions include encouraging healthy behaviors, reducing environmental exposures, and increasing vaccines for cancer-causing infectious disease.

### TOBACCO

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Tobacco use remains the overall leading cause of cancer and preventable cause of death in the Commonwealth and in the United States. It is also the greatest avoidable risk factor for cancer and many chronic diseases, responsible for about one in five cancer deaths annually or 1,300 deaths every day.<sup>10</sup>

Over the past decade, youth use of cigarettes has fallen to a historic low – from 20.5 percent in 2005 to 7.7 percent in 2015. Nearly nine in ten (84.2 percent) Massachusetts high school students reported not currently using cigarettes, cigars, or smokeless tobacco at least one day during the past 30 days in 2015. However, youth use of other tobacco products (OTP) such as flavored cigars and smokeless tobacco have increased and youth now use OTP at a higher rate than cigarettes (12.4 percent versus 7.7 percent).<sup>11</sup>

In the case of adult smokers in Massachusetts, in 2015 14 percent of Massachusetts adults reported being current smokers and 66 percent of adults who ever smoked have now quit smoking.<sup>12</sup>

Tobacco use can be reduced by focusing on evidence-based prevention strategies to address tobacco-industry targeting of

youth, strengthen local retail policies, and increase community engagement and knowledge. The objectives laid out in this plan align with the priorities of the [Massachusetts Tobacco Cessation and Prevention Program \(MTCP\)](#). This program works with partners such as MCCPCN to carry out strategies to reduce tobacco use in Massachusetts.

### OBESITY

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Growing evidence suggests that lifestyle and health behaviors such as physical activity and nutrition have a greater impact on cancer risk than known before. In fact, being overweight, obese and physically inactive together are associated with a 20-30 percent increased risk of cancer.<sup>13</sup>

Similarly, poor diet and obesity are linked to a number of chronic diseases, including heart disease, diabetes, and stroke.

In Massachusetts, 24.3 percent of adults and 11 percent of high school students are obese. While the Commonwealth has one of the lowest obesity rates in the country, the number of obese adults in the state has been gradually increasing.<sup>14,15,16</sup>

The burden of obesity-related cancers can be prevented by emphasizing policy, systems, and environmental strategies that also impact chronic disease in Massachusetts. By addressing root causes, such as access to healthier foods, or safe, “walkable” communities, health outcomes should improve across cancer and other chronic diseases as well.

The objectives laid out in this plan align with the priorities of the [Mass in Motion](#) program and initiatives carried out under the CDC grant for State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health. These programs work with partners such as MCCPCN to carry out strategies to improve nutrition and reduce obesity in Massachusetts.

## VACCINES

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Vaccinations offer a path to eliminating certain cancers, such as vaccines against the Hepatitis B virus, which can cause liver cancer, and vaccines against the Human Papilloma Virus (HPV). HPV is known to cause 70 percent of cervical cancer cases, in addition to oral cancers and other types of cancers.<sup>17</sup> However, HPV immunization rates remain very low among female and male adolescents in Massachusetts.<sup>18</sup>

Many systems-level changes in particular, such as those that promote provider and community education and increase access to vaccines, can increase vaccination rates and reduce many preventable cancers. The objectives laid out in this plan align with the priorities of the [Massachusetts Immunization Program](#). This program works with partners such as MCCPCN to carry out strategies to increase immunizations in Massachusetts.

## ENVIRONMENTAL HEALTH

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While many cancer-causing elements can be protected against, other dangerous chemicals are harder to avoid when they are in the air we breathe or elsewhere in our environments. In addition to secondhand smoke and ultraviolet (UV) radiation, radon, pesticides, and heavy metals are also environmental factors known to cause cancer. Cancer risk can be reduced by eliminating long-term exposure to radon through proactive radon testing and increasing public awareness and access to information about other cancer-causing elements in the environment.

The [Massachusetts Environmental Public Health Tracking](#) program links information on environmentally-related diseases, human exposures, and environmental hazards through a web-based tool that documents information about health conditions related to the environment. The objectives laid out in this plan align with the priorities of the [Bureau of Environmental Health](#).

## EMERGING ISSUES:

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Obesity among children and adults is increasing in the United States. In fact, recent CDC reports estimate almost 38 percent of U.S. adults and 20 percent of teenagers are obese.

Over the past decade, evidence has shown that obesity and being overweight are growing risk factors for many cancers, including colorectal, breast, uterine, and kidney cancers.<sup>19</sup>

## HPV

Human Papilloma Virus (HPV) causes an estimated 26,000 cancers in men and women combined every year,<sup>20</sup> with cervical cancer being the most common cancer associated with HPV among women and oral cancers most common among men.<sup>21</sup> The HPV vaccine can prevent these cancers from ever developing.

The CDC estimates that HPV vaccine coverage similar to the flu vaccination in the United States could prevent future HPV-attributable cancers and potentially reduce racial and ethnic disparities in HPV-associated cancer incidence.<sup>22</sup>



Hepatitis B and Hepatitis C virus cause a type of liver infection that can result in an increased risk of liver cancer. In Massachusetts, liver cancer diagnoses increased by 4 percent per year among men between 2009 and 2013,<sup>23</sup> with similar rising trends occurring nationally.

Liver cancer is not only posing a higher burden of new cancer cases annually, but is also presenting challenges in its high cost of treatment.



**“** *The HPV vaccine is the only vaccine that we know can prevent cancer. Yet many who start the vaccine don't complete it. We need to change the norms and stigmas around talking about HPV, educate more parents, young people, pediatricians, and others about the importance of the vaccine, and make access as easy as possible and equal for all.”*

*—Eileen Lind, RN, MSN, CPNP, Co-chair of the HPV/Cervical Cancer Work Group*

**“** *The MCCPCN Steering Committee is a unique partnership experience with so many talented people who are knowledgeable about cancer. The diversity of the group offers such different vantage points—practitioners, advocacy groups, survivors, and nonprofit organizations—working together to make a difference in the outcomes around cancer in Massachusetts.”*

*—Lisa Leydon, Steering Committee*

Goal: To reduce the risk factors related to cancer by advancing policy, systems, and environmental change that support, promote, and enhance equity.

## TOBACCO

**OBJECTIVE 1:** By 2021, increase the number of municipalities that have “strengthened” tobacco retail policy by passing 3 of 5 priority policies set by MTCP by 30%.

125

Baseline\*

163

2021 Target

\*Data Source: Massachusetts Tobacco Cessation Program, 2016



## DEFINITIONS

The definitions below describe the terms used in this Plan:

**GOALS:** Broad statements of program purpose that describe the expected long-term effects of a program. Goals represent a general focus area.

**OBJECTIVES:** Statements that describe results to be achieved. Objectives indicate what will be done, not how to make it happen.

**STRATEGIES:** Specific processes or steps undertaken to achieve objectives.

## STRATEGIES FOR OBJECTIVE 1:

1. Continue to engage stakeholders on the local level, including youth and field staff through meetings with cities and towns.
2. Continue to provide technical assistance to cities and towns for decision making around policy, systems, and environmental change through policy formulation, adoption, implementation, and communication.
3. Educate communities through varied and collaborative community partnerships, for example Asthma Coalition, American Lung Association, American Cancer Society (ACS), local public health, and funded tobacco control programs.
4. Utilize the infrastructure of the environmental tracking system to track tobacco retail adoption in cities and towns.
5. Continue to support and leverage existing communication strategies and partnerships.

**OBJECTIVE 2:** By 2021, increase “the percent of students who did not currently smoke cigarettes, cigars or smokeless tobacco on at least 1 day during the 30 days before the survey” from 84.2% to 90%.

