
A Legal Framework for Preventing Cardiovascular Diseases

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Abstract: Cardiovascular diseases are major contributors to death, disability, disparities, and reduced quality of life in the United States. Successful prevention and control of these diseases requires a comprehensive approach applied across multiple public health settings and in all life stages. Individual lifestyle and behavior change, as well as the broader social, environmental, and policy changes that enable healthy lifestyles, are necessary. Legal strategies can be powerful tools in this endeavor. This review presents seven such strategies applicable at the federal, state, and local levels that can be employed by healthcare providers, public health practitioners, legislators, and other policymakers. They include direct regulation, economic incentives and disincentives, indirect regulation through private enforcement, government as information provider, government as direct provider of services, government as employer and landlord, and laws directed at other levels of government. These strategies may be accomplished through legislation or administrative changes in practices or procedures. Effective use of these strategies requires a broader understanding of the advantages and limitations of legal frameworks and the importance of tailoring strategies to local conditions and resources. Examples of key roles that health professionals can play in advancing such an understanding are presented. (Am J Prev Med 2005;29(5S1):139–145) © 2005 American Journal of Preventive Medicine

Introduction

Heart disease and stroke, the principal components of cardiovascular disease (CVD), rank first and third among the leading killers in the United States.¹ Moreover, CVD disproportionately influences certain populations, and thus plays a role in health disparities.² Increasingly, environmental and policy changes are recognized as crucial in the efforts to prevent and control CVD. The Centers for Disease Control and Prevention (CDC) and its partners have promoted the development of public health strategies to combat CVD and have identified four broad goals: (1) prevention of risk factors, (2) detection and treatment of risk factors, (3) early detection and treatment of heart attack and stroke, and (4) prevention of recurrent cardiovascular events.³

Achieving these goals will require changes in individual behavior and modifications to the broader social and physical environment. For example, the major modifiable risk factors for CVD are directly affected by individual behaviors.³ However, individuals' decisions concerning their behaviors that affect CVD are all

made against the backdrop of the physical and social environment.⁴ For example, exercise may depend on how easy or hard it is to walk or bike in one's neighborhood,⁵ along with actual or perceived risk of crime in that neighborhood, and a healthy diet may depend on the ease of access to nutritious food.⁶ Similarly, increased detection, treatment, and control of CVD will require a combination of changed behavior and changed institutional and social conditions.

One technique for achieving some of the desired policy goals is changing the law. Law can be a potent tool for redirecting both private and government activities, and well-designed legal interventions can be an important part of improving public health.⁷ Laws have been shown to be effective in reducing the burden of a variety of public health problems, including alcohol-related motor vehicle crashes, micronutrient deficiency diseases, and exposure to environmental tobacco smoke.^{8,9} The impact of laws on these problems suggests roles for a comprehensive legal strategy for the prevention of CVD.^{4,9}

This paper proposes a conceptual overview of legal strategies for addressing the public health burden of CVD. We first identify and describe seven basic legal strategies by which government can intervene to improve public health. Although these strategies involve "law" in the broadest sense of government action, not all necessarily require legislative changes. Some may be accomplished through administrative changes in prac-

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tices or procedures. Examples of specific applications of these strategies are provided. We conclude by discussing important considerations for public health practitioners and others regarding the use of law and legal strategies to prevent CVD in the United States. The goal of this paper is to set forth a conceptual framework that can be used to identify possible legal strategies. Once identified, individual strategies must be reviewed and tested for efficacy, but the framework can help expand the range of possible approaches.

Legal Strategies for Improving Public Health

In the United States, governments at all levels (federal, state, and local) are recognized as possessing authority, albeit with limits, protect the health, safety, and general welfare of the people.¹⁰ There is a long history of government intervention to improve public health.¹¹ Government may bring to bear the full range of governmental powers and authority of the sort that it routinely exercises. This includes the power to impose criminal and civil regulatory requirements, the power to create standards for private liability, and taxing and spending authority.¹² We present in this article seven basic strategies that draw on these powers for improving the prevention and control of CVD.

