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The Imperative for Primary Prevention

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LEARNING OBJECTIVES

- Understand the importance of an up-front, primary prevention approach and be able to distinguish it from secondary prevention, tertiary prevention, and patient-provider education that occurs after the onset of illness and disease
- Conceptualize that primary prevention extends beyond the individual by improving health outcomes of entire communities
- Understand prevention as an upstream, or proactive, comprehensive solution
- Describe the six synergistic levels of the *Spectrum of Prevention* as a multifaceted and sustainable framework for achieving community change

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Some years ago, a prominent individual suffered a major heart attack across the street from the local county hospital. Although the initial prognosis was poor, the care provided by the hospital resulted in a quick and near-complete recovery. The county board of supervisors proudly emphasized the hospital's success during its next meeting. In the presence of the media, the supervisors congratulated key health officials on the outstanding care and treatment provided, noting in particular the high quality of the hospital staff, medical equipment, and training. As the proceedings were winding down, one supervisor asked, "But what about prevention? Do we have quality prevention?" Without missing a beat, the health director answered, "Yes." Pointing to a pile of brochures titled *Staying Heart Healthy*, he proclaimed, "We have these!"

This isn't an isolated case. Many aspects of health in the United States, from how resources are allocated to who has access to care, suffer from a lack of focus on prevention. Far too often, prevention is an afterthought (Cowen, 1987). The predominant approach to health and well-being in this country focuses on medical treatment and services—after the fact—for the many Americans who are sick and injured each year. Unfortunately, there is a lack of corresponding emphasis on quality community prevention efforts, those that prevent people from getting sick and injured *in the first place*. Furthermore, prevention is often relegated to a message in a brochure or to a few moments during a medical visit. Such approaches are not quality prevention efforts. Human behavior is complicated, and awareness of a health risk does not automatically lead to taking protective action (Ghez, 2000).

Effectively addressing the range of health and social problems of the twenty-first century requires a fundamental paradigm shift that generates equity for the most vulnerable members of society and maximizes limited resources. This paradigm shift results in moving from medical treatment after the fact to prevention in the first place—and from targeting individuals to moving toward a comprehensive community focus. The imperative for this shift in thinking is best described by the psychologist and noted prevention advocate George Albee (1983), who noted that "no mass disorder afflicting mankind is ever brought under control or eliminated by attempts at treating the affected individual" (p. 24).

This chapter moves prevention beyond brochures by presenting an alternative to the dominant individual-based prevention and treatment model. We begin by defining *primary prevention* and offering recent and historical examples of prevention successes, demonstrating that prevention is the basis of public health and that prevention works. We then make the case for primary prevention, emphasizing that prevention supports the health care infrastructure, is an effective use of health care resources, and assists those most in need by decreasing disparities in health. Finally, we describe the six complementary levels of the *Spectrum of Prevention*, which provide a multifaceted and sustainable framework for achieving community change.

MOVING UPSTREAM WITH PRIMARY PREVENTION

In a 2002 speech to the Commonwealth Club in San Francisco, Gloria Steinem observed, "We are still standing on the bank of the river, rescuing people who are drowning. We have not gone to the head of the river to keep them from falling in. That is the twenty-first-century task." Steinem's remark refers to a popular analogy, "moving upstream," which is used to highlight the importance and relevance of primary prevention (Ardell, 1977/1986).

MOVING UPSTREAM

While walking along the banks of a river, a passerby notices that someone in the water is drowning. After pulling the person ashore, the rescuer notices another person in the river in need of help. Before long, the river is filled with drowning people, and more rescuers are required to assist the initial rescuer. Unfortunately, some people are not saved, and some victims fall back into the river after they have been pulled ashore. At this time, one of the rescuers starts walking upstream. "Where are you going?" the other rescuers ask, disconcerted. The upstream rescuer replies, "I'm going upstream to see why so many people keep falling into the river." As it turns out, the bridge leading across the river upstream has a hole through which people are falling. The upstream rescuer realizes that fixing the hole in the bridge will prevent many people from ever falling into the river in the first place.

The act of "moving upstream" and taking action before a problem arises in order to avoid it entirely, rather than treating or alleviating its consequences, is called primary prevention. The term *primary prevention* was coined in the late 1940s by Hugh Leavell and E. Guerney Clark from the Harvard and Columbia University Schools of Public Health, respectively. Leavell and Clark described primary prevention as "measures applicable to a particular disease or group of diseases in order to intercept the causes of disease before they involve man . . . [in the form of] specific immunizations, attention to personal hygiene, use of environmental sanitation, protection against occupational hazards, protection from accidents, use of specific nutrients, protection from carcinogens, and avoidance of allergens" (Goldston, 1987, p. 3). Although Leavell and Clark's definition is mostly disease-oriented, the applications of primary prevention extend beyond medical problems. These include the prevention of other societal concerns that affect health and well-being and that range from violence to environmental degradation. Primary prevention efforts are proactive by definition and should generally be aimed at populations, not just at individuals. Returning to the

upstream analogy, fixing the hole in the bridge will benefit not only those at greatest risk of falling in but everyone who crosses the river—as well as the rescuers on the riverbank and those who help pay for rescue costs.

Leavell and Clark further identified two other degrees of prevention termed *secondary* and *tertiary prevention*. Secondary prevention consists of a set of measures used for early detection and prompt intervention to control a problem or disease and minimize the poor health consequences, while tertiary prevention focuses on the reduction of further complications of an existing disease or problem, through treatment and rehabilitation (Spasoff, Harris, & Thuriaux, 2001).

Leavell and Clark's "overarching concept of prevention," described in Exhibit 1.1 through the example of childhood lead poisoning, actually refers to three distinctive activities that might be better termed "prevention, treatment, and rehabilitation" (Goldston, 1987, p. 3). As noted by Albee (1987, p. 12), "all three forms of preventive intervention are useful and defensible." However, whereas primary prevention alone is not enough to address pervasive health and social problems, it remains the foremost method we can employ in order to eliminate future health and social problems. Albee goes on to note that "any reduction in incidence [of disease] must rely heavily on proactive efforts with large groups, and such actions involve primary prevention approaches" (p. 12).

