Public Health Literacy for Lawyers

Wendy E. Parmet and Anthony Robbins

Public health professionals recognize the critical role the law plays in determining the success of public health measures.¹ Even before September 11, 2001, public health experience with tobacco use, HIV, industrial pollution and other potent threats to the health of the public demonstrated that laws can assist or thwart public health efforts. The new focus on infectious threats and bioterrorism, starting with the anthrax attacks through the mail and continuing with SARS, has highlighted the important role of law.

For lawyers to serve as effective partners in public health, they should have a basic familiarity with public health: how public health professionals see the world and the key issues they tackle. A practical grasp of public health can be acquired, and often is acquired, "on the job." But perhaps that is not enough. If lawyers are to be competent members of the public health team and understand the public health implications of the laws, rules, and regulations they draft, enforce, litigate, and adjudicate, they should be more firmly grounded in the theory, practice, and problems of public health. That suggests that law schools should provide their students with ample exposure to public health.

The idea that professional education programs should, but often fail, to incorporate elements considered to be beyond the profession's normal domain is not new. Medicine has done poorly at teaching public health.² An analogous deficiency has existed in schools of engineering, where few students are taught the basics of worker protection and pollution control, despite the fact that engineers design the plants and equipment that injure and pollute.³ The National Institute for Occupational Safety and Health has funded and worked with engineering schools to incorporate worker safety in the curricula.⁴

We have counseled that law schools should also incorporate public health into their curriculum.⁵ What exactly does that mean and how can that goal be achieved? Last April, Northeastern University School of Law and the Public Health Advocacy Institute, with support from the Centers for Disease Control and Prevention, assembled experts from legal education, public health practice and education, the judiciary, foundations, and the publishing industry to consider what changes would have to occur in legal education so that law graduates would be "literate" in public health and how those changes could come about.⁶ In this article we build upon the intense discussions of the 25 conference participants. We make the case for introducing public health into the core law school curriculum and suggest the content that would be needed to achieve public health literacy among law students. We also argue that public health's focus on populations, aided by the tools of epidemiology, provides a valuable prism for understanding the relationship of individuals and groups and the ways that laws can and ought to affect them. We conclude by urging the development of a body of scholarship and analysis that brings the insights of public health to bear on legal questions.

CONTENT OF A LEGAL CURRICULUM ON PUBLIC HEALTH LITERACY:

Law schools might introduce public health to their students in several ways. Most comprehensively, law students can enroll in a J.D./M.P.H. program, and receive the training given public health graduate students for a masters degree in public health. While such programs are increasingly common,⁷ they are obviously intended for students already committed to careers at the intersection of law and public health. Thus JD/MPH programs do not

reach the vast majority of law students.

A larger number of law students can be exposed to public health in upper level electives that focus on public health law or a particular topic closely related to public health, such as AIDS law or food and drug law.⁸ Undoubtedly, the content and the extent of exposure to public health principles and methods will vary widely depending on the particular topic of the class. Through these courses, law schools can provide a limited number of students with in-depth exposure to one or more public health problems and the legal tools and doctrines most relevant to those topics. Law faculty and public health professionals at a 2002 workshop⁹ dedicated to developing a curriculum on bioterrorism concluded, for example, that a basic understanding of public health powers would be an essential part of any course on bioterrorism.

Most law students, however, will never get a MPH or take a public health oriented elective in law school. If they are to be introduced to public health in the course of their legal training, it will have to be within existing, core law school courses, the courses that are generally required of first year students or taken almost universally by upper level students. At the Public Health Literacy Conference, the lawyers present identified several such courses—torts, constitutional law, environmental law, and administrative law—as prime candidates for the inclusion of public health. Attendees also recognized that the integration of public health into such courses would be difficult to achieve given legal education's traditional reluctance to embrace significant reforms. Nevertheless, attendees agreed that it was important to pursue the effort.