Direct Regulation

The most obvious technique of government intervention is direct regulation. Whether framed as mandates that require particular conduct or as prohibitions that specify only what people must not do, direct regulation imposes standards of conduct for businesses and individuals. Enforcement may be through civil remedies, such as licensing requirements, or through criminal sanctions. Direct regulation is used extensively to improve public health by protecting and modifying the environment. One example is regulation of food products and requirements for labeling; another example is the imposition of standards that require real estate developers to include open space or pedestrian facilities in their projects. In addition to laws that target conduct affecting the environment, direct regulation also may be used to target individual behaviors that directly impact individuals' health and safety. Examples of this type of regulation include laws requiring the use of seat belts, motorcycle helmets, and mandatory vaccinations.

An important advantage of direct regulation is that if behaviors are particularly desirable or undesirable, they can be directly required or prohibited. Requiring that private entities or actors take specific steps or precautions is sometimes the most economically efficient mechanism to improve public health. For example, the costs of prohibiting hazardous releases into the water supply may be substantially less than those associated

with purification after contamination already has occurred. In addition, aside from economic efficiency, some forms of direct regulation may allow government to shift to private entities some of the costs that government might otherwise incur.

There are several disadvantages to direct regulation. First, such requirements are the most coercive form of government intervention, and may be controversial when the primary beneficiary is the individual who is being coerced (as in the case of motorcycle helmet laws), particularly within a culture that highly values individual autonomy. Less controversial are coercive measures aimed at protecting others, such as efforts to ban smoking in public places. In that example, the focus shifts from protecting smokers themselves to protecting nonsmokers from the dangers of second-hand smoke. Second, direct regulation is not always economically efficient and, because it sometimes may shift costs onto private entities, government may have less incentive to ascertain whether the public benefit is really sufficient to warrant imposition of private costs. Finally, direct regulation requires government enforcement, which can itself be intrusive and costly. Enforcement can be particularly expensive when the mandate requires complex behavior that is difficult to monitor.

The strategy of direct regulation can be used in several ways to address CVD prevention. First, laws can be enacted and enforced to reduce the impact of CVD risk factors, such as tobacco smoke exposure. Upon applying this approach, many jurisdictions have prohibited smoking in restaurants or other public places, as for example in Helena, Montana, where hospital admissions for heart attacks declined 40% after implementation of a ban on smoking in workplaces.¹³ Second, direct regulation may be used to address "environmental conditions favorable to health" by modifying features of the physical environment.³ For example, zoning and building requirements can require commercial developers to install streetscape and pedestrian facilities and to orient buildings so as to enhance pedestrian accessibility. Similarly, residential developers can be required to install not only sidewalks, but also active recreation facilities for the residents of the developments.¹⁴ Further, dietary interventions can be enhanced by requiring food providers to include clearer nutrition labeling.¹⁵ Third, direct regulation regarding insurance coverage mandates may improve the diagnosis and treatment of chronic CVD and contributory risk factors (e.g., mandated coverage for nutrition counseling and for weight-reduction programs).

Economic Incentives and Disincentives

Government also may alter private behaviors through the use of economic incentives or subsidies that encourage some behaviors and discourage others by altering the costs to private parties of particular actions and

decisions. Incentives and subsidies are widely used in the U.S. economy. The tax code is replete with incentives, from home mortgage deductions to tax credits for ethanol-using vehicles. Subsidies and incentives are also widely used in connection with health issues. For example, employer-provided health insurance is not taxed as income to employees, thereby making it more valuable as a fringe benefit and more likely to be provided. Increased sales taxes on cigarettes are used to discourage smoking. Economic subsidies are used not only as incentives to change behavior, but also to enhance the resources of particular individuals and to ensure that they can secure basic needs such as food, housing, and medical care. Government programs intended to do this include food stamps, housing subsidies, and medical insurance programs.