**84.2%**

High School Students  
Baseline \*

**90.0%**

High School Students  
2021 Target

\*Data Source: YRBS, MYHS, 2015

## STRATEGIES FOR OBJECTIVE 2:

1. Leverage existing technical assistance providers and funded tobacco control programs to provide technical assistance and education to local boards of health and community members around local policy strategies to address tobacco industry targeting of youth.
2. Implement communication campaigns/mobilization.
3. Conduct outreach to local coalitions and community groups and provide education that will increase community’s knowledge about youth’s access to tobacco and strategies to protect youth from tobacco industry tactics.
4. Provide training and technical assistance to municipal boards of health to enforce sales laws directed at tobacco retailers to reduce tobacco industry influence in retail establishments.
5. Promote local policies regulating minimum package size for cigars; conduct surveillance of local tobacco retailers to monitor the price of tobacco products; and educate stakeholders about the impact of price in reducing tobacco use.



## NUTRITION AND PHYSICAL ACTIVITY

**OBJECTIVE 3:** By 2021, decrease the percent of obesity among Massachusetts adults and youth by 5%.

<b>24.3%</b> Adult Baseline*	<b>23.1%</b> Adult 2021 Target
<b>11.0%</b> High School Student Baseline†	<b>10.5%</b> High School Student 2021 Target
<b>8.9%</b> Middle School Student Baseline‡	<b>8.5%</b> Middle School Student 2021 Target

\* Data Source: BRFSS, 2015

† Data Source: YRBS, MYHS, 2015

‡ Data Source: MYHS, 2013

## STRATEGIES FOR OBJECTIVE 3:

1. Distribute public information materials, developed by the Massachusetts Physical Activity Community of Practice, to stakeholders on the benefits of implementing formal “shared community use agreements” and community design standards to support and promote “walkability” and increase opportunities for residents to be physically active.
2. Participate in local school wellness advisory committee strategic planning meetings to promote adoption of the CDC’s Comprehensive School Physical Activity Program in Massachusetts school districts.
3. Serve as subject matter experts in meetings of the Early Childhood Nutrition and Physical Activity Work Group to promote implementation of the Massachusetts regulation requiring licensed childcare programs to provide 60 minutes of daily physical activity to children in full-time care.
4. Participate in meetings of the School Wellness Task Force, which oversees coordination of trainings for Massachusetts school districts in the development of quality school wellness policies that address school meals, competitive food and beverage guidelines, the promotion of farm-to-school initiatives, BMI screening, and increased opportunities for physical activity for all students.
5. Provide relevant content, including data, for stakeholder education initiatives (for example, for a community health center) that shows the relationship between obesity and chronic disease including heart disease, diabetes, and cancer (for example, breast, colon, and prostate cancers), particularly in targeted populations.

## INFECTIOUS DISEASES

**OBJECTIVE 4:** By 2021, increase the HPV immunization rates for girls and boys ages 13-17, who have had one dose of HPV vaccine by 10 percentage points.



\* Data Source: NIS, 2014

† Data Source: NIS, 2014

## STRATEGIES FOR OBJECTIVE 4:

1. Utilize the MDPH education platform, comprehensive educational and outreach strategies aimed at providers, to increase the number of programs that include provider education on HPV vaccine, with an emphasis on giving a strong provider recommendation.
2. Utilize small media (e.g. social media, blogs) to increase public awareness.
3. Ensure that appropriate healthcare providers report immunizations administered to the Massachusetts Immunization Information System to have a fully robust immunization registry.
4. Continue collaboration with partners on HPV vaccine-related activities via three immunization coalitions.
5. Increase demand by parents for the HPV vaccine through the collaboration with parent, community-based, and faith-based organizations, including the development of a communication plan for targeted diverse communities.
6. Integrate HPV module into the evidence-based sexual health curriculum that is required in school systems.

**OBJECTIVE 5:** By 2021, increase the HPV immunization rates for girls and boys ages 13-17 who have completed the series of HPV vaccine by 10 percentage points.



\* Data Source: NIS, 2014

† Data Source: NIS, 2014

#### STRATEGIES FOR OBJECTIVE 5:

1. Apply all strategies listed in objective 4.
2. Promote providers using evidenced based strategies through the MDPH educational platform to increase immunization rates within their practices such as patient and provider reminder recalls as well as assessment and feedback.

**OBJECTIVE 6:** By 2021, increase the proportion of newborns getting a birth dose of hepatitis B vaccine to 85%.



\* Data Source: National Immunization Service, 2014

#### STRATEGIES FOR OBJECTIVE 6:

1. Utilize the MDPH educational platform and provide onsite training for birth professionals about the importance of the birth dose of hepatitis B vaccine.
2. Promote the Give Birth to the End of Hepatitis B program in all birth hospitals.
3. Increase the number of birth hospitals that achieve Hepatitis B Honor Roll status through onsite training and utilizing the MDPH educational platform.
4. Engage key partners about the importance of administering the birth dose of hepatitis B vaccine to prevent liver cancer.

**OBJECTIVE 7:** By 2021, maintain the hepatitis B vaccine coverage for 2-year-olds at 95%.

**95%**  
Baseline\*

**95%**  
2021 Target

\* Data Source: National Immunization Service, 2014

#### STRATEGIES FOR OBJECTIVE 7:

1. Promote providers using evidenced-based strategies through the MDPH educational platform within their practices, such as patient and provider reminder recall as well as assessment and feedback to maintain high coverage rates.
2. Continue to provide immunization schedule updates to healthcare professionals annually through trainings (e.g. in person and webinars) and electronic communication.
3. Engage key partners about the importance of completing the hepatitis B vaccine schedule to prevent liver cancer.

**OBJECTIVE 8:** By 2021, increase the percent of clients at state-funded counseling and testing sites that test positive for hepatitis C virus (HCV) who are aware of their status and need for follow up.

**58%**  
Baseline\*

**70%**  
2021 Target

\* Data Source: MDPH Counseling and Testing Sites

#### STRATEGIES FOR OBJECTIVE 8:

1. Educate clinicians on HCV testing recommendations for patients with behavioral risk and for all patients in the 1945-1965 birth cohort.
2. Expand integrated HCV/HIV/STD testing services for young people who inject drugs, in medical and non-medical community-based venues.
3. Support community-based outreach and educational efforts recommending appropriate HCV testing and increasing awareness about curative treatment.
4. Increase utilization of curative HCV treatment for persons who are co-infected with hepatitis C and HIV.

## ENVIRONMENT

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**OBJECTIVE 9:** By 2021, reduce exposure to radon by increasing testing in schools from 3 schools per year to 100 schools per year.

**3**

\*Baseline: Outreach to  
3 schools per year

**100**

2021 Target: Outreach to  
100 schools per year

\* Data Source: Radon Control Program

### STRATEGIES FOR OBJECTIVE 9:

1. Expand the number of schools tested annually for radon through pursuit of new Department of Secondary and Elementary policy guidance for testing requirements with school testing goals.
2. Develop testing recommendations/protocol for schools.
3. Develop a database of school radon testing results.
4. Prepare and distribute educational material for schools and parent organizations on cancer risks from radon.

**OBJECTIVE 10:** By 2021, reduce exposure to radon by increasing testing in homes.

**0**

\*Baseline Test Results

**1000**

2021 Target Test Results

\* Data Source: Radon Control Program

### STRATEGIES FOR OBJECTIVE 10:

1. Explore legislation or sub-regulatory guidance for radon disclosure/testing requirements by homeowners and for new home construction, which includes information on cancer risk education, exposure prevention, testing, and test results disclosure to be provided to builders, to potential home buyers, and during residential real estate transactions.
2. Develop a database for home radon testing results by community through reporting of home radon test results by private laboratories and homeowners and compile aggregate results for public access on the Environmental Public Health Tracking (EPHT) website.
3. Target prevention outreach to communities having higher radon levels.



**OBJECTIVE 11:** By 2021, increase access to information on cancer risks from environmental exposures (e.g., pesticides, heavy metals, solvents) to increase awareness and prevention.