What public health knowledge or set of skills should all law students acquire? If these could be identified, educators from law and public health could explore how to incorporate them in core law courses. Successful integration of public health into standard law school courses would introduce students to:

- law's public health context
- public health powers
- public health methods
- public health's population perspective

Two criteria must be met, according to the Public Health Literacy Conference attendees, if law professors are to adopt public health components in core courses. First, the integration must not be too hard to accomplish. Materials must be available, and support, in terms of time, money, training, and academic respect, must be forthcoming.¹⁰ Second, faculty must believe that the inclusion of such materials will not only be good for public health, but that it will also enhance their students' legal skills and perhaps legal analysis itself. The remainder of this article seeks to address these concerns by exploring more fully the four components of a public health education for lawyers identified above—and examines how

they can improve students legal skills and why they have the potential for enriching legal analysis itself.

PUBLIC HEALTH CONTEXT

To empower law students to be literate in public health, law schools must help them to recognize public health issues and be familiar with the lessons from the law's prior encounters with public health. For over a hundred years, legal scholars have stressed the importance of introducing lawyers to the social, economic, and political context in which the law operates. They have also counseled the value of interdisciplinary analysis. In *The Path of the Law*, for example, Justice Oliver Holmes scolded the legal profession for its belief that law exists apart from the world in which it operates. He argued that lawyers should be trained to understand "the social advantage on which the rule they lay down must be justified..."¹¹

Following in Holmes' footsteps in the early twentieth century, the legal realists asserted the importance of the facts, out there in the world, to legal analysis. In their "revolt against formalism," legal realists stressed the value of the social sciences and empirical analysis to legal decision making.¹²

In subsequent decades, legal scholars from a wide spectrum of perspectives and disciplines stressed the need for interdisciplinary work and social context in order to achieve a rich understanding of the law. Scholars and jurists from the conservative "law and economics" school, for example, have focused on understanding the economic context in which the law operates. First, they proclaimed the value of applying economic reasoning to legal decision making.¹³ Then they recast the analytic tool, useful to explain societal decisions, as an assertion that economic valuation is largely sufficient to comprehend human motives. From a very different side of the political spectrum, feminist,¹⁴ critical race,¹⁵ and disability scholars¹⁶ have asserted the importance of teaching law students about the gendered, racial, and disability context of legal issues. Each group advocates for the inclusion of its issues and disciplines—analyses that shed light on a spectrum of legal issues. Repeatedly, we are reminded in rather different ways that law students cannot fully appreciate the meaning or impact of the law unless they understand how it affects different people and reflects critical social phenomena.¹⁷

Similarly, we recommend the inclusion of public health analysis and the public health context in which the law operates. Public health teaches us that the health or well being of individuals is influenced by forces that operate at the population level, beyond an individual's own control.¹⁸ Risks to health, and the health problems they create, have had a profound influence not only on the lives of individuals, but also shape societies and the structure of our law.¹⁹ To understand not only public health, but the law, students should grasp the public health context in which key legal

doctrines have developed. Students will then recognize public health issues when they arise, placing them in a fuller and familiar context of similar issues they have studied. They will appreciate more fully the reasons for and implications of the particular doctrines they are mastering.

Examples from three different areas of the law may serve to demonstrate what we mean by public health context. The first example comes from fourteenth amendment law. Virtually every law student studies the infamous case of *Lochner v. New York*, in which the Supreme Court struck down a state law setting maximum hours for bakeshop workers.²⁰ Many scholars have viewed *Lochner* as one of the pivotal cases in constitutional law. Indeed, many legal theorists regularly cite it when they deride judicial decisions.²¹ To cry "*Lochner*" is to question the legitimacy of a constitutional decision.

Lochner, like most important Supreme Court cases, was about many things and many themes can be dissected—the rise of the labor movement;²² the Supreme Court majority's antipathy to progressive labor legislation;²³ and the struggle between courts and legislatures.²⁴ Legal scholars, however, seldom discuss the public health context, although the statute at issue was presented by the State of New York as a public health measure and bakeshop workers did experience numerous diseases, including a high prevalence of infectious tuberculosis.²⁵ In fact, Justice Peckham, writing for the majority of the Supreme Court, recognized that the statute would have been constitutional if it were indeed, truly, a public health measure.²⁶ Thus, one of the key questions implicit in *Lochner* was the meaning of public health and whether worker protection issues could be seen as a valid concern for public health.²⁷ Examined in this manner, *Lochner* provides an interesting insight into the contested nature of public health and the government's role in protecting it. The provision of this context to *Lochner* may not change a student's ultimate opinion about whether the case was correctly decided, but it may shed new light on the decision. This expanded analysis of *Lochner* would prepare students to understand the ways in which struggles over the scope of public health have helped to weave the fabric of our law.

