

The Public's Health

Health is among the most important conditions of human life and a critically significant constituent of human capabilities which we have reason to value. Any conception of social justice that accepts the need for a fair distribution as well as efficient formation of human capabilities cannot ignore the role of health in human life and the opportunities that persons, respectively, have to achieve good health—free from escapable illness, avoidable afflictions and premature mortality. Equity in the achievement and distribution of health gets, thus, incorporated and embedded in a larger understanding of justice.

Amartya Sen, 2002

The readings in this chapter and the next examine the fields of public health and public health ethics. The first chapter contains classic readings that illuminate the core values of public health: prevention and the population-based perspective, the role of community and civic participation, the significance of social justice, and modern perspectives on the “public health system.” Chapter 2 then turns to contemporary explanations of public health ethics, examining how ethical principles and values can inform society about the justifiability of actions taken to safeguard the public's health and safety. The readings on public health ethics analyze the inevitable trade-offs between personal liberty and public health, and discuss the ethics of risk regulation.

I. PREVENTION AND THE POPULATION-BASED PERSPECTIVE

Public health interventions are designed to prevent or ameliorate injury, disease, and premature death among populations. This section offers

two foundational articles explaining the population-based focus of the field of public health. The article by Ali H. Mokdad and colleagues from the Centers for Disease Control and Prevention (CDC) is based on the groundbreaking work of J. Michael McGinnis and William H. Foege (1993), who described the major preventable causes of death in the United States. Mokdad and colleagues introduce readers to differences in the way causes of mortality are framed in medicine and public health.

Medical explanations of death, often in the form of code numbers from the International Classification of Disease (ICD) on death certificates, point to discrete pathophysiological conditions, such as cancer, heart disease, cerebrovascular disease, and pulmonary disease. The biomedical model of record keeping and the societal need to explain a cause of death with a discrete medical condition can distract the public from real contributors to mortality. In contrast, public health explanations examine the root causes of disease. Seen in this way, the leading causes of death are environmental, social, and behavioral factors. The statistics cited by Mokdad and colleagues demonstrate the magnitude of the mortality associated with preventable causes of death and the potential impacts of successful public health campaigns.

ACTUAL CAUSES OF DEATH IN THE UNITED STATES, 2000*

Ali H. Mokdad, James S. Marks, Donna F. Stroup, and Julie L. Gerberding

In a seminal 1993 article, McGinnis and Foege described the major external (nongenetic) modifiable factors that contributed to death in the United States and labeled them the “actual causes of death.” During the 1990s, substantial lifestyle pattern changes may have led to variations in actual causes of death. Mortality rates from heart disease, stroke, and cancer have declined. At the same time, behavioral changes have led to an increased prevalence of obesity and diabetes.

Most diseases and injuries have multiple potential causes and several factors and conditions may contribute to a single death. Therefore, it is a challenge to estimate the contribution of each factor to mortality. In this article, we used published causes of death reported to the [CDC] for 2000, relative risks (RRs), and prevalence estimates from published literature and governmental reports to update actual causes of death in the United States—a method similar to that used by McGinnis and Foege. . . .

RESULTS

The number of deaths in the United States in 2000 was 2.4 million, which is an increase of more than 250,000 deaths in comparison with the 1990 total, due largely

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TABLE 4. Actual causes of death in the United States in 1990 and 2000

Actual Cause	No. (%) in 1990*	No. (%) in 2000
Tobacco	400,000 (19)	435,000 (18.1)
Poor Diet and Physical Inactivity	300,000 (14)	400,000 (16.6)
Alcohol Consumption	100,000 (5)	85,000 (3.5)
Microbial Agents	90,000 (4)	75,000 (3.1)
Toxic Agents	60,000 (3)	55,000 (2.3)
Motor Vehicles	25,000 (1)	43,000 (1.8)
Firearms	35,000 (2)	29,000 (1.2)
Sexual Behavior	30,000 (1)	20,000 (0.8)
Illicit Drug Use	20,000 (<1)	17,000 (0.7)
Total	1,060,000 (50)	1,159,000 (48.2)

SOURCE: Mokdad et al. 2004, 1240, table 2.
*Data are from McGinnis and Foege 1993. The percentages are for all deaths.

to population growth and increasing age. Leading causes of death were diseases of the heart, malignant neoplasms, and cerebrovascular diseases. . . .

Tobacco

. . . A slight decline in smoking was observed from 1995-1999 to 2000. The prevalence of smoking in 1995-1999 was 22.8% for current smokers, 24.1% for former smokers, and 53.1% for never-smokers. In 2000, these estimates were 22.2% for current smokers, 24.4% for former smokers, and 53.4% for never-smokers. [Men were consistently more likely than women to be current or former smokers.]

We estimate that approximately 435,000 deaths were attributable to smoking in 2000, which is an increase of 35,000 deaths from 1990 [see table 4]. This increase is due to the inclusion of 35,000 deaths due to secondhand smoking and 1,000 infant deaths due to maternal smoking, which were not included in the article by McGinnis and Foege.

Poor Diet and Physical Inactivity

To assess the impact of poor diet and physical inactivity on mortality, we computed annual deaths due to overweight. [Increases in overweight and obesity have been reported frequently in recent years, and National Health and Nutrition Examination Surveys from 1999 and 2000 indicate that nearly 30% of Americans are overweight or obese.] . . .

. . . In 2000, the mean estimate of the total number of overweight-attributable deaths among nonsmokers or never-smokers was 543,797. [The estimate of overweight-attributable deaths increased 76.6% from 1991.]

The prevalence of overweight used in this study is based on data from 1999-2000. Because the effects of overweight on mortality may not appear until some years after a person becomes overweight, it is likely that the increase in prevalence of overweight in the 1990s overestimates the current actual number of deaths. However, the total number of deaths from the 1999-2000 data may well be the

expected number of deaths in the next few years. Thus, we believe a more accurate and conservative estimate for overweight mortality in 2000 [would be] 385,000, which is the rounded average of 2000 and 1991 estimates. . . .

[In addition to overweight-attributable deaths,] we estimate that poor diet and physical inactivity will cause an additional 15,000 deaths a year, although this too may be conservative.

We estimate that 400,000 deaths were attributable to poor diet and physical inactivity, an increase of one third from 300,000 deaths estimated by McGinnis and Foege, and the largest increase among all actual causes of death. However, poor diet and physical inactivity could account for even more deaths (>500,000) when the 1999-2000 prevalence estimates of overweight have their full effect. . . .

Alcohol Consumption

. . . In 2000, 18,539 deaths were reported . . . as alcohol induced. In addition, 16,653 persons were killed in alcohol-related crashes. We estimate another 34,797 deaths in 2000 using . . . alcohol consumption data and [relative risks for a number of alcohol-associated diseases]. This totals to 69,989 deaths in 2000 from these factors alone. . . .

Total alcohol-attributable deaths would reach about 140,000 if mortality among previous alcohol drinkers were included. It is unclear whether excess mortality among former alcohol drinkers is due to damage or illness from past alcohol consumption.

Taking these various numbers into account, our best estimate for total alcohol-attributable deaths in 2000 is approximately 85,000, based on the conservative estimate from cause-specific deaths and the high estimate using all-cause mortality. This is a reduction of 15,000 deaths from the 1990 estimates. . . .

Microbial Agents

. . . In the past, infectious agents were the leading cause of mortality. These agents still present a major threat to the nation's health and are associated with high morbidity. Several improvements in the health system have led to a decline in mortality from infectious diseases. The increase in US immunization rates led to a decline in mortality from many vaccine-preventable diseases. . . . There also have been substantial improvements in sanitation and hygiene, antibiotics and other antimicrobial medicines, and hospital-infection control.

In 2000, influenza and pneumonia accounted for 65,313 deaths, septicemia for 31,224, and tuberculosis for 776. In general, mortality from infectious and parasitic diseases has declined since 1990. Because pneumonia and septicemia occur at higher rates among patients with cancer, heart disease, lung disease, or liver disease, some of these deaths really are attributable to smoking, poor diet, and alcohol consumption. We estimate that approximately 75,000 deaths were attributable to microbial agents in 2000. . . . This contrasts with 90,000 deaths attributed to microbial agents in 1990 estimates. [These deaths caused by microbial agents do not include those from HIV/AIDS, which are included under "Sexual Behavior."]

Toxic Agents

. . . In the 1990s, many improvements were made in controlling and monitoring pollutants. There is more systematic monitoring of pollutants at state and county

levels, and exposure to asbestos, benzene, and lead have declined. In fact, the US Environmental Protection Agency reported a decline of 25% from 1970 to 2001 in 6 principal air pollutants: carbon monoxide, lead, ozone, nitrogen dioxide, sulfur dioxide, and particulate matter.

Toxic agents are associated with increased mortality from cancer, respiratory, and cardiovascular diseases. [We estimate] 24,000 deaths per year from air pollution alone.

The National Institute for Occupational Safety and Health (NIOSH) estimates that about 113,000 deaths are due to occupational exposure from 1968 to 1996 [with deaths declining during this period]. Although particulate air pollution accounts for the majority (about 60%) of mortality related to toxic agents, indoor air pollution, environmental tobacco smoke, radon, lead in drinking water, and food contamination are associated with increased mortality. We estimate that toxic agents (excluding environmental tobacco exposure) were associated with 2% to 3.5% of total mortality in 2000. We estimate approximately 55,000 deaths attributable to toxic agents in 2000. . . .

Motor Vehicles

Motor-vehicle crashes involving passengers and pedestrians resulted in 43,354 deaths in 2000. This decline from 47,000 deaths in 1990 represents successful public health efforts in motor-vehicle safety. Deaths from alcohol-related crashes declined from 22,084 in 1990 to 16,653 in 2000. Major contributing factors include the use of child safety seats and safety belts, decreases in alcohol-impaired driving, changes in vehicle and highway design, and national goals to reduce motor-vehicle-related mortality and injury. . . . Efforts to educate the public and enforce laws against driving while intoxicated have accounted for most of the decline in deaths related to motor-vehicle crashes.