**400**

Website views per year by  
first-time users baseline\*

**550**

Views per year by first-  
time users 2021 target

\* Data Source: Environmental Public Health Tracking/Google Analytics

#### STRATEGIES FOR OBJECTIVE 11:

1. Add “Exposure Prevention” module to the EPHT website to inform readers of cancer risks associated with toxic chemical exposures and opportunities for prevention.
2. Enhance viewership of EPHT, including cancer statistics by community and the new Exposure Prevention section, through social media and other outreach.
3. Collaborate with MHA for meeting tri-annual community health needs assessment requirements to identify disparate communities with higher cancer incidence for targeting of prevention plans.
4. Distribute information with annual Massachusetts Cancer Registry (MCR) communication to Boards of Health.
5. Target outreach to partners serving environmental justice populations as defined by the Massachusetts Department of Environmental Affairs, typically populations generally impacted more than others by environmental exposure.

## SKIN CANCER

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**OBJECTIVE 12:** By 2021, increase the proportion of youth in middle school who follow protective measures that may reduce the risk of skin cancer.

**TBD**

\*Baseline

**11.2%**

2021 Target

\* Data Source: YRBS, YHS

## STRATEGIES FOR OBJECTIVE 12:

1. Collaborate with MDPH school health services to increase use of sun protective measures in middle schools across Massachusetts through education and outreach.
2. Support and enhance partners' efforts to promote environmental and systems changes that promote sun protective measures in youth.

## FACTS

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**5<sup>TH</sup>**  
**6<sup>TH</sup>**

Melanoma of the skin was the 5th and 6th most commonly diagnosed type of cancer among Massachusetts males and females, respectively between 2009 and 2013, accounting for 4.9% of all cancers among males and 3.8% among females. It was also the 12th and 14th leading cause of cancer death in Massachusetts males and females, respectively. Only 2.2% of all cancer deaths in males and 1.3% of all cancer deaths in females were due to melanoma of the skin.<sup>24</sup>







## ■ Secondary Prevention

Routine cancer screening and early detection can help find cancer at early stages when treatment is most effective.<sup>25</sup> For some cancers, early detection can actually prevent cancer from developing or from becoming invasive and spreading to other parts of the body. The Plan emphasizes evidence-based screening recommendations and shared decision-making to increase the appropriate cancer screenings, as well as focused attention on tracking and follow-up systems to reduce late-stage cervical cancer diagnosis among women.

### CANCER SCREENING

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The Commonwealth has some of the highest cancer screening rates in the country. According to the Massachusetts BRFSS, over 80 percent of Massachusetts women reported having a mammogram, 74 percent reported having a Pap test for cervical cancer, and 73 percent of Massachusetts men and women reported being screened for colorectal cancer in 2014.<sup>26</sup>

Evidence-based screening guidelines exist for breast, cervical, and colorectal cancers; new lung cancer screening recommendations are also available for certain high-risk individuals. For some cancers, such as prostate or skin cancers, the evidence is not sufficient to recommend routine screening. Uncertainty also remains about recently revised guidelines eliminating the breast cancer screening recommendations for women under 50, with concerns that some women may be at increased risk for late diagnosis.

### SHARED DECISION MAKING

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Men and women should talk to their healthcare provider on a regular basis to discuss individual risk factors and family history to determine the benefits and risks of screening, particularly in cases where guidelines should be considered alongside individual preferences. Shared decision-making is a collaborative process that allows individuals and their providers to make healthcare decisions together, taking into account the best scientific evidence available, as well as the patient's values and preferences.<sup>27</sup>

Implementation of shared decision making is evolving as it pertains to different cancers. For example, shared decision making is part of the U.S. Preventative Services Task Force recommended screening guidelines for lung cancer, and in 2013, Massachusetts adopted state-specific prostate cancer screening guidelines through the Massachusetts Health Quality Partners that include shared decision making. However, awareness and education to promote shared decision making with regard to breast cancer screening decisions for women between the ages of 40-49 remains in early phases.

### SCREENING DISPARITIES

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Data demonstrates that women, especially Black non-Hispanic women, are still being diagnosed with late-stage cervical cancer. The exact reason for this disparity is unknown, but requires a multi-prong approach to track abnormal screenings, identify and address barriers to timely follow up after an abnormal screening result, increase patient navigators working with women at risk for cervical cancer, and increase patient education about routine Pap tests.



**“** *Shared decision making focuses on the involvement of patients in important healthcare decisions, with the understanding that everyone has a different vision or a different set of values relevant to their own healthcare and quality of life. It's particularly important when a person could reasonably choose more than one screening or treatment option after learning about benefits and risks of each choice. Yet, many patients find the concept unfamiliar and providers are faced with barriers of time and training to implement shared decision making effectively.”*

*—Roger Luckmann, MD, MPH,  
Co-chair of the Prostate Cancer Work  
Group and Lung Cancer Work Group*



Goal 1: Ensure the optimal implementation of evidence-based interventions for promoting appropriate cancer screening and shared decision making for all Massachusetts residents.

Goal 2: Ensure that all Massachusetts residents have equal access to the interventions that are effective in promoting cancer screening and to screening tests, especially groups with higher than average mortality and low screening rates.

#### SHARED DECISION MAKING

**OBJECTIVE 1:** By 2021, Increase the number of healthcare institutions that adopt, promote and support evidence-based cancer screening guidelines that call for shared decision making when applicable.

**TBD**

Baseline\*

**TBD**

2021 Target

\* Data Source: TBD

#### STRATEGIES FOR OBJECTIVE 1:

1. Collaborate with organizations such as the American Cancer Society Cancer Action Network, payers, and healthcare systems to identify and implement policy and systems changes that would support reimbursement for shared decision making for cancer screening when appropriate.
2. Improve provider and patient access to effective decision aids to support shared decision making for cancer screening by identifying and disseminating existing effective decision aids and developing decision aids when needed.
3. Explore the feasibility of collecting shared decision making cancer screening data statewide.

## PROSTATE CANCER

**OBJECTIVE 2:** By 2021, increase the number of Massachusetts men ages 40 years and older that have discussed both advantages and disadvantages of prostate cancer screening with their physicians from 31% to 50%.

**36.5%**

Baseline\*

**50%**

2021 Target

\* Data Source: Massachusetts BRFSS, 2014

### FACTS

**1/4**

Prostate cancer was the leading cause of cancer among men in Massachusetts from 2009-2013, representing one-quarter of all cancer cases.<sup>29</sup> It was also the second leading cause of cancer deaths among men, representing 9.4% of all cancer deaths. Prostate cancer cases decreased by 10% per year during this period, but there was no change in mortality rate.

## STRATEGIES FOR OBJECTIVE 2

1. The Prostate Cancer Work Group will identify barriers to implementing shared decision making for prostate cancer screening by meeting with providers and key stakeholders and will develop and support implementation of interventions to increase provider adoption of shared decision making, including:
  - Conferences and trainings on shared decision making through collaboration with the Mass. Medical Society.
  - Pilot interventions and/or demonstration projects that involve community health workers and patient navigators in providing shared decision making.
  - Interventions that support medical institutions in implementation of shared decision making.
  - Dissemination of materials developed by the work group to providers, including a decision aid and other educational media.
  - Collaboration with partners and other organizations to develop and implement a small media campaign.
2. Develop and pilot customized approaches to the above strategies to reach Black men. Examples include:
  - Inclusion of specific guidance on PSA testing for Black men in all provider and patient educational materials and programs
  - Promotion of adoption and implementation of culturally and linguistically appropriate service standards to providers of healthcare for Black men
  - A small media campaign focused on Black men
  - Increased attention to applying all relevant strategies to community health centers which serve large populations of Black men.

## BREAST CANCER

**OBJECTIVE 3:** By 2021, increase the proportion of Massachusetts women 40-49 who have had a shared decision making conversation about breast cancer screening with their provider.

**TBD**

Baseline\*

**TBD**

2021 Target

**OBJECTIVE 4:** By 2021, increase the percentage of Massachusetts women ages 50-74 who have had a mammogram in the past two years to 90%.