EXHIBIT 1.1 THREE LEVELS OF PREVENTION FOR CHILDHOOD LEAD POISONING

Lead poisoning occurs when the body absorbs too much lead by breathing it in or swallowing it. Children are exposed to lead primarily through the lead-based paint that is frequently found in older homes and through soil that has been previously contaminated by lead-based paint. Lead affects nearly every system in the body and in high enough quantities can cause irreversible neurocognitive damage in developing children under six.

Primary Prevention

Data from the National Health and Nutrition Examination Survey (NHANES) showed that blood lead levels in children younger than thirteen years of age declined nearly 90 percent from 1976 to 2002 (Jacobs, Wilson, Dixon, Smith & Evens, 2009). This dramatic decrease is attributed to population-based environmental policies that banned the use of lead in gasoline, paint, drinking-water pipes, and food and beverage containers. The decrease in blood lead level from 1990 to 2000 is associated with trends in housing demolition and substantial housing rehabilitation (Jacobs, Wilson, Dixon, Smith & Evens, 2009). Primary prevention is the only way to reduce the neurocognitive effects of lead poisoning (Lee & Hurwitz, 2002).

Secondary Prevention

Lead-level screening programs for at-risk children are followed by the treatment of children with high levels and removal of lead paint from households. Screening can prevent recurrent exposures and the exposure of other children to lead by triggering the identification and remediation of sources of lead in children's environments (New York State Department of Health, 2004).

Tertiary Prevention

Tertiary prevention refers to the treatment, support, and rehabilitation of children with lead poisoning who manifest complications of the disease. Lead chelation of the blood and soft tissues of exposed individuals can reduce morbidity associated with lead poisoning. Chelation can reduce the immediate toxicity associated with acute ingestion of lead but has limited ability to reverse the neurocognitive effects of chronic exposure (Lee & Hurwitz, 2002).

THE HISTORY OF EFFECTIVE PREVENTION EFFORTS

In practice, primary prevention involves policies and actions that fix the metaphorical holes in the bridge that lead to sickness and injury. Primary prevention works to reduce the ailments that would otherwise require treatment.

One well-known and very successful modern example of primary prevention is the National Minimum Age Drinking Act of 1984, which required all states to raise the minimum age to purchase alcohol to twenty-one or risk losing major transportation funding. The National Highway Traffic Safety Administration (NHTSA) estimates that as a result of minimum-drinking-age laws, 18,220 lives were saved between 1975 and 1999 (U.S. Department of Transportation, 1999), and 4,242 people between eighteen and twenty years old were saved between 2004 and 2008 (NHTSA, 2009).

This law is far from the first example of primary prevention. In fact, public health has always been founded on prevention. The first public health measures were vast environmental improvements aimed at keeping entire populations healthy. *The Sanitary Conditions of the Labouring Population of Great Britain*, a seminal report published in 1842 by the English civil servant Edwin Chadwick, noted that widespread preventive measures were necessary to preserve the health of England's workforce (Duffy, 1990). Initial public health efforts focused primarily on improving water supplies, refuse and sewage disposal, housing, ventilation, disinfection, and general cleanliness in a community (Vetter & Matthews, 1999). Labor, housing standards, and other health regulations were also developed during this period in an effort to curtail disease and premature death (Duffy, 1990).

What many experts recognize as the seminal event of the prevention movement was a simple but exceptionally effective action taken by John Snow, a physician, during

England's 1854 cholera outbreak. Cholera spreads rapidly, causing diarrhea, vomiting, and, if untreated, eventual death from dehydration. During the 1854 outbreak, five hundred people from an impoverished section of South London died within a ten-day period as a result of the disease. Many people needed treatment. However, instead of just treating his patients individually, Snow, who is credited with some of the initial investigative work in epidemiology for his work during an earlier cholera outbreak, also decided to "move upstream" and locate the source of the problem (Summers, 1989).

By studying the trends of the particular outbreak, Snow mapped the origin to a specific water pump on Broad Street. He used the information he had collected about the source of cholera to prevent its spread. Instead of warning locals not to drink water from the contaminated pump or attempting to treat the water for drinking, Snow took his initial efforts a step further and had the pump's handle removed to prevent new cases of cholera from the pump (Summers, 1989).

Snow's story illustrates the importance of taking environmental factors into account when diseases or other problems occur in a community and the importance of also displaying the common sense associated with prevention.

EXAMPLES AND CHALLENGES OF PRIMARY PREVENTION

Actions like Snow's are behind many public health successes. Many injuries have been averted and lives saved by such primary prevention measures. In addition to the minimum-drinking-age law, recent examples of primary prevention include the following:

- **Antismoking legislation**. California's aggressive antitobacco effort under Proposition 99 has resulted in 33,000 fewer deaths from cardiovascular disease in the first three years (Kuiper, Nelson, & Schooley, 2005).
- **Routine immunizations**. As childhood immunizations against diphtheria, tetanus, pertussis (whooping cough), polio, measles and tuberculosis have become increasingly routine, an estimated 2.5 million young lives are being saved every year. (UNICEF, 2009).
- **Water fluoridation**. Water fluoridation has been effective in reducing tooth decay by 50 to 60 percent (Centers for Disease Control and Prevention, 2009).
- **Motorcycle helmet laws**. Motorcycle helmet laws, enacted in six states (California, Maryland, Nebraska, Oregon, Texas, and Washington) since 1989, have successfully reduced motorcycle fatalities by an average of 27 percent in the first year (NHTSA, 2008b). On the other hand, states that have weakened their motorcycle helmet laws since 1997 to cover only those under a specific age showed an average increase in fatalities of more than 50 percent in the first year (NHTSA, 2008b).