Economic incentives or subsidies have several advantages. By encouraging without requiring particular conduct, they are less intrusive into individual autonomy than are mandates and prohibitions. In addition, they can be targeted to augment, without completely supplanting, the private market, and thus allow responsiveness to individual conditions. However, they also have disadvantages. First, they can raise serious equity issues: taxes and price increases can disproportionately affect the poor, whereas tax deductions can disproportionately advantage the wealthy. Second, incentives can have perverse effects. For example, although raising the price of health insurance for individuals who are overweight or have high blood pressure might encourage them to alter behavior,^{16,17} it also might make it more difficult for those who most need health insurance to procure it. Likewise, taxing “snack-size” servings might have the effect of encouraging packaging in larger sizes with the result that people consume more than a single serving. Finally, the effectiveness of such programs may turn on the price responsiveness of the targeted behaviors and practices and on the size of the incentive. Small grant programs or relatively narrowly tailored tax incentives can provide a vehicle for legislators to act, but may have relatively limited impact if the program is small, diffuse, and not well publicized.

There are a variety of ways that incentives and subsidies could be used to decrease CVD and its risk factors. The government could offer incentives for developers and building owners to enhance pedestrian, bicycling, and fitness facilities¹⁸; to provide workplace programs on health, fitness, nutrition, and smoking cessation¹⁹; and to construct grocery stores in underserved areas.²⁰ It could also offer increased incentives for individuals to walk, bike, or take public transportation rather than drive, and it could adjust Medicaid and Medicare provider payment rates for preventive care²¹ and obesity treatment.²² In addition, subsidies can themselves include incentives. For example, in South Dakota severely obese enrollees in the government-run health insurance program must participate in weight-

loss programs or face a reduction in their insurance benefits.²³

However, the South Dakota example illustrates some of the potential problematic aspects of using economic incentives—those most in need of health care may lose their benefits, and there are serious issues of equity, human dignity, and autonomy raised when needed recipients of government subsidies are targeted in this way.

Indirect Regulation Through Private Enforcement

Government can regulate conduct directly, but it can also do so indirectly through the liability rules that apply in private lawsuits, primarily for tort or breach of contract, brought by individuals. The risk of private lawsuits and accompanying damage awards provide an incentive to individuals and businesses to reshape their conduct. Law shapes and delineates these risks by providing the rules for liability and the level of damages. There are, however, significant disadvantages. Outcomes of tort cases can be unpredictable, turning on the vagaries of the jury system or, as in the majority of cases, on privately negotiated (and usually confidential) settlements. In addition, enforcement through the tort system can be both slow and highly burdensome to those involved. As a result, the tort system may be a relatively imprecise system for targeting and discouraging inappropriate behavior.²⁴ Tort liability also can have unintended consequences. Indeed, some current tort law rules may be discouraging certain health-benefiting conduct: for example, some fitness facilities have not installed automatic external defibrillators (AEDs) because of concerns about lawsuits resulting from incorrect or unsuccessful use within the facilities.²⁵

Opportunities to use changes in tort liability to prevent CVD may be limited and even tenuous. One approach would be first to identify areas in which fear of litigation may be discouraging desirable behavior, and then to change the law to provide greater protection or immunity. Another approach would be to identify practices that contribute to the CVD burden, and seek to impose liability for these practices. Thus, tort liability based on the model of the tobacco litigation might be used to encourage restaurants to provide healthier food alternatives.²⁶ However, proving individual causation (i.e., that the conduct of the particular defendant caused the plaintiff's health problems) could be quite difficult. Moreover, as highlighted by the proposed “Personal Responsibility in Food Consumption Act,”²⁷ there is some risk of backlash if private plaintiffs recover what may be viewed as monetary windfalls arising from their personal choices regarding food consumption.