Firearms

Firearm-related incidents resulted in 28,663 deaths among individuals in the United States in 2000. This is a decline from approximately 36,000 deaths in 1990. The largest declines were in deaths from homicides and unintentional discharge of firearms. In 2000, 16,586 deaths were due to intentional self-harm (suicide) by discharge of firearms. Assault (homicide) by discharge of firearms resulted in 10,801 deaths. Unintentional discharge of firearms resulted in 776 deaths, while discharge of firearms, undetermined intent, resulted in 230 deaths. The remaining 270 deaths were due to legal intervention. . . .

Sexual Behavior

Sexual behavior is associated with an increased risk of preventable disease and disability. An estimated 20 million persons are newly infected with sexually transmitted diseases each year in the United States. Mortality from sexually transmitted diseases is declining due to the availability of earlier and better treatment, especially for HIV. In 2000, HIV disease resulted in 14,578 deaths [a 48% decline from the 27,695 HIV deaths in 1990. In total,] we estimate that 20,000 deaths in 2000 were due to sexual behavior, [including deaths from HIV, hepatitis B and C, and cervical cancer].

Illicit Use of Drugs

Illicit drug use is associated with suicide, homicide, motor-vehicle injury, HIV infection, pneumonia, violence, mental illness, and hepatitis. An estimated 3 million individuals in the United States have serious drug problems. . . . In keeping with the report by McGinnis and Foege, we included deaths caused indirectly by illicit drug use in this category. . . . Overall, we estimate that illicit drug use resulted in approximately 17,000 deaths in 2000, a reduction of 3,000 deaths from the 1990 report.

Other Factors

Several other factors contribute to an increased rate of death. There are factors that we do not know of such as unknown pollutants or perhaps exposures that may cause a considerable number of deaths. Poverty and low education levels are associated with increased mortality from many causes, partly due to differential exposure to the risks described above. However, controlling for differential exposure to risk factors is unlikely to explain the entire impact on mortality. Lack of access to proper medical care or preventive services is associated with increased mortality. Biological characteristics and genetic factors also greatly affect risk of death. In most studies we reviewed, low education levels and income were associated with increased risk of cardiovascular disease, cancer, diabetes, and injury. The Healthy People 2010 initiative has made the elimination of health disparities, especially racial and ethnic disparities, a primary goal.

COMMENT

We found that about half of all deaths that occurred in the United States in 2000 could be attributed to a limited number of largely preventable behaviors and exposures. Overall, we found relatively minor changes from 1990 to 2000 in the estimated number of deaths due to actual causes. Our findings indicate that interventions to prevent and increase cessation of smoking, improve diet, and increase physical activity must become much higher priorities in the public health and health care systems.

The most striking finding was the substantial increase in the number of estimated deaths attributable to poor diet and physical inactivity[—which now stand at roughly 400,000 a year]. The gap between deaths due to poor diet and physical inactivity and those due to smoking has narrowed substantially. Because rates of overweight increased rapidly during the 1990s, we used a conservative approach to make our estimates, accounting for the delayed effects of overweight on mortality. . . . It is clear that if the increasing trend of overweight is not reversed over the next few years, poor diet and physical inactivity will likely overtake tobacco as the leading preventable cause of mortality.

The most disappointing finding may be the slow progress in reducing tobacco-related mortality. A few states, notably California, have had major success in programs that led to reducing deaths from heart disease and cancer. However, efforts in most other states are too recent or short-term to have a similar effect. . . .

Despite the call to action on these risk factors a decade ago, there has been little progress in reducing the total number of deaths from these causes. The progress that has occurred primarily involves actual causes of death that are less prominent. With the shift in the age distribution of the population, more adults now are in the age group at highest risk because of the cumulative effects of their behavior. The

net effect is that both total deaths and total burden due to the actual causes have increased. . . .

In summary, smoking and the deaths attributed to the constellation of poor diet and physical inactivity currently account for about one third of all deaths in the United States. . . . In ancient times, Hippocrates stated that "the function of protecting and developing health must rank even above that of restoring it when it is impaired." The findings in this study argue persuasively for the need to establish a more preventive orientation in health care and public health systems in the United States.

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Like Mokdad and colleagues, Geoffrey Rose offers a comparison of medicine and public health. In his influential article, Rose compares the scientific methods and objectives of medicine with those of public health. "Why did this patient get this disease at this time?" is a common question in medicine, and it underscores a physician's central concern for sick individuals and an individual etiology. By contrast, those interested in public health seek knowledge about why ill health occurs in the population and how it can be prevented.

According to Rose's "prevention paradox," measures that have the greatest potential for improving the public's health (e.g., seat belt use) offer little absolute benefit to any individual, whereas measures that heroically save individual lives (e.g., heart transplants) make no significant contribution to the population's health. This tension between the individual and the population can also be seen in how success is quantified for health interventions. The answer to the question "Did this person survive?" indicates success for the physician. For the public health professional, the key question is "How many person-years of life were saved?" Although Rose acknowledges that medical interventions appear more heroic and are more likely to be welcomed by patients, he favors the broad and powerful impact of successful population-based campaigns.

SICK INDIVIDUALS AND SICK POPULATIONS*

Geoffrey Rose

THE DETERMINANT OF INDIVIDUAL CASES

In teaching epidemiology to medical students, I have often encouraged them to consider a question which I first heard enunciated by Roy Acheson: "Why did *this* patient

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get *this* disease at *this* time?" It is an excellent starting-point, because students and doctors feel a natural concern for the problems of the individual. Indeed, the central ethos of medicine is seen as an acceptance of responsibility for sick individuals.

It is an integral part of good doctoring to ask not only, "What is the diagnosis, and what is the treatment?" but also, "Why did this happen, and could it have been prevented?" Such thinking shapes the approach to nearly all clinical and laboratory research into the causes and mechanisms of illness. Hypertension research, for example, is almost wholly preoccupied with the characteristics which distinguish individuals at the hypertensive and normotensive ends of the blood pressure distribution. . . . The constant aim in such work is to answer Acheson's question: "Why did *this* patient get *this* disease at *this* time?"

The same concern has continued to shape the thinking of all of us who came to epidemiology from a background in clinical practice. The whole basis of the case-control method is to discover how sick and healthy individuals differ. Equally the basis of many cohort studies is the search for "risk factors," which identify certain individuals as being more susceptible to disease; and from this we proceed to test whether these risk factors are also causes, capable of explaining why some individuals get sick while others remain healthy, and applicable as a guide to prevention. . . .

Applied to aetiology, the individual-centered approach leads to the use of relative risk as the basic representation of aetiological force: that is, "the risk in exposed individuals relative to risk in non-exposed individuals." . . . It may generally be the best measure of aetiological force, but it is no measure at all of aetiological outcome or of public health importance. . . .

THE DETERMINANTS OF POPULATION INCIDENCE RATE

I find it increasingly helpful to distinguish two kinds of aetiological questions. The first seeks the causes of cases, and the second seeks the causes of incidence. "Why do some individuals have hypertension?" is a quite different question from "Why do some populations have much hypertension, whilst in others it is rare?" The questions require different kinds of study, and they have different answers. . . .

To find the determinants of prevalence and incidence rates, we need to study characteristics of populations, not characteristics of individuals. . . . Within populations it has proved almost impossible to demonstrate any relation between an individual's diet and his serum cholesterol level; and the same applies to the relation of individual diet to blood pressure and to overweight. But at the level of populations it is a different story: it has proved easy to show strong associations between population mean values for saturated fat intake *versus* serum cholesterol level and coronary heart disease incidence, sodium intake *versus* blood pressure, or energy intake *versus* overweight. The determinants of incidence are not necessarily the same as the causes of cases.

HOW DO THE CAUSES OF CASES RELATE TO THE CAUSES OF INCIDENCE?

This is largely a matter of whether exposure varies similarly within a population and between populations (or over a period of time within the same population). Softness of water supply may be a determinant of cardiovascular mortality, but it is unlikely to be identifiable as a risk factor for individuals, because exposure tends to be locally uniform. Dietary fat is, I believe, the main determinant of a population's incidence rate for coronary heart disease; but it quite fails to identify high-risk individuals.

In the case of cigarettes and lung cancer it so happened that the study populations contained about equal numbers of smokers and non-smokers, and in such a situation case-control and cohort studies were able to identify what was also the main determinant of population differences amid time trends.

There is a broad tendency for genetic factors to dominate individual susceptibility, but to explain rather little of population differences in incidence. Genetic heterogeneity, it seems, is mostly much greater within than between populations. This is the contrary situation to that seen for environmental factors. Thus migrants, whatever the colour of their skin, tend to acquire the disease rates of their country of adoption.

Most non-infectious diseases are still of largely unknown cause. . . . We know quite a lot about the personal characteristics of individuals who are susceptible to them, but for a remarkably large number of our major non-infectious diseases we still do not know the determinants of the incidence rate. . . .

There is hardly a disease whose incidence rate does not vary widely, either over time or between populations at the same time. This means that these causes of incidence rate, unknown though they are, are not inevitable. It is possible to live without them, and if we knew what they were it might be possible to control them. [Identifying them, however, requires a difference of exposure within the population; if such variation does not exist,] the clues must be sought from differences between populations or from changes within populations over time.

PREVENTION

These two approaches to aetiology—the individual and the population-based—have their counterparts in prevention. In the first, preventive strategy seeks to identify high-risk susceptible individuals and to offer them some individual protection. In contrast, the “population strategy” seeks to control the determinants of incidence in the population as a whole.

The “High-Risk” Strategy

This is the traditional and natural medical approach to prevention. If a doctor accepts that he is responsible for an individual who is sick today, then it is a short step to accept responsibility also for the individual who may well be sick tomorrow. Thus, screening is used to detect certain individuals who hitherto thought they were well but who must now understand that they are in effect patients. . . .