These examples provide compelling evidence that primary prevention is effective. But despite this evidence, there is resistance to primary prevention. Unfortunately, primary prevention is often treated as if it were a distraction from the real and urgent pressure to meet the needs of those who are presently ill.

Why is this the case? One reason is that until prevention efforts succeed, it is generally difficult to conceptualize what prevention looks like. Meanwhile, the need to provide treatment services to affected individuals is clear. Thus it is easy to understand that someone who experiences domestic violence may need counseling and other supportive services, but harder to understand how to change whole populations to prevent occurrences of domestic violence before they begin.

We can learn how to overcome obstacles and to create effective prevention initiatives by studying previous successes. Most prevention efforts, including those mentioned in this chapter, were at their initiation viewed as "impossible." The first antismoking advocates routinely heard "You're crazy!" and "That will never work!" as they attempted to pass no-smoking laws for restaurants and public places. Indeed, in light of the powerful tobacco industry and the skepticism of the general public, the passage of no-smoking laws seemed ambitious at best. Today, however, we often take for granted what once seemed impossible. Many (but certainly not all) public spaces are smoke-free, from airplanes to hospitals and increasingly bars and restaurants (Loftus, 2002).

Another common but unfounded criticism is that the impact of primary prevention is invisible: How can we know if an illness or injury has been prevented or simply did not occur? Although prevention is often difficult to quantify on an individual level, when viewed in aggregate at the population level, the significant impact of prevention becomes immediately quantifiable. Consider the impact that mandatory use of seat belts and infant and child safety seats has had in the primary prevention of death and injury from automobile crashes. Between 1978 and 1985, every state, beginning with Tennessee (see box about Dr. Robert Sanders in Chapter Six for more on these efforts), passed laws requiring safety seats for child passengers (Harvard Injury Control Research Center, 2003–2006). Between 1975 and 2008, mandatory car seat use resulted in the prevention of close to eight thousand deaths and injuries in the United States (NHTSA, 2009).[1] Early prevention at the community level has a substantial impact.

THE CASE FOR PRIMARY PREVENTION

Primary prevention offers the hope of eliminating unnecessary illness, injury, and even death. Nearly 50 percent of annual deaths in the United States—and the impaired quality of life that frequently precedes them—are preventable in part because they are attributable to external environmental or behavioral factors (McGinnis & Foege, 1993; McGinnis, Williams-Russo & Knickman, 2002; Mokdad, Marks, Stroup, & Gerberding, 2004; Thorpe, Florence, & Joski, 2004). A focus on primary prevention can reverse this current trend by

converting some of the resources used to treat injuries and illnesses into efforts that effectively prevent them in the first place.

According to the noted public health expert Henrik Blum (1981), medical care and interventions "play key restorative or ameliorating roles. But they are predominantly applied only after disease occurs and therefore are often too late and at a great price" (p. 43). Despite the widely held belief in the United States that the state of being healthy is derived primarily from health care, Blum notes that, in reality, there are four major determinants of health: environment, heredity, lifestyle, and health care services. Of these four, Blum found that "by far the most potent and omnipresent set of forces is the one labeled 'environmental,' while behavior and lifestyle are the second most powerful force" (p. 43).

HEALTH CARE NEEDS PREVENTION

"Simply put, in the absence of a radical shift towards prevention and public health, we will not be successful in containing medical costs or improving the health of the American people," noted then-Senator and Presidential Candidate Barack Obama (2008). Although they are often viewed as an after-the-fact add-on to treatment, primary prevention strategies are a natural complement to medical care and treatment. As the capacity of the U.S. health care system approaches a breaking point (Cooper, Getzen, McKee, & Prakash, 2002), prevention becomes even more critical. This is demonstrated in Exhibit 1.2. A systematic investment in prevention decreases the burden on the health care system, translating into higher-quality care and treatment services for those truly in need.

EXHIBIT 1.2 TRANFORMING THE U.S. HEALTH CARE SYSTEM INTO A HEALTH SYSTEM

A U.S. health system that addresses health along a continuum beginning with prevention is vital to improving population health. Most major diseases and conditions are largely preventable. Thus, primary prevention could support healthy development and minimize the risk of a lifetime of treatment for injury and chronic disease. A system that values and promotes disease prevention would help to contain mounting health care costs. Medical treatment is critical, but it is not enough to keep people healthy in the first place.

Why a Comprehensive Approach to Health Through Prevention Is Needed

- Health and wellness are determined by far more than what occurs in the hospital and doctor's office. Despite high levels of spending, access to health care—although vital to the U.S. population and economy—does not affect

health status as much as one might expect. In fact, access to care is estimated to contribute only to 10 percent of individuals' health outcomes (McGinnis, Williams-Russo & Knickman, 2002). Meanwhile, behavioral factors account for 40 percent; genetic predispositions, 30 percent; social circumstances, 15 percent; and toxins and infectious agents, 5 percent (McGinnis, Williams-Russo & Knickman, 2002).

- Current health care spending is rising alarmingly. In 2007, the U.S. spent $2.2 trillion on health care, approximately $7,421 per person. This amount was more than twice as much as most other industrialized countries (Centers for Medicare and Medicaid Services, 2008). The percentage of gross domestic product (GDP) devoted to health care expenditures in the United States has risen from 7.2 percent in 1970 to 16.3 percent in 2007. Projected spending may reach 20.3 percent of GDP by 2018 (Centers for Medicare and Medicaid Services, 2008).
- The health care system is prone to making avoidable mistakes. Medical errors and hospital-acquired infections cause more deaths than AIDS, breast cancer, firearms, diabetes, and auto accidents combined; recent estimates place the number of annual deaths attributable to medical error at 195,000 and the number attributable to hospital infections at 103,000 (American College of Emergency Physicians, 2004).
- Treatment costs will continue to rise unless incidences of disease and injury are reduced. Since the 1960s, major advances in heart attack treatment have occurred and death rates from coronary heart disease have declined (Brown, 2009; Lloyd-Jones et al., 2010). During the same period, the costs for treating heart attacks increased from $5,700 in 1977 to $54,400 in 2007 (without adjusting for inflation) (Brown, 2009). Providing greater access to medical care will do little to reduce these costs but instead will increase associated medical payments for treatments (Brown, 2009). Although advances in medical treatment may extend someone's life by years, his or her quality of life and levels of productivity are not guaranteed. Health promotion and disease prevention could reduce outright the burden of illness, acute events, injury, and their sequelae.