**88%**

Baseline\*

**90%**

2021 Target

\* Data Source: Massachusetts BRFSS, 2014

**OBJECTIVE 5:** By 2021, decrease the rate of Black non-Hispanic women in Massachusetts diagnosed with late stage breast cancer to 35 per 100,000.

**41.6/100,000**

Baseline\*

**35.0/100,000**

2021 Target

\* Data Source: MCR, 2009 – 2013

## STRATEGY FOR OBJECTIVE 3

1. In collaboration with other state partners, conduct a survey or assessment of women ages 40-49 and their providers about their shared decision making conversations to establish baseline.
2. Explore the feasibility of collecting shared decision making breast cancer screening data statewide.

## FACTS

**1/3**

In Massachusetts, breast cancer was the leading cause of cancer among Massachusetts women, representing almost one-third of all new cancer cases in women from 2009-2013.<sup>30</sup> It was also the second leading cause of cancer death among women, after lung cancer, causing approximately 13.4% of all cancer deaths in women across the Commonwealth.<sup>31</sup>

## STRATEGIES FOR OBJECTIVE 4 AND 5:

1. Collaborate with the Office of Community Health Workers and other partners to increase the number of Patient Navigators by supporting healthcare leaders and providers to create new Patient Navigator positions at their institution.
2. Support creation of task forces in areas of the state such as Worcester and Springfield to address regional disparities.
3. Identify and address lower breast cancer screening rates for population groups (e.g. Black and Asian) by collaborating with advocacy and outreach state partners.

## COLORECTAL CANCER

**OBJECTIVE 6:** By 2021, increase the screening rate for colorectal cancer to 80% for Massachusetts men and women age 50-75 years.

**72.6%**

Baseline\*

**80%**

2021 Target

\* Data Source: Massachusetts BRFSS, 2014

**OBJECTIVE 7:** By 2021, decrease the proportion of Black non-Hispanic men and women diagnosed with late stage colorectal cancer to 24 per 100,000 for men and 17 per 100,000 for women.

**26.2/100,00**

Men Baseline\*

**24/100,000**

Men 2021 Target

**18.9/100,000**

Women Baseline†

**17/100,000**

Women 2021 Target

\* Data Source: MCR, 2009- 2013

† Data Source: MCR, 2009- 2013

## STRATEGIES FOR OBJECTIVE 6 AND 7

1. Reduce structural barriers through outreach programs such as patient navigation.
2. Promote use of client and provider reminders throughout medical practices and community health centers that focus on groups with low screening rates.
3. Promote the use of alternative evidence-based screening options for populations averse to colonoscopies.

## FACTS

**3<sup>rd</sup>**

Colorectal cancer was the third most commonly diagnosed type of cancer and the third leading cause of cancer death for both men and women in Massachusetts between 2009 and 2013. Colorectal cancer contributed to 8.2% of all cancer deaths in men and 8.5% of all cancer deaths in women.<sup>32</sup> Both the number of new colon cancers and deaths decreased between 2009 and 2013.

## LUNG CANCER

**OBJECTIVE 8:** By 2021, increase the number of currently eligible patients in Massachusetts who have received a screening within the previous year.

**3600**

Baseline\*

**TBD**

2021 Target

\* Data Source: ACR, LCSR, 2016

### FACTS

**2<sup>nd</sup>**

In Massachusetts, lung cancer remains the second most commonly diagnosed type of cancer in for both genders, causing 13.5% and 13.9% of all cancer cases in men and women, respectively, between 2009 and 2013.<sup>33</sup> Though lung cancer incidence and deaths have significantly decreased, lung cancer still accounted for 27% of cancer deaths in men and 26.5% of cancer deaths among women.<sup>34</sup>

### STRATEGIES FOR OBJECTIVE 8:

1. Identify gaps in access to lung cancer screening in the state by surveying hospitals and clinics to determine where and how lung cancer screening is being provided in Massachusetts.
2. Identify resources and partner with organizations to promote the development of a multi-media campaign to increase public awareness of lung cancer screening.
3. Increase the number of eligible patients who have been offered a shared decision making conversation regarding lung cancer screening through education of primary care providers and facilitating their access to resources to support shared decision making.
4. Conduct a survey of radiology facilities' adoption and implementation of quality improvement interventions aimed at optimizing adherence to lung cancer screening guidelines.
5. Facilitate the implementation of a statewide lung cancer screening quality improvement collaborative involving interested screening sites.
6. Support policy and system changes that will eliminate the deductible and copay for follow-up procedures for positive lung cancer screening tests.



## CERVICAL CANCER

**OBJECTIVE 9A:** By 2021, increase percentage of Massachusetts women age 21-65 years who have had a Pap test within the past three years to 84%.

**73.5%**

Baseline\*

**84%**

2021 Target

\* Data Source: BRFSS, 2014

**OBJECTIVE 9B:** By 2021, increase the number of Massachusetts women ages 30-65 who have had a Pap and HPV co-test within the past five years by 10%.

**TBD**

Baseline\*

**TBD**

2021 Target

\* Data Source: BRFSS, 2016

## STRATEGIES FOR OBJECTIVE 9:

1. Compare and share best practices to encourage all healthcare providers and systems to create tracking systems that can track and follow patients at intervals of up to five years.
2. Support hospitals and healthcare institutions utilizing client and provider reminders and outreach to at-risk patients through Community Health Workers and Patient Navigators by collaborating with the population health leadership team within healthcare systems.
3. Identify and address lower cervical cancer screening rates among population groups (e.g. Hispanic and Asian) by partnering with state and community-based advocacy and outreach programs.

**956**

## FACTS

There were 956 cervical cancer cases among Massachusetts women, representing approximately 1.0% of all new cancer cases from 2009-2013.<sup>35</sup> Cervical cancer caused 0.9% of all cancer deaths in women, with an age-adjusted mortality rate of 1.3/100,000, significantly lower than the national rate of 2.3/100,000.<sup>36</sup>

**OBJECTIVE 10:** By 2021, decrease the proportion of women, especially Black non-Hispanic women, diagnosed with late stage (regional and distant) cervical cancer to 2 per 100,000.

**4.0/100,000**

Baseline\*

**2.0/100,000**

2021 Target

\* Data Source: MCR, 2009-2013



#### EMERGING ISSUES:

Genetic testing to understand individual genes and how potentially-cancerous traits are passed down from one generation to another is changing many approaches to cancer prevention. Genetic testing and genomics are part of a broader area of emerging research called personalized medicine, which means using the ability to tailor prevention strategies and treatments to the unique characteristics of each person. Over time, research has shown that cancer can occur as a result of any number of genetic mutations. This information is helping doctors look more closely at individual genetics to determine risk factors and use more targeted prevention approaches.<sup>28</sup>

#### STRATEGIES FOR OBJECTIVE 10:

1. Collaborate with healthcare institutions and healthcare centers across the state to develop tracking systems to more closely follow and improve long-term management of abnormal screenings.
2. Collaborate with the Office of Community Health Workers and other partners to increase the number of Patient Navigators working with women at risk for cervical cancer.
3. Support effective development and implementation of patient education around the continued importance of getting timely Pap smears (including what an abnormal finding is and importance of getting screened even after receiving HPV vaccine).
4. Identify and address systems barriers to women receiving timely follow up after abnormal finding through partnering with advocacy and policy makers.



**“** Providers and the public need to know we can now screen for lung cancer. The fact that someone has smoked should never be used as a reason to deny access to this life saving intervention. Most who are screened are diagnosed with early stage, curable disease and can enjoy many years of quality survivorship.”

—Andrea McKee, MD, Co-Chair of the Lung Cancer Work Group

## Treatment: Diagnosis through Palliative Care

Comprehensive, prompt, and accessible cancer treatment and care is essential to increasing survivorship and better health outcomes after diagnosis. The Plan prioritizes access to equitable treatment options for all residents and elevating awareness of the need for palliative care, especially expanded access to quality palliative care services.