What the “high-risk” strategy seeks to achieve is something like a truncation of the risk distribution. This general concept applies to all special preventive action in high-risk individuals—in at-risk pregnancies, in small babies, or in any other particularly susceptible group. It is a strategy with some clear and important advantages.

Its first advantage is that it leads to intervention which is appropriate to the individual. A smoker who has a cough or who is found to have impaired ventilatory function has a special reason for stopping smoking. . . . The intervention makes sense because that individual already has a problem which that particular measure may possibly ameliorate. . . .

For rather similar reasons the “high-risk” approach also motivates physicians. Doctors, quite rightly, are uncomfortable about intervening in a situation where their help was not asked for. Before imposing advice on somebody who was getting

on all right without them, they like to feel that there is a proper and special justification in that particular case.

The "high-risk" approach offers a more cost-effective use of limited resources. . . . [I]t is more effective to concentrate limited medical services and time where the need—and therefore also the benefit—is likely to be greatest.

A final advantage of the "high-risk" approach is that it offers a more favourable ratio of benefits to risks. If intervention must carry some adverse effects or costs, and if the risk and cost are much the same for everybody, then the ratio of the costs to the benefits will be more favourable where the benefits are larger.

Unfortunately the "high-risk" strategy of prevention also has some serious disadvantages and limitations. The first centers around the difficulties and costs of screening. [Consider screening for high cholesterol.] The disease process we are trying to prevent (atherosclerosis and its complications) begins early in life, so we should have to initiate screening perhaps at the age of ten. However, the abnormality we seek to detect is not a stable lifetime characteristic, so we must advocate repeated screening at suitable intervals.

In all screening one meets problems with uptake, and the tendency for the response to be greater amongst those sections of the population who are often least at risk of the disease. Often there is an even greater problem: screening detects certain individuals who will receive special advice, but at the same time it cannot help also discovering much larger numbers of "borderliners," that is, people whose results mark them as at increased risk but for whom we do not have an appropriate treatment to reduce their risk. . . .

The second disadvantage of the "high-risk" strategy is that it is palliative and temporary, not radical. It does not seek to alter the underlying causes of the disease but to identify individuals who are particularly susceptible to those causes. Presumably in every generation there will be such susceptibles, and if prevention and control efforts were confined to these high-risk individuals, then that approach would need to be sustained year after year and generation after generation. It does not deal with the root of the problem, but seeks to protect those who are vulnerable to it; and they will always be around.

The potential for this approach is limited—sometimes more than we could have expected—both for the individual and for the population. There are two reasons for this. The first is that our power to predict future disease is usually very weak. Most individuals with risk factors will remain well, at least for some years; contrariwise, unexpected illness may happen to someone who has just received an "all clear" report from a screening examination. One of the limitations of the relative risk statistic is that it gives no idea of the absolute level of danger. . . .

This point came home to me only recently. I have long congratulated myself on my low levels of coronary risk factors, and I joked to my friends that if I were to die suddenly, I should be very surprised. I even speculated on what other disease—perhaps colon cancer—would be the commonest cause of death for a man in the lowest group of cardiovascular risk. The painful truth is that for such an individual in a Western population the commonest cause of death—by far—is coronary heart disease! Everyone, in fact, is a high-risk individual for this uniquely mass disease. . . .

A further disadvantage of the "high-risk" strategy is that it is behaviourally inappropriate. Eating, smoking, exercise and all our other lifestyle characteristics are

constrained by social norms. If we try to eat differently from our friends, it will not only be inconvenient, but we risk being regarded as cranks or hypochondriacs. If a man's work environment encourages heavy drinking, then advice that he is damaging his liver is unlikely to have any effect. No one who has attempted any sort of health education effort in individuals needs to be told that it is difficult for such people to step out of line with their peers. This is what the "high-risk" preventive strategy requires them to do.

The Population Strategy

This is the attempt to control the determinants of incidence, to lower the mean level of risk factors, to shift the whole distribution of exposure in a favourable direction. In its traditional "public health" form it has involved mass environmental control methods; in its modern form it is attempting (less successfully) to alter some of society's norms of behaviour.

The advantages are powerful. The first is that it is radical. It attempts to remove the underlying causes that make the disease common. It has a large potential—often larger than one would have expected—for the population as a whole. . . .

The approach is behaviourally appropriate. If nonsmoking eventually becomes "normal," then it will be much less necessary to keep on persuading individuals. Once a social norm of behaviour has become accepted and (as in the case of diet) once the supply industries have adapted themselves to the new pattern, then the maintenance of that situation no longer requires effort from individuals. The health education phase aimed at changing individuals is, we hope, a temporary necessity, pending changes in the norms of what is socially acceptable.

Unfortunately the population strategy of prevention has also some weighty drawbacks. It offers only a small benefit to each individual, since most of them were going to be all right anyway, at least for many years. This leads to the Prevention Paradox (Rose 1981): "A preventive measure which brings much benefit to the population offers little to each participating individual." This has been the history of public health—of immunization, the wearing of seat belts and now the attempt to change various lifestyle characteristics. Of enormous potential importance to the population as a whole, these measures offer very little—particularly in the short term—to each individual; and thus there is poor motivation of the subject. . . .

In mass prevention each individual has usually only a small expectation of benefit, and this small benefit can easily be outweighed by a small risk. . . . This makes it important to distinguish two approaches. The first is the restoration of biological normality by the removal of an abnormal exposure (e.g., stopping smoking, controlling air pollution, moderating some of our recently acquired dietary deviations); here there can be some presumption of safety. This is not true for the other kind of preventive approach, which leaves intact the underlying causes of incidence and seeks instead to interpose some new, supposedly protective intervention (e.g., immunization, drugs, jogging). Here the onus is on the activists to produce adequate evidence of safety.

CONCLUSIONS

Case-centered epidemiology identifies individual susceptibility, but it may fail to identify the underlying causes of incidence. The "high-risk" strategy of prevention is an interim expedient, needed in order to protect susceptible individuals, but only

for so long as the underlying causes of disease remain unknown or uncontrollable; if causes can be removed, susceptibility ceases to matter.

Realistically, many diseases will long continue to call for both approaches, and fortunately competition between them is usually unnecessary. Nevertheless, the priority of concern should always be the discovery and control of the causes of incidence.

II. COMMUNITY AND CIVIC PARTICIPATION

A prevention-oriented and population-based approach requires evaluating health risks and intervening to improve health on a community level. The interaction between public health practitioners and communities should not be only in one direction, however. Experience has shown that community involvement and civic participation at every stage of public interventions—from the initial assessment of health needs to the ultimate evaluation of an intervention's impact—promote effective public health activities. Community action itself may also improve the public's health (Putnam 2000, 326): "Social connectedness is one of the most powerful determinants of our well-being. The more integrated we are with our community, the less likely we are to experience colds, heart attacks, strokes, cancer, depression, and premature death of all sorts. [Thus growing social disconnectedness] represents one of the nation's most serious public health challenges."

In emphasizing the value of community, those in public health should not elide the underlying tensions between the community and the individual. It is important to consider the nature of our social and moral obligations to those in our community. Why should society prefer population health over other social values? That disease prevention is possible does not necessarily make it a desirable goal. Why should the government promote the public's health?

As the following discussion suggests, some political theorists see the common good of society as an ethical imperative, even if the benefit to individuals is small. In *Spheres of Justice* (1983, 65), Michael Walzer explains the value and importance of membership in a community as a vehicle for the provision of communal needs. He tells us that "men and women come together because they literally cannot live apart." By providing for those needs on a community basis, individuals reaffirm and strengthen the sense of membership in a political community.

In the following reading, Dan Beauchamp, a pioneer of public health ethics, builds on the work of Walzer. He analyzes a classic conflict between the need for population-based measures to improve the well-

being of the entire community and the ethos of American individualism, which, at times, seems to require only restraint from harming others. Beauchamp argues that communal needs often are mistakenly framed as collections of individual needs to prevent harm to other individuals. For example, instead of viewing pollution controls as fulfilling the societal need for clean air, we often perceive regulations as laws that prevent harm to individuals who may be affected by poor-quality air. To advance his argument, he describes the "second language" of republicanism—a language that acknowledges the community roots of the republican tradition, a language that is not drowned out by individualism and paternalism. This second language, he claims, brings the community together to work toward common goals and, in turn, strengthens its desire to achieve public health goals.

COMMUNITY: THE NEGLECTED TRADITION OF PUBLIC HEALTH*

Dan Beauchamp

What are the limits of government in protecting the health and safety of the public? As more and more states regulate personal behavior to protect the public health and safety, this question again becomes central. Can there be good reasons for public health paternalism in a democracy? Are health and safety individual interests, or also common and shared ends?

The growing public awareness of the role of personal behavior in determining the health of the public can be traced to the "limits to medicine" debates of the early seventies. A substantial literature questioned the efficacy of medical care expenditures for improving health. . . . This new perspective was quickly taken up by many Western governments, particularly in the U.S. and Canada, where national budgets were straining under escalating costs of medical care. . . .

[Proposals to influence lifestyle choices] stirred rhetoric but produced little action. To the contrary the lifestyle debate worked to undermine the legitimacy of the idea that the government is responsible for the health and safety of the public. The lifestyle debate reopened an old theme in democratic theory—paternalism and the meaning of the common good.

THE MEANING OF THE COMMON GOOD

In one version of democratic theory, the state has no legitimate role in restricting personal conduct that is substantially voluntary and that has little or no direct consequence for anyone other than the individual. This strong antipaternalist position is associated with John Stuart Mill. In this view the common good consists in maximizing the freedom of each individual to pursue his or her own interests, subject to a like freedom for every other individual. . . .

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In a second version, health and safety remain private interests but some paternalism is accepted, albeit reluctantly. . . . Common sense makes us reject a thoroughgoing antipaternalism. Many restrictions on liberty are relatively minor and the savings in life and limb extremely great. Further, often voluntary choices are not completely so; many choices are impaired in some sense. . . .