PRIMARY PREVENTION HELPS THOSE MOST AT RISK

> All members of a community are affected by the health status of its least healthy members.
>
> —*Institute of Medicine, 2002, p. 37*

The burden of illness and lack of access to care in the United States is not borne equally across the population. Both frequency of illness and quality of care are often a reflection

of socioeconomic status, ethnicity, and race (Agency for Healthcare Research and Quality, 2000). According to the Centers for Disease Control and Prevention (CDC), "The demographic changes that are anticipated over the next decade magnify the importance of addressing disparities in health status" (2006). A greater proportion of the total U.S. population will experience poorer health status; therefore, since we are all cared for by the same system—and so share limited resources—the future health of America will be influenced substantially by our success in improving the health of members of these relatively less healthy groups. A national focus on disparities in health status is particularly important as major changes unfold in the way in which health care is delivered and financed.

African Americans, Hispanics, American Indians, Alaska Natives, and Pacific Islanders consistently face higher rates of morbidity and mortality, and compelling evidence indicates that race and ethnicity correlate with persistent and often increasing health disparities compared to the U.S. population as a whole. Research has now shown that after adjusting for individual risk factors, differences remain in health outcomes among various communities (PolicyLink, 2002). Primary prevention can serve to eliminate underlying health disparities through its upstream population focus; as Albee (1996) notes, "Logically, prevention programs should include efforts at achieving social equality for all" (p. 1131). For example, improving access to healthy foods in order to prevent the onset of diabetes due to poor nutrition for at-risk individuals in a community would result in positive health benefits for other community members as well.

Furthermore, inequalities affect entire societies, not just those who disproportionately share the burden of disease. Wilkinson and Pickett (2009) present a compelling argument for the ways in which income inequality is correlated with worse health outcomes in unequal societies. The fact that some people earn higher incomes than others does not protect them from the corrosive effects of income inequality; in other words, everyone suffers from inequality. Wilkinson and Pickett report that psychosocial factors, including stress, anxiety, shame, self-deprivation, among others, prevail in societies where a social gradient exists. Moreover, countries with greater income inequality have greater rates of homicide, conflict in childhood (for example, bullying), substance abuse, imprisonment, teenage pregnancies, and obesity. Quality of life also suffers for all, as countries with greater differences between "haves" and "have nots" are more likely to have citizens who are less likely to trust one another. Unfortunately, the United States is among the worst of unequal societies. The richest 20 percent in the United States earn more than 8 times what the poorest 20 percent earn. Moreover, the U.S. states with greater income inequality have residents with worse health status. States with more difference in the incomes of the very wealthy and the very poor have a larger population of people who are sicker. If there were even a 1 percent redistribution of income from the richest to the poorest, this move toward equity could improve death rates for all (Berkman & Kawachi, 2000).

PRIMARY PREVENTION IS A GOOD INVESTMENT

Currently, health care spending is growing at an unsustainable rate driven up by rising costs and a growing burden of disease. The costs are bankrupting families and small businesses, putting corporations and industry at a competitive disadvantage, and straining public resources. The long-term solution must involve both cost containment and reduced demand for services. However, of the more than $2.2 trillion in health care spent nationally every year, fewer than four cents of every dollar are spent on prevention and public health (Lambrew, 2007). Table 1.1 lays out specific cost savings associated with different forms of primary prevention.

Table 1.1 A lesson in responsible spending

	Every $1 invested in:	Produces savings of:
Government	Water fluoridation	$37.24 in communities with more than 20,000 people (Griffin, Jones, & Tomar, 2001).
	High-quality preschool programs	$16.41 from averted crime, remedial services, and child welfare services (High/Scope Educational Research Foundation, 2005).
	Breastfeeding support by employers	$3 in reduced absenteeism and health care costs for mothers and babies, and improved productivity (United States Breastfeeding Committee, 2002).
	Women, Infants, and Children (WIC) services	$2.91 in Medicaid for newborn medical care (Buescher, Larson, Nelson, Lenihan, 1993).
Community	Child safety seats	$41.52 in direct medical and other costs to society (Children's Safety Network, 2005).
	Bicycle helmets	$30 in direct medical and other costs to society (National Highway Traffic Safety Administration, 2008a).
	California Tobacco Control Program	$50 in total personal health care spending (Lightwood, Dinno, & Glantz, 2008).
	Walking and biking trails	$2.60 in direct medical costs of physical inactivity (Wang et al, 2004).
	Physical activity programs for older adults	$4.50 on hip fractures (National Governors Association, 2009).
	Worksite wellness programs	$15.60 in reduced absenteeism (Aldana, Merrill, Price, Hardy, Hager, 2005).
	Family- and school-based addiction prevention programs	$10 in employer and community benefit (Iowa State University News Service, 2009).

(*Continued*)

Table 1.1 (*Continued*)

	Every $1 invested in:	Produces savings of:
Clinical	The seven-vaccine routine childhood immunization schedule	$16.50 in direct medical and other costs to society (Zhou et al., 2005).
	The chickenpox vaccine	$4.37 in direct medical costs and other costs to society (Zhou, Ortega-Sanchez, Guris, Shefer, Lieu, & Seward, 2008).
	Screening and brief counseling interventions for alcohol misuse among pregnant women	$4.30 in healthcare costs (Fleming et al., 2002).
	Hospital needlestick prevention program	$6.20 in medical and associated costs (Hatcher, 2002).
	Vaccinations for older adults	$2.44 in hospitalization costs due to influenza (Maciosek, Solberg, Coffield, Adwards & Goodman, 2006).
	Hospital program (handwashing promotion, education of staff) to prevent the spread of infection	$6.00 in hospital medical costs (Macartney, Gorelick & Manning, 2000).

