health policy institute of ohio

Ohio **prevention** basics

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What is prevention?

Prioritizing health and safety

Prevention addresses health problems *before they occur*, rather than after people have shown signs of disease, injury or disability.[1] In order to be effective in reaching large numbers of people before they become sick, prevention strategies are implemented in a wide variety of settings, including clinics, schools, workplaces and neighborhoods. Prevention strategies focus on both individual and community wellness. Prevention programs often help individuals engage in healthier behaviors, such as driving safely or not smoking. Many also focus on improving the overall community so that healthy behaviors are expected and supported, and people have clean water to drink, safe places to walk and play and other conditions that contribute to wellbeing.

Prevention is best understood in contrast to medical treatment. Treatment is defined as "what a health care provider does to relieve, reduce or eliminate harm once it has become manifest in an ailment."[2] Prevention, on the other hand, keeps harm from occurring in the first place or detects a health problem early enough to cure or ameliorate it.

Figure 1. **Prevention, treatment and rehabilitation**

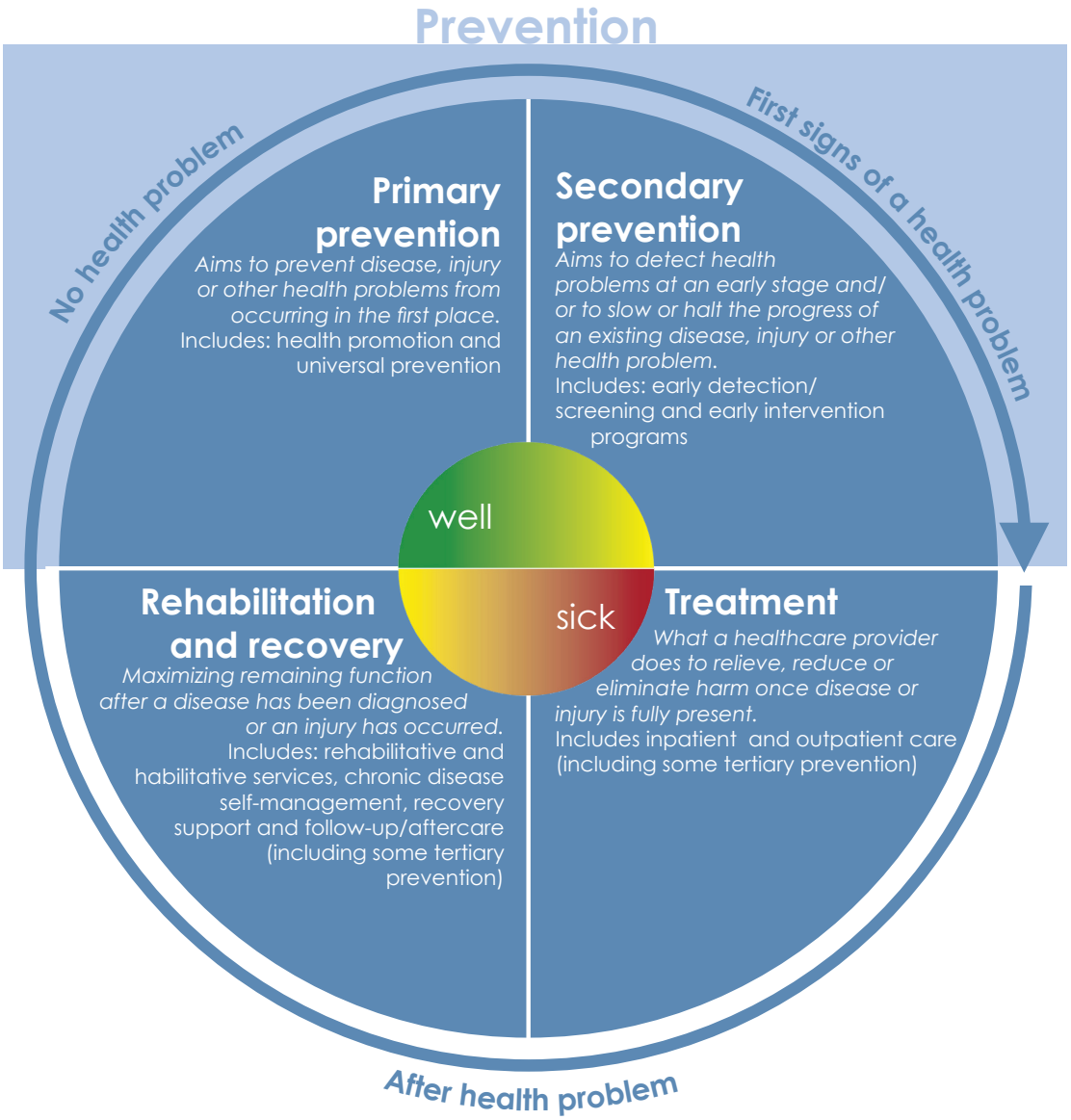

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Figure 1 displays the relationship between prevention, treatment and a third level of intervention called rehabilitation and recovery. Rehabilitation and recovery helps people transition from illness to wellness. This framework can be applied to both physical and behavioral health and is relevant to both public health and healthcare system delivery and payment models. It is important to recognize that relationships between these four categories can be non-linear, fluid and overlapping in real-life situations.

Primary, secondary and tertiary prevention

Although there are several models for classifying and defining levels of prevention, the classic framework is *primary, secondary* and *tertiary* prevention. These levels are based upon the timing of prevention activity relative to the onset of a health problem (see Figure 2).

Primary prevention keeps people well and, for purposes of this publication, includes health promotion. Secondary prevention identifies an emerging health problem and seeks to slow or stop its progression. Primary and secondary prevention activities are generally applied to entire populations and often reach people before they become patients within a clinical healthcare system.

Figure 2. **Levels of prevention**

Prevention

Treatment

Level	Audience	Examples
Primary prevention occurs when there is no health problem present and aims to prevent a disease, injury or other health problem from occurring in the first place.	Total population in a geographic area and/or healthy people	• Providing healthy foods and physical activity opportunities for all children in school in order to reduce diabetes rates • Safe Sleep campaigns to prevent infant mortality • Immunizations • School-based drug and alcohol prevention programs designed to increase student knowledge and avoidance skills • Home visits for expectant parents to promote healthy pregnancy and positive parenting skills
Secondary prevention occurs at the first signs of a health problem and aims to detect health problems at an early stage and/or to slow or halt the progress of an existing disease or injury.	Individuals with early-stage disease but no symptoms and/or those with high risk factors	• Fitness and nutrition education programs for pre-diabetic teenagers • Breast and colorectal screenings to identify cancer in early stages • Hearing and vision screenings for young children • Suicide and depression risk screenings • *A Matter of Balance* classes for seniors identified as high-risk for falls due to poor balance or strength • Early intervention programs for children who have missed developmental milestones
Tertiary prevention occurs after a health problem has developed and aims to reduce the negative impact of a disease, injury or other health problem and to prevent or delay complications and subsequent harm.	Patients	• Diabetes self-management classes to prevent complications from diabetes • Programs to help parents identify and remove asthma triggers in the home • Ear tube surgery to prevent recurring ear infections • Provision of naloxone to individuals with opioid addiction to prevent overdose deaths

Tertiary prevention is targeted to the person who already has symptoms and seeks to reduce further complications, increasing pain or death. Because tertiary prevention is often difficult to distinguish from traditional clinical treatment or rehabilitation, this publication focuses on and refers only to primary and secondary prevention activities as "prevention."

Universal, selected and indicated prevention

Universal, selected and *indicated* is another useful framework for describing levels of prevention that refers to the level of risk in the population. *Universal* prevention strategies are directed at an entire population and are likely to provide some benefit to all. Examples include social skills training for all children in a school district to prevent bullying and teen dating violence, and building sidewalks and crosswalks to promote safe physical activity for all residents of a community. *Selective* prevention activities are targeted to specific populations with above-average risk for a problem. Examples include needle exchange programs for intravenous drug users to prevent HIV transmission, and healthy food retail initiatives in poor neighborhoods with high rates of obesity. *Indicated* prevention interventions are targeted at individuals with increased vulnerability or early signs of a problem, disease or condition. Examples include tobacco cessation, early intervention for middle school students who have experimented with tobacco, or strength and balance exercise classes for the frail elderly. Most primary prevention activities are aimed at overall populations and can therefore be considered universal prevention.

See Appendix A for additional prevention terms and framework.

Prevention strategies

There are several types of prevention strategies that can be distinguished by the setting in which they are delivered and the audience they reach.

Clinical preventive services

Clinical preventive services, such as mammograms and flu shots, often come to mind as examples of prevention. These forms of prevention are typically provided in a healthcare setting and are usually paid for by health insurance plans. Screenings help to detect health problems before they become more severe, while other clinical preventive services like immunizations and dental sealants provide long-lasting protections from disease. With the notable exception of immunizations, most clinical preventive services are secondary prevention.

Community-based prevention programs

School-based drug and alcohol prevention programs and home visits for newborns are examples of community-based prevention programs. Rather than being administered in a healthcare setting by a traditional healthcare provider, these programs typically are delivered by health educators, public health professional, certified prevention professionals or community health workers outside the walls of a doctor's office. These community-based programs often aim to increase the awareness, knowledge and skills of individuals to help them engage in healthy behaviors and/or to promote healthy social norms about health issues, such as marketing campaigns to promote using a designated driver to avoid drunk driving. Some community-based prevention programs are primary prevention and others are secondary prevention or include a combination of the two.

Population-based policy change

The third type of prevention strategy—population-based policy change (also referred to as policy, system, and environmental change, or PSEC)—aims to modify the environment so that everyone in the community has the opportunity to be healthy. The policy change approach focuses on making healthy behaviors feasible and affordable for everyone, and on changing community conditions to ensure that residents have access to things like clean air and water, safe schools, safe homes and places to be physically active. Examples of population-based policy strategies include Ohio's smoke-free workplace law; the Ohio Automated Rx Reporting System (OARRS) data system that helps to prevent "doctor shopping" for opiates; and zoning requirements for sidewalks. Strategies include public policy changes at the local, state and federal levels, as well as organizational policies implemented by

employers and other private organizations. Most policy and environmental change strategies are primary prevention.

