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RESTORING HEALTH TO HEALTH REFORM: INTEGRATING MEDICINE AND PUBLIC HEALTH TO ADVANCE THE POPULATION'S WELLBEING

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Abstract

The Patient Protection and Affordable Care Act is a major achievement in improving access to health care services. However, evidence indicates that the nation could achieve greater improvements in health outcomes, at a lower cost, by shifting its focus to public health. By focusing nearly exclusively on health care, policy makers have chronically starved public health of adequate and stable funding and political support. The lack of support for public health is exacerbated by the fact that health care and public health are generally conceptualized, organized, and funded as two separate systems. In order to maximize gains in health status and to spend scarce health resources most effectively, health care and public health should be treated as two interactive parts of a single, unified health system.

The core purpose of health reform ought to be the improvement of the population's health. We propose five criteria that would significantly advance this goal: prevention and wellness, human resources, a strong and sustainable health infrastructure, robust performance measurement, and reduction of health disparities. Although the Patient Protection and Affordable Care Act includes provisions addressing these criteria, population health is not a central focus of the reform.

In order to guide health reform implementation and to inform future health reform efforts, we offer three major policy reforms: changing the environment to incentivize healthy behavioral choices, strengthening the public health infrastructure at the state and local levels, and developing a health-in-all policies strategy that would engage multiple agencies in improving health incomes. Adopting these reforms would facilitate integration and dramatically improve the

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population's health, particularly when compared to the health gains likely to be realized from a continued focus on access to health care services.

It is hard to overstate the intense political and media attention given to health care. New medical discoveries and technologies are front-page news stories. In many communities, health care is either the largest or at least a substantial employer, and rising employee health care costs are a major concern of individual families and employers alike. As a wealthy society, the fact that we invest more in health care than in subsistence goods is a measure of the value we place on high technology and specialized health services. The United States spends nearly 17 percent of its gross domestic product (GDP) on health care (a combination of public/private financing), or over $7000 on each American annually.[1] This level of health care financing is nearly double the investment made in any other highly developed country.[2] As such, economic and political factors explain the salience of health care in American society.

With the expansion of health care as a major enterprise, it is not surprising that the American political community is deeply focused on health care. For a generation, the political debate over health reform has been a dominant domestic political issue. The nation recently went through the politically grueling passage of the first comprehensive health care reform since

[1] These figures are the most recent available--as of 2008 spending. Projections for 2010 spending are even greater; health care spending is expected to exceed 17 percent of GDP, rising to over $8000 per person. CMS, The National Health Expenditure Accounts, *NHE Summary Including Share of GDP, CY 1960-2009* (2010), *available at* http://www.cms.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage; CMS, The National Health Expenditure Accounts, *Updated NHE Projections 2009-2019, CY 1960-2008*, 4 (2010), *available at* http://www.cms.gov/NationalHealthExpendData/Downloads/NHEProjections2009to2019.pdf.

[2] The United States spent 15.3% of its GDP on health care in 2006, when spending by European states averaged 8.4% of GDP. The World Health Organization, *World Health Statistics 2009, Table 7* (2009), *available at* http://www.who.int/whosis/whostat/EN_WHS09_Table7.pdf; *see also* Gerard F. Anderson, Bianca K. Frogner & Uwe E. Reinhardt, *Health Spending in OECD Countries in 2004: An Update*, 26 HEALTH AFF. 1481, 1481 (2007) (reporting that based on 2004 OECD data, the U.S. spends 2.5 times as much as the median OECD country on health care).

the 1960s, with cavernous political divides on the role of government in financing and delivery. Modest proposals for cost-effectiveness comparisons--routinely accepted in other advanced democracies--were portrayed as "death panels," and the final law inhibits the use of quality cost-effectiveness analysis in coverage, reimbursement, and incentive structures.[3] Within weeks of the law's passage, twenty states filed lawsuits challenging the constitutionality of the individual mandate--a fundamental component of the reform.[4]

Despite its limitations, the Patient Protection and Affordable Care Act[5] is a major achievement in meeting the nation's goal of improving access to health care.[6] Without a doubt, it will reduce the number of uninsured Americans, a number that rose in 2009 to a record 16.7 percent, or 50.7 million people.[7] The Congressional Budget Office projects increased coverage through a variety of measures: imposing a tax penalty on most individuals who fail to purchase insurance, increasing Medicaid eligibility, subsidizing insurance premiums for low income individuals, providing incentives for businesses to provide employee health insurance, establishing health insurance exchanges, and eliminating coverage barriers such as health status underwriting (i.e., excluding or charging higher rates to applicants with pre-existing health conditions). By 2019, the Act is expected to enlarge health insurance coverage to an additional

[3] *See* Peter J. Neumann & Milton C. Weinstein, *Legislating against Use of Cost-Effectiveness Information*, 363(16) NEW ENG. J. MED. 1495, 1495 (2010) (noting that language in the PPACA may prohibit use of cost-effectiveness analysis, as it precludes the use of cost per QALY "as a threshold").

[4] Lawrence O. Gostin, *The National Individual Health Insurance Mandate*, 40(5) HASTINGS CTR. RPT. 8, 8 (2010). Courts have handed down conflicting decisions on the constitutionality of the mandate, which will invariably be resolved by the Supreme Court. *Compare* Virginia ex rel. Cuccinelli v. Sebelius, 2010 WL 5059718 (E.D. Va., 2010) (holding that the individual mandate is unconstitutional) *with* Thomas More Law Center v. Obama, 720 F. Supp. 2d 882 (E.D. Mich. 2010) (holding that Congress appropriately exercised its Commerce Clause powers in enacting an individual mandate) *and* Liberty Univ. Inc. v. Geithner, 2010 WL 4860299 (W.D. Va., 2010) (holding that the exemptions to the individual mandate do not violate the Free Exercise, Equal Protection, or Free Speech clauses of the Constitution).

[5] Patient Protection and Affordable Care Act, Pub. L. No. 111-148, 124 Stat. 119 (2010) (throughout the article, we will refer to the Act as the PPACA).

[6] The PPACA is, at best, an incremental advance in changing the way health care is organized, financed, and delivered. Nonetheless, if effectively developed and implemented, many provisions could prove transformational on the health care system. *See, e.g.*, Peter D. Jacobson & Johanna R. Lauer, *Health Reform 2010: Incremental vs. Radical Transformation?*, 42 ARIZ. ST. L. REV. 1277 (2011).

[7] In 2009, the U.S. uninsured numbers rose to 50.7 million, up from 46.3 million in 2008 and translating to an uninsured rate of 16.7 percent, up from 15.4 percent in 2008. U.S. Census Bureau, *Income, Poverty and Health Insurance Coverage in the United States: 2009*, 22 (Sept. 2010), *available at* http://www.census.gov/prod/2010pubs/p60-238.pdf.

32 million people, covering approximately 92 percent of the population. Among the remaining uninsured will be illegal immigrants, low-income people who fail to enroll in Medicaid, and individuals who are exempt from the mandate or choose to pay the tax penalty in lieu of purchasing coverage.[8] It would be reasonable to assume that the economic and political capital expended on health care would yield significant health benefits. However, evidence does not support this conclusion. Americans' health status is poor compared with citizens of countries with similar levels of economic development. Among the thirty member countries of the Organization for Economic Cooperation and Development (OECD), the United States ranks twenty-eighth in infant mortality (6.7 deaths per 1,000 live births) and twenty-third in life expectancy at birth (78.1 years for both sexes)--behind countries with half the income and half the health care expenditures per capita.[9] The World Health Organization (WHO) ranks the United States thirty-seventh among global health systems, reflecting concerns about relatively poor health indicators and sizable racial and socioeconomic disparities--although the PPACA will likely improve America's standing.[10]

America's relatively poor health outcomes raise vital questions that, although self-evidently important, rarely feature in public and political discourse. Is health care reform's core purpose to improve the health of the American population? If not, should it be? Moreover, is expanded access to health care a reliable and cost effective way to improve health?

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[8] The intentional decision not to cover disadvantaged populations, such as illegal immigrants, has significant public health implications, particularly in the area of communicable diseases. Undiagnosed and untreated infectious and sexually transmitted diseases, such as HIV, syphilis, and tuberculosis (especially multidrug resistant strains), pose a major risk to the population. *See e.g.*, LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT, 415 (2d ed. 2008) (noting that disadvantaged groups with inadequate access to healthcare are more likely to develop drug resistant strains of disease than those receiving timely and appropriate care).

[9] OECD, *OECD Factbook 2010: Economic, Environmental and Social Statistics, Infant Mortality*, 231 (2010); OECD, *OECD Factbook 2010: Economic, Environmental and Social Statistics, Life Expectancy at Birth*, 227 (2010), *available at* http://stats.oecd.org/Index.aspx?DataSetCode=CSP2010 (based on 2006 data).

[10] World Health Organization, *The World Health Report 2000, Health Systems: Improving Performance*, 155 (2000), *available at* http://www.who.int/whr/2000/en/whr00_en.pdf.