A second example also offers itself from constitutional law, this time relating to the commerce clause doctrine. As numerous commentators have noted, in *Lopez v. United States*, the Supreme Court revised its analysis of congressional power under the commerce clause, making it more difficult for Congress to enact regulatory legislation.²⁸ This constriction of congressional power appeared to derive, in part, from the Court's concern for safeguarding the traditional police powers of the states.²⁹ Underlying that concern was the assumption that police powers constitute a relatively static set of powers, aimed at protecting the public's health and safety, and that these powers have traditionally been the exclusive province of the states. An understanding of public health

history, however, makes problematic the notion that public health powers have been or can be the exclusive domain of the states.³⁰ Real world public health context intrudes. An analysis of public health problems in the modern global environment—from SARS³¹ to the question of youth violence³² at issue in *Lopez*—raises doubt about the ability of states acting alone to protect the public from such hazards. This analysis does not demonstrate that the Supreme Court was wrong in *Lopez*. Certainly the Court confronted interpretative and federalism problems beyond the scope of public health, but a discussion of the way in which health problems cross state and even national borders suggests that *Lopez*' impact may be other than what the Court thought. At least, if the Court believed that it was protecting the police power and thereby the ability of states to safeguard the health and welfare of their populations, it may well have announced a constitutional rule that will result in exactly the opposite outcome, less protection for the health of a population.³³ This may not prove to be so. But only by providing students with the public health context behind the case can they fully assess the Court's reasoning, speculate on the case's impact, and understand how constitutional doctrines may affect the lives of populations.

A final example offered here—although many others can be given—comes from the famous tort case of *Stubbs v. City of Rochester*.³⁴ The case concerned an outbreak of typhoid fever in Rochester, New York. The city offered two different water supplies, one for drinking and one for firefighting. The plaintiffs argued that sewage, known to be in the firefighting water system, contaminated the drinking water supply, causing the plaintiff to contract typhoid fever.

The issue before the court was whether the plaintiff had sufficiently proven that the defendant's negligence caused the typhoid. Interestingly, *Stubbs* constitutes an early example of a court finding epidemiological evidence sufficient to satisfy the plaintiff's burden of causation.³⁵ Thus the case provides an obvious opportunity to introduce students to basic concepts of epidemiology and to observe how methods for studying disease in populations have changed over the years. This would be useful to students, indeed essential, because tort litigation about product liability and toxic exposures has made epidemiology and public health science central to much civil litigation today, as we discuss later in this article.³⁶ But the context of the case goes beyond an analysis of evidentiary issues.

The development of clean, municipal drinking supplies is undoubtedly one of the great public health victories of all time.³⁷ Students reading the case should understand that cities did not always supply clean water for drinking and that prior to the introduction of clean water, concentration of populations in cities led to extremely high rates of death (especially among children) from diseases such as typhoid fever and cholera.³⁸ Dr. John Snow's study that linked cholera rates in London neighborhoods to the source of people's

drinking water persuaded him to remove the handle from the contaminated Broad Street pump, and incidentally helped give rise to the modern science of epidemiology.³⁹

Before the science of bacteriology learned to identify pathogenic microorganisms in the late 19th century, municipal authorities, acting on the lessons learned from epidemiology, had achieved a dramatic decrease in deaths from water-borne diseases by protecting drinking water supplies from human wastes.⁴⁰ Thus seen in context, *Stubbs* is not simply about how we can infer individual causation based upon population data, a subject that future tort lawyers would be well advised to master.⁴¹ *Stubbs* is also a tale from public health's long struggle to use the forces of science and society to protect populations from infectious disease. Whether or not the defendant caused Mr. Stubbs' typhoid, there can be no doubt that the health of the public benefits from the provision of safe drinking water. But that insight will not be recognized by students who do not know (as many of our students likely do not), that only 120 years ago, deaths from water-borne diseases were common in this country and that it took concerted public efforts to prevent premature death.