Government as Information Provider

Government can be an important source of information about health, and can use information campaigns to discourage risky behavior and encourage healthier choices.²⁸ Moreover, law plays a key role in these campaigns by providing the funding and sometimes delineating the allowable scope of the message. Information can be part of a broader strategy to alter the social environment. Public information campaigns attempt to persuade, but are generally less coercive than either mandates or economic incentives. As a result, they may be seen as less intrusive than other possible strategies. Nonetheless, there are at least three potential difficulties associated with information campaigns. First is the issue of efficacy, since behaviors associated with CVD turn on a complex interplay of factors involving personal choice, social expectations, and the environment, and information alone may be insufficient to cause change. Second, to the extent that an information campaign attempts to alter behavior by associating that behavior with an undesirable or unhealthy personal attribute, the campaign may increase guilt or stigma associated with the attribute.^{11,29} For example, an information campaign that urges people to exercise and lose weight in order to prevent heart disease could have the unintended consequence of creating the view that those with heart disease are to “blame” for their own health status. Finally, any government efforts to alter individual preferences and to construct social meaning can raise concerns about the line between information and propaganda.

In addition to community-level information campaigns, government also can target individuals through programs such as school-based screening for body mass and blood pressure, followed by specific information about each individual’s particular health risks and needs. However, because screening raises potential issues of discrimination both in the targeting of individuals for testing and in what is done with the information,¹¹ screening is likely to be beneficial only where there is broad public acceptance and a reasonable likelihood of behavioral change as a result of the screening.

Government-provided or -supported information can help to reduce the CVD burden through, for example, campaigns to encourage walking and other forms of active recreation,³⁰ to provide diet and nutritional information, and to encourage parents to ensure that their children exercise adequately. Information also can teach people to recognize risk factors for and symptoms of CVD in themselves and others. Finally, information campaigns can help to educate people about the need to obtain training in basic and advance life support. Schools are an important vehicle for communicating health information. Moreover, schools offer the opportunity to go beyond traditional instruc-

tion and model healthy behavior through the food and fitness programs offered. In addition to school-based programs, studies suggest that point-of-decision prompts, such as signs recommending taking the stairs, and community-wide campaigns can be effective informational strategies.²⁸

Government as Direct Provider of Facilities and Services to the Public

Governments provide a broad range of facilities, infrastructure, and services that directly affect the public health environment and medical care. Some of this basic infrastructure—such as roads, sidewalks, parks, and schools—can be designed to encourage healthy behaviors. In addition, government can provide clinical and preventive services, as well as critical emergency response services. Government also may purchase services that directly benefit individuals, such as through Medicare programs that reimburse medical providers to the elderly and the disabled. An important underlying policy choice with respect to this strategy is whether it is preferable for government itself to provide the service or facility, or whether this role should be left to the private sector.

The legal strategy with respect to direct provision of government facilities or services can focus on access and quality. Relevant legal strategies therefore include ensuring that some percentage of funding appropriated for transportation is devoted to building and maintaining sidewalks and bike paths, changing design guidelines so that the roads do not discourage or interfere with pedestrians and bikers, upgrading 911 services to improve response time, and facilitating use of public parks to promote preventive behaviors.³¹

Government as Employer and Landlord

In addition to providing public infrastructure and services, government also performs many functions that are comparable to most private businesses. Government employs millions of workers and occupies numerous buildings and facilities. The steps that government takes in its role as employer and facilities manager not only affect its employees and customers, but also provide an important model to private enterprise of the successful implementation of such programs. Policies that government implements in its capacity as employer and facilities manager include banning smoking in and around all of its buildings,³² offering healthy food choices in its cafeterias,³³ providing showers and bike racks to encourage nonautomotive transportation, including stairs that are an easy alternative to elevators,³⁴ and offering on-site fitness and weight-loss programs.