In response to these questions, we set forth and defend three propositions. First, although there is powerful intrinsic value to accessing health care services, the nation could achieve better health outcomes, at a lower cost, by shifting priorities toward health promotion and disease prevention, mediated principally through primary care and population-based services. Accordingly, our second proposition is that the PPACA's focus on improved access through insurance reform is insufficient to improve health outcomes. The PPACA includes promising public health provisions, but does not make population health a focus of the reform. Third, we argue that improvements in health status will be most effectively and efficiently achieved through the integration of health care and public health. These two spheres should be organized as parts of a single health system. In short, our thesis is that health care reform's core purpose should be to improve the public's health, which is best achieved through cost effective interventions at the population level--an idea we frame as "restoring health to health reform."[11]

The remainder of the Introduction sets forth the article's organization. Part I demonstrates the conceptual importance of integrating public health and health care into a unified health system.[12] Our premise is that public health and personal health care are interactive fields that can, and should, be examined across traditional disciplinary boundaries.

Part II describes the value of public health in achieving major improvements in the population's health. Health promotion and disease prevention, which act on the major determinants of health--behavior and the environment--are mediated through primary care and public health services. We demonstrate that investing in public health is likely to achieve better results than investing an overwhelming portion of our resources in health care services and technologies. Unfortunately, as we will explain, policymakers have chronically starved

[11] Peter D. Jacobson & Lawrence O. Gostin, *Restoring Health to Health Reform*, 304 JAMA 85 (2010).
[12] *See* LAW AND THE HEALTH SYSTEM (Lawrence O. Gostin & Peter D. Jacobson eds., 2005). Portions of this article are adapted from the second edition, forthcoming in 2012.

population-based services of adequate and sustainable funding and political support, to the detriment of the health of communities and the nation.

In Part III, we present normative criteria against which we measure health system reform. The five criteria are: prevention and wellness, human resources, a strong and sustainable health infrastructure, robust performance measurement, and reduction of health disparities. We will define each criterion and describe its importance. We then illustrate why these criteria will be better achieved through the integration of the public health and health care systems. In Part IV, we systematically assess the PPACA against these criteria to determine what Congress did well, and where the Act is deficient.

To inform and guide policy recommendations for future legislation and implementation (i.e., state and federal regulatory decisions), Part V shows what health reform would look like if policymakers adopted the criteria articulated in Part III. We applaud the increased health insurance access and emphasis on prevention, but the PPACA's funding allocation, focus on health insurance markets, and emphasis on individual health care would be substantially altered under our approach. To illustrate how our approach to health reform differs from the PPACA, we propose three major policy reforms: (1) changing the environment to make healthy behaviors the more likely choice; (2) strengthening the public health infrastructure at the state and local levels; and, (3) developing a health-in-all policies strategy that would engage all government agencies in improving health outcomes. We argue that adoption of these reforms would facilitate integration and dramatically improve the population's health, particularly when compared to the health gains likely to be realized from a continued focus on health care services. These reforms involve shifting the financial and political focus away from high-cost, high-technology interventions, thereby transforming the nation's conception of medicine, public health, and health itself. Part VI is our conclusion.

I. The Conceptual and Functional Importance of an Integrated Health System[13]

Under conventional perspectives, the health enterprise is comprised of two distinct, albeit overlapping, systems. The health care system is devoted primarily to improving individual health outcomes, focusing on financing, organizing, and delivering personal medical services. The public health system is devoted primarily to safeguarding and improving health outcomes in the population, focusing on community-wide interventions to reduce morbidity and premature mortality. Thus, health care is concerned with the individual's care and treatment, while public health is concerned with the health and wellbeing of populations.[14]

Reflecting this functional and conceptual divide, policymakers think of two discrete spheres for policy formulation and implementation. We take a different approach, believing that the separation between health care and public health is exaggerated and that personal and population-based services are interconnected. We prefer to think of a single integrated "health system," which demonstrates the importance of both perspectives, as well as the synergies between them. Because there is already an emerging, if inchoate, convergence between the two spheres, treating them as two separate systems is increasingly untenable. The future will be an integrated health system, and the quicker policymakers make this conceptual and functional shift, the better the health outcomes will be for individuals and the population as a whole.

As a result, we pose two fundamental questions: What separates a public health from a personal health issue, and what are the policy and legal implications flowing from this characterization? Our premise is that public health and personal health care are interactive fields that can, and should, be integrated into one health system. Standing alone, each sphere

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[13] *Id.*

[14] Allan M. Brandt and Martha Gardner, *Antagonism and Accommodation: Interpreting the Relationship Between Public Health and Medicine in the United States During the 20th Century*, 90 AM. J. PUB. HEALTH 707, 707-08 (2000). *See generally* GOSTIN, *supra* note 8, at 4 (defining "public health law" and distinguishing public health from health care) and LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW AND ETHICS: A READER (2d ed. 2010).

is necessary but not sufficient. An integrated health system will more effectively prevent and ameliorate injuries and diseases in individuals and the population.

A. Historical Interconnections

If the concept of system integration seems like a radical departure from the current way of providing health care and public health services, it is only because the existing organizational structure departs from historical antecedents. In contrast to the current health system bifurcation, the history of public health and personal health care in the U.S. shows their interconnectedness. Although health care and public health currently compete for dominance in resources and stature, historically they were "mutually dependent and interactive."[15] In fact, sharp boundaries between the two did not emerge until the early to mid-twentieth century. As such, history offers important lessons for the future development of the health system.

For most of the nation's history, public health services were salient, with health investment devoted principally to disease prevention and sanitation. By the middle of the 20th century, advances in medical technology and hospital care permitted more intensive and effective individual medical treatment. The development of the biomedical model and its focus on treatment of disease uncoupled medical care from public health's population-based approach. At that point, personal health care began to supplant public health as the dominant system. Accordingly, spending on public health substantially declined relative to spending on personal health care. Since the latter half of the twentieth century, health care has dominated not only in resources but also in public and media attention. This arbitrary separation has had adverse consequences for the population's health and the cost of medical care that can be remedied only through re-integration of the two spheres.

B. The Rationale for Integration

[15] Brandt & Gardner, *supra* note 14, at 708.

There are a number of advantages to integration of public health and health care, including greater efficiency, cost savings, and better outcomes for patients and populations. First, policy choices in one sphere can have adverse consequences for the other. For example, fee-for-service physician reimbursement negatively affects public health by creating a disincentive to spend time educating patients on the health impact of their lifestyle decisions.[16] Similarly, a focus on high-technology interventions, which often "add small increments to health at large cost," diverts attention away from health promotion and disease prevention.[17] In contrast, when public health and health care are both viewed as priorities, and resources are allocated accordingly, each is better equipped to accomplish its respective goals.

Second, effective public health "reduces the need for medical services to treat conditions that can be prevented, thereby helping to control costs and make personal health care affordable."[18] Instead of upfront investments in prevention and wellness, the nation spends billions of dollars on high technology interventions to treat conditions that might otherwise have been prevented or reduced in severity. For example, patients with complex chronic diseases incur very high medical costs, which may have been avoided through general prevention efforts that reduce disease rates over time.

Third, effective health care with universal coverage "virtually frees public health from playing the role of medical care provider to the poor and uninsured, thereby freeing resources to pursue population-based disease prevention and health promotion activities."[19] Public health agencies would not feel the need to expend scarce resources for safety net health care clinics if the health care system were accessible and affordable for the entire population.

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[16] *See* David A. Hyman, *Follow the Money: Money Matters in Health Care, Just Like in Everything Else*, 36 AM. J.L. & MED. 370, 372-75 (2010) (giving examples of the perverse patient care incentives resulting from fee-for-service remuneration).
[17] Thomas G. Rundall, *The Integration of Public Health and Medicine*, 10 FRONTIERS OF HEALTH SERV. MGMT. 3, 9 (1994).
[18] *Id.* at 15.
[19] *Id.*

Fourth, integrating health care and public health--each with its own methodologies and bodies of knowledge--is likely to be most effective in responding to complex, multifactorial diseases. With their combination of individual and lifestyle factors, chronic diseases "belong as much to the public domain as to the private space that is the doctor-patient-relationship."[20] Similarly, multi-drug resistant infections such as M.TB and HIV make it harder to treat individuals, while posing substantial threats to the public's health. Medicine must ensure that patients reliably take appropriate medications, while public health must act to prevent transmission in the community. In other words, the activities of medicine and public health are more than the sum of their parts. A final rationale for the integration of public health and health care is the avoidance of unnecessary duplication, and the resulting unnecessary costs. For example, both health care and public health are increasingly dependent upon expensive information technology. Shared information systems have the potential to not only save costs and maximize investments, but also improve health. Independently operated databases, on the other hand, function as unlinked "'silos'--disconnected repositories of information."[21] Shared technology and information can "provide a shared situational awareness of public health threats, available resources, and options for rapid and effective health protections efforts."[22]

C. Moving Toward Integration

Greater convergence of health care and public health is already underway. Just as there is operational convergence between for-profit and nonprofit health systems (that is, they use similar strategies to generate revenue despite their divergent organizational characters), more and more aspects of health care will have public health implications. With the emphasis

[20] Michèle St-Pierre, Daniel Reinharz & Jacques-Bernard Guthier, *Organizing the Public Health-Clinical Health Interface: Theoretical Bases*, 9 MED., HEALTHCARE, & PHIL. 97, 99 (2006).
[21] Scott J. Leischow & Bobby Milstein, *Systems Thinking and Modeling for Public Health Practice*, 96 AM. J. PUB. HEALTH 403, 404 (2006) (exploring the challenges and promise of applying "systems thinking" to solve public health issues).
[22] *Id.*

on wellness and prevention in the PPACA, we anticipate the burgeoning integration of public health and medical care delivery. In particular, the Act devotes substantial resources to integrate prevention and wellness into primary care practice. By definition, primary care providers will be reliant on population health concepts to achieve the Act's purposes. Over time, prevention and wellness could become a dominant aspect of primary care practice.[23]

We offer four illustrations of emerging integration: obesity, injury prevention, health care associated infections, and community health assessments required for nonprofit health care organizations.