### ACCESS TO TREATMENT

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Even with increased access to health insurance, high rates of cancer screening, and the existence of major health institutions in the state, disparities remain in cancer treatment and mortality rates among Massachusetts residents, particularly for Black non-Hispanic men and women. For instance, as noted above, Black non-Hispanic men are almost two and half times more likely to die from prostate cancer than White non-Hispanic men.

Despite having lower breast cancer incidence rates, Black non-Hispanic women have higher breast cancer mortality rates than White non-Hispanic women. This data points to the need to evaluate potential inconsistencies in treatment to better understand

how or if equity in access to treatment options is a factor in the mortality rates.

### PALLIATIVE CARE

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Palliative care is increasingly recognized as a critical component of comprehensive and compassionate cancer treatment. Palliative care helps relieve cancer symptoms, pain, and stress and improves a person's quality of life through emotional and spiritual support. Effective palliative care requires interdisciplinary teams and coordinated care that helps match treatment and support services to individualized needs of each patient.



### EMERGING ISSUES:

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Immunotherapy offers a promising new type of cancer treatment that may be able to control tumor growth and result in fewer side effects than chemotherapy. Using a patient's own immune system to boost its natural defense, some types of immunotherapy slow the spread of cancer while others make it easier for the body's immune system to combat cancer cells. Current research is focused on understanding how to predict who will respond to immunotherapy and making these benefits available to more patients.<sup>37</sup>



**“** *With palliative care support, cancer patients have more of a role in their care and in decisions around the goals of care and their quality of life. Palliative care is not just one phase of cancer care; it begins at diagnosis and is woven throughout the trajectory of the illness, from active treatment through survivorship, as well as in advanced disease. As part of the cancer state plan, we are committed to ensuring all Massachusetts residents have access to palliative care in their community, in the places they live and thrive.”*

*—Connie Dahlin, ANP, BC, ACHPN, FPCN, FAAN, Co-chair of the Palliative Care Work Group*



Goal 1: Ensure equity in access to timely and high-quality treatment for all Massachusetts residents.

Goal 2: Ensure that all Massachusetts residents have access to palliative care upon diagnosis of cancer.

**OBJECTIVE 1:** By 2019, seek and analyze Massachusetts Cancer Registry data and existing data from other sources to identify racial/ethnic disparities in the treatment of prostate cancer and to guide the development of interventions aimed at ensuring equitable treatment for prostate cancer especially for Black non-Hispanic men.

**TBD**

Baseline\*

**TBD**

2021 Target

**STRATEGY FOR OBJECTIVE 1:**

1. Conduct an in-depth data analysis of baseline MCR data on the first course of treatment for prostate cancer for men, comparing treatment characteristics by race, age, and ethnicity, and by cancer stage and tumor characteristics.
2. In collaboration with local and national partners identify barriers responsible for disparities in prostate cancer treatment, especially those affecting Black men, and develop interventions aimed at addressing key barriers.

\* Data Source: MCR and other data sources

**OBJECTIVE 2:** By 2019, obtain and analyze MCR data and other existing data to identify disparities in treatment for breast cancer especially for Black, non-Hispanic women and develop approaches to address those disparities.

**TBD**  
Baseline\*

**TBD**  
2021 Target

\* Data Source: MCR and other data sources

#### STRATEGIES FOR OBJECTIVE 2:

1. Conduct an analysis of baseline registry data to identify differences in treatment for race and ethnicity across Massachusetts and develop a report based on the key findings.
2. Collaborate with breast cancer research and advocacy organizations (such as Komen funded grantees in Boston, Worcester, and Springfield) to expand patient navigation programs and implement other interventions to address barriers to treatment for Black non-Hispanic women.
3. Collaborate with Komen to support breast cancer task force development in Worcester and Springfield to increase provider and consumer advocacy for policy, systems, and environmental changes that will impact timeliness and quality of treatment for Black non-Hispanic women.
4. Enhance the work of the Boston-based breast cancer collaboration group by providing expert input and by offering potential resources toward their efforts to eliminate barriers to treatment services for Black non-Hispanic women.

## PALLIATIVE CARE

**OBJECTIVE 3:** By 2021, improve access to interdisciplinary palliative care by providing in-depth technical assistance to palliative care regional partnerships to increase community capacity for palliative care services.

1

Baseline\*

5

2021 Target

\* Data Source: Number of palliative care regional collaborations utilizing technical assistance

### STRATEGIES FOR OBJECTIVE 3:

1. Identify gaps in palliative care services across the state by supporting the Palliative Care Work Group initiatives, including but not limited to needs assessments, surveys/key informant interviews, and network mapping in each region of Massachusetts.
2. Provide technical assistance and strategic planning services to strengthen the ability of palliative care regional partnerships to enhance and expand palliative care services.

**OBJECTIVE 4:** By 2021, increase the number of providers who are certified in palliative care.

TBD

Baseline\*

TBD

2021 Target

\* Data Source: National Professional Organization and certifying organization and the Massachusetts Board of Registration in Medicine (BORIM)

### STRATEGIES FOR OBJECTIVE 4:

1. Promote professional provider education and knowledge of the benefits of palliative care by providing effective provider training through:
  - developing a state-wide learning collaborative,
  - implementing train the trainer models, and
  - utilizing incentives to providers to become certified in palliative care through partnering with key professional organizations.
2. Use national and state sources to establish baseline and track the number of certified palliative care professionals overtime.

**OBJECTIVE 5:** By 2021, increase public awareness of palliative care in Massachusetts.

**TBD**  
Baseline\*

**10% increase  
over baseline**  
2021 Target

\* Data Source: TBD

#### STRATEGIES FOR OBJECTIVE 5

1. Develop a communication campaign to increase community awareness of palliative care with information in multiple languages and at low literacy level.
2. Partner with organizations, like ACS or Honoring Choices, to disseminate existing resources that target community knowledge and understanding of palliative care.
3. Expand patient, family, and caregiver education of palliative care through regional collaborative groups.
4. Improve access to palliative care services for members of culturally and geographically disparate and underserved populations by partnering with local agencies and organizations serving these populations.

## ■ Survivorship

A cancer survivor is anyone who has ever had cancer, from diagnosis through the rest of his or her life. More and more people are surviving cancer due to earlier detection and improvements in cancer treatment, diagnosis, and follow-up care.

According to the American Cancer Society there are more than 15 million cancer survivors in the United States.<sup>38</sup> This number is projected to increase to almost 20 million by 2026, representing an increase of more than 4 million survivors in 10 years.<sup>39</sup>

With over 400,000 cancer survivors living in the Commonwealth,<sup>40</sup> the Plan aims to support and meet the needs of cancer survivors by focusing on health and wellness outcomes and promoting health system changes that produce comprehensive and equitable survivorship care through and beyond treatment.

### MEETING SURVIVORSHIP CARE NEEDS

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Survivorship is now recognized as a distinct phase of cancer care. Unfortunately, patient-centered and accessible survivorship care can still be fragmented, with inconsistent communication between oncologists and primary care providers that can leave cancer survivors with unmet health and wellness needs.<sup>41</sup>

A focus on creating more equitable systems of care for all cancer survivors can help support stronger coordination of care between primary care providers and oncologists and engage providers in addressing health and quality of life issues for survivors.

Treatment and survivorship care plans are also important tools for cancer survivors and their healthcare providers to develop together as a record of care and a roadmap through transition from active treatment to managing life after active treatment. As such, prevention and wellness play key roles in a survivor's care plan.

### OPTIMAL HEALTH

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Lifestyle factors such as tobacco use and not maintaining a healthy weight can create poorer treatment outcomes and increase the risk of recurrence or secondary cancers. According to the BRFSS, as many as 12 percent of cancer survivors in Massachusetts continue smoking and 24 percent of Massachusetts cancer survivors are considered obese.

Supporting access to programs that promote and support healthier living for cancer survivors are key elements of quality survivorship care, as well as maintaining routine prevention practices to monitor for reoccurrence and screen for other cancers, chronic diseases, or other medical issues.