Public health professionals and local or state-level health coalitions often take the lead in planning and advocating for policy and environmental change, although this work involves multiple sectors (including education, transportation, housing, etc.) and can be done by any organization that wants to improve health. For example, staff from a county health department might lead efforts to increase access to healthy food by setting up a "farm to school" program in a local elementary

Figure 3. **Types of health improvement activities**

	Prevention			**Treatment and rehabilitation**	
	Population-based policy change (Policy, System and Environmental Change)	**Community-based prevention programs**	**Clinical preventive services**	**Treatment**	**Disease management, rehabilitation, recovery supports**
Setting	School, child care, workplace, neighborhood, city, county, state or country	Home, school, child care, workplace, local community	Primary care office/clinic, hospital, behavioral health provider, local health department or other healthcare setting	Hospital, physician's office/clinic, behavioral health provider, nursing home or other in-patient and out-patient healthcare settings	Rehabilitation facility, community organization
Delivered to…	All residents in a geographic area, or for all students or employees in a school or workplace	Program participants as individuals, families, or groups	Individual patients, clients and consumers	Individual patients, clients and consumers	Individual patients, clients and consumers
Examples	• Smoke-free workplace laws • Changes to the built environment to promote safety and physical activity (such as lighting, sidewalks, crosswalks and bike lanes) • Safe Routes to School initiatives • Healthy school lunch guidelines • Impaired driving laws • Restaurant inspections • Clean air and water regulations	• Home visiting programs for new parents • Community health workers helping families to remove asthma triggers in the home • School-based programs to prevent violence and alcohol, tobacco and other drug use • Workplace wellness programs • Marketing campaign about the dangers of distracted driving	• Screening (mammograms, colonoscopies, blood pressure checks, suicide risk, etc.) • Nutrition counseling • Immunizations • Dental sealants	• Diagnostic tests • Pharmaceuticals • Surgery • In-patient and out-patient addiction and mental health counseling	• Housing program for persons recovering from opiate addiction • Diabetes self-management program • Cancer survivor support group • Physical, speech and occupational therapy
Level of prevention	Mostly primary prevention	Primary and secondary prevention	Mostly secondary prevention	Mostly treatment (includes some tertiary prevention)	Rehabilitation and recovery (includes some tertiary prevention)

school, or by arranging for local famer's markets to accept WIC vouchers in partnership with farmers, the school district and the local chamber of commerce. A local heroin prevention coalition might partner with law enforcement, addiction treatment agencies and healthcare providers to set up drop-off sites for unused prescriptions and to advocate for changes in prescribing practices.

Figure 3 displays settings and audiences for the three types of prevention strategies, as well as for treatment and rehabilitation.

Linking clinical and community

Unlike clinical preventive services, community-based prevention programs and policies have traditionally been separate from the health care system and are typically not paid for by health insurance. Public health agencies often play a role in delivering all three of these types of prevention, while traditional health care providers focus on clinical services and treatment. Going forward, many health leaders acknowledge the importance of better linking clinical preventive services and other aspects of primary care with prevention strategies outside the doctor's office. Calling for a change in the way that primary care and public health sectors have historically operated independently of each other, a 2012 Institute of Medicine report identifies a set of core principles for successful integration and provides a framework for state and local efforts to better coordinate clinical and community-based prevention.[3]

Population health and upstream prevention

Population health is defined as the "health outcomes of a group of individuals, including the distribution of such outcomes within the group."[4] Population health strategies include both prevention and treatment services. Primary and secondary prevention are important components of population health, and the term "population health" is broader than the term "prevention."

Like prevention, population health approaches go beyond the doctor's office; they may include clinical services, but also go "upstream" to address the social, economic and physical environments that impact health outcomes. Community-based prevention programs and policy-change strategies are critical aspects of the population-level approach to health improvement.

While population health is part of the Institute for Healthcare Improvement's widely-used Triple Aim framework, there has been widespread variation in how population health is defined and pursued by Triple Aim initiatives.[5] The term has traditionally been used differently by the public health system and the clinical care system.[6] Within public health, "population" refers to the total population of a geographic area (such as a county or state), or to a specific sub-population (such as low-income families or adults over age 65).

Personal responsibility: Everyone has a role to play to improve health

Healthcare providers share some of the responsibility for improving health, but good health starts long before we get to the doctor's office.

Every individual is responsible for keeping themselves healthy by doing things like eating healthy, being physically active and not smoking. People also have a responsibility to protect others, for example by refraining from texting while driving, keeping immunizations up to date, and treating family members with dignity and respect.

These daily decisions about how to stay healthy are heavily influenced by the world around us. Evidence-based prevention strategies can help to make it more likely that people will engage in healthier behaviors. Children are less likely to walk to school if their parents feel it is unsafe, for example. Walking school bus programs and infrastructure improvements like sidewalks and crosswalks can make walking to school an easier choice, leading kids to be more active as a part of their daily routine.

Within the clinical care system, "population" is usually defined as a group of individuals who are receiving care within a health system or are covered by a specific health plan. Examples include members of a managed care plan or all patients of a specific hospital or health system (see Figure 4).

In a 2012 paper commissioned by the National Quality Forum, researchers propose use of the term *total population health* to refer to the health outcomes of a group of individuals within a specific geographic area, as distinct from the more narrow use of the term "population" within the clinical care system.[7]

The total population health framework emphasizes three related concepts:

- Determinants of health
- Health disparities
- Health equity

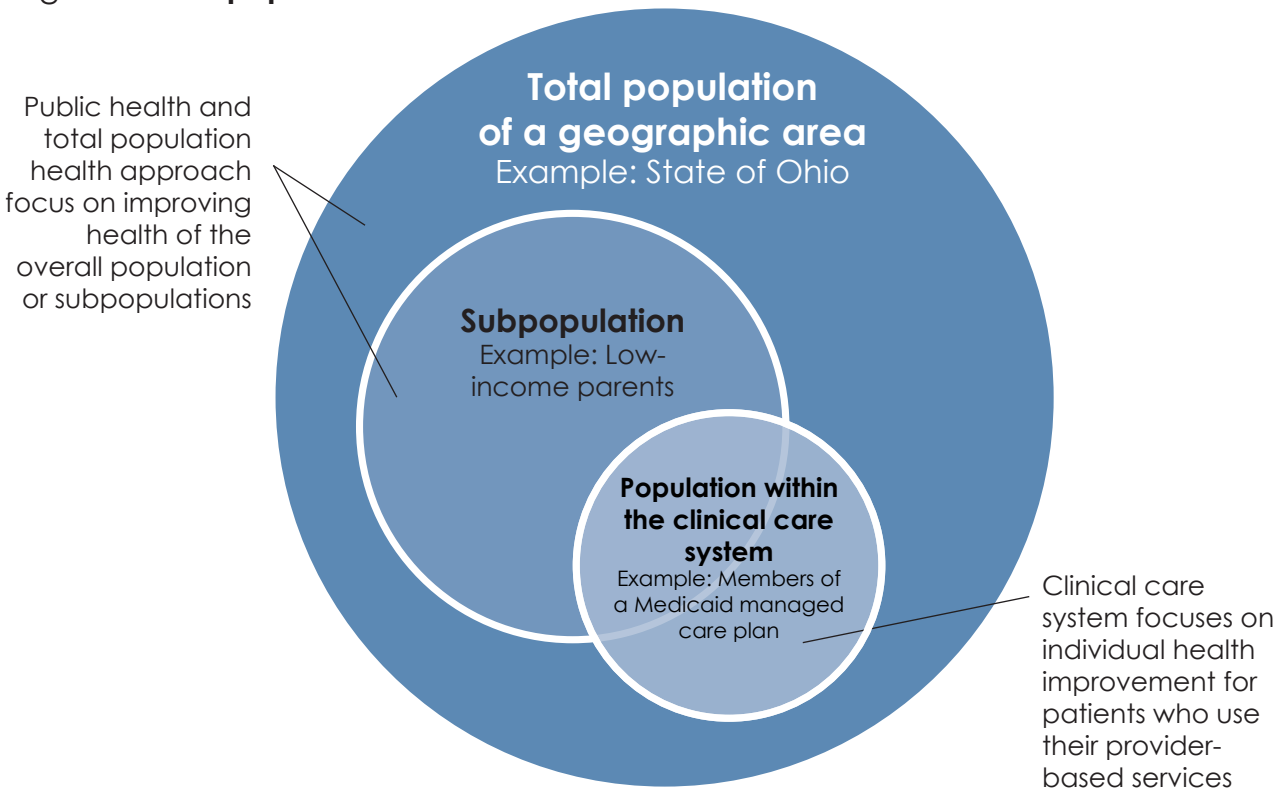
Determinants of health

Total population health models, such as the framework used by County Health Rankings and Roadmaps (see Figure 5) distinguish between *health outcomes* (such as mortality and quality of life) and *health determinants*, defined as the factors that impact health outcomes. Determinants can be *non-modifiable*, such as genetics[8] and individual biology, or modifiable, such as clinical care, behaviors, social environment, and physical environment. The impact of clinical care on health outcomes is direct and well recognized. Health policy experts recognize increasingly that social, economic and physical environments are also a key driver of health outcomes.

A 2002 study estimated that behavior patterns (40 percent), environmental exposures (5 percent), and social circumstances (15 percent) together contribute more than half of the causes of premature death (see figure 11).[9] Taken together, these non-clinical factors are referred to as the social determinants of health. Examples of social determinants include:

- Safe and affordable housing
- Access to education

Figure 4. **Total population health**



Source: Adapted from "An Environmental Scan of Integrated Approaches for Defining and Measuring Total Population Health by the clinical care system, the government public health system, and stakeholder organizations." Public Health Institute and County of Los Angeles Public Health, 2012.

- Income and employment
- Public safety
- Built environment (roads, sidewalks, parks, etc.)
- Availability of healthy foods
- Environments free of life-threatening toxins[10]

Prevention professionals often use the phrases "health begins where we live, learn, work, and play" and "health beyond the doctor's office" to describe the social determinants of health.