1. Obesity

Obesity is a major epidemic, responsible for an increasing share of rising health care costs. On one level, addressing obesity involves individual health care services: a morbidly obese patient may benefit from a gastric bypass procedure or through pharmacological interventions, but may still suffer the considerable morbidity associated with chronic diseases such as diabetes, edema, arthritis, cardiovascular disease, sleep apnea, and immobility. In contrast, from a public health perspective, obesity results as much from deficiencies in the built environment and market failures as it does in personal behaviors. For example, the patient's environment may lack recreation facilities and fresh food markets.[24] Treating obesity therefore extends far beyond the treatments rendered to individual patients. Obesity is a complex medical and public health concern, as physicians, insurers, and public health practitioners

[23] There is reason to believe that many European countries provide their public health services through primary care providers and integrated health systems. During 2010, Jacobson conducted preliminary interviews in four European countries (Denmark, Spain, Switzerland, Germany) to ascertain how they provide public health services. Although each of the countries has a functioning public health system, most respondents indicated that primary care was the actual venue for prevention and wellness services.

[24] The Institute of Medicine's definition of public health sheds light on its distinguishing features from health care services. The goal of public health, it asserts, is "fulfilling society's interest in assuring conditions in which people can be healthy." INSTITUTE OF MEDICINE, THE FUTURE OF PUBLIC HEALTH 140 (1988) (analyzing the current state of public health and suggesting how to improve it in the future). *See also* INSTITUTE OF MEDICINE, THE FUTURE OF THE PUBLIC'S HEALTH IN THE TWENTY FIRST CENTURY 2 (2000) (examining recent public health achievements and current public health issues).

devise more effective ways to prevent risk factors and manage chronic disease. As a consequence, it is impossible to separate the role of the public health and personal health care system--they are inherently intertwined.

2. Injury Prevention

Injury prevention is another area where public health and personal medical care interact. The primary point of intersection is that the costs of failing to use public health interventions to reduce injuries are often shifted to the medical care system through expensive emergency and trauma care. For example, public health interventions mandating the use of helmets for motorcyclists and bicyclists reduce the injury-related health care costs of failing to wear protective helmets. Even though such regulations potentially interfere with personal freedoms, the costs of resulting injuries are often borne by third parties rather than the individual riders.[25]

3. Health Care Associated Infections

An emerging area of doctrinal convergence is health care associated infections (HAIs)--hospital-based infections that often result from the overuse of antibiotics, such as MRSA (methicillin-resistant Staphylococcus aureus). HAIs spread rapidly and vastly increase health care costs because they are resistant to formerly effective antibiotic regimes. A 2007 study concluded that MRSA alone killed more than 18,000 patients per year,[26] and the CDC estimates

[25] Similarly, new technologies that enable drivers to access the Internet while driving raise the potential for serious public health harms from distracted driving. Reducing the hazards of distracted driving requires a range of public health interventions that would limit the use of technologies that many drivers now take for granted. *See* Peter D. Jacobson & Lawrence O. Gostin, *Reducing Distracted Driving: Regulation and Education to Avert Traffic Injuries and Fatalities*, 303 JAMA 1419, 1419-20 (2010) (exploring the effectiveness of different methods of managing driving distractions).

[26] *See* R. Monica Klevens, et al*., Invasive Methicillin-Resistant Staphylococcus aureus Infections in the United States*, 298 JAMA 1763, 1767 (2007) (providing data on the prevalence of MRSA infections in the United States). *See also* Richard S. Saver, *In Tepid Defense of Population Health: Physicians and Antibiotic Resistance*, 34 AM. J.L. & MED. 431, 431 (2008) (recognizing the difficulty in distinguishing between individual medical care and population health).

that HAIs cause approximately 99,000 deaths annually.[27] The solution lies in both the health care and public health system, including reducing unnecessary use of antibiotics among human and animal populations, and systematic hygiene in health care settings.[28] Physicians will have to employ both clinical and public health calculations going forward, balancing their ethical and legal duties to individual patients with their general obligations to the public's health more broadly.[29] Thus, while HAIs affect individuals, they also present serious public health consequences. It is difficult to imagine a solution that would not involve a unified approach between hospitals, health care providers and public health agencies. In fact, research shows that developing simple checklists (a population-based approach within a health care facility) can dramatically reduce HAIs.[30]

4. Community Health Needs Assessments

The Affordable Care Act requires tax-exempt hospitals to conduct community health needs assessments at least once every three years.[31] Although the PPACA does not mandate methods or data collection requirements, the assessment must take "into account input from persons who represent the broad interests of the community . . . including those with special

[27] *See* AGENCY FOR HEALTHCARE RESEARCH & QUALITY, ENDING HEALTH CARE-ASSOCIATED INFECTIONS 1 (Pub. No. 09(10)-P013-2, 2009) (providing an overview of Agency for Healthcare Research & Quality projects that have led to a reduction of HAIs); R. DOUGLAS SCOTT, THE DIRECT MEDICAL COSTS OF HEALTHCARE-ASSOCIATED INFECTIONS IN U.S. HOSPITALS AND THE BENEFITS OF PREVENTION 5 (Centers for Disease Control & Prevention, 2009), *available at* http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf (noting that CDC estimates of health care associated infections are based on data set forth in R. Monica Klevens, et al., *Estimating Healthcare-Associated Infections in U.S. Hospitals, 2002*, 122 PUB. HEALTH REP. 160, 162-64 (2007)).

[28] CENTERS FOR DISEASE CONTROL & PREVENTION, PREVENTING HEALTHCARE-ASSOCIATED INFECTIONS 13-16 (June 7, 2009), *available at* http://www.cdc.gov/nhsn/RA/PDF/csteWorkshopDHQP6709Final.pdf (outlining current efforts to prevent HAIs).

[29] *See* Saver, *supra* note 26 at 431.

[30] *See, e.g.*, Peter Pronovost, et al., *An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU*, 355 N. ENG. J. MED. 2725, 2729 (2006) (reporting that checklist based patient safety design successfully reduced rate of catheter-related bloodstream infections in 103 intensive care units in Michigan).

[31] *See* PPACA § 9007(a)(3)(A)(i), 124 Stat. at 855.

knowledge of or expertise in public health."[32] Equally important, each facility must adopt a strategy to implement the community needs identified in the assessment.[33] Therefore, the health needs assessment process advances integration by requiring collaboration between health care providers and public health officials.[34]

Consider the community-benefit requirements that not-for-profit health care facilities must meet to justify federal tax exemptions (and most state property tax exemptions). The *sine qua non* of meeting the community benefit test has been to provide uncompensated care to uninsured or underinsured members of the community. Suppose the health needs assessment process finds that many formerly uninsured individuals have access to health insurance because PPACA has been successfully implemented. Some facilities may then fail to supply the volume of uncompensated care to meet the community benefit test.

An alternative is to use population health concepts to allow facilities to meet their community benefit obligations.[35] Instead of placing the emphasis on treating individual patients to meet an economic threshold, facilities could provide traditional public health services to the community. For instance, a facility could benefit the community through enhanced prevention services, thereby improving the health status of the community as a whole.[36] These services could range from free vaccinations to establishing school-based clinics. Kaiser Permanente, for example, has created a national partnership, the Healthy Eating Active Living Community Health Initiative, to help local communities realize public health improvements.[37] In Colorado,

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[32] PPACA § 9007 (a)(3)(B)(i), 124 Stat. at 856.
[33] PPACA § 9007 (a)(3)(A)(ii), 124 Stat. at 856.
[34] *See, e.g.*, PEGGY HONORÈ & WAKINA SCOTT, PRIORITY AREAS FOR IMPROVEMENT OF QUALITY IN PUBLIC HEALTH 1 (U.S. Dept. of Health and Human Services, Nov. 2010) (arguing that an increased focus on quality in health will lead to a greater focus on public health issues in general).
[35] *See, e.g.*, Jessica Berg, *Putting the Community Back into the "Community Benefit" Standard*, 44 GA. L. REV. 375, 378 (2010) (proposing a new method of measuring the community obligations of hospitals).
[36] Mark Schlesinger, Bradford H. Gray & Michael Gusmano, *A Broader Vision for Managed Care, Part 3: The Scope and Determinants of Community Benefits*, 23 HEALTH AFF. 210, 210 (2004) (providing a "nationally representative portrait of HMOs' community benefit activities").
[37] Stephen M. Shortell, Pamela K. Washington, & Raymond J. Baxter, *The Contribution of Hospitals and Health Care Systems to Community Health*, 30 ANN. REV. PUB. HEALTH 373, 377 (2009) (explaining the purpose of the Healthy Eating Active Living Community Health Initiative).

this partnership redesigned a major street to encourage walking and bicycling.[38] In Cleveland, the partnership worked with the public schools to design healthier menus for school lunches.[39]

At their broadest level, public health and health care confront the same challenge--injury and disease--and act in furtherance of the same overarching goal—improving health. Despite their different ways of achieving this goal, these disciplines share more similarities than differences. Think about starting a health system from scratch. Would policymakers opt for two separate systems or one that integrates population and individual health? We argue that an integrated health system would bring benefits to patients and populations and reduce overall cost.