**“** Survivorship encompasses someone’s entire cancer journey, from day of diagnosis. The goals set out in this plan and incorporated into the Wellness Guide for Cancer Survivors are part of a proactive, collaborative approach to help survivors stay healthy. The number one thing every survivor wants to know is how to stay well.”

—Lynne Graziano Morin, Co-chair  
of the Survivorship Work Group

Goal 1: Optimize the health outcomes, including medical and psychosocial, for all Massachusetts residents who are living with, through and beyond cancer.

Goal 2: Promote high quality, equitable and affordable systems of care for cancer survivors in Massachusetts.

**OBJECTIVE 1:** By 2021, decrease the smoking rate among Massachusetts cancer survivors by 20%.

**12.3%**  
Baseline\*

**10%**  
2021 Target

\* Data Source: Massachusetts BRFSS, 2014

**STRATEGIES FOR OBJECTIVE 1:**

1. Collaborate with the Tobacco Cessation Program at MDPH to promote the availability of smoking cessation programs, including the Quit Line, through targeted outreach to providers and survivors across the state.
2. Collaborate with cancer centers and survivor clinics on identifying and addressing barriers to smoking cessation for cancer survivors through meetings, surveys, and key informant interviews.

**OBJECTIVE 2:** By 2021, decrease obesity rate among cancer survivors in Massachusetts by 5%.

**24.3%**  
Baseline\*

**23.1%**  
2021 Target

\* Data Source: Massachusetts BRFSS 2014

**STRATEGIES FOR OBJECTIVE 2:**

1. Promote utilization of Livestrong programs among providers and cancer survivors through partnering with existing organizations that are providing this service.
2. Increase the number of Livestrong programs offered to serve disparate groups of cancer survivors (e.g. Hispanic and Black cancer survivors) by partnering with hospitals, payers and advocacy organizations serving cancer survivors.
3. Develop and implement communication campaigns that promote the use of the Wellness Guide for Cancer Survivors by providers and survivors through meetings, conferences, presentations, and small media.

**OBJECTIVE 3:** By 2021, all Commission on Cancer hospitals and oncology practices will provide treatment summaries and care-plans to 75% of eligible cancer patients routinely.

**25%**  
Baseline\*

**75%**  
2021 Target

\* Data Source: Commission on Cancer

### STRATEGIES FOR OBJECTIVE 3:

1. Identify and address the barriers in systems to providing treatment summaries and care plans through surveys and key informant interviews and by partnering with hospitals and oncology practices.
2. Collaborate with the Massachusetts Society of Clinical Oncology (MSCO) and the American Hospital Association to identify non Commission on Cancer hospitals providing treatment summaries and care plans.
3. Continue to utilize BRFSS data to monitor the proportion of patients who report receiving survivorship treatment summaries from their providers.
4. Pilot a learning collaborative of hospitals to effectively implement treatment summaries and care plans through:
  - The education of providers on how to do treatment summaries and care plans
  - Assessing and providing technical assistance to hospital to provide quality treatment summaries and care plans
5. Increase awareness of importance of survivorship treatment summaries and care plans among Community Health Worker through targeted outreach.
6. Address the cultural appropriateness of treatment summaries and care plans through:
  - Identifying and disseminating approved templates available in other languages
  - Engaging cancer survivors to assess the cultural appropriateness of templates.

**OBJECTIVE 4:** By 2021, increase the knowledge and skill of primary care physicians, medical oncologists and patients to manage cancer survivorship as a distinct phase of care, defined as the transition of the end of “active” treatment (e.g. radiation and chemotherapy for breast cancer patients) to “non-active” treatment.

**TBD**

Baseline\*

**TBD**

2021 Target

\* Data Source: Mass Medical Society, MSCO

#### STRATEGIES FOR OBJECTIVE 4:

1. Develop, implement and promote educational modules for providers about cancer survivorship care through the following approaches:
  - Collect data on all provider educational programs to track number of providers trained in survivorship care.
  - Partner with organizations (i.e. MSCO, Mass. Medical Society) to develop and promote the survivorship educational programs that offer Continuing Medical Education credits
  - Partner with medical schools, residency programs, and mental health agencies to increase education on cancer survivorship.
  - Promote provider resources from partner organizations (i.e. National Cancer Survivorship Resource Center, ACS, George Washington University Cancer Institute, etc.)
2. Raise awareness among survivors about cancer survivorship, particularly the need to adhere to cancer screening guidelines, chronic disease management, and other medical and psychosocial issues by the following:
  - Collaborate with patient-family advisory councils in hospitals, cancer centers, and other healthcare facilities, including mental health programs
  - Partner with local media including radio, television, printed press, and social media outlets to conduct small media campaigns
  - Explore opportunities to work with existing Patient Navigators to extend follow up of patients through transition from oncology to primary care
  - Explore opportunities to work with existing survivorship support groups.





**Everyone in Massachusetts has a role to play  
in supporting the cancer prevention and  
control efforts outlined in this plan.  
Together we can make a difference.**

**For more information about how  
you can get involved, visit us at:  
[www.mass.gov/compcancer](http://www.mass.gov/compcancer).**





# APPENDIX A:

## Data Surveillance and Evaluation

### Cancer Surveillance Systems

Data from a number of consistently collected and reported cancer surveillance systems are used to assess the cancer burden in the Commonwealth and establish the goals, objectives, and priority action steps of the Massachusetts Statewide 2017-2021 Cancer Plan. Cancer data also plays a significant role in the ongoing implementation and evaluation efforts of the Plan to monitor progress and can be used to devise and target cancer prevention and control interventions. Descriptions of the primary data sources used to determine baseline performance measures for each Plan objective are below:

**National Program of Cancer Registries (NPCR):** The NPCR supports central cancer registries and the use of registry data across the country. These registries collect data on cancer incidence by type of cancer, stage at diagnosis, and treatment received from hospitals, physicians' offices, surgical centers, therapeutic radiation facilities, and pathology laboratories.

**National Behavioral Risk Factor Surveillance System (BRFSS):** The BRFSS is a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and healthcare access primarily related to chronic disease and injury through annual telephone surveys of more than 350,000 adults nationally each year.

**Massachusetts Behavioral Risk Factor Surveillance System:** The Massachusetts BRFSS is a continuous multimode survey of adults ages 18 and older conducted in English, Spanish, or Portuguese. The landline telephone portion of the survey has been

conducted in Massachusetts since 1986, however, recently half of sample comes from cellphone households.

**Youth Risk Behavior Surveillance System (YRBS) and Youth Health Survey (YHS):** YRBS is administered by the Massachusetts Department of Elementary and Secondary Education (DESE). The YHS is the Massachusetts Department of Public Health's (MDPH) surveillance project to assess the health of youth and young adults in grades 6-12. The YHS is conducted by the MDPH Health Survey Program in collaboration with the DESE in randomly selected public middle and high schools in every odd-numbered year. In 2010 the YHS became part of the Health Survey Program (HSP). Participants for both surveys include a sample of school classrooms within school districts. These surveys collect data on behaviors and conditions that may compromise the health, safety, and wellbeing of young people across the Massachusetts.

**Massachusetts Cancer Registry (MCR):** The MCR was established by the Massachusetts Legislature in 1980 and has been collecting data on all newly diagnosed cases of cancer in the state since 1982. In aggregate form, these data are available through various publications and reports, including the annual Cancer Incidence and Mortality in Massachusetts report, Data Brief: Cancer Incidence in Massachusetts, 2010-2014 – Preliminary Data, and the City/Town Supplement series. In addition, the MCR collects and analyzes data on stage of diagnosis for different cancers to identify and monitor disparities in screening interventions. For each year since 1997, the MCR achieved Gold recognition certificates from the North American Association of Central Cancer Registries for meeting the highest standard of incidence data quality (awarded for completeness, accuracy, and timeliness).<sup>42, 43</sup>

### Program Evaluation and Performance Measures

Program evaluation is a systematic collection of information about program activities, characteristics, personnel and outcomes in

order to make necessary decisions about the program.<sup>44</sup> It is a critical component of comprehensive cancer control efforts. The Plan evaluation protocol is consistent with the Framework for Program Evaluation in Public Health developed by the CDC<sup>45</sup> composed of six steps, including: engage stakeholders, describe the program, design evaluation, gather data, justify conclusions, and ensure use and sharing of lessons learned.