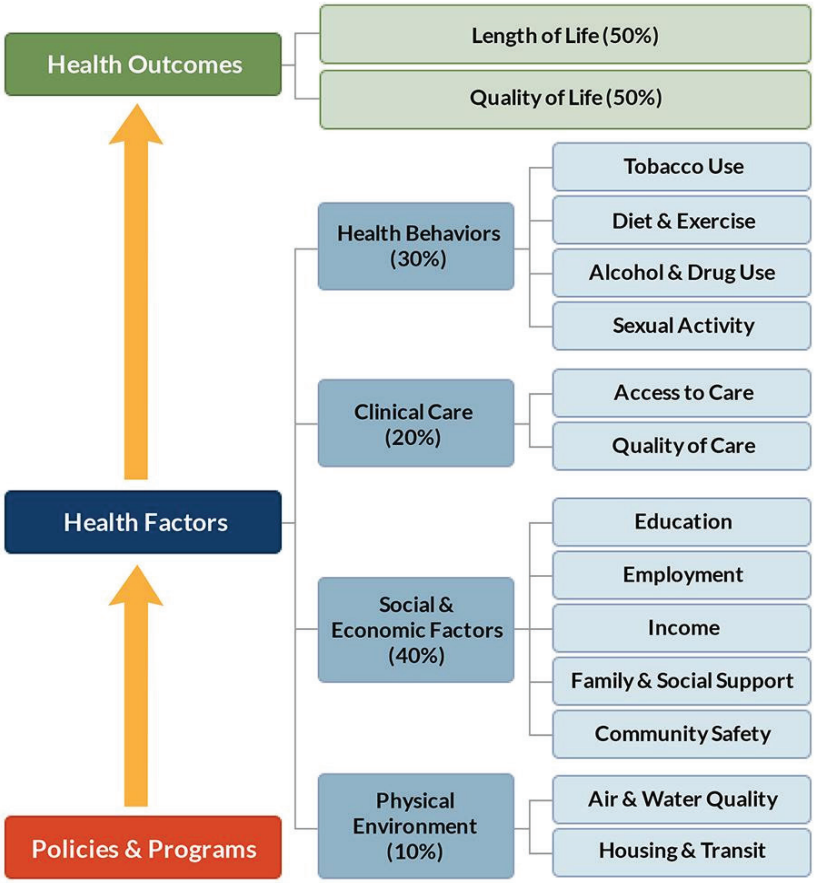
Health disparities and health equity

Assessing and addressing differences in health outcomes across groups is an important component of population health. Population health strategies aim to improve the health of everyone, including groups that have poor health outcomes and historically have had fewer opportunities to be healthy.

The term *health disparities* is defined as "differences in health status among distinct segments of the population including differences that occur by gender, race or ethnicity, education or income, disability, or living in various geographic localities."[11] Some health disparities may result from random variation and individual biology, making them difficult to prevent. Other disparities, however, may result from modifiable economic or social conditions or poor access to health care.[12] For example, disparities in breast cancer prevalence among men and women are biologically-based, while high rates of breast cancer mortality among African American women compared to white women are largely rooted in differences in access to and quality of health care and social and economic conditions.

Health equity is the absence of differences in health that are caused by social and

Figure 5. **Total population health model used by County Health Rankings**



Source: County Health Rankings and Roadmaps, University of Wisconsin Population Health Institute and Robert Wood Johnson Foundation

economic factors. Achieving health equity means that all people have the opportunity to achieve their full health potential, with no one at a disadvantage because of social or economic circumstances.[13]

Going upstream

The term upstream prevention (or upstream medicine) is increasingly being used in the public health, health care and health policy sectors to describe approaches that address the causes of health problems rather than just the symptoms. As stated by the Institute of Medicine, the upstream approach acknowledges that "it is no longer sufficient to expect that reforms in the medical care delivery system (for example, changes in payment, access and quality) alone will improve the public's health."[14]

The term "upstream" comes from a commonly-told story, sometimes called the "river story" or the "public health parable." Here is one version of the story:

> Two friends are standing at the edge of a rapidly-flowing river that is filled with drowning people. The friends work very hard to rescue as many of the people as possible, but are not able to save everyone in the seemingly never-ending stream of drowning victims. Seeking a better solution, one of the friends walks upstream and finds a bridge with a large hole in it. She gathers the people together to repair the hole and they stop falling into the river.

Upstream approaches are typically primary prevention strategies implemented in a community or population-level setting and often address the social determinants of health.

Key prevention frameworks

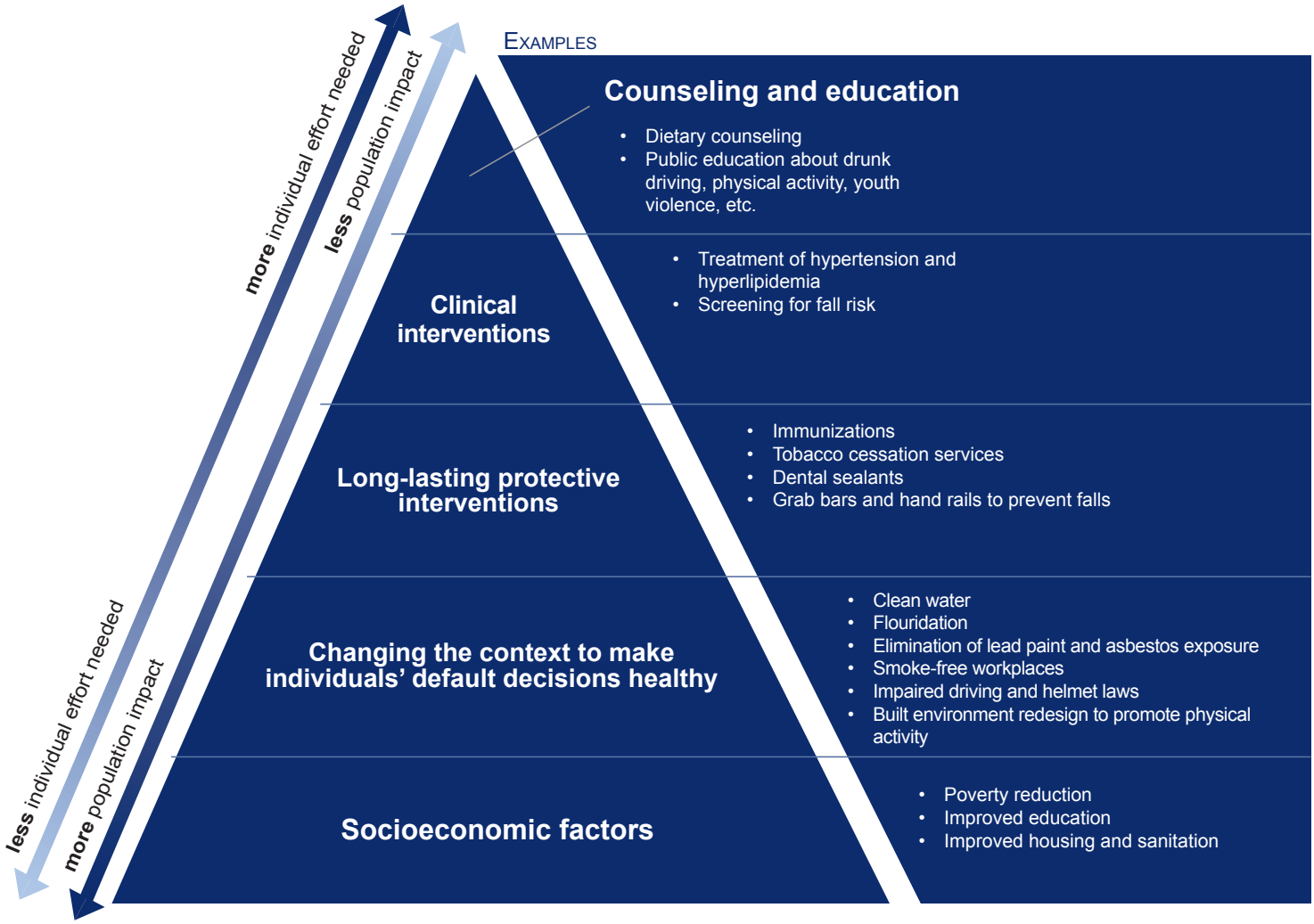
The Health Impact Pyramid provides a useful framework for the types of public health interventions that are most likely to "move the needle" for total population health outcomes. As shown in Figure 6, activities toward the base of the pyramid require minimal individual effort and have the greatest leverage for improving health for large numbers of people, while activities toward the top of the pyramid require increased individual effort and reach smaller segments of the population.[15]

> *"It is no longer sufficient to expect that reforms in the medical care delivery system (for example, changes in payment, access and quality) alone will improve the public's health."*
>
> — Institute of Medicine

For example, interventions toward the top of the pyramid include educational sessions about how to reduce fall hazards in the home and fitness classes such as *A Matter of Balance* which help older people make changes to protect themselves from falls. These types of programs can be highly effective for individuals who follow through and make changes in their behavior and home environment, but they only reach those with access to the program. Toward the base of the pyramid, general improvements to housing conditions for low-income seniors, policies requiring grab bars and hand rails, and built environments that make it easy for seniors to remain active in their daily lives (such as safe sidewalks and crosswalks near grocery stores), are examples of strategies that impact a broad reach of the general population. These types of strategies do not necessarily require individuals to be connected or compliant with a specific service or program. Comprehensive approaches that include strategies at each level of the pyramid are most likely to achieve sustainable improvements in population health.

In addition to the Health Impact Pyramid, the National Prevention Strategy, Social-Ecological Model and Spectrum of Prevention are prominent frameworks that provide guidance to policymakers on how to design effective prevention strategies and lay out foundational concepts in public health, total population health, and upstream prevention. Each of these frameworks emphasizes the importance of designing comprehensive prevention strategies that not only educate individuals about the importance of behavior change, but also go beyond the individual to address other factors that shape wellbeing, including family relationships, social norms and economic conditions. Risk and protective factors, asset development, and resiliency are

Figure 6. **Health Impact Pyramid**



Source: Frieden, Thomas R., "A framework for public health action: The Health Impact Pyramid." *American Journal of Public Health* 100, no, 4 (2010).

additional approaches that are critical to designing effective prevention strategies. See Appendix A for a more detailed description of these frameworks.

New ways to think about health and wellbeing

Culture of health

The Robert Wood Johnson Foundation (RWJF), a national philanthropy, has begun to use the term "culture of health" to describe a way of looking at what it takes for an entire community to be healthy and stay healthy. This term is useful because it combines the following concepts:

- Broad definition of health that includes community conditions, health behaviors, access to healthcare, and physical, mental and emotional wellbeing.
- Prioritization of health and wellbeing ("being healthy and staying healthy is valued by our entire society;" "the health of the population guides public and private decision-making").
- Fairness and opportunity ("everyone has access to affordable, quality health care;" "individuals and families have the means and the opportunity to make choices that lead to healthy lifestyles").[16]

Health in All Policies

Over the past decade, the Health in All Policies approach has emerged as a public health strategy to address the social determinants of health. Health in All Policies is a "collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy areas."[17]

The Health in All Policies approach uses tools such as Health Impact Assessments to identify the ways that policy decisions in sectors such as transportation,

education, and regional planning may affect population health outcomes. This approach aims to break down government agency silos in order to raise awareness about the connections between health and other sectors, and to address these connections by embedding health and health equity considerations into public decision-making processes at the local, state and federal level.