Primary prevention has a track record of improving health and reducing costs and has the potential to save more lives if applied comprehensively and strategically. A landmark 2008 study, *Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities*—produced through a partnership between Trust for America's Health, the New York Academy of Medicine, the Urban Institute, The California Endowment, the Robert Wood Johnson Foundation, and Prevention Institute (2008)—validates that prevention saves money. The study demonstrates that investments of $10 per person per year in programs to increase physical activity, improve nutrition, and prevent tobacco use could save the country more than $16 billion in annual health care costs within five years. Out of the potential $16 billion in savings, Medicare could save more than $5 billion, Medicaid could save more than $1.9 billion, and private payers could save more than $9 billion. Furthermore, the return on investment for prevention is substantial; for every $1 invested in community-based prevention, the return amounts to $5.60 in the fifth year. Prevention investments result in savings for both public and private health care payers.

Prevention can also help improve productivity and competitiveness. Good health is fundamental to broad-based economic sustainability. In order to remain competitive with other countries, the United States needs a healthy workforce and, because employers are the

main purchasers of health insurance for workers, health care costs must remain within the range of other industrialized nations. The United States has the highest per capita health care spending in the world, nearly double the spending in Switzerland, which has the next highest. In recent years, many companies have moved their operations overseas, laying-off thousands of workers in the process, in part, to be spared the burden of skyrocketing health care costs. Comprehensive year-round health programs have the potential to yield cost savings of $3 for every $1 spent (University of Michigan Health Management Research Center, 2000). By adopting worksite wellness programs—with elements such as fitness classes, stress management, ergonomic equipment policies, and on-site farmers' markets (at over 20 Kaiser Permanente sites in California)—companies have improved employee health and productivity, while reducing employee absenteeism and the business costs associated with poor health conditions. As Safeway's Chief Executive Steve Burd notes, "If we can create a health care plan that contains costs or drives them down, that improves the health of the employee and extends their life, and avoids catastrophic illness and doesn't cost them any more money, why would anybody quarrel with that plan?" (Colliver, 2007).

MAKING HEALTH MANLY

"Health matters are women's matters." "Only women pamper their bodies." There is substantial evidence, at least in the United States, that asking for help and caring for one's health are widely considered to be the province of women (Courtenay, 2000c). Collective beliefs and assumptions such as these are what social scientists refer to as *social norms* (Berkowitz, 2003) or *subjective norms* (Ajzen, 2001).

Given the existence of these norms, it is not surprising that in most Western industrialized countries, women are the greatest consumers of health-related products and services. Women are often first to take responsibility, not only for the health and well-being of themselves and their offspring, but also for the health of men. This helps explain why single men have the greatest health risks—and why the benefits of marriage are consistently found to be greater for men than for women (who can suffer substantial stress in caring for their spouses) (Courtenay, 2000a).

Ultimately, men need to take greater responsibility for their own health. But here is the problem: men receive strong social prohibitions against doing *anything* that women do (Courtenay, 2000c).

Men and boys who engage in behaviors representing feminine gender norms risk being perceived as "wimps" or "sissies." Consequently, men often seek to prove their manhood by *actively rejecting* doing anything that women do—and this includes caring for their health (Courtenay, 2000b). Not surprisingly, there is solid

evidence that masculinity is associated with health behavior and even predicts mortality (Courtenay, 2003).

Of course, many men *are* concerned about their health. But as long as men believe that their peers are unconcerned about *their* health, they will be less likely to attend to their own health needs. What this means is that for men to change, social norms will have to change.

Results of a survey of more than five hundred men on one U.S. college campus indicated that these men believed most (55 percent) of their peers were either not at all concerned or only a little concerned about their health. In reality, only 35 percent of the men were unconcerned about their health; most (65 percent) reported being either somewhat or very concerned (Courtenay, 2004). Dissemination of these data could promote the more accurate norm that men at this particular college are indeed concerned about their health.

A similarly effective way to change social norms is for prominent members of a particular group to account for how they became involved in their health. Research shows that people can be persuaded to behave in ways they believe credible, influential colleagues or peers want them to behave (Petty, Wegener, & Fabrigar, 1997). Perhaps then men will begin to see health and well-being as *human* concerns and recognize that following good health habits can be manly as well as lifesaving.

Source: Courtesy of Will Courtenay.

PUTTING PRIMARY PREVENTION INTO PRACTICE

Communities are addressing increasingly complex social and health problems, from HIV to violence to diabetes. Practitioners face the challenge of devising new services and programs in response to these issues, yet the commitment to preventing them in the first place lags. Prevention initiatives and efforts often focus on changing individual behaviors alone while ignoring the societal context surrounding them. An effective prevention strategy to respond to these challenges must target not just individual behaviors but also the environment in which they occur. Primary prevention requires a shift from a focus on programs to a focus on more far-reaching prevention initiatives and from a focus on the individual to a focus on the environment.

Far more than simply air, water, and soil, the term environment refers to the broad social and environmental context in which everyday life takes place. According to Dorfman, Wallack, and Woodruff, "many health and social problems are related to conditions outside the immediate individual's control. A focus limited to personal behavior change ultimately fails us as a society because it narrows the possible solutions inappropriately . . . Personal

choices are always made in the context of a larger environment. Prevention can address both ends of the spectrum" (2005, pp. 328–329).

The importance of an integrated, multifaceted approach to prevention is also recognized by the Institute of Medicine, which concluded in its 2000 report *Promoting Health*, "It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change (Institute of Medicine, 2000, p. 4). It is therefore essential for a successful prevention initiative to be comprehensive; it must address the environmental as well as individual factors that influence health in a community.