PUBLIC HEALTH POWERS

A second goal is for students to appreciate key legal doctrines that relate to public health, particularly the array of powers government uses to protect the population's health and the restraints the law places upon those powers.⁴² All law students cannot be expected to study public health law as preparation for becoming public health lawyers. Nevertheless, they should understand the basic contours of how the government, acting through law, organizes to protect and promote the public health and the tensions and challenges created by the exercise of those powers.

Governments have always taken an interest in the health of their population. From the beginning, concerns about how to protect the population and prevent disease and injury have helped define the role of government.⁴³ In the United States, activities by the states to promote public health came to form the core of what is known as the "police power."⁴⁴ To be literate in public health, and indeed, to be effective lawyers, law students should be acquainted with the idea of the police power, the limitations applied or suggested to restrain it, and ways that states exercise it. An introduction to the police power will provide students two critical legal strengths: an appreciation of the legal tools available to help carry out public health actions and a deeper understanding of the law's role in promoting the health of the population. By delving into the police power, students will see first that government activities to promote and protect the population's health have historic roots. They are not an unusual contemporary phenomenon. Second, such activities create

difficult challenges for our legal system. Public health colleagues without legal training, although they must use the police power, often lack this depth of understanding.

A basic introduction to public health powers would also expose students to the complex role that the federal government plays in matters of public health. It is commonplace to assert that public health lies in the province of the states.⁴⁵ A careful reading of history, however, demonstrates a critical and expanding federal role in the protection of public health, reflecting threats that exceed the capacity of states. (Some threats exceed the capacity of national governments as well, such as bioterrorism and global epidemics.)⁴⁶ What tools are available for the federal government to assure protection of the public health? The spending power and the commerce clause are most obvious. What doctrinal limitations constrain efforts to protect the health of the public? Teaching these issues in their public health context, as we noted above, will enrich the students' understanding of the doctrines and facilitate the students' ability to use the law creatively.

The study of public health powers can also provide an opportunity to explore the ways that law can be used to advance public goals. Law schools usually emphasize private law and individual rights.⁴⁷ Our public law courses—constitutional law, administrative law, and criminal law—often highlight the legal rights of individuals and the limits of government action. Far less discussion time is devoted to the use of the law as a positive instrument, to how governments can act, and the rationales for their action.⁴⁸ To many lawyers, those questions appear to be outside of the law itself, within the domain of policy or politics.

Public health law in the core law school curriculum can provide a context for students to understand the broad range and durability of the powers different levels of government wield to protect the public. (Such topics already appear in the syllabi of many courses in health and environmental law.) In other words, by looking at public health powers, students can become better able to appreciate and use the law positively to advance the public good.

No discussion of public health powers would be complete without a consideration of the role that law plays in limiting those powers.⁴⁹ A broad array of legal doctrines, from the substantive due process doctrine developed under the 14th amendment of the Constitution,⁵⁰ to doctrines relating to judicial review of administrative agencies, evolved appreciably in the context of public health issues.⁵¹ Likewise, some of the earliest equal protection cases challenged actions taken by public health authorities who exercised their powers in a discriminatory manner.⁵² Even today problems may arise when public health agencies use their authority in an unduly coercive or discriminatory manner. Lawyers have avenues available to restrain those actions. These topics can engage law students and help them appreciate that law is both a vital engine for public health, and also a critical mediating force.

PUBLIC HEALTH METHODS: QUANTITATIVE AND SCIENTIFIC REASONING

Law students can learn the basic scientific methods that public health employs and in doing so develop a broader acquaintance with quantitative and empirical techniques that are critical to the contemporary practice of law. The public health conference noted that "Public health draws on all the scientific knowledge that informs our understanding of how humans interact with their environments and manifest disease and injuries."⁵³ Epidemiology, which studies the incidence, prevalence, distribution, and etiology of disease, is the core discipline of public health. Epidemiologists rely upon a variety of experimental and observational studies, statistical and analytic methods.