In Ohio, for example, health departments in Cincinnati and Columbus have partnered with their local school districts and the Ohio Department of Transportation to look at the relationships between school transportation policies and health outcomes for children and to design school travel plans that improve safety and promote physical activity.

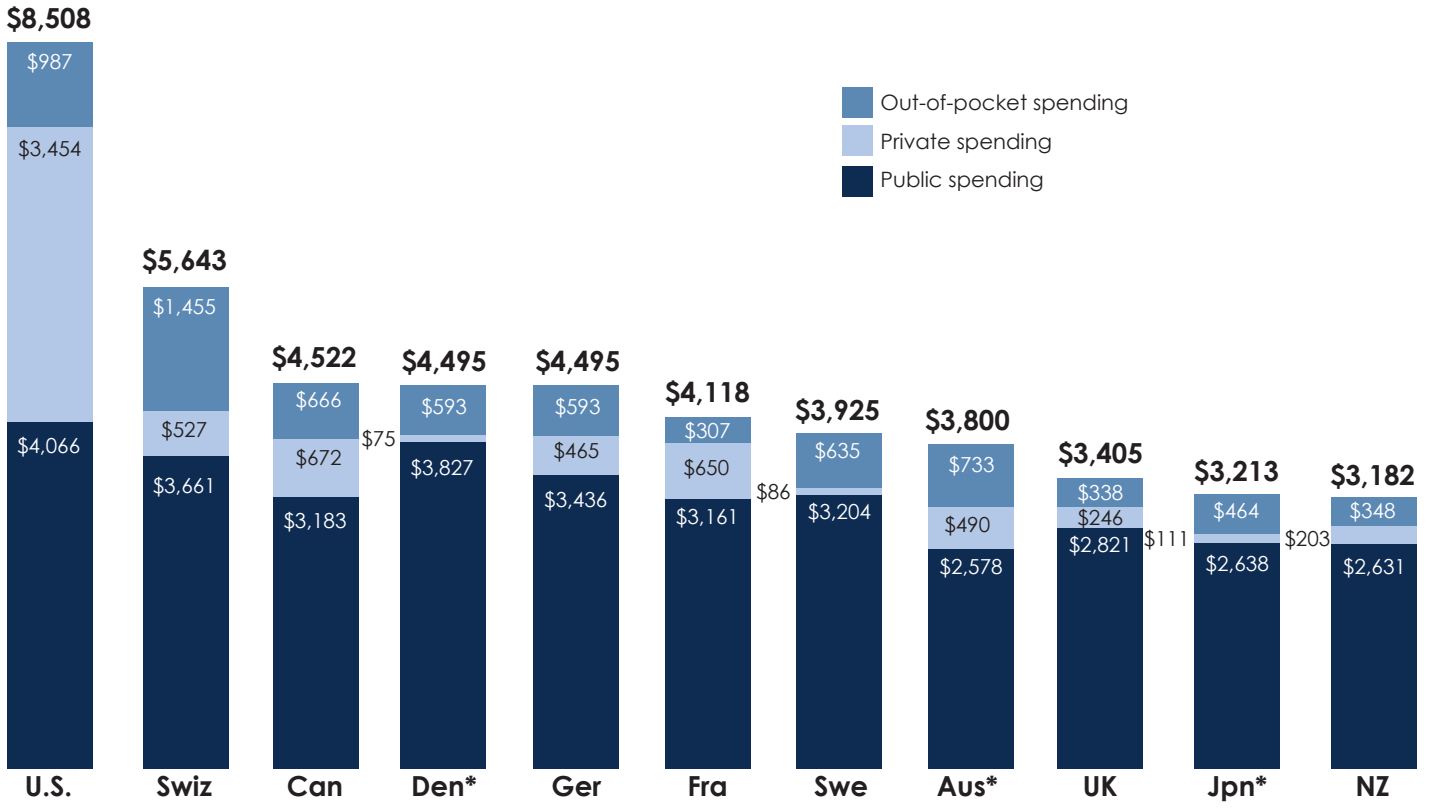
The value of prevention

Keeping people healthy and improving quality of life are the most obvious benefits of prevention. Though not all prevention activities are effective, countless studies demonstrate the effectiveness of specific prevention strategies to achieve positive health outcomes. Research on the cost savings brought by prevention is more mixed. Many studies indicate that prevention is cost-effective, although, like treatment, some prevention activities may increase costs. This section provides background on the US healthcare system's twin problems of high costs and poor outcomes, and describes available evidence for the role of prevention strategies in addressing these problems.

High costs, poor outcomes

The US leads the world in medical research and advanced clinical care, and spends far more on health care than any other country (see Figure 7). Yet our population health outcomes indicate that we are not getting a good return on our health care dollar. In its 2013 report *Shorter Lives, Poorer Health*, the Institute of Medicine reviewed population health outcomes for the US in comparison to other high-income countries and concluded that the US is at a distinct "health disadvantage." The report found that although life expectancy and health have improved in the US over the past century, these gains have lagged behind more significant improvements in most peer countries in recent years. The result is comparatively shorter life expectancy (see Figure 8), as well as higher rates of many diseases, injuries, and disability across all age groups.[18]

Figure 7. **Health care spending per capita, by source of funding, 2011**



*** 2010**

Source: Commonwealth Fund analysis of Organization for Economic Cooperation and Development Health Data 2013

Ohio shares in this health disadvantage. Among the states, Ohio ranks 37 in life expectancy[19] and 42 in overall health outcomes,[20] and spends more per capita than 32 other states on health care.[21]

Preventable sickness and death

Many causes of illness, disability and death are preventable. The 2013 IOM report referenced above identified four likely explanations for the US health disadvantage. Prevention strategies directly address the last three:

- **Health systems**. High number of uninsured people and lapses in accessibility, affordability, quality and safety
- **Health behaviors**. Higher rates of drug abuse, alcohol-involved traffic crashes and firearm violence, and lower rates of seat belt use
- **Social and economic conditions**. Higher rates of poverty and income inequality, lower social mobility and poorer education outcomes
- **Physical environments**. Built environment may discourage physical activity and contribute to obesity

A similar analysis of the burden of diseases, injuries, and risk factors in the US and peer nations published in the *Journal of the American Medical Association* (JAMA) in 2013 concluded that "in many cases, the best investments for improving population health would likely be public health programs and multisectoral action to address risks such as physical inactivity, diet, ambient particulate pollution, and alcohol and tobacco consumption."[22]

Figure 8. **Seventeen high-income countries ranked by life expectancy at birth, 2007**

Males			Females		
Rank	Country	Average length of life	Rank	Country	Average length of life
1	Switzerland	79.33	1	Japan	85.98
2	Australia	79.27	2	France	84.43
3	Japan	79.20	3	Switzerland	84.09
4	Sweden	78.92	3	Italy	84.09
5	Italy	78.82	5	Spain	84.03
6	Canada	78.35	6	Australia	83.78
7	Norway	78.25	7	Canada	82.95
8	Netherlands	78.01	7	Sweden	82.95
9	Spain	77.62	9	Austria	82.86
10	United Kingdom	77.43	9	Finland	82.86
11	France	77.41	11	Norway	82.68
12	Austria	77.33	12	Germany	82.44
13	Germany	77.11	13	Netherlands	82.31
14	Denmark	76.13	14	Portugal	82.19
15	Portugal	75.87	15	United Kingdom	81.68
16	Finland	75.86	16	**United States**	**80.78**
17	**United States**	**75.64**	17	Denmark	80.53

Source: Institute of Medicine analysis of World Health Organization data

Similarly, the US Centers for Disease Control and Prevention have identified four modifiable risk behaviors that are responsible for much of the illness, poor quality of life, and premature death related to chronic diseases: lack of physical activity, poor nutrition, tobacco use, and excessive alcohol consumption.[23] Effective prevention strategies to address each of these risks are available (see next section).

While much of the discussion around the value of prevention centers on chronic physical health conditions such as diabetes, heart disease, cancer and obesity, and to a lesser extent on injuries and violence, it is important to note that many behavioral health conditions are also preventable. A large body of research demonstrates that mental, emotional and behavioral disorders among young people (including depression, conduct disorder and substance abuse) have negative life-long consequences for psychological, physical and economic wellbeing, and that many of these disorders are preventable,

particularly when addressed in childhood and adolescence.[24] For example, children with untreated aggressive behavior are at risk for criminal activity and unemployment as they age into adulthood.

Prevention's impact on health outcomes

Research suggests that, over time, prevention strategies can have a significant positive impact on total population health, but that it can often take many years for those benefits to be realized on a broad scale. A 2011 study published in *Health Affairs* modeled the impact of three different strategies for reducing deaths and improving cost-effectiveness for the overall US population: expanding health insurance coverage, delivering better preventive and chronic care (including secondary prevention), and "protection," defined as "enabling healthier behavior and safer environments" (i.e., primary prevention). The study found that each of these approaches alone can save lives, but that they are much more effective in combination, and that the preventive "protection" approach had the most sustained positive impact over time. Expanded insurance coverage and improved healthcare were found to reduce deaths within the short-term, followed by a plateau in health effects after about 10 years. The impact of improved behavioral and environmental conditions, however, saved many more lives through year 25 compared to expanded coverage and improved care.[28] Another study found local public health spending was associated with reduced mortality from leading preventable causes of death over a 13-year period. For every 10 percent increase in local public health spending, there was an 6.9 percent reduction in infant mortality and a 3.2 percent reduction in heart disease deaths.[29]

These studies provide evidence for the potential of prevention and public health strategies to save lives. Numerous other studies provide evidence of the effectiveness of specific prevention strategies to achieve reductions in the prevalence of conditions like heart disease or low birth weight and risk factors like smoking or distracted driving, and increases in protective behaviors like physical activity or breastfeeding. Figure 9 lists examples of these evaluation results. Other evidence-based prevention strategies can be found in systematic reviews and online evidence registries. See Appendix B for a list of these resources.