This reluctant acceptance of paternalism leaves many democrats uneasy. Another alternative is to redefine voluntary risks to an individual as risks to others. Indeed, many argue that all such risks have serious consequences for others, and that the state may therefore limit such activities on the basis of the harm principle. Others challenge the category of voluntariness head on, arguing that most such risks, like cigarettes and alcohol use, have powerful social determinants.

The constitutional basis for the protection of the public health and safety has largely been ignored in this debate. This tradition, and particularly the regulatory power (often called the police power), flows from a view of democracy that sees the essential task of government as protecting and promoting both private and group interests. Government is supposed to defend both sets of interests through an evolving set of practices and institutions, and it is left to the legislatures to determine which set of interests predominate when conflicts arise.

In the constitutional tradition, the common good refers to the welfare of individuals considered as a group, the public or the people generally, the "body politic" or the "commonwealth" as it was termed in the early days of the American Republic. The public or the people were presumed to have an interest, held in common, in self-protection or preservation from threats of all kinds to their welfare. The commonwealth idea was widely influential among New England states during the first half of the nineteenth century.

. . . The central principles underlying the police or regulatory power were the treatment of health and safety as a shared purpose and need of the community and (aside from basic constitutional rights such as due process) the subordination of the market, property, and individual liberty to protect compelling community interests.

This republican image of democracy was a blending of social contract and republican thought, as well as Judeo-Christian notions of covenant. In the republican vision of society, the individual has a dual status. On the one hand, individuals have private interests and private rights; political association serves to protect these rights. On the other hand, individuals are members of a political community—a body politic.

This common citizenship, despite diversity and divergence of interests, presumes an underlying shared set of loyalties and obligations to support the ends of the political community, among which public health and safety are central. In this scheme, public health and safety are not simply the aggregate of each private individual's interest in health and safety, interests which can be pursued more effectively through collective action. Public health and safety are community or group interests (often referred to as "state interests" in the law), interests that can transcend and take priority over private interests if the legislature so chooses.

The idea of democracy as promoting the common or group interest is captured in Joseph Tussman's classic work (1960, 27-28) on political obligation: "[T]he government's concern for the individual is not to be understood as special concern for *this* or *that* individual but rather as concern for all individuals. Government, that is to say, serves the welfare of the community." . . .

THE LANGUAGE OF PUBLIC HEALTH

What are we to make of this constitutional tradition surrounding the development of the regulatory power for health and safety? What relevance does it have for the policy disputes of today, particularly those concerning the limitation of lifestyle risks?

The constitutional tradition for public health constitutes one of those "second languages" of republicanism that Robert Bellah and his coauthors speak of in . . . *Habits of the Heart*. In their book, the first language (or tradition of moral discourse) of American politics is political individualism. But there are "second languages" of community rooted in the republican and biblical tradition that limit and qualify the scope and consequences of political individualism.

Public health as a second language reminds us that we are not only individuals, we are also a community and a body politic, and that we have shared commitments to one another and promises to keep. . . .

The danger is that we can come to discuss public health exclusively within the dominant discourse of political individualism, relying either on the harm principle or a narrow paternalism justified on grounds of self-protection alone. By ignoring the communitarian language of public health, we risk shrinking its claims. We also risk undermining the sense in which health and safety are a signal commitment of the common life—a central practice by which the body politic defines itself and affirms its values.

. . . Public health belongs to the realm of the political and the ethical. Public health belongs to the ethical because it is concerned not only with explaining the occurrence of illness and disease in society, but also with ameliorating them. Beyond instrumental goals, public health is concerned with integrative goals—expressing the commitment of the whole people to face the threat of death and disease in solidarity.

Public health is also a practical science. Spanning the world of science and practical action, it seeks reasonable and practical means of altering property arrangements or limiting liberty to promote the health of the public generally.

These two ideas, the ideas of second languages and of social practices, shed light on why paternalism—at least public health paternalism—plays an affirmative role in the republican tradition. In the constitutional categories for protecting the public health, the regulatory power is to protect not individual citizens, but rather citizens considered as a group, the public health. In this tradition, the public, as well as the community itself, has a reality apart from the citizens who comprise it. Fundamental constituents of the community and the common life are its practices and institutions.

Practices are communal in nature, and concerned with the well-being of the community as a whole and not just the well-being of any particular person. Policy, and here public health paternalism, operates at the level of practices and not at the level of individual behavior. . . .

This distinction between practices and behavior should help us see the difference between public health paternalism aimed at the group and the "personal paternalism" of the doctor-patient, lawyer-client relationship. While there are public elements of these professional relationships, and while the state can (rightly or wrongly) structure these relationships in a paternalistic fashion, their essence is based on a personal encounter between a professional and a client. This is not the case with public health paternalism. Public health paternalism should also be kept

separate from the legal doctrine of *parens patriae*, where the state assumes the role of parent in instances where parental supervision is absent or deemed deficient.

This suggests that public health paternalism and the language of community on which it is based fit the parent-child analogy very poorly. To Mill (1961, 273), all paternalism was wrong because the individual is best placed to know his own good: "He is the person most interested in his own well-being: the interest which any other person, except in cases of strong personal attachment, can have in it, is trifling. . . ."

But precisely because public health paternalism is aimed at the group and its practices, and not the specific individual, Mill's point is wrong. The good of the particular person is not the aim of health policy in a democracy which defends both the community and the individual. In fact, Mill is wrong twice, because particular individuals are often very poorly placed to judge the effects that market arrangements and practices have on the population as a whole. This is the task for legislatures, for organized groups of citizens, and for other agents of the public, including the citizen as voter.

Mill's dichotomy of either the harm principle or self-protection is too limited; the world of harms is not exhausted by self-imposed and other-imposed injuries. There is a third and very large set of problems that afflicts the community as a whole and that results primarily from inadequate safeguards over the practices of the common life. Economists and others often refer to this class of harms as "summing up problems" or "choice-in-the-small versus choice-in-the-large."

Creating, extending, or strengthening the practices of public health—and the collective goods principle that underlies it—ought to be the primary justification for our health and safety policy. Instead we usually base these regulations on the harm principle. We usually justify regulating the steel or coal industry on the grounds that workers and the general public have the risks of pollution or black lung visited on them, but consumers are not obliged to drink alcohol or smoke cigarettes. While this may be true, in the communitarian language and categories of public health, fixing blame is not the main point. We regulate the steel or coal industry because market competition undervalues collective goods like a clean environment or workers' safety. Using social organization to secure collective goods like public health, not preventing harms to others, is the proper rationale for health and safety regulations imposed on the steel or coal industry, or the alcohol or cigarette industry. . . .

The main lesson to learn from public health paternalism as it has developed in the constitutional tradition may well be that the second language of community and the virtues of cooperation and beneficence still exist, albeit precariously, alongside a tradition of political individualism. Strengthening the public health includes not only the practical task of improving aggregate welfare, it also involves the task of reacquainting the American public with its republican and communitarian heritage, and encouraging citizens to share in reasonable and practical group schemes to promote a wider welfare, of which their own welfare is only a part. In political individualism, seat belt legislation or signs on the beach restricting swimming when a lifeguard is not present restrict the individual's liberty for his or her own good. In this circumstance the appropriate slogan is: "The life you save may be your own." But in the second language of public health these restrictions define a common practice which shapes our life together, for the general or the common good. In the language of public health, the motto for such paternalistic legislation might be: "The lives we save together might include your own."

III. SOCIAL JUSTICE: SOCIOECONOMIC INEQUALITIES

Demography is destiny.

Attributed to Auguste Comte (1798–1857)

Deep and enduring socioeconomic inequalities form the backdrop to any public health policy, and these disparities help explain why social justice is a core value of public health. As Angus Deaton (2002, 13) explains, “Poorer people die younger and are sicker than richer people; indeed, mortality and morbidity rates are inversely related to many correlates of socioeconomic status [SES] such as income, wealth, education, or social class.” Scholars often refer to the relationship as a “gradient” to emphasize the correlation between SES and health, with health improving continuously as wealth and social status rise. Various explanatory variables for the gradient have been proposed. The poor and uneducated may not have sufficient access to life’s necessities, such as food, clothing, housing, and health care. Or they may engage more frequently in risk behaviors, such as smoking, illicit drug use, and high-fat diets. Alternatively, poor health may impede individuals from making a living and getting an education. Whatever the explanation, inequalities in health appear persistent over time and across cultures.

The British epidemiologist Sir Michael Marmot offers a powerful illustration of the SES gradient (2006). For every mile traveled on the Metro’s Red Line in the District of Columbia from the impoverished northeast to the affluent northwest, the population lives one and a half years longer. Marmot, a pioneer of the theory of a “social gradient for health,” elsewhere observes that a person’s relative social standing appears to be important for a healthy, happy, and long life (2004).

Relying on Marmot’s work, the London *Times* offers some intriguing, tongue-in-cheek pointers on how to better one’s lot in life in its editorial “Social Climbing Is Good Exercise” (June 7, 2004):

First, be very intelligent, very well educated and very married. If you are not those things, become them as soon as possible. Being a homeowner is also a key. But don’t set up home in places where all the neighbours are likely to be richer than you. So avoid Silicon Valley, Dubai and pockets of Hampshire and West Sussex (though the ambitious should start house-hunting there immediately). You’ll also do better in an inclusive society not one where some are excluded from social situations, such as Hollywood or London’s Ivy Restaurant on Saturday night. Last, you should not be “hostile.” Except, of course, to the maitre d’ who forgets just how winning you are.



Photo 3. This photo from the 1960s shows a child suffering from smallpox at the Infectious Diseases Hospital in Madras. He bears the multiple small lesions typical of smallpox. International cooperation, intensive disease surveillance, and targeted vaccination efforts led to the eradication of smallpox in 1979. Reproduced by permission, © Bettman/Corbis.