Lawyers cannot be expected to become epidemiologists. To understand the public health issues, however, they should have a basic grasp of the quantitative and scientific methods on which epidemiology rests. At minimum, lawyers should understand the types of studies that epidemiologists rely upon,⁵⁴ possess a familiarity with the concepts of rates, incidence, and prevalence; be aware of the distinctions between association and causation; and recognize that there are many ways that epidemiologists infer causation from association.⁵⁵ Lawyers might also receive a basic introduction to scientific reasoning,⁵⁶ the ways in which scientific consensus is developed,⁵⁷ and the distinctions between legal and scientific notions of "causation" and "truth."⁵⁸ (Ironically, most scientists themselves simply *do* science, remaining unfamiliar with studies of science and scientific methods.⁵⁹)

The suggestion that lawyers should be better informed about statistics and science is neither new nor exclusive to proponents for public health literacy. Critics of the legal system's use, misuse, or abuse of science and scientists have long lambasted lawyers for their ignorance about what science is and how it works.⁶⁰ A 1993 Supreme Court decision, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,⁶¹ and its progeny have made the debate central to tort litigation in the United States.⁶² In *Daubert*, the Supreme Court reconsidered the standards for admission of expert evidence. Rejecting the earlier *Frye*⁶³ rule as incompatible with the Federal Rules of Evidence, the Court instead required federal judges to act as gatekeepers and determine whether the proffered evidence was "reliable," which the Court claimed, required a determination of whether the evidence was based on a scientifically valid methodology.⁶⁴ In *Daubert* itself, two justices questioned the wisdom of asking federal trial judges to take on the role of deciding what is good science and what is not, describing the task as akin to asking them to become "amateur scientists."⁶⁵

Since *Daubert*, however, in federal courts and many state courts, that is just what has happened.⁶⁶ Because expert witnesses may offer opinions about causation that

are thought to be useful to the finder of fact—jury or judge—a trial judge is now required to act as a "gatekeeper" and decide which expert testimony to admit. The *Daubert* process—pretrial hearings on the admissibility of expert testimony—now dominates product liability and toxic tort cases.⁶⁷ Recently, the Data Quality Act⁶⁸ has extended a *Daubert*-like process into federal agencies, providing an opportunity to challenge the science used in setting agency policy and in regulatory decision making. This means that every lawyer working with or in government agencies will need to understand science and quantitative reasoning as never before. All these procedures hinge on how lawyers understand and portray science, an important reason why an introduction of public health and scientific decision making is necessary in the core curriculum law school.

Lawyers employing the *Daubert* process have spawned a virtual industry designed to inform judges and lawyers about the "ABC's" of epidemiology, the scientific method, and statistics.⁶⁹ These legal pundits on science have expanded on the Court's suggestions in *Daubert*, creating a check-list approach to assessing whether scientific testimony is relevant and reliable, confusing—often deliberately—the legal concept of causation with how scientists reach conclusions about causation.⁷⁰ Little or none of this lawyers' rendition of science has been subjected to scholarly scrutiny by scientists, and legal practitioners and judges, largely uneducated about science and quantitative methods, have wandered far from scientific practice.⁷¹

The need for a better understanding of science among lawyers is now plainly evident. Justice Breyer, in his influential critique of the regulatory process and administrative law, has called for a more rigorous understanding of quantitative analysis, including cost-benefit analysis, in determining regulatory standards.⁷² The National Academy of Sciences has a committee of scientists and lawyers reviewing these issues.⁷³

In light of *Daubert*, lawyers must be better informed about how scientists assess causality, how they value evidence, and the application of epidemiology, toxicology, animal and clinical studies. Thus, there is an urgent need to develop curriculum within law schools that teaches law students to understand quantitative science. And what better way than around public health issues, that are already deeply embedded in the law? It would meet the broader goal of ensuring that lawyers are competent consumers of epidemiological and statistical analyses and that lawyers can work collaboratively and intelligently with public health professionals, medical experts, regulators, and the plethora of other professionals who rely upon quantitative and empirical tools.