The following tables represent the baseline and target performance measures of the Plan as identified by the MCCPCN Steering Committee. These performance measures will be used to monitor, assess, and ultimately evaluate the effectiveness of statewide efforts to reach the five-year goals and objectives. Target

performance measures for most of the objectives were set using the [Healthy People 2020 Objectives](#). However, where Healthy People 2020 Objectives were not available or Massachusetts had already reached the Healthy People 2020 Objective target, the Plan's 2021 target performance measure was calculated using the Healthy People 2020 ten percent rule, by increasing or decreasing the baseline data for that objective by 10 percent. Baseline data for those measures where there is no baseline data available (TBD) will be determined based on future data collection efforts.

The baseline and 2021 target performance measures are organized according to key objectives within the four main focus areas of the Plan as shown below.

## Primary Prevention

### TOBACCO AND NUTRITION OBJECTIVES

PERFORMANCE MEASURES	BASELINE	2021 TARGET <sup>1</sup>	DATA SOURCE
By 2021, increase the number of municipalities that have “strengthened” their tobacco retail policy by passing 3 of 5 priority policies set by MTCP by 30%	125	163	MTCP, 2016
By 2021, increase the percentage of youth who did not currently smoke cigarettes, cigars or smokeless tobacco (on at least 1 day during the 30 days before the survey)” who did not currently use tobacco products from 87.6% to 90%.	87.6%	90%	YRBS. 2015
By 2021, decrease the percent of obesity among Massachusetts adults and youth by 5%			
Adults	24.3%	22.1%	BRFSS, 2015
High School Students	11%	10.5%	YRBS, YHS, 2015
Middle School Students	8.9%	8.5%	YHS, 2013

<sup>1</sup> Target year 2021, based on Healthy People 2020 goals

## ENVIRONMENTAL OBJECTIVES

PERFORMANCE MEASURES <sup>2</sup>	BASELINE	2021 TARGET	DATA SOURCE
By 2021, reduce exposure to radon by increasing testing in schools from 3 schools per year to 100 schools per year	3 schools	100	Radon Control Program
By 2021, reduce exposure to radon by increasing testing in homes	0	1000 test results	Radon Control Program
By 2021, increase access to information on cancer risks from environmental exposures (e.g., pesticides, heavy metals, solvents) to increase awareness and prevention.	400 website views per year by first-time users	550 views per year by first-time users	EPHT* and Google Analytics
By 2021, increase access to information on cancer risks from environmental exposures (e.g., pesticides, heavy metals, solvents) to increase awareness and prevention.			

<sup>2</sup> Data sources and baseline not yet decided

\* EPHT: Environmental Public Health Tracking System

## INFECTIOUS DISEASES OBJECTIVES

PERFORMANCE MEASURES		BASELINE	2021 TARGET	DATA SOURCE
By 2021, increase the HPV immunization rate for girls and boys ages 13-17 who have had one dose of HPV vaccine by 10 percentage points.				
	Girls	69.0%	79.0%	NIS*, 2014
	Boys	54.0%	64.0%	NIS, 2014
By 2021, increase the HPV immunization rate for girls and boys ages 13-17 who have completed the series of HPV vaccine by 10 percentage points.				
	Girls	50.0%	60.0%	NIS, 2014
	Boys	27.0%	37.0%	NIS, 2014
By 2021, increase the proportion of newborns getting a birth dose of hepatitis B vaccine to 85%.		75.0%	85.0%	NIS, 2014
By 2021, maintain the 2 year old hepatitis B vaccine coverage at 95.0%		95.0%	95.0%	NIS, 2014
By 2021, increase the percent of clients at state funded counseling and testing sites that test positive for HCV who are aware of their status and need for follow up.		58.0%	70.0%	NIS, 2014

\* National Immunization Surveys

## SKIN CANCER OBJECTIVE

PERFORMANCE MEASURES		BASELINE	2021 TARGET	DATA SOURCE
By 2021, increase the proportion of youths in middle school who follow protective measures that may reduce the risk of skin cancer		10.1%*	11.2%	YRBS, YHS

\* Based on national 2013 YRBS. Massachusetts data will be available in 2017

## Secondary Prevention

### CANCER SCREENING, DIAGNOSIS AND CANCER SCREENING DISCUSSION OBJECTIVES

PERFORMANCE MEASURES <sup>2</sup>	BASELINE	2021 TARGET	DATA SOURCE
By 2021, Increase the number of healthcare institutions that are following evidence-based screening guidelines and implementing shared decision making when applicable	TBD	TBD	TBD
By 2021, increase the number of Massachusetts men ages 40 and older that have discussed both advantages and disadvantages of prostate cancer screening with their physicians from 31% to 50%	31.0%	50.0%	BRFSS, 2014
By 2021, increase the proportion of Massachusetts women 40-49 who have had a shared decision making conversation about breast cancer screening with their provider	No data	No data	TBD
By 2021, increase the percentage of Massachusetts women ages 50-74 who have had a mammogram in the past two years to 90%	88.0%	90.0%	BRFSS, 2014
By 2021, decrease the rate of Black non-Hispanic women in Massachusetts diagnosed with late stage breast cancer to 35 per 100,000	41.6/ 100,000	35/100,000	MCR, 2009-2013
By 2016, increase screening rate for colorectal cancer to 80% for Massachusetts men and women age 50 – 75 years	72.6%	80%	BRFSS, 2014
By 2021, decrease the proportion of Black non-Hispanic men and women diagnosed with late state colorectal cancer to 24 per 100,000 for men and 17 per 100,000 for women			
Men	26.2/ 100,000	24/100,000	MCR, 2009-2013
Women	18.9/ 100,000	17/100,000	MCR, 2009-2013
By 2021, increase the percent of currently eligible patients who have received a screening within the previous year	3600	TBD	*ACR, LCSR
By 2021, increase percentage of women 21 years of age and over who have had a Pap or HPV test within the past three years or a Pap and HPV co-test within the past five years to 84%	73.5%	84.0%	BRFSS, 2014
By 2021, decrease the proportion of women, especially Black non-Hispanic women diagnosed with late stage (regional and distant) cervical cancer to 2 per 100,000	4/100,000	2/100,000	MCR, 2009-2013

\*ACR: American college of radiation, LCSR: lung cancer screening registry



## Treatment (Diagnosis through Palliative Care)

### TREATMENT

PERFORMANCE MEASURES	BASELINE	2021 TARGET	DATA SOURCE
By 2019, seek and analyze Massachusetts Cancer Registry and existing data sources to understand, identify and develop preliminary solutions to ensure equitable treatment for prostate cancer especially for Black non-Hispanic men.	TBD	TBD	MA Cancer Registry and Other Sources
By 2019, conduct in-depth data analysis of baseline MCR data and other existing data sources to examine initial treatment for Breast Cancer for women by race, age, and ethnicity across the Commonwealth to identify areas for intervention and collaboration.	TBD	TBD	MA Cancer Registry and Other Sources

### PALLIATION

PERFORMANCE MEASURES	BASELINE	2021 TARGET	DATA SOURCE
By 2021, improve access to interdisciplinary palliative care by providing in-depth technical assistance to palliative care regional partnerships to increase community capacity for palliative care services.	1	4	Reports, Minutes and Agendas
By 2021, increase the number of providers who are certified in palliative care.	TBD	TBD	Professional organization, Certifying organizations, BORIM*
By June 2021, increase public awareness of palliative care in Massachusetts.	TBD	TBD	Communication Campaign Results

\* BORIM: MA Board of Registration in Medicine

## Survivorship

PERFORMANCE MEASURES	BASELINE	2021 TARGET	DATA SOURCE
By 2021, decrease the smoking rate among Massachusetts cancer survivors by 20%.	12.3%	10.0%	BRFSS, 2015
By 2021, all hospitals and oncology practices will provide treatment summaries and care-plans to 75% of eligible cancer patients routinely.	25%	75%	Commission on Cancer
By 2021, increase the knowledge and skill of Primary Care Physicians, Medical Oncologists and Patients to manage cancer survivorship as a distinct phase of care, defined as the transition of the end of “active” treatment (e.g. radiation and chemotherapy for breast cancer patients) to “non-active” treatment.	No data	No data	TBD
By 2021, decrease obesity rate among cancer survivors in Massachusetts by 5%.	22.9%	21.8%	BRFSS, 2015

# APPENDIX B:

## Glossary of Terms and Acronyms

### TERMS

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**Age-adjusted rates** are summary measures used to compare cancer incidence and mortality trends over time or among different populations whose age distributions differ.