Early Childhood: A critical window of opportunity

Although prevention can be effective at improving health at all stages of life, prevention strategies that reach young children have the greatest potential impact for improving total population health. *From Neurons to Neighborhoods*, a landmark study on the science of early childhood development from the Institute of Medicine, concluded that most critical human brain development takes place in the early years of life.

Infants and toddlers can thrive if they have the benefits of an enriched environment and positive relationships as they grow.[25] These early experiences last a lifetime. Conversely, damaging early childhood experiences can have detrimental impacts that also last a lifetime, including all of the leading causes of death and disability. For example, the Adverse Childhood Experiences (ACE) Study conducted by Kaiser Permanente found that children who had been abused or neglected or witnessed domestic violence were more likely to suffer from depression and heart disease later in life.[26]

Experts from many different fields now recognize that prevention strategies, such as evidence-based home visiting and violence prevention programs, and multi-sector efforts to provide enriched cognitive and social environments for disadvantaged young children, are powerful tools for improving health, wellbeing, and self-sufficiency.[27]

Potential adverse effects of prevention

Recent controversies over screening for breast and prostate cancers point to potential adverse effects and unintended consequences of some clinical preventive services. For example, in 2009, the US Preventive Services Task Force (USPSTF) declined to recommend routine biennial mammography for women under age 50,

Figure 9. **Examples of effective community-based prevention strategies**

Policy change strategies Delivered to overall populations in communities, schools and workplaces	**Prevention programs** Delivered to individuals, families or groups in community settings
Tobacco taxes. Raising unit price of tobacco products, such as increased excise taxes on cigarettes, leads to: ⬇ Overall tobacco use ⬇ Initiation of tobacco use among young people ⬇ Tobacco-related morbidity and mortality[30] **Smoke-free policies.** Smoke-free policies (such as Ohio's Smoke-free Workplace Act) have many benefits, including: ⬇ Overall tobacco use ⬇ Initiation of tobacco use among young people ⬇ Hospitalizations for heart attacks (acute cardiovascular events) and asthma[31] **Safe Routes to School.** Promoting walking and biking to school through education, incentives and safety improvements has been shown to: ⬇ Pedestrian crashes ⬆ Physical activity among children[32] **Competitive pricing for school lunches.** Assigns higher costs to non-nutritious foods and lower costs to nutritious foods: ⬆ Sales of healthy foods ⬆ Consumption of healthy foods[33]	**LifeSkills Training (LST).** School-based program that teaches skills needed to build resilience and resist alcohol and drug use leads to: ⬇ Use of alcohol, tobacco, marijuana, and other drugs ⬇ Violence and delinquency ⬆ Substance abuse refusal skills[34] **Early childhood home visiting.** Visitors provide parents with information and support regarding child health and development. Shown to: ⬇ Child abuse and neglect ⬆ Improve birth outcomes ⬆ Improve cognitive and social-emotional development [35] **Safe Dates program.** School-based curriculum that teaches dating conflict-resolution skills and addresses dating violence and gender-role norms leads to: ⬇ Psychological and sexual abuse ⬇ Violence against a dating partner[36] **Good Behavior Game.** Classroom intervention designed to help children stay on task and engaged in school work has been found to: ⬇ Children's behavior problems ⬇ Need for mental health services ⬇ Drug or alcohol abuse or dependence disorders (at 14-year follow-up) ⬆ Academic success[37]

instead stating that it should be an individual decision based on "patient context and values." The reluctance to recommend mammography for women under age 50 is based partly on the potential harms of screening, such as over-diagnosis resulting in over-treatment, and false-positive tests that lead to unnecessary procedures and anxiety.[38] Similarly, in 2012 the USPSTF recommended against routine Prostate-Specific Antigen (PSA) testing for prostate cancer because it concluded that the harms caused by false-positives and long-term adverse effects of treatment outweighed the benefits.[39]

Prevention's impact on health costs

Like medical treatment, the goal of prevention is to improve health. Given that "bending the cost curve" is a major goal of health reform, policymakers are also very interested in determining whether increased investment in prevention will pay off in terms in reduced or slowed healthcare costs and improved health value. Health value is defined as the combination of improved health outcomes and controlled health costs. There is a growing body of research that assesses whether prevention activities are "cost saving," "cost effective," or simply drive up costs without improving health. Prevention activities that decrease costs compared to waiting for treatment are *cost saving*. Prevention activities that cause significant health improvements compared to waiting for treatment are *cost effective*, even if they do not save very much money.[40]

There is overwhelming evidence that many prevention strategies help people live longer and healthier lives, and strong evidence for the cost-effectiveness of many—but not all—prevention activities; in other words, prevention generally increases health value. Evidence for cost savings is more mixed and varies for different types of prevention activities. For example:

- An analysis of 20 evidence-based clinical preventive services found that some failed to yield net medical cost savings (including cholesterol and osteoporosis screening), while others resulted in significant savings (including childhood immunizations and

smoking cessation advice and assistance). Overall, the package of 20 preventive services was estimated to save many lives and result in modest cost savings.[41]

- A review of cost-effectiveness studies found that preventive measures were slightly more likely than treatments for existing conditions to save money, but that most preventive measures and treatments alike actually increased costs.[42]
- A similar review of cost-effectiveness studies categorized prevention activities into three types: environmental interventions (i.e., population-based policy strategies), nonclinical person-directed interventions (i.e., community-based prevention programs delivered to individuals and families), and clinical interventions (i.e. clinical preventive services). The study concluded that population-based environmental strategies were generally more cost-effective than clinical preventive services or community-based prevention programs.[43]
- A study comparing the impact of better preventive and chronic care (including secondary prevention) and primary prevention strategies ("protection") on healthcare costs over 10-year and 25-year time horizons, estimated that better care would actually increase costs. Primary prevention, on the other hand, would increase costs for the first six years and then would decrease total costs through year 25.[44]

Overall, this research suggests that prevention services delivered in the healthcare system are less likely to produce cost savings than those directed at the population level, and that primary prevention may be more cost-saving than secondary prevention in the long term.

The studies presented above focused on the cost-effectiveness of specific prevention activities. Additional research looks at the broader impact of increasing investment in prevention more widely and makes projections about state-level cost savings. For example:

- A study published in the *American Journal of Public Health* found that Ohio could save $531.6 million in the short run and $1,232.9 million in the medium term in medical costs (all payers) by reducing the prevalence of diabetes and hypertension by 5 percent. This translates to savings to Ohio Medicaid of $23.9 million within 1-2 years and $76.7 million within five years.[45]
- Analysis by the Trust for America's Health concluded that Ohio could save $686 million in healthcare costs (all payers) within five years if it invested $10 per person per year in community-based prevention strategies to increase physical activity, improve nutrition, and prevent tobacco use. This represents a return on investment (ROI) of 6 to 1.[46]

How do we pay for prevention?

Paying for clinical preventive services

Most clinical services, including clinical preventive services and medical treatment, are paid for by health insurance (including Medicaid and Medicare) or out of pocket by individual consumers. Providers are typically reimbursed for these clinical services on a fee-for-service basis, although payment and delivery models designed to pay for outcomes rather than volume of individual services (such as managed care, Accountable Care Organizations, or ACOs, bundled payments, and episode-based payments) are becoming more common.

The Affordable Care Act, or ACA, requires most health insurance plans to cover a package of clinical preventive services that have been rated "A" or "B" by the USPSTF, indicating that an independent panel of experts has determined that the services have substantial or moderate net benefit. This package includes services such as immunizations and screenings for colorectal cancer and depression, and it greatly increases access to clinical preventive services.[47] Insurers must provide these services without charging patients for copayments, deductibles or co-insurance.

Paying for population-based and community-based prevention

Community-based prevention programs and population-based policy strategies have traditionally been separate from the clinical healthcare system and are not covered by health insurance. As shown in Figure 10, community-based programs are typically funded by federal, state or local government or private philanthropy in the form of grants. Funding for population-level policy strategies is spread across many different sectors. For example, transportation

Figure 10. **Current payment sources and mechanisms for prevention and treatment**

	Prevention			Treatment and rehabilitation	
	Population-based policy strategies	**Community-based prevention programs**	**Clinical preventive services**	**Treatment**	**Disease management, rehabilitation, recovery supports**
Payer/ Funder	• Federal, state, and local government • Philanthropy • Non-health sectors (transportation, education, regional planning, housing, etc.)	• Federal, state, and local government • Philanthropy	• Medicaid and Medicare • Private insurance • Individual consumers	• Medicaid and Medicare • Private insurance • Individual consumers • Hospital charity care	• Medicaid and Medicare • Private insurance • Individual consumers • Federal, state, and local government
Dominant payment mechanism	• Grants • Inspection fees (for environmental health) • Public funding for non-health sectors (transportation, education, regional planning, housing, etc.)	• Grants	Reimbursement (fee-for-service model, managed care, etc.)	Reimbursement (fee-for-service model, managed care, etc.)	• Reimbursement (some services) • Grants or federal, state, and local funding for non-reimbursable services

See Figure 3 for description of these prevention and treatment categories.

spending on sidewalks and bike trails helps to increase physical activity, and school district and U.S. Department of Agriculture spending on school lunches improves child nutrition. Health departments and other prevention organizations are often involved in coordinating these funding streams and advocating for multi-sector investments that improve health.

Emerging models to finance prevention

Recognizing the need to establish more stable and coordinated investments in a broader range of evidence-based prevention strategies, policymakers around the country are exploring new ways to link community-based prevention with clinical preventive services and develop new sources of funding for population-based policy changes. These new approaches include payment reform mechanisms that allow for reimbursement for community-based prevention programs, delivery models such as Accountable Care Communities and Community-Centered Health Homes, wellness trusts, social impact bonds, employer wellness programs and leveraging hospital community benefit requirements to support upstream initiatives.

HPIO will explore these approaches in more detail in a future publication. The following reports provide an introduction to these concepts:

- ***Financing prevention: How states are balancing delivery system and public health roles*, report prepared by National Academy for State Health Policy for ChangeLab Solutions, 2014**

- ***How can we pay for a healthy population?: Innovative new ways to redirect funds to community prevention.*** **Prevention Institute, 2013.**

How much do we spend on prevention?

The proportion of health expenditures that go toward prevention is a matter of debate and hinges upon the definition of prevention and the type of prevention strategies and sectors included in the calculation. Estimates in the literature range from 1 percent to 5 percent.[48] A frequently-cited statistic points out the mismatch between spending on medical care (95 percent) and prevention (5 percent) in light of the primary drivers of premature death (behavior patterns, environmental exposure, and social circumstances) which are best addressed through upstream prevention rather than downstream "sick care" (see Figure 11).