Acknowledging the social gradient for health, public health advocates often favor redistributive social policies to reduce health disparities. This “big idea,” as the *British Medical Journal* (Editor’s Choice 1996, 985) has called it, suggests that “what matters in determining mortality and health in a society is less the overall wealth of that society and more how evenly wealth is distributed. The more equally wealth is distributed the better the health of that society.” Some ethicists, relying on these studies, say that “justice is good for our health,” as argued by Norman Daniels and colleagues below.

But before turning to Daniels’s claim, it is worth considering whether there is indeed sufficient evidence for this “big idea.” John Lynch and

colleagues (2004, 5) draw the following conclusion after reviewing ninety-eight studies examining the associations between income inequality and health:

Overall, there seems to be little support for the idea that income inequality is a major, generalizable determinant of population health differences within or between countries. Income inequality may, however, directly influence some health outcomes, such as homicide in the United States, but even that is somewhat mixed. Despite little support for a direct effect of income inequality on health per se, reducing income inequality by raising incomes of the most disadvantaged will improve their health, help reduce health inequalities, and generally improve population health.

Norman Daniels and his colleagues, using a Rawlsian theory, predict the political conditions necessary to achieve health equity. In the excerpt that follows theirs, Madison Powers and I go further, offering a template of what social justice requires for the public's health. In particular, we claim that social justice demands more than fair distribution of resources. Fundamentally, justice requires treating the most disadvantaged in society with dignity and as equal members of the political community. Our commentary explores how social justice sheds light on major ongoing controversies in the field and provides examples of the kinds of policies that public health agencies, guided by a robust conception of justice, would adopt.

JUSTICE IS GOOD FOR OUR HEALTH*

Norman Daniels, Bruce Kennedy, and Ichiro Kawachi

We have long known that the more affluent and better-educated members of a society tend to live longer and healthier lives. . . . Recent research suggests that the correlations between income and health do not end there. We now know, for example, that countries with a greater degree of socioeconomic inequality show greater inequality in health status; also, that middle-income groups in relatively unequal societies have worse health than comparable, or even poorer, groups in more equal societies. Inequality, in short, seems to be bad for our health.

. . . Universal access to health care does not necessarily break the link between social status and health. Our health is affected not simply by the ease with which we can see a doctor—though that surely matters—but also by our social position and the underlying inequality of our society. We cannot, of course, infer causation from these correlations, [but] the evidence suggests that there are *social determinants of health*.

*Reprinted from the *Boston Review*, February/March 2000: 6–15.

These social determinants offer a distinctive angle on how to think about justice, public health, and reform of the health care system. If social factors play a large role in determining our health, then efforts to ensure greater justice in health care should not focus simply on the traditional health sector. . . . We should be looking as well to improve social conditions—such as access to basic education, levels of material deprivation, a healthy workplace environment, and equality of political participation—that help to determine the health of societies. . . .

We hope to [explore] some broader issues about health and social justice. To avoid vague generalities about justice, we shall advance a line of argument inspired principally by the theory of “justice as fairness” put forth by the philosopher John Rawls. . . .

Rawls’s theory of justice as fairness was not designed to address issues of health care. He assumed a completely healthy population, and argued that a just society must assure people equal basic liberties, guarantee that the right of political participation has roughly equal value for all, provide a robust form of equal opportunity, and limit inequalities to those that benefit the least advantaged. When these requirements of justice are met, Rawls argued, we can have reasonable confidence that others are showing us the respect that is essential to our sense of self-worth.

Recent empirical literature about the social determinants of health suggests that the failure to meet Rawlsian criteria for a just society is closely related to health inequality. The conjecture we propose to explore, then, is that by establishing equal liberties, robustly equal opportunity, a fair distribution of resources, and support for our self-respect—the basics of Rawlsian justice—we would go a long way to eliminating the most important injustices in health outcomes. . . .

SOCIAL DETERMINANTS OF HEALTH

Cross-National Inequalities

A country’s prosperity is related to its health. . . . In richer countries people tend to live longer. . . . As a country or region develops economically average health improves. But the evidence suggests that things are more complicated. Figure [3] shows the relationship between the wealth of nations, as measured by per capita gross domestic product (GDPpc), and the health of nations, as measured by life expectancy. Clearly, GDPpc and life expectancy are closely associated, but only up to a point. The relationship levels off when GDPpc reaches \$8,000 to \$10,000; beyond this threshold, further economic advance buys virtually no further gains in life expectancy. This leveling effect is most apparent among the advanced industrial economies, which largely account for the upper tail of the curve in figure [3]. [Ed.—Figure 3 updates Daniels and colleagues’ figure comparing life expectancy and income.]

Relative Income

. . . The health of a population depends not just on the size of the economic pie, but on how the pie is shared. Differences in health outcomes among developed nations cannot be explained simply by the absolute deprivation associated with low economic development. . . . The degree of relative deprivation within a society also matters.

. . . This *relative-income hypothesis* [states that] inequality is strongly associated with population mortality and life expectancy across nations. To be sure, wealthier countries generally have higher average life expectancy. But rich countries, too,

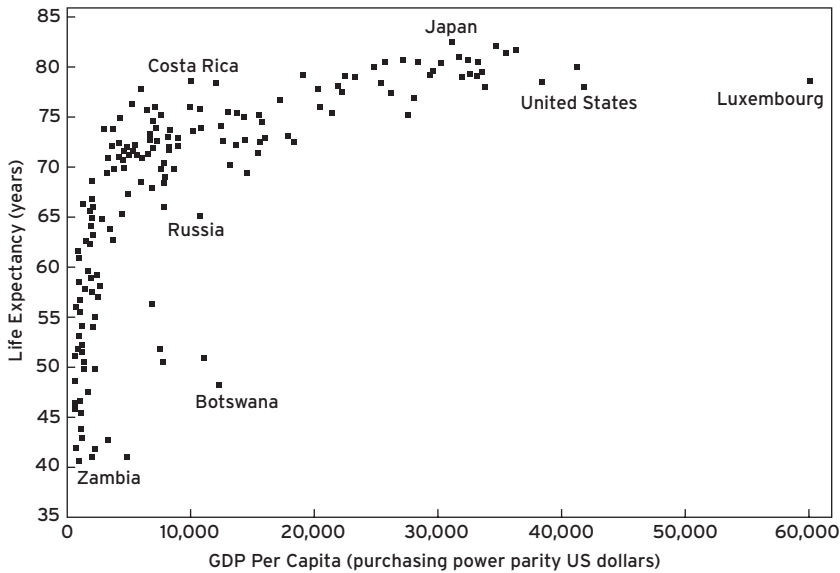


Figure 3. Life expectancy and per capita GDP. *Data source:* United Nations Human Development Report Statistics 2007/2008.

vary in life expectancy (see the tail of figure [3]), and that variation dovetails with income distribution. Wealthy countries with more equal income distributions, such as Sweden and Japan, have higher life expectancies than does the United States, despite their having lower per capita GDP. Likewise, countries with low GDPpc but remarkably high life expectancy, such as Costa Rica, tend to have a more equitable distribution of income. . . .

Individual [Socioeconomic Status (SES)]

Finally, when we move from comparing whole societies to comparing their individual members, we find, once more, that inequality is important. . . . Numerous studies have documented what has come to be known as the *socioeconomic gradient*: at each step along the socioeconomic ladder, we see improved health outcomes over the rung below. This suggests that differences in health outcomes are not confined to the extremes of rich and poor, but are observed across all levels of socioeconomic status.

Moreover, the SES gradient does not appear to be explained by differences in access to health care. Steep gradients have been observed even among groups of individuals, such as British civil servants, who all have adequate access to health care, housing, and transport. . . .

The slope of the gradient [varies substantially across societies and] appears to be fixed by the level of income inequality in a society: the more unequal a society is in economic terms, the more unequal it is in health terms. Moreover, middle income groups in a country with high income inequality typically do worse in terms of health than comparable or even poorer groups in a society with less income inequality. . . .

Pathways

... Correlations between inequality and health do not necessarily imply causation. Still, there are plausible and identifiable pathways through which social inequalities appear to produce health inequalities. In the United States, the states with the most unequal income distributions invest less in public education, have larger uninsured populations, and spend less on social safety nets. ... Educational opportunities for children in high-income-inequality states are quite different from those in states with more egalitarian distributions. These effects on education have an immediate impact on health. [Similarly, between countries, differential investment in human capital is a strong predictor of health. For example, adult literacy (particularly the disparity between male and female adult literacy) is one of the strongest predictors of life expectancy.]

These societal mechanisms—for example, income inequality leading to educational inequality leading to health inequality—are tightly linked to the political processes that influence government policy. For example, income inequality ... erodes social cohesion [leading] to lower participation in political activity, [which], in turn, undermines the responsiveness of government institutions in addressing the needs of the worst off. States with the highest income inequality, and thus lowest levels of social capital and political participation, are less likely to invest in human capital and provide far less generous social safety nets.

In short, the case for social determinants of health is strong. What are the implications of this fact for ideas of justice?

INEQUALITIES AND INEQUITIES

When is a health inequality between two groups “inequitable”? Margaret Whitehead and Goran Dahlgren [Dahlgren and Whitehead 1991] have suggested a useful and influential answer: health inequalities count as inequities when they are avoidable, unnecessary, and unfair.

... The analysis of inequity is only as good as our understanding of what is avoidable or unnecessary. [Biological differences might be unavoidable, but what about behavioral differences between cultural groups and social classes?] Whitehead and Dahlgren’s term leaves us with an unresolved complexity of judgments about responsibility, ... fairness and avoidability.

The poor in many countries lack access to clean water, sanitation, adequate shelter, basic education, vaccinations, and prenatal and maternal care. As a result of some, or all, of these factors, infant mortality rates for the poor exceed those of the rich. Since social policies could supply the missing determinants of infant health, these inequalities are avoidable.