How do we craft comprehensive solutions? *The Spectrum of Prevention*[1] offers a systematic framework for developing effective and sustainable primary prevention programs (see Figure 1.1). The six levels of the Spectrum allow practitioners to move beyond the common "brochures as prevention" approach by defining a variety of areas in which prevention can be implemented. The levels of the Spectrum are complementary. When used together, each level reinforces the others, leading to greater effectiveness. According to Ottoson and Green (2005), "one of the lessons of successful efforts in community-based health information has been that activities must be coordinated and mutually supportive across levels and channels of influence, from individual to family to institutions to whole communities. This is the lesson of an ecological understanding of complex, interacting, community program components and the causal chains by which they affect outcomes" (p. 53).

To illustrate, let's use the example of breastfeeding. Breastfeeding is beneficial for boosting an infant's immune system and is also considered one of the best forms of nutrition for infants (Reynolds, 2001). A century ago, nearly 100 percent of babies were breastfed. Despite slight increases in recent years, today only 17 percent of women adhere to the recommended guidelines of exclusively breastfeeding a child for a full six months after

Figure 1.1 The spectrum of prevention

The Spectrum of Prevention
Influencing policy and legislation
Changing organizational practices
Fostering coalitions and networks
Educating providers
Promoting community education
Strengthening individual knowledge and skills

birth (Wolf, 2003). Rates have declined dramatically over the past century for a number of reasons, including lack of accommodations for working mothers who are breastfeeding, social mores about the acceptability of breastfeeding in public, and the development and marketing of baby formulas as a primary source of infant nutrition (Wolf, 2003). As more evidence becomes available to clinicians, breastfeeding is again being promoted in order to improve the public's health.

The cultural context surrounding breastfeeding, however, is still a significant barrier in the United States. As sociologist Joan Retsinas noted, "While it is known that breastfeeding is better, our society is not structured to facilitate that choice" (quoted in Wright, 2001, p. 1). Groups like the Women, Infants and Children's (WIC) Program funded by the U.S. Department of Agriculture to improve birth outcomes and early childhood health have prioritized breastfeeding for low-income women and children through nutritional support programs (Ahluwalia & Tessaro, 2000).

Making progress requires more than simply helping mothers with the skills to successfully breastfeed. Creating and maintaining widespread social norms for breastfeeding is critical. This requires activities along each level of the Spectrum of Prevention.

The first level of the Spectrum, *strengthening individual knowledge and skills*, emphasizes enhancing individual skills that are essential in healthy behaviors. Clinical services are one common opportunity for delivering these skills, although there are many avenues of importance. Individual skill building is essential to the success of breastfeeding for new mothers. Women need support before and after their child is born in order to successfully initiate and maintain breastfeeding. Often an ob-gyn, presenting expectant parents with information on the benefits of breastfeeding for themselves and their infants, can have an early influence on the decision to breastfeed. In-hospital support, round-the-clock hotlines, and lactation counselors help troubleshoot the challenges a mother encounters and motivate her to continue in her breastfeeding commitment.

The second level of the Spectrum, *promoting community education*, entails reaching people with information and resources in order to promote their health and safety. Typically, many health education initiatives focus on developing brochures, holding health fairs, and conducting community forums and events. Such onetime exposures can be a valuable element of a broader campaign but often don't have a big impact. We need to understand that today the mass media are the primary sources of education for almost everyone. Although there have been creative efforts to use the media to improve health, the massive expenditures of corporations far overshadow public health efforts in the mass media. As Ivan Juzang (2002) of MEE Productions points out, word of mouth can be a powerful and effective tool. It's the best advertising money can't buy. Creating positive word of mouth allows your prevention message to live on, even after a formal campaign is over, as community members take ownership of the message and begin to initiate their own activities that support it.

Educating a larger community about the benefits of breastfeeding helps create community environments that encourage breastfeeding and view it as normal. Posters have

been used in health care settings to signal the value of breastfeeding. One example of a large-scale community media campaign is the one coordinated by the U.S. Department of Health and Human Services and the Ad Council (U.S. Department of Health and Human Services, Office of Women's Health, 2001).

Locally, the news media can provide rich—and free—opportunities to emphasize public health. A great example of this was the Berkeley, California, Public Health Department's event to enter the *Guinness Book of World Records* by bringing together the largest number of breastfeeding mothers in history (BBC News, 2002).

Advocates also cite corporate advertising as one of the roadblocks in encouraging social change toward increased breastfeeding. Manufacturers often idealize the use of formula for infant nutrition by touting convenience; Derrick Jellife coined the term *commerciogenic malnutrition* to describe the impact of industry marketing practices on infant health ("Baby Milk Action," n.d.). A resulting boycott, and the media attention it engendered, created large-scale awareness that the decline in breastfeeding was not simply a matter of unfettered individual choice.

The third level of the Spectrum is *educating providers*. Because health care providers are a trusted source of health-related information, they are a key group to reach with strategies for prevention. Similarly, teachers and public safety officials are often identified as key groups to reach with new information and methods. The notion of who is a provider should be approached more broadly, however, and extends beyond the "usual suspects" to include faith leaders; postal workers and other public servants; business, union, and community leaders; and cashiers—and anyone who is in a position to share information or influence others.

Because of their contact with expectant mothers, a first place to start is with the ob-gyn and pediatric staff. Maternity staff have been trained that a good practice is to encourage breastfeeding within a half hour of birth. In California, Riverside County's Nutrition Services Department has created a marketing team modeled on pharmaceutical company representatives that visit prenatal and pediatric care providers to supply them with educational materials, displays, takeaway cards, and training to ensure they have the resources necessary to help their patients choose to breastfeed their babies and continue to do so. An additional approach is the involvement of business leaders who can assist mothers in transitioning back into the workplace. Training includes helping business leaders understand their role when mothers return to work and how to set up facilities that allow breastfeeding in the workplace. Another innovative model of provider education, developed in some African American communities, involves sharing information about the benefits of breastfeeding with beauty shop employees and their clients, who in turn share it with their neighbors (Best Start Social Marketing, 2003).