A more recent analysis of National Health Expenditure data estimated that 8.6 percent of 2008 US healthcare expenditures went to prevention, including public health, prevention research and medical and dental preventive services. The estimate drops to 4.4 percent if only primary prevention is included.[49]

How much do we spend on prevention in Ohio?

Existing studies on this topic focus on healthcare expenditures for the US overall, and do not include state-specific data or the contributions of sectors outside the healthcare system (such as transportation or education). In order to gain a better understanding of state-level public spending on prevention in Ohio, HPIO will report on state agency expenditures that support primary and secondary prevention in a future publication. The Ohio departments of Health, Aging, Mental Health and Addiction Services, Job and Family Services, Developmental Disabilities and Medicaid will be included in this analysis.

Additional research like this is needed to establish a clearer understanding of how Ohio currently invests in prevention in order to move toward an appropriate balance between prevention and treatment that will improve health value for Ohioans.

Emerging payment and delivery models take patient care further upstream

A **Patient Centered Medical Home (PCMH)** is an enhanced model of primary care in which a practice is paid a care coordination fee (often per member per month) to attend to the multi-faceted needs of patients and provide comprehensive care that includes prevention, treatment and rehabilitation. PCMHs, often through establishment of care teams, coordinate physical and mental health care for patients, including links to community services and supports. For example, if a child with asthma has frequent emergency room visits, the pediatrician in a PCMH may reach out to a child's school or child care provider to make sure that everyone who is caring for the child understands how to manage the child's medications.

The **Community-Centered Health Homes (CCHH)** model takes PCMHs one step further by actively addressing factors outside the healthcare system that impact patient health outcomes by advocating for population-level policy change. For example, a CCHH that is treating children with lead poisoning or asthma may get involved in advocating for housing code enforcement to improve housing quality, and have community health workers on staff who go into homes and help families to remove lead paint or asthma triggers.

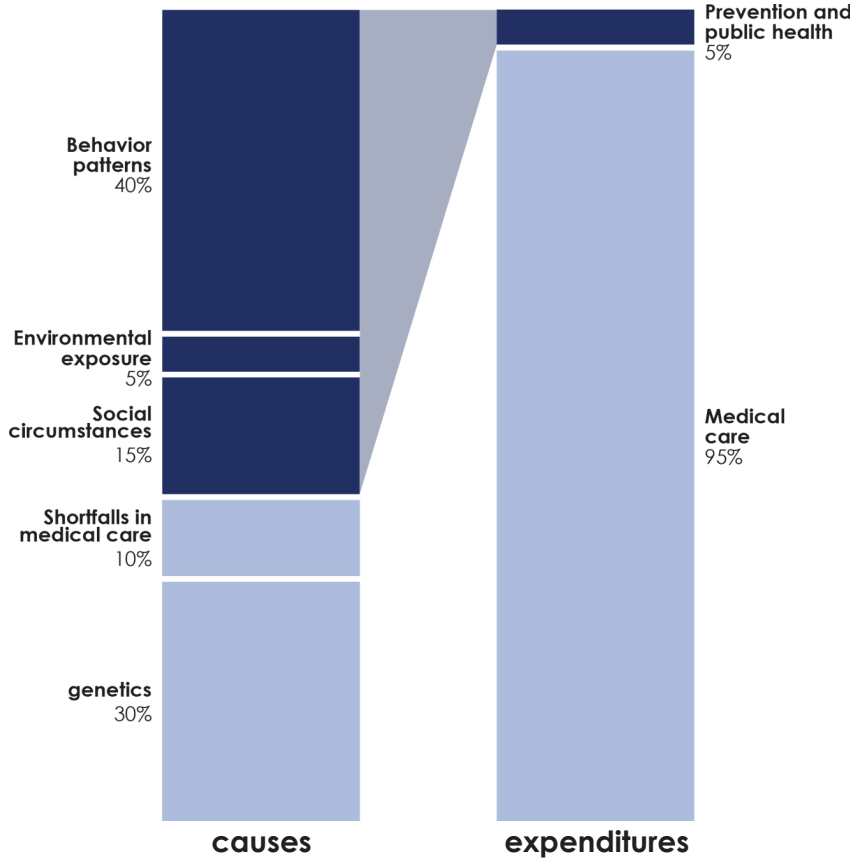
An **Accountable Care Organization (ACO)** is a network of providers that collectively assumes responsibility for the care of a defined patient population and shares in payer savings if set quality and cost performance metrics are met. The provider network may also be at risk and bear financial responsibility for spending that exceeds target metrics. For example, a primary care physician in an ACO may identify an individual who is at risk for diabetes due to obesity. The physician provides counselling on prevention of diabetes and referral to a nutritionist in the ACO to help the individual lose weight. If the ACO is successful in reaching set performance metrics targeted at managing and preventing diabetes, they are rewarded financially and the patient foregoes other complications of diabetes such as amputations and kidney failure.

The **Accountable Care Community (ACC)** model takes the ACO one step further by holding entities outside the healthcare system (such as community-based prevention organizations, local health departments, or social service providers) accountable for the health outcomes of a community along with health care providers. For example, the Live Healthy Summit County ACC partners with local YMCA Diabetes Prevention Programs that help people diagnosed with prediabetes to adopt healthy eating and physical activity habits, and with the Cuyahoga Valley National Park to promote active living.

Ohio's prevention infrastructure and workforce

For the most part, prevention activities in Ohio are carried out by three sectors: the clinical healthcare system, governmental public health and human service agencies and private nonprofit organizations. In some cases, organizations collaborate across these sectors, such as YMCAs working with healthcare providers and health insurers to implement the Diabetes Prevention Program. Some prevention strategies also involve partnerships with representatives from sectors such as education, transportation, regional planning, faith-based organizations, public safety and criminal justice, agriculture and housing. Employers are also increasingly involved in prevention, particularly larger employers that invest in comprehensive employee wellness programs. Examples include incentives for healthy behaviors and changes to the workplace environment, such as healthier foods in cafeterias and meetings, onsite fitness facilities, and policies that support breastfeeding.

Figure 11. **Estimated contributions to causes of premature death vs. national health expenditures**



Source: McGinnis, Williams-Russo, and Knickman. *Health Affairs.* 2002.

Clinical healthcare system

Clinical preventive services are delivered by community health centers, hospitals and health systems, private doctor's and dentists' offices and behavioral health clinics, employing professionals such as nurses, physicians, community health workers, dental hygienists, dieticians and social workers. In 2013, there were 686,884 people working in the healthcare sector in Ohio, making up 14 percent of the total workforce.[50] It is unknown, however, what proportion of that overall healthcare workforce is delivering preventive services.

Public health system

The Ohio Department of Health (ODH) and local health departments provide the backbone infrastructure for prevention in Ohio. Prevention of injuries and communicable and chronic diseases is a high priority for public health agencies, and public health professionals are trained to plan, implement and evaluate prevention strategies. It is important to note, however, that public health agencies are also responsible for some activities that may not be considered prevention, such as emergency preparedness and disaster response.

Governmental public health's role in providing clinical preventive services is in transition and varies widely by location. Traditionally, local health departments have been responsible for administering immunizations, although as more Ohioans gain access to health insurance that is required to cover vaccinations, this responsibility is shifting to the clinical healthcare sector. Many local health departments conduct screenings, such as for high blood pressure, tuberculosis and sexually transmitted disease. Only a small number of health departments provide comprehensive primary care services.[51] Changes in the healthcare landscape as a result

of the ACA will likely alter further the extent to which local health departments provide clinical preventive services.

As more Ohioans gain insurance coverage through expanded Medicaid eligibility and the health insurance marketplace, there may be less demand on local health departments to provide clinical services. Regardless of a health department's role in directly providing care, "linking people to needed personal health services" is one of the 10 Essential Public Health Services and health departments will likely continue to assist people with accessing health insurance and healthcare services.

Governmental public health is heavily involved in communicable disease prevention, largely through disease surveillance and environmental health services, such as restaurant inspections, body art regulation and mosquito control. Health departments also implement community-based prevention programs, such as tobacco education in schools, the Help Me Grow home visiting program, and public awareness campaigns to prevent drunk driving. Public health agency staff often lead policy change efforts, such as Columbus Public Health's work reviewing zoning applications and advocating for inclusion of sidewalks and bike racks for new developments in the city in order to promote active living.

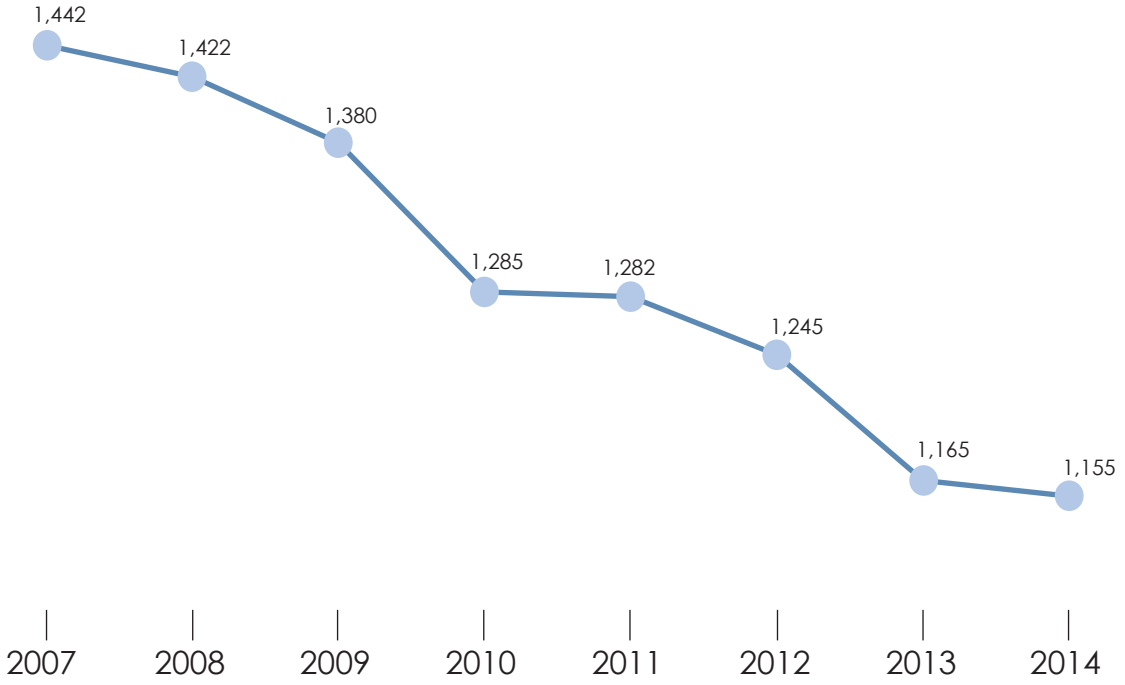
At the state level, ODH is the primary public health agency. About 70 percent of ODH's funding comes from federal sources and much of that funding is passed through to local health departments and other local organizations. Ohio's 88 counties are home to 125 local health departments. Sixty-five Ohio counties have one local health department (74 percent), while the remaining 23 counties have two or more LHDs. About three-quarters of LHD funding comes from local sources. See HPIO's **Ohio Public Health Basics** for more information about the structure and funding of public health in Ohio.