II. The Importance of Public Health in Improving the Health of Individuals and Populations

If the principal objective of health system reform is significant improvements in the health status of individuals and the population, then strengthening health promotion and disease prevention ought to be an integral design feature of that reform. In this Part, we briefly examine key aspects of public health that provide the context for our thesis of restoring health to health reform.

A. Health Promotion and Disease Prevention: A Core Element of Population Health

The core principles and values of public health are disease prevention, social justice (i.e., reducing health disparities), promoting healthy behaviors, and engaging the community. Of these, preventing disease is central to the mission of public health and is the fundamental rationale for establishing public health systems. As such, public health services are designed to

[38] *Id.* (discussing Colorado's thoroughfare renovation).
[39] *Id.* at 377-78 (describing Cleveland's approach to nutrition in schools). President Obama recently signed the Healthy Hunger-Free Kids Act, Pub. L. No. 111-296 (2010), a $4.5 billion measure which will provide school lunches to low income children and give government greater discretion over what food is available on school premises.

facilitate changes in the natural and built environments that are conducive to healthy and secure living--a concept often framed as "Healthy People in Healthy Communities."[40]

Primary prevention strategies address the incidence of disease. Operating at the population level, the public health system uses primary prevention initiatives to reduce impediments to attaining "high quality, longer lives free of preventable disease, disability, injury, and premature death."[41] In secondary prevention, public health practitioners identify and intervene with populations at higher risk for certain diseases (e.g., socioeconomic groups at higher risk for obesity). Tertiary prevention operates at the individual level to treat those already diagnosed with a particular disease. At the clinical level, for instance, primary care providers can promote individual patients' healthy behaviors through education, including smoking cessation and better nutritional patterns.

Health promotion and disease prevention have a far greater impact on health than clinical services, in part because inadequate access to biomedical interventions is not the primary cause of premature morbidity and mortality.[42] Evidence indicates that preventative interventions targeting behavior, the environment, and socio-economic factors (education, economic security, social support, and community safety) account for approximately 80 percent of the reduction in morbidity and mortality, whereas clinical care only accounts for 20 percent.[43] The reason is that the burden of disease results from a combination of individual behavioral

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[40] U.S. DEPT. OF HEALTH & HUMAN SERVICES, HEALTHY PEOPLE 2010: UNDERSTANDING AND IMPROVING HEALTH 3 (GPO 2d ed. 2000) (announcing the vision of the report is to help accomplish the goal of "Healthy People in Healthy Communities").

[41] U.S. DEPT. OF HEALTH & HUMAN SERVICES, HEALTHY PEOPLE 2020 BROCHURE 3 (Nov. 2010) (stating the goals of Healthy People 2020).

[42] Steven A. Schroeder, *We Can Do Better--Improving the Health of the American People*, 357 N. ENG. J. MED. 1221, 1222 (2007) (noting that inadequate health care services account for only 10 percent of risk of premature mortality).

[43] *See* Bridget C. Booske, Jessica K. Athens, David A. Kindig, Hyojun Park, & Patrick L. Remington, *Different Perspectives for Assigning Weights to Determinants of Health* 6 (Univ. of Wisc. Population Health Inst., County Health Rankings Working Paper, 2010) (ranking counties by their effect on residents' health). Other researchers have made even lower estimates of the attributable contribution of health care in improving morbidity and mortality. *See* ROBERT WOOD JOHNSON FOUNDATION, BEYOND HEALTH CARE: NEW DIRECTIONS TO A HEALTHIER AMERICA 10 (2009), *available at* http://www.rwjf.org/files/research/commission2009finalreport.pdf (estimating the effect at 10-15%).

factors (e.g., smoking, diet, physical activity, and sexual behavior), the environment in which people live (e.g., environmental risk factors such as pollution, toxic chemical exposure, and contaminated food); and the social determinants of health (e.g., education, income, housing).

Even though individual behavioral risk factors account for nearly half of all premature death in the U.S. each year[44]--smoking, poor diet, sedentary lifestyle, excessive alcohol consumption, risky sexual behavior, firearms, motor vehicle accidents, and illicit substance abuse--public health interventions targeting these risk factors have dramatically improved health. For example, tobacco alone accounts for approximately eighteen percent of premature deaths.[45] Nevertheless, prevention policies such as cigarette taxes, packet warnings, advertising restrictions, and smoking bans have altered social norms, significantly reducing tobacco-related deaths.

B. The Social Determinants of Health

Reducing individual behavioral risk factors is necessary but not sufficient to improve the population's health. Observers of morbidity and mortality trends have long been aware that many factors beyond an individual's behavioral habits determine the health of individuals and populations. Termed the social determinants of health, these factors include the physical and social environments, individual genetic attributes, and the availability of medical services. As currently organized, the health care system focuses almost exclusively on patients' immediate medical needs, while the public health system addresses the physical and social environments.

Take the environment as an important determinant of health status. Research has consistently demonstrated that changing the environment will have a more dramatic effect on

[44] Ali H. Mokdad, James S. Marks, Donna F. Stroup & Julie L. Gerberding, *Actual Causes of Death in the United States, 2000*, 291 JAMA 1238, 1239-42 (2004) (analyzing mortality data reported to the Centers for Disease Control to find that modifiable behavior caused approximately 951,000 out of 2,400,000 total deaths in 2000).

[45] *Id.* at 1240 tbl.2 (finding that tobacco contributed to 435,000 deaths, poor diet and inadequate activity to 365,000, alcohol to 85,000, motor vehicle accidents to 43,000, firearms to 29,000, risky sexual behavior to 20,000, and illicit substance abuse to 17,000).

health than investing in medical treatment.[46] Interventions targeting the environment illustrate the significant contribution that public health has made to improve the population's health status. For instance, the physical or "built" environment encompasses everything in our surroundings that significantly affect health status: indoor and outdoor spaces, roads and vehicles, and consumer products and contaminants.[47] Numerous policy interventions have improved the built environment to protect the public from injuries (e.g., occupational safety laws, traffic rules, lead-based paint prohibitions, and asbestos regulations), and infections (e.g., sewage control and housing codes).[48]

Likewise, exposures to microbial or toxic agents are among the leading causes of preventable premature death, causing fatal infections, cancer, neurological problems, or cardiovascular, lung, liver, kidney, and bladder diseases.[49] Individuals living in poverty are especially vulnerable to environmental toxins, leading to higher levels of cancer and respiratory disease. Even in utero exposure to toxins is strongly correlated with poor health outcomes over the life of the child.[50] Improved sanitation and hygiene, potable water, and vector control (e.g., cockroaches, rats, and mosquitoes) dramatically improved population health throughout the twentieth century.[51] Twentieth century policies that have reduced the harms from environmental risk factors also include: occupational health and safety standards (contributing to a significant

[46] *See generally* Booske et al., *supra* note 43, at 4 (noting that a comprehensive literature review reveals that social and environmental circumstances account for 28% of health outcomes, whereas health care accounts for only 14%).
[47] Shobha Srinivasan, Liam R. O'Fallon, & Allen Dearry, *Creating Healthy Communities, Healthy Homes, Healthy People: Initiating a Research Agenda on the Built Environment and Public Health*, 93 AM. J. PUB. HEALTH 1446, 1446 (2003).
[48] Lawrence O. Gostin, Jo Ivey Boufford & Rose Marie Martinez, *The Future of the Public's Health: Vision, Values, and Strategies*, 23 HEALTH AFF. 96, 105 n.29 (2004) (citing public health studies relating to the built environment).
[49] In 2000, exposure to microbial or toxic agents resulted in 130,000 deaths. Mokdad et al., *supra* note 44, at 1240 tbl.2.
[50] *See* Nicholas D. Kristof, *At Risk From the Womb*, N.Y. TIMES, Oct. 3, 2010, at WK9 *available at* http://www.nytimes.com/2010/10/03/opinion/03kristof.html (citing ANNIE MURPHY PAUL, ORIGINS: HOW THE NINE MONTHS BEFORE BIRTH SHAPE THE REST OF OUR LIVES 177 (2010)).
[51] Centers for Disease Control and Prevention, *Ten Great Public Health Achievements--United States, 1900-1999*, 48 MORBIDITY AND MORTALITY WKLY. REP. 241, 241 (1999) *available at* http://www.cdc.gov/mmwr/PDF/wk/mm4812.pdf (noting that 25 years of a 30-year increase in average lifespan was attributable to public health measures).

decline in workplace injuries); motor vehicle design standards (resulting in a significant decline in motor vehicle-related injuries and deaths); food safety regulations (reducing food-borne illnesses); and pollutant restrictions (improving air quality in major cities to lower the incidence of respiratory disease).