One advantage of this strategy is that many of these policies can be implemented through administrative action without legislative changes. On the other hand,

administrators may view such changes as peripheral to their core missions. Thus, even a local recreation agency committed to improving biking facilities for the general public may be reluctant to expend scarce resources to increase the number of its employees who bike to work. However, such reluctance is not insurmountable, and there are programs that provide useful models. For example, the CDC has undertaken a study to assess and improve the pedestrian accessibility of its facilities. Similarly, the General Services Administration's Good Neighbor and Sustainable Design programs seek to place new federal buildings in locations that will enhance the community, and to design such buildings to be environmentally sensitive. These programs could be expanded to a "Healthy Buildings" program aimed at ensuring that workplaces are more conducive to cardiovascular health.

Laws Directed at Other Levels of Government

Within the U.S. system of government, there are multiple levels of law—federal, state, and local. Many of the public health approaches to preventing CVD will need to be addressed at the state and local levels, and the legal interventions will similarly need to focus on state and local laws. One technique to facilitate change at these levels is first to seek changes at a higher level. For example, although drunk driving is a problem regulated directly by state law, federal law encouraged changes in state drunk driving laws by linking the receipt of federal transportation monies to states' adopting a 0.08 blood alcohol level into their drunk driving laws. Similarly, the Medicaid and State Children's Health Insurance Program (SCHIP) programs, which serve tens of millions of low-income children, adults, and elderly, provide federal funds to match those put up by states for a wide range of medical services. State Medicaid agencies have the ability, within legal bounds set by the federal and state governments, to provide specific preventive health services, including services targeted at detecting, preventing, and treating heart attack and stroke.

One advantage of this approach is practical—it allows those seeking legal changes throughout the country to focus on a single effort at the federal level rather than having to pursue change one state at a time. One change in federal law can then provide the framework for change nationwide. A drawback is that a federal policy may be less responsive to unique local situations. Moreover, to the extent that these measures tie money to specific outcomes, there is some risk that states that have the furthest to go to achieve those outcomes will be at greatest risk of losing federal assistance.

Summary and Conclusions

Prevention and control of CVD are more likely to be successful if approached comprehensively, taking into account multiple public health settings and across all life stages. The goal is to achieve individual lifestyle and behavioral change as well as the broader social, environmental, and policy changes that will make choices regarding healthy lifestyle easier. Law and legal frameworks can be powerful tools in this endeavor. Specific examples from the seven key strategies covered in this paper and their limitations are presented in Table 1. These strategies can be applied at the federal, state, and local levels and, ideally, can be employed by healthcare providers, public health practitioners, legislators, and other policymakers.

The legal strategies described in this paper are not mutually exclusive and any particular goal may be addressed using more than one strategy. For example, one policy recommendation of the American Heart Association (AHA) Guide is to "equip high-density public locations and locations in which high-risk activities take place with AEDs."³⁵ All seven strategies outlined in this paper might be used to accomplish this goal. First, government might use the command model and mandate the installation of AEDs in some buildings or facilities. Second, it might use economic incentives such as a tax credit to encourage, without requiring, their installation. Third, government might enable the use of tort law to provide incentives by granting a cause of action to a person who suffered a myocardial infarction in a building in which a defibrillator was not available. Fourth, government might simply provide information about the devices, and thereby encourage their use. Fifth, government itself might purchase and install the devices in private buildings. Sixth, it might install AEDs in government offices and facilities. Finally, Congress might make receipt of certain federal money conditional on state or local governments taking steps to increase the availability of AEDs. Although some of these strategies would require legislative action, others—such as installing AEDs in some government facilities—may be implemented by administrative action or policy decisions at the individual agency level.