Are these inequalities also unfair? Most of us would think they are, perhaps because we believe that policies that create and sustain poverty are unjust, and perhaps also because we object to social policies that compound economic poverty with lack of access to the determinants of health. [But] we cannot eliminate health inequalities simply by eliminating poverty. Health inequalities persist even in societies that provide the poor with access to [social services, including health and education], and they persist as a gradient of health throughout the social hierarchy, not just between the very poorest groups and those above them.

[Does justice require then that all socioeconomic inequalities be eliminated to

eliminate health inequalities? Or are some socioeconomic inequalities not unjust?] On issues of this kind, we should take guidance from a well-articulated account of social justice—the one put forth by John Rawls.

JUSTICE AS FAIRNESS

In *A Theory of Justice*, Rawls sought to show that a social contract designed to be fair to free and equal people would lead to equal basic liberties and equal opportunity, and would permit inequalities only when they work to make the worst-off groups fare as well as possible. Though Rawls's account was devised for the most general questions of social justice [and did not deal with health or disease, it nonetheless] provides a set of principles for the just distribution of the social determinants of health. . . .

Let us start by considering what a just society would require with regard to the distribution of the social determinants of health. In such an ideal society, everyone is guaranteed equal basic liberties, including the right to participate in politics. . . . Since, as we argued above, there is evidence that political participation is a social determinant of health, the Rawlsian ideal assures institutional protections that counter the usual effects of socioeconomic inequalities on participation—and thus on health.

Moreover, according to Rawls, justice requires fair equality of opportunity. This principle condemns discriminatory barriers and requires robust measures aimed at mitigating the effects of socioeconomic inequalities and other contingencies on opportunity. [Such measures would include equitable public education, appropriate day care, and accessible graduate and professional education.]

The equal opportunity principle also requires extensive public health, medical, and social support services aimed at promoting normal functioning for all. . . . Obviously, this focus requires provision of universal access to comprehensive health care, including public health, primary health care, and medical and social support services. . . .

Finally, a just society restricts allowable inequalities in income and wealth to those that benefit the least advantaged. . . .

In short, Rawlsian justice—though not devised for the case of health—regulates the distribution of the key social determinants of health, including the social bases of self-respect. There is nothing about the theory that should make us focus narrowly on medical services. Properly understood, justice as fairness tells us what justice requires in the distribution of all socially controllable determinants of health. . . .

Suppose we reduce socioeconomic inequalities, and thereby reduce health inequalities—but the result is that the health of all is worsened because productivity is reduced so much that important institutions are undermined. That is not acceptable. Our commitment to reducing health inequality should not require steps that threaten to make health worse off for those with less-than-equal health status. So the theoretical issue reduces to this: would it ever be reasonable to allow some health inequality in order to produce some non-health benefits for those with the worst health prospects? . . .

Rawls gave priority to the principle of protecting equal basic liberties because he believed that once people achieve some threshold level of material well-being, they will not trade away the fundamental importance of liberty for other goods. Making such a trade might deny them the liberty to pursue their most cherished ideals. . . .

Can we make the same argument about trading health for other goods? [Perhaps rational people should refrain from trading health for other goods because, without health, they cannot pursue what they value most. But this priority is not clear-cut where the conditions on choice are fair, particularly if goods gained are highly valued. Refusing to allow trades of health risks in such cases might be unjustifiably paternalistic in a way that refusal to allow trades of basic liberties is not.]

We propose a pragmatic route around this problem. Fair equality of opportunity is only approximated even in an ideally just system. . . . We cannot achieve complete equality in health any more than we can achieve completely equal opportunity. Justice is always rough around the edges.

[Provided that] everyone has a fair chance to participate [in the political process and that participants span the health gradient,] a democratic process that involved deliberation about the trade-off and its effects might be the best we could do to provide a resolution of the unanswered theoretical question.

In contrast, where the fair value of political participation is not adequately assured—and we doubt it is so assured in even our most democratic societies—we have much less confidence in the fairness of a democratic decision about how to trade health against other goods. It is much more likely under actual conditions that those who benefit most from the inequalities—that is, those who are better off—also wield disproportionate political power and will influence decisions about trade-offs to serve their interests. It may still be that the use of a democratic process in non-ideal conditions is the fairest resolution we can practically achieve, but it still falls well short of what an ideally just democratic process involves.

If we were to achieve a just distribution of resources, then, with the least well-off being as well off as possible, there would still be health inequalities. But decisions about whether to reduce those inequalities even more are matters for democratic process. Justice itself does not command their reduction.

WHAT DOES SOCIAL JUSTICE REQUIRE FOR THE PUBLIC'S HEALTH? PUBLIC HEALTH ETHICS AND POLICY IMPERATIVES*

Lawrence O. Gostin and Madison Powers

Justice is viewed as so central to the mission of public health that it has been described as the field's core value: "The historic dream of public health . . . is a dream of social justice" (Beauchamp 1999). This Commentary addresses a single question of extraordinary social and political importance: What does social justice require for the public's health? Our thesis is that justice can be an important organizing principle for public health. . . .

WHAT IS "JUSTICE," AND HOW IMPORTANT IS IT IN PUBLIC HEALTH?

Among the most basic and commonly understood meanings of justice is fairness or reasonableness, especially in the way people are treated or decisions are made. Our account of justice stresses the fair disbursement of common advantages and the

*Reprinted from *Health Affairs* 25 (July/August 2006): 1053–60.

sharing of common burdens. It captures the twin moral impulses that animate public health: to advance human well-being by improving health and to do so by focusing on the needs of the most disadvantaged. . . .

A core insight of social justice is that there are multiple causal pathways to numerous dimensions of disadvantage. These include poverty, substandard housing, poor education, unhygienic and polluted environments, and social disintegration. These and many other causal agents lead to systematic disadvantage not only in health, but also in nearly every aspect of social, economic, and political life. Inequalities beget other inequalities, and existing inequalities compound, sustain, and reproduce a multitude of deprivations. . . .

THE JUSTICE PERSPECTIVE IN PUBLIC HEALTH

. . . Some believe that government's purpose should not be to redress economic and social disadvantage, and this may be doubly so for administrative agencies dedicated to public health and the pursuit of science. We believe that it is time to rethink this view, and the justice perspective offers an alternative. Values of socioeconomic fairness are just as important to health as the prevailing values of personal license and free enterprise. The justice perspective offers a different way of seeing problems that have long plagued the field of public health.

Legitimate Scope of the Public Health Enterprise

Perhaps the deepest, most persistent critique of public health is that the field has strayed beyond its natural boundaries. Instead of focusing solely on narrow interventions for discrete injuries and diseases, the field has turned its attention to broader health determinants. It is when public health strays into the social/political sphere in matters of war, violence, poverty, and racism that critics become most upset.

The justice perspective does not provide a definitive defense against claims of overreaching. But social justice does provide a counterweight to the prevailing political view of health as primarily a private matter. The justice perspective shows why health is a matter of public concern, with the state having a role not only in the traditional areas of infectious diseases and sanitation, but also in emerging areas such as chronic diseases caused by diet, lifestyle, and the environment. Public health agencies have an obligation to address the root causes of ill health, even while they recognize that socioeconomic determinants have many causes, and solutions, that are beyond public health's exclusive expertise.

Balancing Individual and Collective Interests

The exercise of the state's coercive power has been highly contentious throughout U.S. history. When public health officials act, they face troubling conflicts between the collective benefits of population health on the one hand, and personal and economic interests on the other. Public health powers encroach on fundamental civil liberties such as privacy, bodily integrity, and freedom of movement and association [as well as economic liberties]. Justice demands that government take actions to safeguard the public's health, but that it do so with respect for individuals and sensitivity to the needs of the underprivileged.

In the realm of public health and civil liberties, then, both sides claim the mantle of justice. . . . What is most important to justice is abiding by the rule of law, which

requires modern public health statutes that designate clear authority to act and provide fair processes. Policymakers, therefore, should modernize antiquated public health laws to provide adequate power to reduce major risks to the population but ensure that government power is exercised proportionately and fairly. Fairness requires just distributions of burdens and benefits to all, but also procedural due process for people subjected to compulsory interventions.

Certainly, the justice perspective cannot answer many of the most perplexing problems at the intersection of public health and civil liberties such as paternalistic interventions (for example, seat belt laws) or the exercise of powers in health emergencies (for example, avian flu or bioterrorism). However, a more serious failure of public policy would be a failure to recognize and give great weight to the demands of social justice when faced with such challenges. . . .

THE POLICY IMPERATIVES OF THE JUSTICE PERSPECTIVE

The public health community has not been successful in gaining attention to or resources for its core mission and essential services. [Public health efforts directed at prevention and population-based services are chronically underfunded, and resources are frequently allocated only in response to a disaster or threat, rather than in response to long-term needs.] This leads not to core, stable funding and attention but, rather, to a “disease du jour” mentality. This type of response creates silos, disproportionately funds biomedical solutions, and poses a “no-win” situation for public health agencies, which must respond to the latest fashion but seldom gain the kind of ongoing political attention and economic resources they need to improve the public’s health.

The justice perspective offers an opportunity to change this dynamic, and the remainder of this Commentary offers concrete proposals based on the imperatives of population improvement and just distribution of benefits.

The Public Health System

Justice, with its concern for human well-being, requires a serious commitment to the public’s health. It is for that reason that justice demands a tangible, long-term pledge to the public’s health and the needs of the least well-off. Such a commitment, as countless reports have made clear, is lacking. Funding for prevention and population-based services is inordinately low, and categorical funding for special programs such as bioterrorism and avian flu is limited to a single issue and is time restricted.

. . . There must be a substantial and stable commitment to the public’s health at the federal, state, and local levels. . . . Congress and the executive branch should create a Trust Fund for Public Health to provide generous and stable resources to rebuild the eroded public health infrastructure and implement core public health functions.