C. The Role of Chronic Disease

Over the past two decades, a profound shift in the population's health has occurred--the increasing burden of chronic disease. Chronic diseases, which now represent the majority of the American disease burden, are complex and multi-factorial, necessitating solutions that transcend traditional boundaries. Although the medical care system addresses chronic disease itself, it does not address the causes of disease, "as the answers are not medical or clinical but environmental and social."[52] While some scholars have derided the public health system's engagement with chronic disease as exceeding its capacity and traditional focus on infectious disease, public health is better situated than medical care for population interventions to address the causes and consequences of chronic diseases.[53]

Obesity provides the prototypical example.[54] Even the most advanced medical treatment will have only a minimal effect on the obesity epidemic because it involves a multi-factorial intersection between behavioral factors and the social determinants of health. Among other causes, widespread declines in physical activity coupled with an increase in caloric and sodium intake have imposed a tremendous disease burden on the nation. Reversing this trend will require policies that improve the physical and social environments. The progressive

[52] Ilona Kickbusch & Kevin Buckett, eds., IMPLEMENTING HEALTH IN ALL POLICIES: ADELAIDE 2010 3 (2010), available at http://www.sahealth.sa.gov.au/wps/wcm/connect/0ab5f18043aee450b600feed1a914d95/implementinghiapadel-sahealth-100622.pdf?MOD=AJPERES.

[53] *Compare* Richard A. Epstein, *Let the Shoemaker Stick to His Last: A Defense of the "Old" Public Health*, 46 PERSP. IN BIOLOGY AND MED. S138, S139 (2003) (arguing that "new" public health extends regulation into inappropriate arenas), *with* Lawrence O. Gostin & M. Gregg Bloche, *The Politics of Public Health: A Response to Epstein*, 46 PERSP. IN BIOLOGY AND MED., S160, S162-65 (2003) (arguing that "new" public health is an outgrowth of the traditional concerns of the field).

[54] As discussed in Part I.C.1 *supra*.

increases in obesity among children and adults, for example, necessitate population-based interventions, including changes in taxation policies, agricultural subsidies, advertising restrictions, as well as expanding universal access to appropriate nutrition and exercise opportunities (i.e., changes in the built environment).[55] These policies have the potential to influence purchasing behavior, transportation patterns, and activity levels, and thus are critical to efficacious health promotion and disease prevention.

D. The Lack of Economic and Political Support for Public Health

Despite the value of health promotion and disease prevention in improving the public's health, there is limited political and financial support. Less than 5% of health spending is devoted to health promotion and disease prevention,[56] even though "nine preventable conditions are responsible for more than 50% of all deaths in the United States."[57] While health care expenditures have risen dramatically over the last decades, public health spending has remained stagnant or, in some areas, decreased.[58] Between 2001 and 2006, CDC funding increased a mere 2.5% for chronic disease, and decreased in the areas of infectious diseases (1.9%), injury prevention (8.5%), and HIV (21.4%).[59] In 2009, states collectively eliminated $392 million from public health programs.[60] Moreover, a significant proportion of state public health funding is used to finance the delivery of individual health care services, such as those

[55] Gostin et al., *supra* note 48, at 29-32.
[56] JEANNE M. LAMBREW, A WELLNESS TRUST TO PRIORITIZE DISEASE PREVENTION 11 (2007) (noting that pre-PPACA, insurers had little incentive to cover preventive services); Arthur L. Sensenig, *Refining Estimates of Public Health Spending as Measured in National Health Expenditures Accounts: The United States Experience*, 13 J. PUB. HEALTH MGMT. PRAC. 103, 104, 108 tbl.1 (2007) (reporting that public health represented three percent of total health expenditures in 2004).
[57] Katharine Atwood, Graham A. Colditz & Ichiro Kawachi, *From Public Health Science to Prevention Policy: Placing Science in Its Social and Political Contexts*, 87 AM. J. PUB. HEALTH 1603, 1603 (1997).
[58] JEFFREY LEVI, REBECCA ST. LAURENT, LAURA M. SEGAL & SERENA VINTER, SHORTCHANGING AMERICA'S HEALTH: A STATE-BY-STATE LOOK AT HOW PUBLIC HEALTH DOLLARS ARE SPENT AND KEY HEALTH FACTS 1 (2010) (finding that federal public health spending has not changed in the last five years and state governments have recently cut spending).
[59] Jeffrey Levi, Chrissie Juliano & Maxwell Richardson, *Financing Public Health: Diminished Funding for Core Needs and State-by-State Variation in Support*, 13 J. PUB. HEALTH MGMT. & PRAC. 97, 100 (2007). *See also* James W. Buehler & David R. Holtgrave, *Who Gets How Much: Funding Formulas in Federal Public Health Programs*, 13 J. PUB. HEALTH MGMT. & PRAC. 151 (2007).
[60] Levi, et al., *supra* note 58, at 1.

offered in well-baby and STD clinics.[61] For instance, one study concluded that 68.7% of Florida's public health resources fund individual services.[62] Thus, not only is public health spending declining, but also much of it is not being allocated toward population-based interventions.

At the same time, there is enormous geographic variability in public health funding. The National Association of State Budget Officers estimates that state government per capita funding for public health services varies from more than $400 per person in Alaska and Hawaii, to less than $75 per person in Iowa, Arkansas, Idaho, and Utah. Estimates of local variation are even greater, ranging from less than $1 to more than $200 per capita.[63] Economically disadvantaged communities require greater resources to address the health risks of vulnerable populations, particularly in light of their limited tax base.[64]

The lack of public health investment has resulted in inadequate information systems, laboratories, and workforce capacity, impairing the nation's ability to respond effectively to emerging infectious diseases, public health emergencies, and non-communicable diseases. The Institute of Medicine recommends substantially increased public health funding.[65] Estimates indicate that annual funding of $4.3 billion is necessary merely to sustain support for

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[61] *See* Christopher Atchison, Michael A. Barry, Norma Kanarek & Kristine Gebbie, *The Quest for an Accurate Accounting of Public Health Expenditures*, 6 J. PUBLIC HEALTH MGMT. & PRAC. 93. 98-99 (2000); Robert G. Brooks, Leslie M. Beitsch, Phil Street, & Askar Chukmaitov, *Aligning Public Health Financing With Essential Public Health Service Functions and National Public Health Performance Standards*, 15 J. PUB. HEALTH MGMT. & PRAC. 299 (2009).

[62] Brooks et al., *supra* note 61, at 299.

[63] Glen P. Mays & Sharla A. Smith, *Geographic Variation in Public Health Spending: Correlates and Consequences*, 44 HEALTH SERVS. RES. 1796, 1798 (2009).

[64] Glen P. Mays & Sharla A. Smith, *Geographic Variation in Public Health Spending: Correlates and Consequences*, 44 HEALTH SERVICES RESEARCH 1796, 1799 (2009). Michael Barry & Ron Bialek, *Tracking Our Investments in Public Health: What Have We Learned?*, 10 J. PUB. HEALTH MGMT. & PRAC. 383, 388-90 (2004) (discussing state-to-state differences that made comparisons based on expenditure difficult).

[65] Kyle Kinner & Cindy Pellegrini, *Expenditures for Public Health: Assessing Historical and Prospective Trends*, 99 AM. J. PUB. HEALTH 1780, 1780 (2009).

public health activities,[66] while the overall cost of a modernized system is estimated at $18 billion annually.[67]

Why has public and political support for public health been so low? We offer four reasons--shortsightedness, invisibility of beneficiaries, invisibility of benefactors, and industry opposition.[68] Unlike medical interventions, which generally provide a recognizable and immediate benefit, the benefits of public health vest in the future, long after tax dollars are spent. Elected officials who invest in public health incur the costs, while the benefits are often reaped by future administrations. Secondly, while the beneficiaries of medical interventions are identifiable patients, public health typically saves "statistical lives."[69] Individual patients, whose plights garner sympathy with the assistance of the media, attract more political support.

The American public is largely unfamiliar with public health science, leadership, or public health professionals' activities. As a result, individuals are not often aware when they benefit from public health intervention such as clean water or reduced air pollution or food safety. Finally, the lack of political commitment to population health is in part attributable to resistance to public health powers--ranging from political or societal disinterest to outright opposition. Public health often requires societal or behavioral changes, which are difficult to achieve, particularly when they impede the efforts of powerful industry groups or interfere with the strong cultural sense of individual liberties.[70] Unlike public health, health care is backed by powerful

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[66] Levi, et al., *supra* note 59, at 100.
[67] *Id.* at 100.
[68] *See* Scott Burris, *The Invisibility of Public Health: Population-Level Measures in a Politics of Market Individualism*, 87 AM. J. PUB. HEALTH 1607, 1608-09 (1997) (arguing that proponents of reducing the social resources allocated to public health services disregard the collective nature of the threats that face public health); David Hemenway, *Why We Don't Spend Enough on Public Health*, 362 NEW ENGL. J. MED. 1657, 1657-58 (2010) (offering four reasons for the underfunding of public health); Vincent L. Marando & Alan C. Melchior, *Public Health as a County Government Priority: Problems and Solutions for the Political Arena*, 11 AM. J. PREVENTIVE MED. 17, 17 (1995) ("The problems that face public health in the political arena are related to the fact that many public health activities are not highly visible as political issues").
[69] Hemenway, *supra* note 8, at 1657 (quotations omitted).
[70] *See, e.g.*, Robert A. Cherry, Repeal of the Pennsylvania Motorcycle Helmet Law: Reflections on the Ethical and Political Dynamics of Public Health Reform, 10 BMC PUB. HEALTH 202, 204 (2010) (arguing that Pennsylvania repealed its mandatory motorcycle helmet rule, in part, because of public perception

industries (such as pharmaceutical companies), and influential interests groups (such as the American Medical Association).