In 2014, ODH had 1,155 employees, down 20 percent from 1,442 in 2007 (see Figure 12). Ohio's 125 local health departments had 4,789 total Full Time Equivalent staff positions in 2013.[52] Added together, the size of Ohio's governmental public health workforce is roughly 5,900 employees.

Health and human services agencies

In addition to ODH, several other state agencies carry out or fund prevention activities. Like ODH, these agencies have local-level counterparts that also implement some

Figure 12. **Total number of Ohio Department of Health employees, 2007 to 2014**



Note: Includes full-time, part-time and intermittent employees
Source: Ohio Department of Health

prevention activities:

- Ohio Department of Mental Health and Addiction Services and 53 local behavioral health boards
- Ohio Department of Aging and 12 Area Agencies on Aging
- Ohio Department of Developmental Disabilities and 88 local Developmental Disabilities boards
- Ohio Department of Job and Family Services and 88 local County Departments of Job and Family Services
- Ohio Department of Medicaid

Private nonprofit organizations

Ohio is home to many private organizations that promote health, such as the American Heart Association, American Cancer Society, YMCAs, Big Brothers Big Sisters, Drug Free Action Alliance, Buckeye Healthy Schools Alliance and the Ohio Suicide Prevention Foundation. Visit the Ohio Wellness and Prevention Network's **"family tree" of prevention organizations** for a list of statewide prevention organizations, including nonprofit organizations, statewide coalitions, and academic research centers.

Nonprofit hospitals are increasingly involved in planning and implementing prevention strategies, largely through the Community Health Needs Assessment (CHNA) process and other community benefit activities. The ACA requires all nonprofit hospitals to conduct a CHNA every three years and to adopt an implementation strategy. Many of these implementation strategies may include prevention activities.

Local coalitions

Local coalitions play an important role in planning and implementing prevention strategies. These coalitions are typically led by a health department, United Way or other nonprofit organization or agency, and bring together partners from multiple sectors. Examples include Our Futures in Licking County, which brings together the superintendents of all school districts in the county with health and social service organizations with the goal of improving academic outcomes and reducing substance abuse, and the Greater Columbus Infant Mortality Task Force convened by the City Council in partnership with Columbus Public Health and Nationwide Children's Hospital.

Some Ohio counties have chronic disease prevention coalitions supported by grants from ODH's Creating Healthy Communities program (16 communities), Ohio Alliance of YMCAs' Pioneering Healthier Communities program (nine communities), or the federally-funded Community Transformation Grants (three communities).

Each county also has a Family and Children First Council (FCFC) which brings together partners from education, health, and juvenile justice in order to coordinate services for children and families. FCFCs are required to develop a "Shared Plan" that aligns all local plans that address priorities for children and families. Many of these plans include prevention activities.

Training and certification

There is no specific degree or certification required to implement prevention activities. Academic public health programs do, however, provide specialized training in assessing population health needs and identifying, implementing and evaluating prevention strategies. Ohio is home to one accredited school of public health and five accredited Master of Public Health programs. There are also several certifications targeted to specific prevention skill sets. For example:

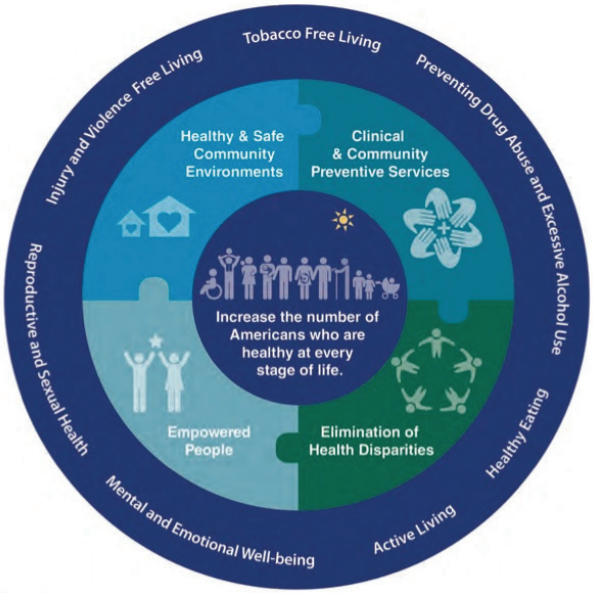
- Health education: National Commission for Health Education Credentialing issues Certified Health Educator Specialists and Master Certified Health Education Specialists certification (Ohio had 442 certified individuals in 2014)
- Alcohol or other drug prevention: Ohio Chemical Dependency Professionals Board issues Ohio Certified Prevention Specialist (OCPS) and Certified Prevention Specialist Assistant (CPSA) credentials (Ohio had a total of 410 certified individuals in 2014 (CPSA and OCPS I & II)
- Environmental health: State Board of Sanitarian Registration (Ohio had 1,227 active registered sanitarians in state fiscal year 2013)

Appendix A. Key prevention frameworks and additional prevention terms

National Prevention Strategy

Released by the National Prevention Council in 2011, the National Prevention Strategy lays out four strategic directions to serve as the foundation for a "prevention-oriented society" (see Figure 13). Organized around seven priority areas that emphasize a positive "health promotion" approach, this document compiles evidence-based recommendations and a set of measurable indicators and targets (cross-referenced with Healthy People 2020) designed to reduce the leading causes of preventable death and major illness in the U.S.

Figure 13. **National Prevention Strategy Framework**

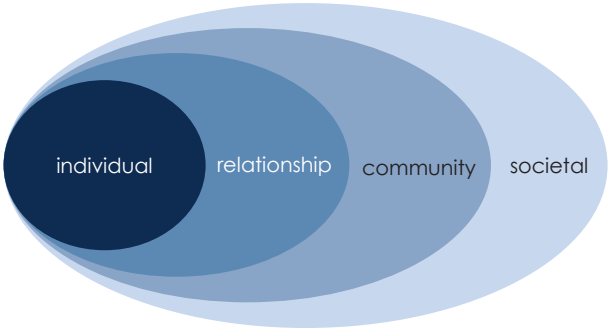


Source: Centers for Disease Control and Prevention

Social-Ecological Model

The Social-Ecological Model describes interaction between individual and contextual factors that impact wellbeing, suggesting that effective prevention strategies must address each of these factors.[53] Initially used in the fields of child maltreatment, youth violence, and intimate partner violence, this model is now being used to inform a wide range of health fields. As shown in Figure 14, the model includes four levels. The individual level refers to biological and personal history factors, while the relationship level refers to family relationships, social interaction, and connections with peers and mentors. Community environments include schools, neighborhoods, and workplaces, and societal factors include social norms, cultural values, economic conditions, and policies. Policy, system, and environmental change strategies are aimed at the community and societal levels.

Figure 14. **Social-Ecological Model**



Spectrum of Prevention

The Spectrum of Prevention builds upon the Social-Ecological Model and provides prevention practitioners with guidance about how to design effective and sustainable primary prevention strategies that address individual as well as environmental factors.[54] The six levels shown in Figure 15 are complementary and are meant to reinforce one other.

There are strong parallels between the Spectrum of Prevention, the Social-Ecological Model and the Health Impact Pyramid. Each of these frameworks emphasize the importance of designing comprehensive prevention strategies that educate individuals about the importance of behavior change, but also go beyond the individual to address other factors that shape wellbeing, including family relationships, social norms and economic conditions.

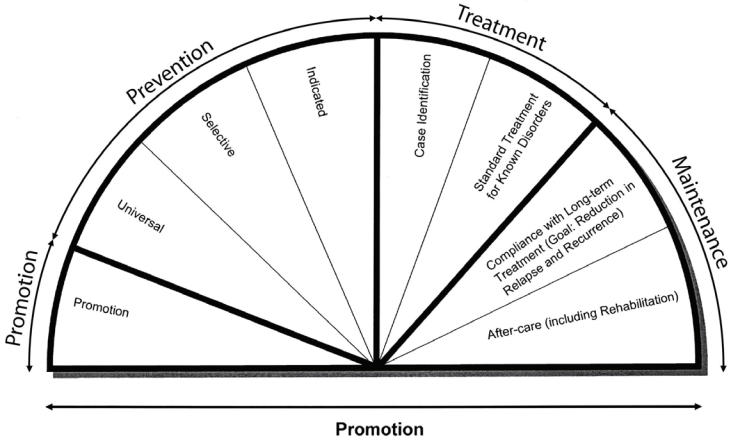
Figure 15. **Spectrum of Prevention**

Source: The Prevention Institute

Risk and protective factors, asset development, and resiliency

Prevention strategies often aim to decrease risk factors and increase protective factors. Risk factors are individual, family or community conditions that increase the likelihood of a bad outcome for an individual, while protective factors are associated with a lower likelihood of a bad outcome. For example, easy access to drugs and alcohol, poor academic performance and family conflict are risk factors for teen substance abuse, while parental monitoring and a strong sense of belonging at school protect youth from drug and alcohol use.

Figure 16. **Mental health intervention spectrum**



Source: Adapted from IOM, *Reducing Risks for Mental Disorders, Frontiers for Preventive Intervention Research*, 1994.

The Search Institute's *40 Developmental Assets for Adolescents* identify a set of protective factors often used by local prevention coalitions to design initiatives to help children successfully transition to adulthood. Examples of these developmental assets include positive family communication, caring school climate, adult role models, and resistance skills.[55] Resiliency is a related concept that focuses on nurturing one's ability to overcome risk factors and cope with life's stressors and challenges. Youth resiliency strategies, such as Ohio's *Start Talking: Building a Drug-Free Future—Resilience Programming in Schools* initiative, aim to help young people develop good decision-making skills, cope with adversity, and develop other social-emotional competencies that will help them to be healthy and successful as adults.[56] Ohio's Youth-Led Prevention Network, a coalition of peer-led substance abuse prevention groups, is another example of a program centered around positive youth development and resiliency.