Effective use of these strategies to achieve public health goals requires a broader understanding of the advantages and limitations of legal frameworks. Schools of medicine, nursing, and public health can facilitate achievement of such understanding by incorporating legal concepts within their core curricula, seminars, and courses. Practicing clinicians who are aware of the socioeconomic, environmental, and institutional barriers that patients and their families face can engage legislators and provide them with examples of potential solutions. Public health officials can provide key epidemiologic data about disease burden and trends as well as health and economic impacts.³⁶ These data can be crucial in educating policymak-

Table 1. Seven legal strategies for preventing CVD: examples of interventions and related issues

Legal strategy	Intervention for preventing CVD	Issues regarding strategy
Direct regulation	<ol style="list-style-type: none"> 1. Prohibition of smoking in entire work sites and public places 2. Insurance coverage mandates for essential CVD preventive services 3. Change zoning and land use laws to require more compact, pedestrian-oriented development 4. Require large insurers to develop health benefits packages that include preventive services 	<ol style="list-style-type: none"> 1. Often perceived as coercive government intervention 2. Enforcement of regulations may be expensive
Economic incentives and disincentives	<ol style="list-style-type: none"> 1. Incentives for developers to provide fitness centers and recreational facilities 2. Incentives for employees to walk, ride bicycles, or use public transportation rather than drive cars 3. Incentives to encourage full-service grocery stores in under-served areas 4. Increased sales tax on tobacco products 5. Economic incentives for obese people to participate in weight-reduction programs 	<ol style="list-style-type: none"> 1. Increased prices can disproportionately affect the poor; tax benefits can disproportionately benefit the wealthy 2. Disincentives can burden those in greatest need
Indirect regulation through private enforcement	<ol style="list-style-type: none"> 1. Tort liability, based on tobacco litigation model, to encourage restaurants to provide healthier food alternatives 2. Provision of legal protection or immunity for worksites and facilities that install AEDs 3. Imposition of liabilities on practices that contribute to the CVD burden 	<ol style="list-style-type: none"> 1. Increased tort liability might increase costs of malpractice insurance and deter physicians from entering some types of practice 2. Tort law rules may discourage certain health-promoting behaviors 3. Tort system slow, unpredictable, and expensive for litigants
Government as information provider	<ol style="list-style-type: none"> 1. Public campaigns to encourage physical activity targeted at various age groups 2. Public campaigns on benefits of proper nutrition, including fruit and vegetable intake 3. Public campaigns on signs and symptoms awareness and need to call 911 in CVD emergencies 4. Public campaigns encouraging training in basic and advanced cardiac life support and use of AEDs 5. Screening of major CVD risk factors and referral for care 6. Improved school curricula on health, nutrition, and physical activity 	<ol style="list-style-type: none"> 1. Information alone may not be effective 2. Efforts to associate behavior with health problems can increase guilt and stigma 3. Public screening may raise issues of labeling and discrimination
Government as direct provider of services	<ol style="list-style-type: none"> 1. Upgrading 911 services to improve response time 2. Government support of public health infrastructure and services that impact cardiovascular health or encourage healthy behaviors 3. Improved public sidewalks, parks, and recreation facilities 4. Improved physical education programs in public schools 	<ol style="list-style-type: none"> 1. Government may be an inefficient provider
Government as employer and landlord	<ol style="list-style-type: none"> 1. Prohibit smoking in and near all government facilities 2. More nutritious food options in government cafeterias 3. On-site health and fitness programming in government facilities 	<ol style="list-style-type: none"> 1. May be viewed as peripheral to core mission of agency
Law directed at other levels of government	<ol style="list-style-type: none"> 1. Condition receipt of federal transportation money on state and local improvements in pedestrian and bike facilities 2. Condition receipt of federal school lunch money on improved nutrition in schools 3. Condition receipt of federal education money on improved physical education programming and health education 4. Condition receipt of federal Medicare/Medicaid money on improved preventive medicine programs and requirements 	<ol style="list-style-type: none"> 1. Uniform federal requirements can be less responsive to local needs

AED, automatic external defibrillator; CVD, cardiovascular disease.

ers who are responsible for introducing appropriate legislation or undertaking administrative changes.³⁷

It is unrealistic to expect that all, or even most, of these legal changes in support of CVD prevention could be accomplished at once. Instead, CVD prevention requires the tailoring of legal strategies that target the most pressing issues for each particular state or local jurisdiction. For example, the strategy appropriate for Colorado, which has the lowest prevalence of obesity, may be different from that for states that have a high prevalence. Issues such as the nature of the built environment, the quality and availability of emergency and continuing medical care, and social patterns with respect to smoking, diet, and exercise, all may vary widely and warrant different responses in different locations.