III. Normative Criteria for Health System Reform

Access to high quality health care services is necessary, but is not sufficient to achieving and maintaining health. The public's health status is affected by a multitude of determinants extending far beyond the doctor's office. Reform that merely addresses delivery of care will thus do little to achieve real improvement in the health of the population. In other words, the success of health reform in improving the nation's performance on long-term health indicators (e.g., infant mortality, life expectancy, maternal health) will hinge on successful implementation of public health interventions at the individual and population levels. We propose five criteria, the fulfillment of which will result in significant health improvements: prevention and wellness, human resources, a strong and sustainable health infrastructure, robust performance measurement, and reduction of health disparities. Here we describe each of these criteria, state why it is important to the public's health, and use it to illustrate the importance of public health's integration with health care delivery.

A. Criterion 1: Prevention & Wellness

Cost-effective preventive strategies necessitate a multi-pronged approach that tightly integrates health care and public health services. Clinical prevention services--mediated principally through primary care--include: (1) testing and early diagnosis for cancer (e.g., mammography and pap smears), cardiovascular disease (e.g., cholesterol and blood pressure), and infectious disease (e.g., HIV, STD, TB), (2) childhood and adult vaccinations (e.g., rubella, chickenpox, and hepatitis B), (3) patient education and counseling to reduce behavioral risk

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that it infringed on "the strong sense of individual liberty and choice that is part of American political culture.").

factors (e.g., smoking, diet, physical activity, and sexual activity), and (4) managing chronic diseases (e.g., asthma, diabetes, cardiovascular disease) to ameliorate their severity.

Prevention and wellness, of course, extend far beyond the clinical setting. In fact, they must occur in all the places where people live, work, eat, and recreate. Public health agencies engage in a broad range of population-based services designed to reduce risk behaviors and create healthier and safer communities, including: (1) health education campaigns (e.g., tobacco cessation, safer sex, seatbelts, and helmets), (2) consumer information (e.g., health warnings, labeling, and advertising restrictions), (3) safety standards (e.g., food, drugs, and lead paint), (4) occupational health and safety requirements, and (5) creating healthier and safer neighborhoods (e.g., supermarkets, bicycle and walking paths, and playgrounds).

Prevention and wellness require integration of health care and public health, with active interaction and coordination between the two systems. At the individual level, primary care physicians and nurses provide counseling, early detection, and treatment for primary and secondary disease prevention. At the population level, public health officials engage in surveillance and monitoring, social marketing, safety standards and inspections, and control of infectious diseases. Individuals and society at large need both health care professionals attending to the needs of each patient, as well as public health officials acting on broader socioeconomic determinants of health.

B. Criterion 2: Human Resources: An Adequate, Equitably Distributed, and Well Trained Workforce

If health promotion and disease prevention are mediated through primary care and public health, then they both require a body of well-trained health professionals accessible to patients and communities. The accessibility of primary care workers plays a critical role in public health. Patients who see primary care physicians and nurses are more likely to be tested, vaccinated, and counseled, and to receive appropriate management of their chronic

conditions. In turn, these patients are less likely to develop infectious or chronic diseases, or find themselves with an advanced prognosis requiring invasive intervention. Patients who use primary care as a gateway into advanced health care services also are likely to receive more appropriate care than those who elect to see specialists at their own discretion.[71] In these ways, primary care workers provide a direct link between the public health and patient care systems. Maximizing access to affordable primary care promotes the public's health by reducing risk on an individual level.

At the population level, public health professionals monitor health trends, identify disparities, and design community based interventions, among other functions. Modern health challenges place unprecedented demands on these professionals, as infectious diseases cross borders rapidly, bioterrorism threats grow, chronic disease rates continue to rise, and natural and manmade disasters destroy environments and societal infrastructures. The need for skilled epidemiologists, biostatisticians, social and behavioral scientists, and environmental health experts has never been greater. Moreover, demand for professional training continues to expand, as the causes of diseases and effective interventions become increasingly complex and multi-factorial--often entailing interactions among genetics, behavior, and the environment.[72]

It is also necessary to ensure that public health is integrated into the curriculum of health care provider education.[73] In order to most effectively detect and treat diseases, providers must be able to comprehensively address both the symptoms through medical interventions, and the

[71] Financial incentives aside, medical professionals argue that patient care is best facilitated by a general practitioner who serves as a primary point of entry into the health system. Of course, monetary incentives for primary care physicians to limit specialty referrals, offered by managed care organizations, can distort otherwise sound professional practice. *See, e.g.*, BARBARA STARFIELD, PRIMARY CARE: BALANCING HEALTH NEEDS, SERVICES, AND TECHNOLOGY 126-29, 127 (1998) ("When restriction in access to specialists is linked to financial incentives for the primary care physician, there is a potential conflict of interest between the physicians' concerns about their income and concern about the welfare of patients.").

[72] INSTITUTE OF MEDICINE, WHO WILL KEEP THE PUBLIC HEALTHY?: EDUCATING PUBLIC HEALTH PROFESSIONALS FOR THE 21ST CENTURY (National Academies Press, 2002).

[73] Rika Maeshiro et al., *Medical Education for a Healthier Population: Reflections on the Flexner Report from a Public Health Perspective*, 85 ACAD. MED. 211, 211-12 (2010).

underlying behavioral or environmental causes. Training in public health is also necessary because when a public health emergency occurs, health care providers are called upon both to treat patients and protect the community.[74]

C. Criterion 3: A Strong and Sustainable Public Health Infrastructure

Robust surveillance systems, modern information technology, and well-equipped laboratories are integral to monitoring health status, delivering public health services, and responding to emergencies. The importance of a strong infrastructure is irrefutable: identifying the source of food-borne illnesses, containing infectious disease, developing sophisticated health information campaigns, inspecting restaurants, enforcing safety standards, and responding to disease outbreaks and bioterrorism threats all require well-functioning public health agencies. Emerging infectious diseases (e.g., SARS and novel strains of influenza), food-borne outbreaks (e.g., *e. coli* and *salmonella*), drug-resistant infections (e.g., streptococcal and M. TB), and chronic diseases associated with lifestyles (e.g., cancer, cardiovascular disease, and respiratory infections) are just a few illustrations of the urgent threats stressing the contemporary public health system. [75]

Individual patient care is also dependent on a strong public health infrastructure: biomedical advancements would not be possible without systematic and extensive surveillance and laboratory capacity. [76] Developing vaccines, antiviral medications, and antibiotics for resistant strains requires systematic tracking of infection and transmission rates, as well as laboratories with the capacity to perform time-sensitive testing. Improving infant/maternal health

[74] *See* INSTITUTE OF MEDICINE, GUIDANCE FOR ESTABLISHING CRISIS STANDARDS OF CARE FOR USE IN DISASTER SITUATIONS: A LETTER REPORT 5-6 (2009) (urging community and provider engagement in an effective, national public health disaster response).

[75] Food-borne illnesses, for example, cause over 300 thousand hospitalizations and five thousand deaths per annum. *See* American Public Health Association**,** Food Safety: Protecting Our Nation's Food Supply**,** http://www.makeourfoodsafe.org/tools/assets/files/APHA-FoodSafetyFact.pdf.

[76] *See, e.g.*, American Public Health Association, Public Health Laboratory Capacity, http://www.apha.org/NR/rdonlyres/16093859-CFE2-421E-B2C9-102CBB02CAEF/0/PHLabcapacityrevised09.pdf ("Public health laboratories serve life-saving roles in all types of public health emergencies.").

requires maternal and newborn screening, nutrition, and vaccination, which are shared responsibilities of health care and public health professionals. When knowledge of the status of populations guides clinical care, resources are allocated more efficiently. Tracking HIV transmission rates, for example, allows providers to shift prevention efforts towards the most vulnerable populations as the disease itself shifts--from men who have sex with men, to intravenous needle users, to discordant heterosexual couples.

D. Criterion 4: Performance Measurement: Continuous Quality Improvement Based on Scientific Evidence

Although the importance of assessing the effectiveness of health services may seem apparent to both realizing improvements in health and effective resource utilization, there is often inadequate scientific evidence demonstrating the benefits of these services. Performance measurement has gained greater traction in health care than in public health, but robust comparative effectiveness research and reimbursements tied to better outcomes have been slow to develop. Prevailing values of physician discretion and patient autonomy have thwarted policy efforts to mandate or incentivize the use of clinical practice guidelines, care pathways, and other evidence-based tools.[77]

Public health agencies have been even slower to embrace performance measurement. In part, this result is attributable to two factors that complicate public health intervention assessment: (1) population-based interventions must account for diverse personal, social, and environmental factors and (2) the benefits of public health interventions are not realized for many years--necessitating lengthy longitudinal studies.[78] Yet confounding factors aside, chronic

[77] For example, physician groups and hospitals in the United States have been slower than those in other high-income nations to adopt proven systems-based methodologies that promote error reduction. *See, e.g.*, KAREN DAVIS, CATHY SCHOEN & KRISTOF STREMIKIS, MIRROR, MIRROR ON THE WALL: HOW THE PERFORMANCE OF THE U.S. HEALTH CARE SYSTEM COMPARES INTERNATIONALLY 5-6 (Commonwealth Fund, 2010) (comparing "safe care measures" adopted by providers in seven high-income nations).