PUBLIC HEALTH'S POPULATION PERSPECTIVE AND POPULATION-BASED LEGAL ANALYSIS

Lawyers should be able to think critically about populations and what it means to focus on them, as opposed to individuals. This approach to legal problems contrasts with the law's usual focus on individuals. Drawing on the traditions of Anglo-American liberalism, our jurisprudence posits individuals as mini-sovereigns, each replete with her or his own endogenous set of preferences and rights.⁷⁴ From this premise, the goal of law becomes regulation of the interaction of those mini-sovereigns; to protect their rights and property; and, for those who subscribe to utilitarian or neo-classical economic theories, to maximize their aggregate utility or wealth.⁷⁵ Law schools, with their typical emphasis on competition and non-collaborative work, reinforce the individualism evident in the doctrines taught.⁷⁶

This foundational individualism manifests itself in and deeply influences many fields of law. A few broad-brushed examples may demonstrate the point. The field of health law itself, as John V. Jacobi observed, concerns itself with "bilateral disputes over health finance, medical injury, and patient's rights..."⁷⁷ What is missing, he argues, are the "tools or the perspective" to address issues that affect populations.⁷⁸

American constitutional law, too, is famously devoted to analysis and consideration of the rights and interests of individuals.⁷⁹ Thus the question of whether a woman can have an abortion is framed as a conflict between a woman's right to privacy versus the rights of the individual fetus.⁸⁰ The law of race discrimination, which was once understood as recognizing and responding to group harms,⁸¹ focuses significantly on the needs and interests of individuals, rather than groups.⁸² Although the Supreme Court's recent decision to uphold race-conscious decision making by universities signals some recognition of the importance of group perspectives,⁸³ it remains true that state policies that disparately disadvantage suspect classes are not held to violate the Constitution even if the disadvantage to the group is clear and obviously foreseeable.⁸⁴ Only when the state, anthropomorphized as if it were also an individual, intentionally aims at disadvantaging one or more people on the basis of their membership in a suspect class, is the Constitution found to be offended.⁸⁵

Even tort law, the field of common law most focused on population-based concerns, remains heavily influenced by individualism. As scholars have noted, traditional tort law, prior to the so-called 1960s "torts revolution," assumed that "individualism outranks concerns for others."⁸⁶ These tenets remain ensconced in the field, for example, in the no-duty rule that many states continue to affirm.⁸⁷ Perhaps the single most influential critique of traditional tort law emerges from scholars and judges who believe that the primary goal of tort law should be the maximization of economic efficiency.⁸⁸ While this position postulates the

utilitarian goal of advancing a group interest—the sum of individual interests—it remains grounded in a "methodological individualism," that assumes the atomism of individuals and their preferences.⁸⁹

The dominating individualism of American law has come under sustained critique in recent decades from: feminist scholars who postulate the importance of relationships;⁹⁰ critical race scholars who point out the need to understand the position of identity groups;⁹¹ and communitarians who stress the primacy of community.⁹² Nevertheless, these critics, remain just that: *critics* of the prevailing regime. Their influence is occasionally evident in case law, but they have largely failed to alter the status quo. Perhaps even more importantly, as David Ortiz has noted, in many subtle but fundamental ways these critics share many of the individualistic premises of the jurisprudence they critique⁹³—often reifying groups or communities, treating them as if they were, in essence, individuals.

What the critics of individualism in the law seldom offer is a serious or sustained examination of groups (other than identity groups), which includes an analysis of them and their interests and their relationships to the individuals who form them. This, of course, is precisely what public health and its scientific foundations do. As Jacobi writes, "[p]ublic health is a discipline dedicated to the scientific examination of the conditions affecting the health of populations."⁹⁴ Public health's primary sciences—epidemiology and biostatistics—focus on populations as populations⁹⁵ and apply empirical, statistical, and analytical methods to understand how to define them, determine what affects them, and what distinguishes them from other populations, and how they relate to the individuals who comprise them.

By comparing populations, epidemiologists have garnered insights useful to legal analysis. Geoffrey Rose explains that how populations are selected affects what can be learned.⁹⁶ For example, if we try to understand the causes of coronary artery disease by comparing people in a particular population who have heart attacks with those who don't, we may identify a risk factor, such as exercise, the presence of which differs between the groups. However, unless the population as a whole is compared with other populations, we may easily miss causes of the disease to which everyone in the population was exposed. Only by many comparisons of many populations with different rates of disease, can be begin to identify all of the factors contributing to disease.⁹⁷

Rose's insights raises several points relevant for legal analysis.⁹⁸ First, he demonstrates how a focus on individuals—usually the symptomatic patients—can at times obscure our understanding of what is happening to the larger group. Thus the health damage done to the population by asymptomatic or untreated individuals with mildly elevated blood pressure is far greater than the sum of damage done to symptomatic individuals and those found by doctors to

have hypertension, for the latter group is much smaller. Can changes in the environment affect the prevalence and distribution of hypertension in the population? Only by comparing groups can scientists predict how individuals are likely to respond to elements of their social and physical environments.