In addition to tailoring legal strategies to local conditions, efforts to change the law should be approached as part of a broader strategy to influence the public's knowledge, attitudes, and behavior. Law can shape social attitudes, but it in turn is shaped by those attitudes. Legislators may not be willing to take the lead on an issue for which there is little social consensus, particularly if the legal mechanism involves compulsion or substantial cost. For example, in the fight against smoking, laws banning smoking in public places have come relatively late in the process. Thus, some changes in the law may need to await changes in social attitudes, although efforts to change the law can themselves be a part of a broader strategy of education and social change.

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References

1. National Center for Health Statistics. Health, United States, 2004. With chartbook on trends in the health of Americans. Hyattsville MD: National Center for Health Statistics, 2004.
2. Wong MD, Shapiro MF, Boscardin WJ, Ettner SL. Contribution of major diseases to disparities in mortality. *N Engl J Med* 2002;347:1585-92.
3. U.S. Department of Health and Human Services. A public health action plan to prevent heart disease and stroke, 2004. Available at: www.cdc.gov/cvh/Action_Plan/pdf/action_plan_full.pdf. Accessed September 12, 2005.
4. Parmet WE. The impact of law on coronary heart disease: some preliminary observations on the relationship of law to "normalized" conditions. *J Law Med Ethics* 2003;30:608-20.
5. Perdue WC, Gostin LO, Stone LA. Public health and the built environment: historical, empirical, and theoretical foundations for an expanded role. *J Law Med Ethics* 2003;31:557-66.
6. The Food Trust. Food for every child: the need for more supermarkets in Philadelphia. Available at: www.thefoodtrust.org/catalog/resource.detail.php?product_id=105. Accessed September 12, 2005.
7. Goodman RA, Rothstein MA, Hoffman RE, Lopez W, Matthews GW. Law in public health practice. New York: Oxford University Press, 2003.
8. Mensah GA, Goodman RA, Zaza S, et al. Law as a tool for preventing chronic diseases: expanding the spectrum of effective public health strategies: part 1. *Prev Chronic Dis* 2004;1. Available at: www.cdc.gov/pcd/issues/2004/jan/03_0033.htm. Accessed September 12, 2005.
9. Mensah GA, Goodman RA, Zaza S, et al. Law as a tool for preventing chronic diseases: expanding the spectrum of effective public health strategies: part 2. *Prev Chronic Dis* 2004;1. Available at: www.cdc.gov/pcd/issues/2004/apr/04_0009.htm. Accessed September 12, 2005.
10. Jacobson v. Massachusetts, 197 U.S. 11 (1905).
11. Gostin L. Public health law: power, duty, restraint. Berkeley: University of California Press and Milbank Memorial Fund, 2000.
12. Gostin, LO, Koplan JP, Grad FP. The Law and the public's health: the foundations. In: Goodman RA, Rothstein MA, Hoffman RE, Lopez W, Matthews GW, eds. Law in public health practice. New York: Oxford University Press, 2003:3-22.
13. Sargent RP, Shepard RM, Glantz SA. Reduced incidence of admissions for myocardial infarction associated with public smoking ban: before and after study. *BMJ* 2004;328:977-80.
14. McCaan BA, Ewing R. Measuring the health effects of sprawl: a national analysis of physical activity, obesity and chronic disease. Smart Growth America, Surface Transportation Policy Project, 2003. Available at: www.smartgrowthamerica.org/report/HealthSprawl8.03.pdf. Accessed September 12, 2005.