[78] *See, e.g.*, Peter J. Neumann, Peter D. Jacobson & Jennifer A. Palmer, *Measuring The Value Of Public Health Systems: The Disconnect Between Health Economists and Public Health Practitioners*, 98 AM. J.

starvation of public health resources has precluded the level of research seen in the biomedical world.

Performance measurement's role in public health is two-fold. First, performance measurements evaluate the capacity and processes carried out by health departments--whether the infrastructure supports systematic surveillance, accurate identification of problems, and timely response. Examples include tracking the number of inspections of food processing plants and workplaces, recording vaccination and infection rates, and closely monitoring reportable diseases. Second, performance measurement can evaluate not only health department functions, but also the quality and effectiveness of their services. Results-oriented measurements are complex because it is difficult to causally link a single intervention to a discrete health outcome. Yet the need for advanced performance measures in public health is patent: empirical data linking public health interventions with improved outcomes is essential both to garner increased investment and to spend scarce health resources most effectively. Finally, maximizing the value of any performance measurement requires health officials and academic researchers to use common data sets, coordinate activities, and derive information that is useful at the levels of the local community, the state, and the nation.[79]

Measuring public health performance requires integration and active collaboration with the health care sector, as primary care physicians provide preventive services that affect health outcomes at the population level.[80] Partnership with the health care industry is not only necessary, but also highly informative. Although still insufficient, providers and payers have

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PUB. HEALTH 2173, 2174-79 (2008) (investigating "ways of defining and measuring the value of services provided by governmental public health systems"). *See also* INSTITUTE OF MEDICINE, FOR THE PUBLIC'S HEALTH: THE ROLE OF MEASUREMENT IN ACTION AND ACCOUNTABILITY S1-8 (2010) (reviewing the role of various metrics in overseeing public health).

[79] *See* INSTITUTES OF MEDICINE, *supra* note 78; Kathryn Newcomer, *Using Performance Measurement to Improve Programs*, 75 NEW DIRECTIONS FOR EVALUATION 5 (1997) (reviewing "the state of the art in performance measurement").

[80] For example, tracking the number of individuals without access to primary care services, or the number of obese or diabetic patients regularly receiving weight management interventions or insulin treatment, are public health assessments that necessitate collaboration with the health care industry. *See generally* PATRICIA LICHIELLO & BERNARD TURNOCK, TURNING POINT GUIDEBOOK FOR PERFORMANCE MEASUREMENT (Robert Wood Johnson Foundation, 1999) (also discussing performance measurement in public health).

embraced performance measurement more readily than public health professionals. Hospitals and large insurers now regularly track errors, readmissions, and outcomes to increase overall accountability. This movement has facilitated the development of more evidence-based practices, allowing physicians to make scientific calculations about treatment decisions previously steeped in guesswork. The public health system can learn from this movement as it embarks on a parallel endeavor.

It is also critical to integrate public health and health care performance measures. Comparative-effectiveness reviews should not merely compare the benefits of one medical intervention to another, or one public health intervention to another. In order to justify increased political and financial support for public health interventions, it is essential to continue to amass evidence demonstrating that population-based interventions are more cost-effective in improving health status relative to health care interventions.

E. Criterion 5: Reducing Disparities in Health

The U.S. population is characterized by stark disparities in health: hypertension, cardiovascular disease, obesity, diabetes, and eye diseases have affected African American, Native American, and Hispanic patient populations, respectively, at far higher rates than Caucasians.[81] While a genetic predisposition to certain illnesses may explain a degree of variation in prevalence, glaring discrepancies in life expectancy, infant mortality, and disease outcomes make plain that the environmental, social, and economic determinants of health vary considerably across racial and class lines.[82] Furthermore, research demonstrates clinical practice variation based on race, even when controlling for disease prevalence among ethnic

[81] NATIONAL INSTITUTES OF HEALTH, FACT SHEET: HEALTH DISPARITIES, Oct. 2006, at 1-2 *available at* http://www.nih.gov/about/researchresultsforthepublic/HealthDisparities.pdf.
[82] *See, e.g.*, ROBERT WOOD JOHNSON FOUNDATION, OVERCOMING OBSTACLES TO HEALTH 16-19 (2008) (comparing the correlation between health statistics and socioeconomic factors).

populations.[83] Thus, improving health at the population level necessitates reducing health disparities. This goal, moreover, demands action both from the health care and public health sectors, including greater coordination.

The health system reduces health inequalities primarily by identifying and addressing the major determinants of health. Thus, at a minimum, public health departments must drive research on disparities, recruit professionals from minority communities to translate findings into implementable policy, and educate providers on reducing disparate outcomes.[84] Additionally, comprehensive public health interventions demand a broader approach by catalyzing action among all parts of government, the private sector, and civil society.

Reducing disparities requires not only attention to broad population-based policies, but also direct interaction with health care delivery. Targeting unusually high rates of cardiovascular disease among African-Americans, for example, requires that primary care providers identify hypertension in a timely manner and provide advice on behavioral and pharmacological interventions. Similarly, Hispanic patients may require more frequent ophthalmology referrals in order to receive timely preventive services. Weight and diabetes management is another area where physicians must emphasize screening and disease management for high-risk patients. Public health departments not only educate health care providers on risk factors, but also collect data directly from primary care offices on the effectiveness of targeted interventions for particular groups.

[83] Carolyn Clancy, *Improving Care Quality and Reducing Disparities*, 168 ARCH. INTERN. MED. 1135, 1136 (2008).

[84] This work is part of the mission of the National Institutes of Health's Center on Minority Health and Health Disparities, but has not been consistently implemented in state and local health departments around the nation. *See* Jeffrey Engel, *Prevention in Health Care Reform: The Time Has Come*, 71 N.C. MED. J. 259, 260-61 (2010) (noting that the Patient Protection and Affordable Care Act "elevates the National Center on Minority Health and Health Disparities at the National Institutes of Health from a center to a full institute, reflecting an enhanced focus on minority health," but, nevertheless, that "timelines are not yet detailed" for implementation at the state level).

IV. How Does the Affordable Care Act Measure Up Against the Key Normative Criteria of Health System Reform?

In the decades leading up to health reform, persistent neglect of the population's health had left us with a sick society, turning towards invasive interventions at increasing rates. Increased investment in the biomedical sphere was not matched in public health, leaving the system under severe stress: state health departments were operating with dwindling workforces, outdated information technology, and overburdened laboratories and surveillance systems. Not surprisingly, public health departments had neither modernized their organizational structure nor adopted evidence based performance measures; public health services were not precisely defined, and outcomes were rarely measured. The field of public health, therefore, was in dire need of leadership, investment, and direction-–in order to define the mission, size, and scale of public health departments; to build the workforce, support laboratories, and surveillance systems; and to define the local, state, and federal responsibilities to provide for the public's health.

The new law will advance the public's health because expanding access to care and promoting prevention were two of the driving forces behind health reform. Yet the PPACA does not delve deeply enough into public health reform to truly restore health to the health system. Here, we analyze the PPACA against the five criteria introduced in the previous section. We find that while the law is steeped in public health rhetoric, it does not provide the innovative reform and increased investment necessary to fortify the public health system.

A. Criterion 1: Prevention & Wellness

The PPACA initiates four reforms to increase capacity and improve effectiveness in prevention and wellness. First, the law makes prevention a federal priority by creating new task forces within the U.S. Department of Health and Human Services and earmarking a federal fund for prevention activities. Second, the law facilitates preventive patient care by reducing patient

costs for these services. Third, the law supports community initiatives to reduce disease and disparities and promote wellness at the local level. Finally, the PPACA enables employers to incentivize healthy lifestyles among employees, both in and out of the workplace.

Evidence-based prevention design is a clear PPACA priority: the PPACA charges a federal Preventive Services Task Force with evaluating the clinical and cost-effectiveness of prevention services,[85] and it tasks a National Prevention, Promotion, and Public Health Council with making recommendations for a national prevention and health promotion strategy and funding.[86] The PPACA does not mandate implementation of these recommendations, but the newly created Prevention and Public Health Fund (Prevention Fund) will facilitate federal action. The Prevention Fund, however, is insufficiently funded,[87] with weak promises to address unmet needs through additional "sums as may be necessary," provided by "any monies in the Treasury not otherwise appropriated."[88]

The new law encourages patient utilization of preventative services by reducing or eliminating cost sharing for many prevention services. Medicare, Medicaid, and qualified health plans can no longer impose costs on patients for services determined by the Preventive Services Task Force to be of moderate or substantial benefit, or for immunizations recommended by the Advisory Committee on Immunization Practices.[89] Preventive care for

[85] The Clinical Preventive Services Task Force (under the Agency for Healthcare Research and Quality) is charged with developing recommendations regarding the efficacy of clinical preventive services. Patient Protection and Affordable Care Act (PPACA), Pub. L. No. 111-148 § 4003(a), 124 Stat. 119, 541-42.