Addressing Health Determinants

If justice is outcome oriented, then inevitably public health must deal with the underlying causes of poor and good health. The key health determinants include the built environment (e.g., transportation and buildings); the natural environment (e.g., clean air and water); the informational environment (e.g., health information and advertising restrictions); the social environment (e.g., social networks and support); and

the economic environment (e.g., socioeconomic status). These are all public health problems, but they are not solvable solely by public health agencies. Public health researchers and agencies can provide the intellectual tools for understanding the factual basis of the problems policymakers face. They can act directly and as conveners that mobilize and coordinate government agencies, health care institutions, businesses, the media, academia, and the community.

Fair Treatment of the Disadvantaged

Fair distribution of burdens and benefits, as discussed, is a core attribute of justice. Allocations based on the market or political influence favor the rich, powerful, and socially connected. Even neutral or random allocations can be unjust because they do not benefit those with greatest need. For example, health officials who direct a population to evacuate or shelter in place should foresee that the poor will not have private transportation or the means to stock up on food or supplies. For that reason, justice requires public health officials to devise plans and programs with particular attention to the disadvantaged. . . .

. . . Social justice thus demands more than fair distribution of resources in extreme health emergencies. A failure to act expeditiously and with equal concern for all citizens, including the poor and less powerful, predictably harms the whole community by eroding public trust and undermining social cohesion. It signals to those affected and to everyone else that the basic human needs of some matter less than those of others, and it thereby fails to show the respect due to all members of the community. Social justice thus encompasses not only a core commitment to a fair distribution of resources, but it also calls for policies of action that are consistent with the preservation of human dignity and the showing of equal respect for the interests of all members of the community. . . .

A POLICY LANDSCAPE INFORMED BY SOCIAL JUSTICE

What would the policy landscape look like if it were informed by a robust conception of social justice? The political community would embrace, rather than condemn, a wide scope for the public health enterprise; value the public good as much as personal and economic liberty; [and] view the public good as involving a commitment to the health and equal worth of all members of the community. . . .

The central claim of this Commentary is that a commitment to social justice lies at the heart of public health. This commitment is to the advancement of human well-being. It aims to lift up the systematically disadvantaged and in so doing further advance the common good by showing equal respect to all individuals and groups who make up the community. Justice in public health is purposeful, positivistic, and humanistic. The aims of public health deserve a great deal more societal attention and resources than the political community has allowed.

IV. THE PUBLIC HEALTH SYSTEM

Our modern understanding of public health entails a more nuanced and coherent understanding of the causes of ill health that encompasses socioeconomic factors as well as the environmental, behavioral, and

microbial causes of disease. The evolution from a focus on infectious diseases to today's more expansive approach to public health has occurred largely over the past few decades. In 1988, the Institute of Medicine (IOM) released its groundbreaking report, the *Future of Public Health*, which defined public health as the obligation of organized society to assure people of the conditions to be healthy. In the sequel published in 2003, *The Future of the Public's Health*, the IOM expounded on this understanding and proposed bold and innovative strategies for health promotion and prevention.

The public health vision articulated by the IOM involves (1) strengthening the governmental public health infrastructure, (2) encouraging major private-sector actors to promote the health of their members and surrounding communities, and (3) improving the broad determinants of population health. This vision pits those advocating on behalf of an expansive public health philosophy grounded in fundamental socio-economic and cultural transformation against critics in and outside of the public health community who charge that such an ethos moves far beyond public health's conventionally understood purview. In the following paper, Jo Ivey Boufford, Rose Marie Martinez, and I defend the IOM committee of which we were a part, while proposing strategies for achieving an expansive construct of the public health enterprise.

THE FUTURE OF THE PUBLIC'S HEALTH: VISION, VALUES, AND STRATEGIES*

Lawrence O. Gostin, Jo Ivey Boufford, and Rose Marie Martinez

The health of the U.S. public continuously improved throughout the twentieth century. By every measure, Americans are now healthier, live longer, and enjoy lives that are less likely to be marked by injury, ill health, or premature death. During the past century, for example, infant mortality decreased, and the average life span rose from forty-five years to nearly eighty. Public health achievements include safer foods, fluoridation of drinking water, control of infectious diseases, fewer deaths from heart disease and stroke, motor vehicle safety, and safer workplaces.

The public's health still has room to improve. Although the United States has one of the highest levels of per capita gross domestic product (GDP) in the world, Americans' health status is poor compared with the health status of populations that have similar levels of economic development. [Among the thirty member countries of the Organisation for Economic Co-operation and Development (OECD), the United States has the third-highest GDP, but] it ranks twenty-third in infant mortal-

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ity (7.1 deaths per 1,000 live births) and eighteenth in life expectancy at birth (76.7 years for both sexes). The World Health Organization (WHO) ranks the United States thirty-seventh among global health systems, reflecting concerns about access to and cost of health care, relatively poor health indicators, and sizable racial and socioeconomic disparities.

The relatively poor U.S. health status is even more noteworthy because of high U.S. health spending—\$4,373 per capita—which is the highest in the world and more than double the OECD median of \$2,000. . . .

. . . More than 95 percent of U.S. federal and state health spending is directed toward personal health care and biomedical research; only 1–2 percent is directed toward prevention. These governmental funding priorities, consistent for decades, do not reflect scientific understandings of population health. There is strong evidence that access to medical care is a less important determinant of health than behavior and environment, which are responsible for more than 70 percent of avoidable deaths. This history of investment skewed toward personal health care offers a political strategy that is unlikely to achieve a maximum impact on the public's health.

STRATEGIES FOR IMPROVING THE PUBLIC'S HEALTH

If current policies do not ensure the highest attainable health for the U.S. population, then what strategies would be more effective? . . .

Strengthen the Governmental Public Health Infrastructure

Government has primary authority and responsibility for assuring the conditions in which people can be healthy. Yet public health agencies are structurally weak in each of their core components, which led the IOM to conclude that the agencies are largely in disarray. [The CDC similarly concluded that the public health infrastructure is "structurally weak in nearly every area." Structural deficiencies include outdated statutes, a poorly prepared workforce, and inadequate facilities (e.g., information and communications systems and laboratory capacity).]

To address these weaknesses, we offer the following recommendations.

Recommendation 1: Congress should establish a national Public Health Council (PHC). The PHC, comprising the secretary of the Department of Health and Human Services (HHS) and state health commissioners, with representative local health officials and outside experts, would (1) collaborate on action to achieve national health goals as articulated in *Healthy People 2010*; (2) advise the HHS secretary on financing, policy, and regulations affecting the public's health; (3) develop a funding system to sustain the public health infrastructure; and (4) evaluate the impact of domestic policies on national health outcomes and reductions of health disparities. It would improve collaboration among levels of government, provide a forum for strategic planning and monitoring progress, and elevate the status of public health within government.

Recommendation 2: HHS should report annually to Congress on the state of the nation's health. . . . The assessment should include a systematic evaluation of progress in meeting national health goals (for example, leading health indicators); funding and technical assistance for public health agencies to ensure sustainability; and identification of strengths and gaps in system capacity. Such assessments are

needed to keep Congress and the public informed and would play an important role in policy development.

Recommendation 3: Congress should establish a stable funding mechanism, such as a “trust fund” to support state and local public health agencies. Agencies suffer from two interrelated problems: lack of adequate funding to support ongoing services, and inflexible sources of funds. . . . “Silo” or “stovepipe” funding [which is earmarked for particular purposes or constituencies] cannot sustain a permanent infrastructure and discourages evidence-based planning, policies, and programs. . . .

Recommendation 4: Congress should set conditions for receipt of funds based on states’ progress toward and adherence to quality standards. HHS, through the PHC, should establish national standards of quality and hold states accountable for meeting them. . . . If agencies are charged with improving the public’s health and receive adequate funding, they should be held accountable under these quality standards.

Engage Nongovernmental Actors in Partnerships for Public Health

Although the duty to safeguard the public’s health has been assigned historically to government, through the work of national, state, tribal, and local health agencies, no single agency can assure all of the conditions for the public’s health. Public health agencies can act as a catalyst for action by other government departments and nongovernmental actors. . . .

[On this point,] we propose the following governmental programs and incentives.

Recommendation 5: The federal government should lead a national effort to achieve stable health care coverage for every person residing in the United States. This coverage should include age-appropriate preventive services and oral health, mental health, and substance abuse treatment. The uninsured have difficulty getting care, and the services they receive may not be timely, appropriate, or well coordinated. Insurance coverage is associated with better health outcomes for children and adults.

Recommendation 6: Federal and state governments should support community-led public health efforts. Community organizations are close to the populations they serve and therefore are a crucial part of the public health system. Public health agencies should provide adequate funding and technical assistance to, and engage in partnerships with, communities. . . .

Recommendation 7: Public health agencies should create incentives for (and, if necessary, regulate) businesses to strengthen health promotion and disease and injury prevention for their employees and communities. Government should provide incentives through the tax code and conditional spending to encourage the private sector to engage in health-promoting activities. [Furthermore,] the state must strengthen regulations relating to occupational health and safety, sanitary food and living conditions, and the environment, among other areas.

Recommendation 8: The media should increase the time devoted to public service announcements and contribute to a well-informed public on matters of health. An ongoing dialogue and collaborative efforts between public health agencies and the media would benefit the public’s health. . . .

Recommendation 9: Academic institutions should increase interdisciplinary learning opportunities for public health students, strengthen and expand their training of the current public health workforce, and reward faculty for both basic and

applied public health research. Academe is critically important in the education and training of the public health workforce and in providing a science base for public health policy. . . .

Improve the Multiple Conditions for the Public's Health

. . . To achieve population health, it is necessary to transform national health policy, with its traditional dominant investments in personal health care and biomedical research to treat disease after it happens, to a more balanced policy that invests in the multiple determinants of societal health. . . .