Mental health intervention spectrum

Prevention professionals within the behavioral health field use the Institute of Medicine's Mental Health Intervention Spectrum, which includes the universal/selected/indicated prevention levels described on page 3. This framework broadens the context of prevention by including health promotion, treatment, and maintenance (see Figure 16). This prevention typology focuses on varying levels of risk for population groups and is seen as particularly useful for describing strategies to prevent mental, emotional, and behavioral disorders.

Additional prevention terms

Health promotion focuses on the positive state of wellness, rather than on preventing a specific disease. Although the term health promotion has different connotations for different groups, it is often used to refer to strategies that support healthy behaviors and healthy community conditions, and de-emphasize a focus on preventing harm or sickness. For example, a health promotion approach to preventing domestic violence would be to help young people develop positive relationship communication skills, rather than focusing solely on "red flags" for relationship abuses.

Primordial prevention is defined as "an approach to prevention that targets underlying health determinants via modifying social policies so as to improve health in general."[57] Examples of primordial prevention include sanitation system improvements and economic reforms. For the sake of simplicity and clarity, this publication considers the term primary prevention to include both health promotion and primordial prevention.

Quaternary prevention refers to the avoidance of unnecessary or excessive medical interventions. For the purposes of this publication, quaternary prevention is included within the category of treatment.

Appendix B. Sources of evidence of effectiveness

There are several systematic reviews,[58] online evidence registries, and recommendations from expert panels that identify evidence-based prevention strategies. The **US Preventive Services Task Force (USPSTF) Recommendations** and the **Center for Disease Control and Prevention's Guide to Community Preventive Services ("Community Guide")** are two systematic reviews that are considered "gold-standard" sources for prevention evidence. The USPSTF focuses on clinical preventive services, while the Community Guide includes community-based programs and population-level policy change strategies.

Because prevention strategies delivered in a community setting are more difficult to evaluate than clinical practices delivered in a healthcare setting, the evidence base for community-based programs and policy approaches is evolving and not all prevention topics are covered by the Community Guide. Figure 17 includes additional sources that are credible and user-friendly, and can supplement the USPSTF recommendations and the Community Guide. For more information about how to find evidence-based prevention strategies, visit HPIO's **Online Guide to Evidence-Based Prevention**.

Figure 17. **Sources of evidence for effective prevention strategies: Systematic reviews and evidence registries**

Systematic reviews and evidence registries (click for link)	Sponsoring organization	Approach and topics
US Preventive Services Task Force (USPSTF) Recommendations*	Agency for Healthcare Research and Quality (AHRQ)	Clinical preventive services (screening, counseling, and preventive medication) for broad range of health topics
The Guide to Community Preventive Services (Community Guide)*	US Centers for Disease Control and Prevention (CDC)	Community-based programs and population-based policies; Comprehensive range of health topics
What Works for Health	University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation	Community-based programs and population-based policies; Comprehensive range of health topics
National Registry of Evidence-based Programs and Practices (NREPP)	Substance Abuse and Mental Health Services Administration (SAMHSA)	Clinical and community-based programs; Mental health promotion, substance abuse prevention, mental health and substance abuse treatment
Research-tested Intervention Programs (RTIPs)	National Cancer Institute (NCI) and Substance Abuse and Mental Health Services Administration (SAMHSA)	Clinical and community-based programs; Cancer screening, nutrition, physical activity, tobacco, sun safety and other aspects of cancer control
Public Health Law Research- Evidence Briefs	Temple University and the Robert Wood Johnson Foundation	Population-based policies; Physical and mental health and housing
Cochrane Reviews*	Cochrane Collaboration	Clinical preventive services; Physical health
Promising Practices Network	RAND Corporation	Community-based programs; Child and adolescent physical and mental health, school success, juvenile justice and poverty
Top Tier Evidence*	Coalition for Evidence-Based Policy	Community-based programs; Early childhood, education, employment/ training, youth development, crime/ violence, health care, obesity, substance abuse, housing
What Works Clearinghouse	Institute for Education Sciences, US Department of Education	Community-based programs; Education
Campbell Library Systematic Reviews*	Campbell Collaboration Library	Community-based programs and population-based policies; Crime, education, social welfare

*Systematic review (comprehensive literature reviews that appraise and synthesize empirical evidence)

Glossary

Accountable Care Community (ACC) — A broadened concept of accountable care organizations (see below) that includes other entities, such as community-based prevention organizations, local health departments, or social service providers, in addition to health care providers, in the group held accountable for performance.[59]

Accountable Care Organization (ACO) — A network of providers that collectively assumes responsibility for the care of a defined patient population and shares in payer savings if set quality and cost performance metrics are met. The provider network may also be at risk and bear financial responsibility for spending that exceeds target metrics.

Backbone organization — Described as part of the Collective Impact Model, "backbone" organizations provide supporting infrastructure for collaborative efforts through meeting facilitation, fundraising, data collection and reporting, administration and communications support.[60]

Clinical preventive services — Prevention services provided to individual patients in a healthcare setting.

Community-based prevention programs — Prevention programs delivered in a community setting (such as home, school, child care, workplace, or neighborhood) to program participants as individuals, families or communities.

Community-Centered Health Homes — An emerging health model to bridge clinical services with community-based prevention programs and population-level policy strategies. A provider practice that addresses the factors outside the healthcare system that impact patient health outcomes by advocating for policy, system and environmental change.

Environmental change — Physical or material changes to the economic, social, or physical environment (such as water fluoridation, removing lead from paint, and improving the built environment with sidewalks and bike lanes).

Health — A state of complete physical, social, and mental wellbeing, and not merely the absence of disease or infirmity.[61]

Health disparities — Differences in health status among distinct segments of the population including differences that occur by gender, race or ethnicity, education or income, disability, or living in various geographic localities.[62]

Health equity — The absence of differences in health that are caused by social and economic factors. Achieving health equity means that all people have the opportunity to achieve their full health potential, with no one at a disadvantage because of social or economic circumstances.[63]

Health Impact Assessment (HIA) — A systematic process that uses an array of data sources and analytic methods, and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. An HIA provides recommendations on monitoring and managing those effects.[64]

Health promotion — The process of enabling people to increase control over, and to improve, their health.[65]

Health in All Policies — A collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy areas.[66]

Hospital community benefit requirements — Federal Internal Revenue Service requirements that nonprofit hospitals must meet to maintain their nonprofit status.

Indicated prevention — Prevention interventions targeted to high-risk individuals with increased vulnerability or early signs of a problem, disease, or condition.

Patient Centered Medical Home (PCMH) — A provider practice that receives additional payments in exchange for the delivery of care coordination services that are not currently provided or reimbursed.

Glossary (cont.)

Policy — Laws, regulations, rules, protocols, mandates, resolutions, and ordinances designed to guide or influence behavior. *Public* policy refers to legislative (laws, ballot measures), legal (court decisions), fiscal (government budgets), and regulatory actions (including administrative rules and executive orders). *Organizational* policy refers to internal standards and protocols established by public or private organizations, such as workplace or school wellness policies.

Policy, systems, and environmental change (PSEC) — Policy, systems, and environmental change is a way to modify the environment to make healthy choices practical and available to all community members.[67]

Population-based prevention policies — Policy change strategies designed to reach all residents of a geographic area or all people in a community setting (such as a school or workplace) in order to modify the environment to make healthy choices practical and available to all community members. See also, policy, systems and environmental change.

Population health — The health outcomes of a group of individuals, including the distribution of such outcomes within the group.[68] The field of population health focuses on the determinants of health (including medical care, public health interventions, social environment, physical environment, genetics, and individual behavior) and the policies and programs that influence those determinants and reduce health disparities among population groups.

Prevention — A systematic process that promotes healthy behaviors and reduces the likelihood or frequency of an incident, condition, or illness. Ideally, prevention addresses health problems before they occur, rather than after people have shown signs of disease or injury.[69]

Primary prevention — Efforts to prevent a disease, injury, or other heath problem from occurring in the first place.

Primordial prevention — An approach to prevention that targets underlying health determinants via modifying social policies so as to improve health in general.[70]

Public health — The science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society.[71] Public health organizations include government agencies at the federal, state, and local levels, as well as nongovernmental organizations that are working to promote health and prevent disease and injury within entire communities or population groups.

Quaternary prevention — The avoidance of unnecessary or excessive medical interventions. For the purposes of this publication, quaternary prevention is included within the category of treatment.

Secondary prevention — Efforts to detect health problems at an early stage and/or to slow or halt the progress of an existing disease, injury, or other problem.

Social determinants of health — 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. In addition to the social, economic, and physical conditions of a person's environment, social determinants also include patterns of social engagement and sense of security and well-being. Examples of resources that can influence (or, "determine") health outcomes include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.[72]

Selective prevention — Prevention activities targeted to specific populations with above-average risk for a problem.

Systematic review — A literature review that attempts to identify, appraise and synthesize all the empirical evidence that meets pre-specified eligibility criteria. Systematic reviews of randomized controlled trials are considered to the "gold standard" of evidence.

Glossary (cont.)

Systems change — Systems change involves change made to rules and practices within an organization, institution, or system (such as school, transportation, park, food distribution, or health care systems).

Tertiary prevention — Prevention activities targeted to the person who already has symptoms and seeks to reduce further complications, increasing pain, or death.

Treatment — What a health care provider does to relieve, reduce, or eliminate harm once it has become manifest in an ailment.[73]

Triple Aim — A term used to describe an approach for enhancing health system performance. The goals of the Triple Aim, as conceptualized by the Institute for Healthcare Improvement are: improve the patient experience of care, improve health of populations, and reduce the per capita cost of health care.[74]

Wellness — Wellness is the optimal state of health of individuals and groups. There are two focal concerns: the realization of the full potential of the individual physically, psychologically, socially, spiritually, and economically, and the fulfillment of one's role expectations in the family, community, place of worship, workplace and other settings.[75]

Universal prevention — Prevention activities that are directed at an entire population and are likely to provide some benefit to all.

Upstream prevention — Health improvement approaches that address the causes of health problems rather than just the symptoms. Upstream strategies often involve non-clinical/ community-based programs and policies that address the social determinants of health.

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