This is relevant to a number of legal issues. For example, in understanding the nature and impact of discrimination, we may recognize that the phenomenon at a population or social level cannot be well understood simply by looking to discrete cases of discriminatory behavior. Indeed, epidemiological studies that have associated the relationship between discrimination in a population and the health status of minorities suggest precisely that point.⁹⁹

Epidemiology also teaches that the risks individuals face are significantly affected by their environment. For example, an individual with a low genetic predisposition to a disease may still be at a higher risk of that disease than an individual with a high genetic predisposition if the former is exposed to a more dangerous social and physical environment, where the incidence of the disease is higher. From this we learn that even if our goal is to change an individual's risk factors, environmental or population-based interventions may be more successful than those policies that seek to change individual risk factors.

Epidemiology's analysis of the relationship between individuals and social risk also has relevance for a wide range of legal issues. For example, debates about whether government should enact apparently paternalistic laws, such as those requiring motorcycle helmet laws, often presume that individuals can make independent choices and that they can control the probabilities of their being affected by different risks.¹⁰⁰ Rose's work questions that assumption and provides legal decision makers with a different perspective for analyzing so-called paternalistic laws. On the one hand, a seat belt law may not actually be paternalistic, if we recognize that individuals cannot in fact control the risks to which they are exposed. On the other hand, such laws may be inefficient ways of reducing highway deaths if in fact they focus on altering individual rather than population behavior. As Beauchamp and Steinbock argue, "[t]he population perspective constructs a new story about how highway injuries occur in society."¹⁰¹

Likewise, a population-based perspective may alter the way we understand relatively new issues, such as the legal responsibility of the food industry for the growing obesity epidemic.¹⁰² The traditional individualism of American law (and culture) would suggest that in the absence of misrepresentation or the sale of an exceptionally dangerous product, the food industry should not be viewed as responsible for the problem.¹⁰³ Individuals should be regarded as free and responsible for their own eating and exercising habits as well as the weight gain that ensues.¹⁰⁴

A population-based perspective, however, questions

whether individuals should be viewed as personally responsible for their own weight. After all, the prevalence of obesity is increasing both across the broad U.S. population and across varied sub-populations.¹⁰⁵ Likewise, the health damage stretches across the population, harming individuals who do not consider themselves in need of weight control or who do not meet the official definition of obesity (BMI greater than 30). In fact, more health damage is likely occurring in the part of the population not identified as overweight than in the overweight population.¹⁰⁶

This suggests that causes must be understood at a broad, population level. Something is happening to make millions and millions of people make "choices" that lead to their gaining weight. Epidemiologists, therefore, are looking to fundamental environmental changes, including the marketing and distribution of food, as well as the way our built environment affects our activity levels.¹⁰⁷ These deeper causes may suggest legal causation should be seen as residing in those parties (corporate and governmental) that perpetuate the obesity-causing environment, or it may suggest a role for affirmative government interventions to alter the environment.¹⁰⁸ While adoption of a population-based perspective does not provide a single or simple determinative analysis of where and how the law should assign responsibility and intervene in the case of obesity, it does suggest a different set of remedies and approaches than would be offered by a more individualistic, market-based approach, which might focus solely on remedying market failures by giving individuals more information on how to make healthy choices.

Importantly, epidemiology also teaches us that populations differ and that it is critically important to define and compare them. Thus in thinking about obesity, or any other issue, we need to take care to consider what constitutes the population at issue. Lawyers, however, often use terms like "the public good" or "majority" without defining the group or assessing how one group differs from others. This lack of precision may inappropriately privilege majorities (as may occur when courts uphold drug testing for school children on the unproven assumption that it is in the public interest),¹⁰⁹ or it may devalue their interests by simply not treating them with sufficient rigor and import. A population-based perspective would not necessarily lead a judge either to uphold or bar a drug search, but it would demand that the "public" cited in defense of the search would be carefully delineated and the relationship between it and the search would be articulated.