**Baseline** is an initial measurement data prior to program intervention and is used to serve as reference point, demonstrate change over time, and monitor progress.

**Body Mass Index (BMI)** is defined by the CDC as a person's weight in kilograms divided by the square of height in meters and can be used to screen for weight categories that may lead to health problems but it is not diagnostic of body fatness or health.

**Chronic disease** is a medical condition or disease that persists over a long period of time. Conditions, such as heart disease, stroke, cancer, type 2 diabetes, obesity, and arthritis, are among the most common, costly, and preventable of all health problems.

**Colonoscopy** is a colorectal cancer screening test that allows a doctor to examine the inside of the colon and rectum for polyps, which could be an early sign of cancer.

**Commission on Cancer** is a program of the American College of Surgeons that recognizes cancer care programs for their commitment to providing comprehensive, high-quality, and multidisciplinary patient centered care.

**Comorbidity** is the condition of having two or more diseases at the same time.

**Continuing Medical Education** consists of educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession.

**CSA** share refers to Community Supported Agriculture (CSA) programs where the public buys subscriptions to received regular baskets of produce from a local farm.

**CT scan** refers to a computerized tomography (CT) scan, which combines a series of X-ray images taken from different angles and uses computer processing to create cross-sectional images of the bones, blood vessels, and soft tissues inside the body. CT scan images provide more detailed information than plain X-rays do.

**Culturally and Linguistically Appropriate Service (CLAS) Standards in Health and Health Care** are guidelines for implementing culturally and linguistically appropriate services, intended to advance health equity, improve quality, and help eliminate healthcare disparities.

**Dissemination** is the act of sharing something, such as information, to many people.

**Fecal Occult Blood Test and Fecal Immunochemical Test (FOBT/FIT)** are two kinds of take-home tests that check for hidden blood in the stool. Testing kits are provided by a healthcare provider to screen for polyps or colorectal cancer. Small samples of stool are placed on special cards and returned to a doctor or laboratory for testing.

**Health disparities** are differences in the incidence, prevalence, burden and mortality of cancer that exist among population groups based on factors including, but not limited to, age, class, culture, education, ethnicity, geographic location, gender identity or expression, income, language, national origin, physical

or mental disability, race, religion, sex, sexual orientation, socioeconomic status, wealth or other social conditions.

**Human Papilloma Virus (HPV)** is the most common sexually-transmitted infection, different than HIV and HSV (herpes). There are many different types of HPV. Some types can cause health problems, including genital warts and cancers.

**Immunization** is the process in which a person is made immune to a specific infection or disease usually by administering a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.

**Implement/Implementation** refers to the act of doing or using something, such as a plan, or to make something active or effective.

**Interdisciplinary teams** are collaborative patient care teams that work across disciplines, including primary care, nursing, and specialists.

**Interventions** are treatments or actions taken to prevent or treat disease, or improve health in other ways.

**Livestrong** is a 12-week program provided by YMCAs designed to empower cancer survivors, improve their muscle mass, strength, energy levels and quality of life for cancer survivors.

**Mammograms** are X-ray exams of the breast most often used to screen for breast cancer in women. During a mammogram, breasts are compressed between two firm surfaces to spread out the breast tissue and an X-ray captures black-and-white images to be examined by a doctor for signs of cancer.

**MDPH Educational Platform** refers to the multifaceted communication activities and strategies used by the Immunization Program.

**Municipal Boards of Health** are local, voluntary boards made up of individuals and experts responsible for protecting public health at the city or town level.

**Oncology** is the study of cancer. An oncologist is a doctor who treats cancer. Usually, an oncologist manages a person's care and treatment once he or she is diagnosed with cancer. The field of oncology has three major areas: medical, surgical, and radiation.

**Outcome** is the end result or effect of an action.

**Palliative care** refers to patient and family-centered care that optimizes quality of life by anticipating, preventing, and treating suffering. Palliative care throughout the continuum of illness involves addressing physical, intellectual, emotional, social and spiritual needs and to facilitate patient autonomy, access to information and choice.

**Pap test** (also called Pap smear) is a screening procedure for cervical cancer. It tests for the presence of precancerous or cancerous cells on the cervix.

**Patient-centered healthcare** is respectful of and responsive to individual patient preferences, needs, and values and ensures that patient values guide all clinical decisions.

**Patient-family advisory councils** bring together patients and families and members of the healthcare team to provide guidance on how to improve the patient and family experience.

**PSA test** is a blood test used primarily to screen for prostate cancer. The test measures the amount of prostate-specific antigen (PSA) in your blood. PSA is a protein produced by both cancerous and noncancerous tissue in the prostate.

**Psychosocial** describes the emotional and social parts of a disease and its treatment. Some of the psychosocial parts of

cancer are its effects on patients’ feelings, moods, beliefs, the way they cope, and relationships with family, friends, and co-workers.

**Quit Line** refers to the Massachusetts Smokers’ Helpline, a free and confidential telephone counseling service for Massachusetts residents who want help to end their tobacco use.

**Reimbursement** refers to the benefit offered by health insurance to compensate or pay back for a healthcare service.

**Reoccurrence** is the return of cancer after treatment and after a period of time during which the cancer cannot be detected. The same cancer may come back where it first started or somewhere else in the body.

**Shared community use agreement** refers to a formal agreement between two separate government entities, often a school district and a city or county, setting forth the terms and conditions for the shared use of public property.

**Social determinates of health** are the social, economic, and physical conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

**Surveillance** is the ongoing process of systematic and timely collection and analysis of cancer data including incidence, mortality, risk factors, screening, early detection, treatment, and survival.

**Walkability** measures how friendly an area is to walking. Walkability has health, environmental, and economic benefits.

**Work Groups** within the MCCPCN are small, issue-focused working groups focused on implementing evidence-based strategies.

ACRONYMS

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ACR	American College of Radiology
ACS	American Cancer Society
BMI	Body Mass Index
BORIM	Massachusetts Board of Registration in Medicine
CDC	Centers for Disease Control and Prevention
CSPAP	Comprehensive School Physical Activity Program
BRFSS	Behavioral Risk Factor Surveillance System
DESE	Massachusetts Department of Elementary and Secondary Education
EPHT	Environmental Public Health Tracking System
FOBT/FIT	Fecal Occult Blood Test/Fecal Immunochemical Test
HPV	Human Papilloma Virus
HCV	Hepatitis C Virus
LCSR	Lung Cancer Screening Registry
MSCO	Massachusetts Society of Clinical Oncology
MDPH	Massachusetts Department of Public Health
MCCPCN	Massachusetts Comprehensive Cancer Prevention and Control Network
MCR	Massachusetts Cancer Registry
MTCP	Massachusetts Tobacco Cessation and Prevention Program
NIS	National Immunization Surveys
NPCR	National Program of Cancer Registries
PSA	Prostate-Specific Antigen
PSE	Policy, Systems, and Environmental Change
YHS	Youth Health Survey
YRBS	Youth Risk Behavioral Survey



# Appendix C

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