15. U.S. Food and Drug Administration. Calories count: report of the Working Group on Obesity, 2004. Available at: www.cfsan.fda.gov/~dms/owg-toc.html. Accessed September 12, 2005.
16. Fleming C. Costlier insurance may lie ahead for the overweight. *Wall Street Journal*, April 6, 2004, p. D-6.
17. U.S. Department of Health and Human Resources. Prevention: a blueprint for action. Appendix F-Incentives for healthy behavior, 2004. Available at: <http://aspe.hhs.gov/health/blueprint/appendixf.shtml>. Accessed September 12, 2005.
18. Improved Nutrition and Physical Activity Act, H.R. 716, S. 1172. 108th Cong., 1st Sess.
19. Agnvall E. Hill workout: health clubs lobby for tax breaks on dues. *Washington Post*, May 25, 2004, p. F-1.
20. Pennsylvania House of Representatives. News release: Evans announces supermarkets a priority in economic stimulus package. Philadelphia, PA, March 31, 2004. Available at: http://thefoodtrust.lightsky.com/catalog/download.php?product_id=59. Accessed September 12, 2005.
21. National Association of County and City Health Officials. Resolution on coverage of preventive services (Res. 03-06), September 9, 2003. Available at: <http://archive.naccho.org/documents/resolutions/03-06.pdf>. Accessed September 12, 2005.
22. U.S. Department of Health and Human Services. News release: HHS announces Medicare obesity coverage policy. Washington DC, 2004. Available at: www.hhs.gov/news/press/2004pres/20040715.html. Accessed September 12, 2005.
23. Mercer B. Insurance plans requires weight loss. *Aberdeen American News*, July 19, 2004, p. A-1.
24. Brennan T, Sox CM, Burstin HR. Relation between negligent adverse events and the outcomes of medical malpractice litigation. *N Eng J Med* 1996;335:1963-7.
25. Brown D. Lifesaving defibrillators are absent from most gyms. *Washington Post*, March 17, 2004, p. A-1.
26. Goldman JS. Take that tobacco settlement and super-size it! The deep-frying of the fast food industry? *Temple Political Civil Rights Law Rev* 2003;3:113-50.
27. H.R. 339, Personal responsibility in food consumption act. 108th Cong., 2d Sess., passed March 10, 2004.
28. Kahn EB, Ramsey LT, Brownson RC, Heath GW, et al. The effectiveness of interventions to increase physical activity. *Am J Prev Med* 2002;22:73-100.
29. Rutledge R. Obesity is a gut check. *Milwaukee Journal Sentinel*, July 12, 2004. Available at: http://findarticles.com/p/articles/mi_qn4196/is_20040712/ai_n10983349. Accessed September 12, 2005.
30. Reid TR. Move this way. *Washington Post*, July 20, 2004, p. F-1.
31. Goodman RA, Miller M. Public lands for the public's health. *Environ Law Rptr* 2003;13:10217-23.
32. Fighting fat in Arkansas. *The Economist*. June 12, 2004, p. 29.
33. Pressler MW. Catering to corporations: more institutional cafeterias are offering healthful choices. *Washington Post*, July 20, 2004, p. E-1.
34. Kerr NA, Yore MM, Ham SA, Dietz WH. Increasing stair use in a worksite through environmental changes. *Am J Public Health* 2001;18:312-5.
35. Pearson TA, Bazzarre TL, Daniels SR, et al. American Heart Association guide for improving cardiovascular health at the community level: a statement for public health practitioners, healthcare providers, and health policy makers from the American Heart Association Expert Panel on Population and Prevention Science. *Circulation* 2003;107:645-51.
36. Perdue WC, Stone LA, Gostin LO. The built environment and its relationship to the public's health: the legal framework. *Am J Public Health* 2003;93:1390-4.
37. Brownson RC. Epidemiology and health policy. In: Brownson RC, Petitti DB, eds. Applied epidemiology: theory to practice. New York: Oxford University Press, 1998:349-87.