Level four of the Spectrum, *fostering coalitions and networks*, focuses on collaboration and community organizing. Fostering collaborative approaches brings together the participants necessary to ensure an initiative's success and increase the "critical mass" behind a community effort. Coalitions and expanded partnerships are vital in successful

public health movements, including breastfeeding promotion. The metaphor of a jigsaw puzzle is appropriate, with each piece having value but taking on a greater significance when all the pieces are put together in the right way. Collaboration is not an intrinsic outcome like the other levels of the Spectrum, but rather a tool used to achieve an objective. Often the best way to ensure a comprehensive strategy is to build a diverse coalition.

Collaborations may take place at several levels: at the community level grassroots partners may work together in community organizing; at the organizational level nonprofits may work together to coordinate the efforts of business, faith, or other interest groups; and at the governmental level different sectors of government may link with one another. Typical partnerships include elements of all three. In health fields, interdisciplinary and intergovernmental partnerships are probably less common than collaborations between community-based organizations and grassroots efforts, which hold enormous promise for advancing the work of primary prevention (Cohen, Baer, & Satterwhite, 2002). Often the best way to ensure a comprehensive strategy is to build a diverse coalition. *Eight Steps to Effective Coalition Building* (Cohen et al., 2002) is a framework that guides advocates and practitioners through the process of coalition building, from deciding whether or not a coalition is appropriate to selecting the best membership and conducting ongoing evaluation.

An important objective of coalition building is to identify and work toward goals that can have greater impact on the community overall than any coalition participant might achieve alone. A key part of leadership, then, is finding an interest common to most or all groups and facilitating work toward achieving vital shared goals.

Returning to our example, collaboration between organizations and the fostering of coalitions are vital in the promotion of breastfeeding. To effect not only individual behavioral changes but social norm changes as well, leadership is needed from health experts, grassroots advocates, social service workers, politicians, business groups, and the media. On the international level, a broad collaboration of community members around the world led to the effective challenge of corporations promoting infant formula ("Challenging Corporate Abuses," 1993). At the local level, building on public knowledge of the importance of breastfeeding and engaging the business and medical community led to changes in the organizational practices of businesses and hospitals.

The fifth level of the Spectrum, *changing organizational practices*, deals with organizational change from a systems perspective. Reshaping the general practices of key organizations can affect both health and norms. Such change reaches the members, clients, and employees of the company as well as the surrounding community and serves as a model for all. Changing organizational practices is easier than changing policy in many cases, so can serve as the testing ground for policy change. Government and health institutions are key places to make change because of their role as standard setters. Other critical arenas include media, business, sports, faith organizations, and schools. Nearly everyone belongs to or works in an organization, so this approach gives collaborators an immediate place to initiate change surrounding a particular issue.

Two key areas for changing organizational practices that support breastfeeding are the Baby-Friendly Hospital Initiative and workplace policies around maternity leave and lactation support. As part of the Baby-Friendly Hospital Initiative, participating hospitals provide an optimal environment for the mother to learn the skills of breastfeeding, including allowing mothers to keep their newborns in the same room rather than in the hospital nursery, and encouraging initiation of breastfeeding within a half hour after birth. These hospitals stop the standard practice of sending mothers home with discharge packs that include artificial baby formula. This initiative has resulted in significant increases in breastfeeding initiation rates (Phillip et al., 2001).

For mothers who work, breastfeeding can be difficult unless their employers adopt policies that facilitate breastfeeding. Such organizational policies include allowing enough maternity leave to solidly establish breastfeeding practices and designing environments that make it easier for mothers to pump and store breast milk while at work. Media portrayals of breastfeeding as normal, as opposed to portraying breasts as almost entirely sexualized, could also facilitate breastfeeding.

The sixth level of the Spectrum, *influencing policy and legislation*, has the potential for achieving the broadest impact across a community. Policy is the set of rules that guide the activities of governmental or quasi-governmental organizations. Policy thus sets the foundation or framework for action. By mandating what is expected and required, sound policies can lead to widespread behavioral changes on a communitywide scale that may ultimately become the social norm. Over the course of the past several years, major health improvements have occurred as a result of policy changes, including a reduction in diseases associated with cigarette smoking, a decrease in workplace and roadway accidents due to dramatically greater use of safety equipment, and reductions in lead poisoning.

Although policy is frequently thought of as either state or federal, evidence indicates that highly effective prevention policy can be developed on the community level and that local policy development is integral to the success of prevention programs (Holder et al., 1997). As a result, sound policies can lead to widespread behavior change on a communitywide scale. As noted by the Municipal Research and Services Center of Washington (2000), "Policy making is often undervalued and misunderstood, yet it is the central role of the city, town, and county legislative bodies."

Using our breastfeeding example, policies that support breastfeeding mothers include laws mandating maternity leave and requiring workplaces to make accommodations for employees who breastfeed. Additional legislation at the state level can help modify the existing structure of a system in order to promote the healthier choice for a mother and her newborn infant. A California policy proposed in 2004 would have provided comprehensive education about infant feeding options to new mothers and would have banned the marketing of infant formulas in California hospitals. However, despite widespread support, the bill failed to receive adequate votes for passage.

Local, state, and federal policies are still needed to protect a woman's right to breastfeed in public and to encourage and achieve adequate nutrition for our society's children in

their earliest years of life. Although many barriers to breastfeeding exist, the sixth level of the Spectrum is an essential piece to achieving such social change.

One reason the Spectrum can be a powerful tool for prevention is that it is helpful in designing efforts that change norms. Norms shape behavior and are key determinants of whether our behaviors will be healthy or not. More than habits, often based in culture and tradition, norms are regularities in behavior to which people generally conform (Ullmann-Margalit, 1990).