Ultimately, a population-based perspective offers valuable lessons about the complexity of the relationship between individuals and populations. The history of public health is replete with examples in which individual interests have conflicted with either real or purported interests of particular publics.¹¹⁰ However, public health also teaches us that not only are individual interests interwoven

with public conditions,¹¹¹ but that recognition and protection of individual interests may also at times be the most efficient ways to secure a common good. Early in the AIDS epidemic, it was noted that societies that respected individual rights were often the same ones which achieved individual behaviors most protective of the whole population.¹¹² (Wealth and security, it should be said, often predate individual rights and explain the ability of people to learn and change behavior.)

These perspectives from public health are important to understanding laws (statutory, regulatory, and common law) that purport to serve the common good. In almost all such cases, a lawyer's understanding of the population perspective will add to and enrich the legal analysis. Whether drafting an administrative regulation to control air pollution levels or litigating a class action employment case, a lawyer's ability to take populations seriously and recognize the dynamic and multivariate relationship they have to individuals will improve the analysis.

HOW TO GET THERE: CONVINCING LAW PROFESSORS THAT PUBLIC HEALTH HELPS UNDERSTAND LAW

The true integration of public health into legal education will not be easy to achieve. Law schools have for the most part been quite reluctant to embrace change.¹¹³ Pressures from bar examiners undoubtedly exacerbate that recalcitrance.¹¹⁴ In addition, curricular changes require an investment of faculty time, that they may well be unwilling to make without sufficient institutional support.¹¹⁵

The most critical factor, however, may be the existence, or lack thereof, of an engaging and intellectually stimulating body of scholarship using the insights of public health to address a range of legal issues. Attendees at the Public Health Literacy for Lawyers Conference agreed that public health will not be integrated into the core legal curriculum unless and until a body of legal scholarship demonstrates its relationship to law and its power to enhance legal analysis. If such a body exists, then there is reason to hope that law professors will take note.

Neo-classical economics, for example, became part of legal education only after scholars, such as Ronald Coase¹¹⁶ and Richard Posner¹¹⁷ produced scholarship that displayed the ability of neo-classical economics to provide a coherent, unified, descriptive, and normative analysis of a wide-range of legal problems. The breadth and apparent elegance of their approach helped to stimulate excitement and debate among legal scholars, spurring additional scholarship on the role of economic reasoning in the law.¹¹⁸ As a result, even critics of the distributional consequences of law and economics came to see economic analysis of the law as a perspective and skill that their students "ought" to know.

To permeate legal education with population-based legal analysis, a similar scholarly revolution investigating

the utility of incorporating concepts from public health science is needed. Perhaps it has already begun. In recent years, there has been a renewed interest in public health law (including this second *JLME* symposium). Book-length expositions of the field have been published,¹¹⁹ and several major conferences have been held. In addition, issues such as bioterrorism has spurred considerable scholarly debate.¹²⁰ But few scholars have consciously attempted to explore the broader utility of population-based analysis for law and jurisprudence. Perhaps, one by one, cases and courses must be reexamined to assess the value of population-based legal analysis.

To reach a wider audience, and to entice a critical mass of scholars to join the debate and bring it to their students, more and in-depth scholarship is certainly needed. As we noted at the start, public health's focus on populations, resting on the science of epidemiology, provides a valuable prism for understanding the relationship of individuals and groups and the ways that laws can and ought to affect them.¹²¹ In addition, analyses of morbidity and mortality, and health measures, may well provide an important complement or even alternative to wealth maximization as a measure for determining utility for a population.¹²²

Grounded in observation and association, rather than on a singular deductive construct, public health science is unlikely to offer the kind of elegant, unified theory for human behavior spelled out in neo-classical economics, a theory that reminds us of H.L. Mencken's suggestion that "for every problem, there is one solution which is simple, neat and wrong." Nevertheless, public health can provide an alternative way of looking at old legal issues. For example, it may help lawyers analyze key issues, such as what constitutes the public good, and what are the proper roles and powers of government, where current answers are not wholly satisfactory.

In order for public health to play this role, more scholars must join the field. They must explore and debate what it means to consider legal issues through the prism of public health. We expect that once they take up that baton, they will find that it leads them down interesting and as yet unpredictable paths. We hope they will join us on that journey.

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