Perhaps the two farthest-reaching, and therefore most controversial, determinants of health relate to the "built" and socioeconomic environments. Public health has a long history of designing the built environment to reduce injury (workplace safety, traffic calming, and fire codes), infectious diseases (sanitation, zoning, and housing codes), and environmentally associated harms (lead paint, asbestos, and toxic emissions). The United States is facing an epidemiological transition from infectious to chronic diseases such as cardiovascular disease, cancer, diabetes, asthma, and depression. The challenge is to enable communities to facilitate physical and mental well-being. . . .

A strong and consistent finding of epidemiological research is that socioeconomic status (SES) is correlated with morbidity, mortality, and functioning. SES is a complex phenomenon based on income, education, and occupation. The relationship between SES and health often is referred to as a "gradient" because of the graded and continuous nature of the association. . . .

Some researchers go further, suggesting that the overall level of socioeconomic inequality in a society affects health. That is, societies with large disparities between the rich and poor tend to have inferior health status. The validity of these studies has been challenged recently. However, some claim that from an ethical perspective, "social justice is good for our health." Government can take active steps to improve the built and socioeconomic environments in several ways.

Recommendation 10: State and local governments should engage in land-use planning to encourage healthier lifestyles and habitats. [Strategies include] economic incentives to encourage green spaces and recreational facilities; building and housing codes to reduce toxic exposures; zoning to increase availability of wholesome foods and products; and school requirements to serve healthy foods and promote exercise among students. . . .

Recommendation 11: The federal government and the states should adopt more comprehensive strategies to reduce health disparities. Health policymakers have documented major health disparities within the population and have set a goal of reducing them. . . . Disparities can be reduced through targeted public health interventions to serve . . . populations [with the greatest need, including the poor and racial minorities, and through] general improvements in access to essential services such as income support, education, and health care.

JUSTIFICATIONS FOR AN EXPANDED VISION OF PUBLIC HEALTH

Critics have argued powerfully against the foregoing proposals for achieving a healthier population. In this section we respond to these challenges, recognizing that the questions posed are incisive and deserve careful scrutiny.

Why should health be a primary social undertaking? [Although other priorities, such as transportation, energy, education and national security, compete with health] there are good reasons to give special attention to health. . . .

. . . If individuals have physical and mental health, they are better able to socialize, work, and engage in the activities of family and social life that bring meaning and happiness. . . . Health is also essential for the functioning of populations. Without minimum levels of health, people cannot fully engage in social interactions, participate in the political process, exercise rights of citizenship, generate wealth, create art, and provide for the common security. Notably, evidence is emerging that direct investments in health can have positive effects on the economy. A safe and healthy population builds strong roots for a country—its governmental structures, social organizations, cultural endowment, economic prosperity, and national defense. Understood in this way, then, population health becomes a transcendent value.

Are fundamental changes in physical [and social] conditions warranted? Critics argue that public health agencies overreach and lose their legitimacy when they address the broad determinants of health. There are . . . political dangers in straying too far from what many consider public health's traditional mandate [but] addressing the broad determinants of health leads to more effective social policy. . . . As the main proponent of population health in society, the public health community must call attention to the "upstream" causes of morbidity and premature death and must propose a broad range of social, economic, and behavioral tools needed to make populations healthier.

[Though critics may challenge evidence of an SES gradient, the fact that the causal pathways between low SES and poor health are not fully understood should not doom public health to waiting for definitive research before helping the poor. Critics also challenge the appropriateness of efforts to modify the built environment in healthful ways, characterizing efforts as "coercive" and "moralistic." But the government has been and is actively involved in land-use planning; therefore, it has an] obligation to carefully consider the population's health in its land-use policies.

ASSURING THE PUBLIC'S HEALTH: FUTURE CHALLENGES

We are acutely aware that key obstacles await the strategies we have enumerated. Achieving a highly functioning governmental public health system is difficult; the necessary tasks are technically within our reach but require political will. There are many reasons to question the political commitment to population health—a history of underinvestment, silo funding, and a culture of individualism. In matters of funding, standard setting, and accountability, federalism poses another problem. Which government—federal, tribal, state, or local—holds the power and duty to devote resources and create policy?

The challenges to achieving effective partnerships in public health are equally apparent. The private and voluntary sectors possess no duty to act for the public good, and there is little political consensus about creating incentives and requirements to do so. The government's role vis-à-vis the private sector has always been controversial. Those who support limited government and a broad sphere of economic freedom may oppose partnerships that go beyond the purely voluntary, but the potential value of closer cooperation is becoming more clear.

Finally, and self-evidently, there are deep challenges in creating policy to improve

the socioeconomic conditions of health. Socioeconomic determinants evoke images of redistribution of wealth and status, which are unpopular in many circles. However, this is not merely a question of ideology but one of science. The task will be to demonstrate an evidence-based way to reduce socioeconomic disparities and to show that this improves health outcomes.

Given these challenges, we understand that our aspirations for “healthy people in healthy communities” need to compete in the marketplace of ideas. Yet we think that population health does deserve a special place in national debates and priorities, and it has taken a backseat to other political interests for too long.

V. CONCLUSION

The field of public health, as we have seen, is deeply complex, riddled with contradictions, and influenced by politics, culture, and economics, and it has undergone profound developments over the past few decades. Practitioners and scholars have cultivated a common understanding of core concepts in public health, the contours of which are being delineated through experience and scholarly debate. Likewise, the practice of public health has improved; workers in this field are beginning to develop a sense of professionalism, expertise, and competency comparable to that of practitioners of older disciplines such as medicine.

The field of public health has struggled through the years to gain attention, respect, and adequate resources. In the aftermath of recent natural and human-caused tragedies, however, public health has become more visible. The terrorist attacks of 9/11 and subsequent anthrax letters have driven momentous changes in public health policy. The United States and the rest of the world have witnessed the devastation wrought by natural disasters, such as the South Asian tsunami and the Gulf Coast hurricanes. Global society also faces the threat of the catastrophic health consequences of an emerging infectious disease, such as smallpox, severe acute respiratory syndrome (SARS), or pandemic influenza—whether naturally occurring or intentionally inflicted.

Consequently, policy makers have been preoccupied by the perceived need for preparedness for public health emergencies, including stockpiles of vaccines and pharmaceuticals and “surge” capacity for hospital beds and equipment. Emergency public health preparedness funding purportedly allows for “dual use,” meaning that funds can also go toward strengthening the public health infrastructure and basic public health activities (e.g., routine surveillance and prevention activities).

Improved visibility and funding constitute only one edge of the double-edged sword of public health preparedness, however. Preparedness activities have also created special programs and “silos” that divert attention from traditional public health services.

But when one steps back from the day-to-day struggles for funding and attention, it is apparent that the field of public health holds great promise for the future. No endeavor is more important than promoting health and preventing injury and disease among the population. As the field improves its scientific methods for measuring effectiveness and as it demonstrates its importance, public health will gain the political attention and resources it deserves.

RECOMMENDED READINGS

Community and Civic Participation

- Beauchamp, Dan. 1988. *The Health of the Republic: Epidemics, Medicine, and Moralism as Challenges to Democracy*. Philadelphia: Temple Univ. Press. (Provides an expanded vision of republican equality and further develops his community-oriented perspective on health)
- Pearce, Neil, and George Davey Smith. 2003. Is social capital the key to inequalities in health? *American Journal of Public Health* 93: 122–29. (Questions some of Putnam’s conclusions, arguing that social capital has a marginal impact on health as compared to macro-level economic and social policies and that overemphasizing the role of social capital produces ineffective or potentially harmful policies)
- Putnam, Robert D. 2000. Health and happiness. In *Bowling Alone: The Collapse and Revival of American Community*, 326–35. New York: Simon & Schuster. (Asserts that social connectedness is itself a determinant of health)

Social Justice: Socioeconomic Inequalities

- Daniels, Norman. 2006. Equity and population health: Toward a broader bioethics agenda. *Hastings Center Report* 36 (4): 22–35. (Argues that bioethics’ traditionally narrow focus on clinical relationships and new technologies should be broadened to address population health, health disparities, and issues of justice)
- Deaton, Angus. 2002. Policy implications of the gradient of health and wealth. *Health Affairs* 21 (2): 13–30. (Explains the deep, persistent, and cross-cultural relationship between socioeconomic status and health outcomes, which he terms the gradient of health and wealth)
- Lynch, John, George Davey Smith, Sam Harper, Marianne Hillemeier, Nancy Ross, George A. Kaplan, and Michael Wolfson. 2004. Is income inequality a determinant of population health? Part 1: A systematic review. *Milbank*

- Quarterly* 82: 5–95. (Casts doubt on the assertion that societies where income is distributed on a more equal basis are necessarily healthier)
- Powers, Madison, and Ruth Faden. 2006. *Social Justice: The Moral Foundations of Public Health and Health Policy*. New York: Oxford Univ. Press. (Outlines a theory of social justice focused on the nondistributive aspects of well-being and applies it to public health)

The Public Health System

- Institute of Medicine. 2003. *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academies Press. (Articulates a broad and ambitious vision for public health that is centered on strengthening government public health infrastructure, coordinating the activities of various state and nonstate actors, and addressing the multiple determinants of health)
- Rothstein, Mark A. 2002. Rethinking the meaning of public health. *Journal of Law, Medicine & Ethics* 30: 144–49. (Argues for a narrower understanding of public health's scope that is focused on government officials providing traditional public health services)
- Weeks, Elizabeth. 2006. After the catastrophe: Disaster relief for hospitals. *North Carolina Law Review* 85: 223–300. (Provides an evaluation of the public health infrastructure supplied by hospitals in times of disaster, with a specific focus on the Gulf Coast hurricanes)



Photo 4. The Cuyahoga River in flames on November 3, 1952. The Cleveland, Ohio, river caught fire several times during the twentieth century when oil and other contaminants on the water's surface ignited. The 1969 river fire prompted outrage nationwide and galvanized the environmental movement. Today, the Environmental Protection Agency regulates the risks posed by environmental contaminants like those responsible for the Cuyahoga fires. Photograph courtesy of James Thomas.