Typically, the tipping factor for normative change requires efforts at the broadest levels of the Spectrum to change organizational practices or policies, because such actions change the community environment. (The other elements of the Spectrum are usually important also, contributing to and building on this momentum for change.) As Schlegel (1997) points out, policy change can trigger norm change by altering what is considered acceptable behavior, encouraging people to think actively about their own behavior, and providing relevant information and a supportive environment to promote change. The emergence of new social norms occurs when enough individuals have made the choice to change their current behavior.

Norm change regarding smoking behaviors is probably the most frequently cited example of this tipping factor and makes the importance of interplay between elements of the Spectrum visible. After the Surgeon General's report in 1964 found that smoking harms health—and after numerous reports of research implied that secondhand smoke was risky (*promoting community education*)—local communities formed coalitions to shape policy in restaurants, public places, and workplaces (*influencing policy*). The ensuing policy controversy received media attention that explained the law and that explained why smoking is risky (*promoting community education*), and the newfound attention led to more requests for training for health and civic leaders (*educating providers*). Doctors started to change their practices. More offered stop-smoking clinics and warned patients about the dangers of smoking (*strengthening individual knowledge and skills*). Once passed, the implementation of the policy required changing organizational practices to comply with the policy. This led to training, conducted by coalition partners for government employees, restaurateurs, and business owners. This spurred an increase in people wanting to quit, and quit-smoking clinics became busier. As the number and extent of policies grew, momentum built for further changes. "What's next?" asked policymakers and enterprising reporters. And the process started again. Policies were adopted that banned vending machines, boosted tobacco taxes, and forbade smoking in bars and public recreation areas. Individual choice still exists, and people still behave according to their own personal preferences. What has changed is society's perception about what is acceptable smoking behavior. This shift in the social norms changes the preference and improves the health of millions.

A well-designed strategy, while seizing opportunities that may arise, always considers a variety of levels of the Spectrum. Also, data and evaluation are key. They are not levels of the Spectrum because they are not inherently outcome-related activities, but they are critical in informing and enhancing the Spectrum strategy.

HUMAN RIGHTS FRAMEWORK AND PRIMARY PREVENTION

Vivian Chávez

Human rights are basic standards without which people cannot survive and develop in dignity. They are inherent to the human person, inalienable and universal. A human rights framework is central to health equity. A human rights framework declares that all people deserve to be treated with dignity, compassion, and support, wherever they are on the Spectrum of Prevention.

Learning about human rights can put power in people's hands to achieve social change by knowing their human rights and claiming them. Every woman, man, youth and child has the human right to the highest attainable standard of physical and mental health, without discrimination of any kind. Human rights relating to health are set out in basic human rights treaties and include:

- The human right to the highest attainable standard of physical and mental health, including reproductive and sexual health.
- The human right to equal access to adequate health care and health-related services, regardless of sex, race, or other status.
- The human right to equitable distribution of food.
- The human right to access to safe drinking water and sanitation.
- The human right to an adequate standard of living and adequate housing.
- The human right to a safe and healthy environment.
- The human right to a safe and healthy workplace, and to adequate protection for pregnant women in work proven to be harmful to them.
- The human right to freedom from discrimination and discriminatory social practices, including female genital mutilation, prenatal gender selection, and female infanticide.
- The human right to education and access to information relating to health, including reproductive health and family planning to enable couples and individuals to make their own responsible decisions about all matters of reproduction and sexuality.
- The human right of the child to an environment appropriate for physical and mental development.

Adapted from UNICEF, *Convention on the Rights of the Child* (http://www.unicef.org/crc/index_framework.html), and *The Human Right to Health: The People's Movement for Human Rights Education* (http://www.pdhre.org/rights/health.html)

CONCLUSION

Former U.S. Surgeon General David Satcher (2006) once explained, "There is still a big gap between what we know and what we do, and that gap is lethal. When it comes to the health of our communities, we must never be guilty of low aim." We cannot afford to aim low because our own well-being and that of our friends, families, and communities is at stake. We are getting seriously injured and ill unnecessarily far too often. When seeking care to address these ills, we are not served optimally by the health care system. This is especially the case for those most in need, but increasingly for all of us, the system does not perform adequately.

Prevention is necessary to address this situation. Through high-quality prevention, we can create community environments that foster good health. Prevention is our best hope for reducing unnecessary demand on the health care system. Healthy environments also provide optimal support for people who are injured or ill to heal and recover their health. Chronic disease among members of the American population is on the rise, new communicable disease threats have appeared, and former Surgeon General Richard Carmona has predicted that due to chronic diseases related to poor eating habits and physical inactivity, the current generation of children may be the first generation whose life expectancies will be lower than those of their parents (U.S. Department of Health and Human Services, 2004). Effective prevention strategies are needed to reverse these alarming trends.

Some people say that the easy problems have been solved. In fact, until they were solved, none of them were easy. But, in retrospect, we can understand the key elements that made past problems solvable. The problems we face today are, in fact, made easier by what we have learned through earlier prevention efforts. Applying these lessons to emerging health concerns is vital as public health leaders help communities flourish in the current century.

DISCUSSION QUESTIONS

1. The text mentions tobacco-free legislation, routine immunization, water fluoridation and motorcycle helmet laws as compelling evidence that primary prevention is effective. Can you name other primary prevention examples?
2. How might you implement the six *Spectrum of Prevention* levels to address poor nutrition and physical inactivity in your community? How could you ensure that your chosen activities are synergistic?
3. How would you make the case to a decision maker about the importance of investing in primary prevention? What evidence would you cite? What examples?

NOTE

1. The *Spectrum of Prevention* was originally developed by Larry Cohen in 1983 while working as director of prevention programs at the Contra Costa County Health Department. It is based on the work of Marshall Swift (1975) in preventing developmental disabilities.

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