[86] The Department of Health and Human Services' Advisory Group on Prevention, Health Promotion, and Integrative and Public Health will advise the National Prevention, Promotion, and Public Health Council, chaired by the Surgeon General. The Council is in the process of developing a National Prevention Strategy and will issue recommendations to Congress by 2011. *Id.* § 4001, 124 Stat. at 538-41.

[87] The Fund is the first guarantee of federal monies appropriated towards prevention on an annual basis. The amounts, however, are nominal: 1.5 billion dollars in the fiscal year 2014 and two billion per annum thereafter. *Id*. § 4002(b), 124 Stat. at 541.

[88] *Id.* § 4201(f), 124 Stat. at 566; *id.* § 4002(b), 124 Stat. at 541.

[89] Qualified health plans include those participating in state-based exchanges immediately, and all group plans by 2014. States cannot impose cost-sharing for annual check-ups on any Medicaid beneficiaries, and must also cover smoking cessation services free of charge for pregnant women immediately and for all beneficiaries by 2014. While states are not required to eliminate cost-sharing for other preventive

infants, children, adolescents, and women recommended by the Health Resources and Services Administration will also be free of charge to the patient. We can expect increased utilization of screenings for HIV, blood pressure, cholesterol, cancer, and blood sugar, as well as vaccinations, annual exams for infants and children, prenatal care, and smoking cessation or weight reduction counseling.[90] Finally, the new law authorizes, but does not require, Congress to fund state-based demonstrations to improve vaccination rates.[91] To increase availability of this care, the PPACA incentivizes new physicians to enter into primary care, particularly in underserved areas.[92]

The PPACA also encourages prevention at the community level, an important strategy for improving population health. A state-based grant program will fund the development and evaluation of Medicaid initiatives promoting behavioral change, such as smoking cessation, weight loss, and blood pressure reduction.[93] Federally directed media campaigns are designed to promote behavioral changes in the population.[94] A federal task force will evaluate the effectiveness of these and other prevention strategies targeting chronic disease and health disparities by reporting to Congress on the gaps in research and publishing a guide to community preventive services.[95] A Creating Healthier Communities grant program will fund health departments implementing these proven community-based initiatives.[96]

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services, they will receive a one percent increase in federal medical assistance for doing so. *Id.* § 4107, 124 Stat. at 560-61.

[90] *See* Robert Pear, *Health Plans Must Provide Some Tests at No Cost*, N.Y. TIMES, July 15, 2010, at A16 (noting "significant benefits for consumers--if they take advantage of the services that should now be more readily available and affordable"); Howard K. Koh & Kathleen G. Sebelius, *Promoting Prevention Through the Affordable Care Act*, 363 NEW ENG. J. MED 1296, 1296 (2010) ("[T]he Act provides individuals with improved access to clinical preventive services. A major strategy is to remove cost as a barrier to these services, potentially opening new avenues toward health.").

[91] Koh & Sebelius, *supra* note 90, at 1297 ("[T]he Act authorizes states to use their funds to purchase vaccines for adults at federally negotiated prices.")

[92] *See infra*, Part V.B.

[93] PPACA § 4108, 124 Stat. at 561-64.

[94] For example, the CDC is authorized to spend up to $500 million on an Education and Outreach Campaign. *Id.* §§ 4002, 4004, 124 Stat. at 541, 544-46.

[95] *Id.* §§ 4001, 4003, 124 Stat. at 538-41, 541-44.

[96] *Id.* § 4201, 124 Stat. at 564-66.

Finally, the new law reinforces prevention strategies by enabling employers to motivate employees to make healthy choices both within and outside of the workplace. "Wellness plans," or incentive packages that reward smoking cessation, weight loss, blood pressure reduction, and diabetes management, can substantially reduce health care costs and increase productivity, but have not been widely adopted.[97] To stimulate adoption of these strategies, the PPACA increases the incentives an employer may offer, and sets aside grant money for small employers implementing wellness initiatives for the first time.[98] The law also directs the Secretary to assess the effectiveness of these programs and educate employers on potential improvements.[99]

Although the PPACA significantly expands prevention and wellness, it focuses primarily on facilitating utilization of clinical services already available. The law does not assume a broad view of health promotion, for example, by changing the economic or built environment to incentivize healthy behaviors within the population.

B. Criterion 2: Human Resources--An Adequate, Equitably Distributed, and Well-Trained Workforce

[97] As of 2008, fewer than thirty percent of private sector employers offered wellness incentives to employees, even though for every dollar spent on a wellness promotion, employers save approximately five times as much on health care costs and lost productivity. *See* Eli R. Stolzfus, *Access to Wellness and Employee Assistance Programs in the United States*, BUREAU OF LABOR STATISTICS, charts 2-3 (Apr. 22, 2009), http://www.bls.gov/opub/cwc/cm20090416ar01p1.htm (showing that twenty-five percent of all private sector workers had access to wellness programs in 2008); *Prevention Makes Common "Cents"*, U.S. DEP'T OF HEALTH AND HUMAN SERVS. 23 (Sept. 2003), http://aspe.hhs.gov/health/prevention/prevention.pdf (noting a study of nine large private employers that found their health promotion and disease management programs "with the range of benefit-to-cost ratios, ranging from $1.49 to $4.91 in benefits per dollar spent on the program").

[98] The PPACA authorizes the Department of Health and Human Services, Department of the Treasury, or the Secretary of Labor to increase the incentive valuation cap to up to fifty percent of the value of the plan. Federal wellness program grants will distribute $200 million between 2011 and 2015 to employers with fewer than a hundred employees. PPACA § 10408, 124 Stat. at 977-78.

[99] *Id.* § 4402, 124 Stat. at 588.

As specialized, high technology patient care has overshadowed public health, the number of professionally trained professionals in public health and primary care has declined.[100] This trend is not a product of lack of demand, but rather of deteriorating federal tuition assistance, shrinking schools of public health, and disparities in reimbursement rates among health care providers.[101] The PPACA addresses both the dearth in primary care physicians and public health professionals, albeit inconsistently. Considerable legislative attention was devoted to the shortage of primary care physicians; efforts to rebuild the public health workforce, on the contrary, are insubstantial.

The PPACA invested significant resources to increase the number of primary care providers. Half of the Prevention Fund's $500 million to be spent in 2010 will support primary care by funding residency program capacity, physician's assistants training, and nurse practitioner-led clinics.[102] Moreover, the law creates incentives for medical residents to enter into primary care, particularly in underserved areas,[103] and funds primary care delivery in mental health centers.[104] To monitor primary care shortages, a National Health Care Workforce

[100] Workers without formal training now fill approximately eighty percent of the 450,000 salaried positions in public health, and many have assumed positions of authority: less than a quarter of chief executives leading local health departments hold graduate public health degrees. INST. OF MED., WHO WILL KEEP THE PUBLIC HEALTHY?: EDUCATING PUBLIC HEALTH PROFESSIONALS FOR THE 21ST CENTURY 51 (2002); *see Creating a Culture of Wellness: Building Health Care Reform on Prevention and Public Health*, ASS'N OF SCH. OF PUB. HEALTH 2 (July 14, 2009), http://www.asph.org/UserFiles/Prevention-and-Public-Health-Strategies-for-HC-Reform-asph-policy-paper2009.pdf (noting that a key strategy for the transformation of the health system is to rebuild the public health workforce).

[101] Enrollment in schools of public health has steadily declined since the 1980s. *See, e.g.*, INST. OF MED., *supra* note100**.**

[102] This is significant not only for its monetary value, but also because the Prevention Fund was created to strengthen non-clinical preventive activities. Allocating such a substantial portion of the Fund towards clinical providers defeats this goal in part. *See generally* U.S. Dep't of Health & Human Serv., Fact Sheet: Creating Jobs and Increasing the Number of Primary Care Providers, HEALTHREFORM.GOV, http://www.healthreform.gov/newsroom/primarycareworkforce.html (last visited Feb. 17, 2011) (outlining the allocation of the first $500 million for the Prevention Fund).

[103] PPACA § 10501, 124 Stat. at 1000-01.

[104] *Id.* § 5604, 124 Stat. at 679-80.

Commission and National Center for Health Care Workforce Analysis will track provider availability and advise Congress on supply and demand.[105]

The PPACA's commitment to strengthening the public health workforce is much weaker: the $23 million appropriated in 2010 pales beside the $250 million that will support primary care development.[106] Although the PPACA increases federal investment in loan repayment programs for public health practitioners, creates new loan and scholarship options for graduates entering government agencies or seeking continuing education, and establishes a public health sciences track within the U.S. Public Health Service,[107] it does not provide sufficient investment to rejuvenate an eroding workforce, nor does it address the lack of public health training for primary health care providers (for example, in medical schools). States facing budget deficits will continue to struggle to replenish health departments, and the need for expanded federal funding will persist.

C. Criterion 3: A Strong and Sustainable Public Health Infrastructure

The public health infrastructure has deteriorated substantially over the past several decades. Laboratories are understaffed and starved of resources and surveillance systems operate with outdated information technology and under inconsistent and antiquated grants of authority.[108] Given the importance of a robust infrastructure to protect the public's health--detecting the source of food-borne illness, identifying and responding to bioterrorism threats, containing influenza outbreaks--the extent to which the PPACA will rebuild the fraying

[105] The Commission and Center will produce a National Care Workforce Assessment. *Id.* § 5103, 124 Stat. at 603-06.
[106] Press Release, Trust for America's Health, Prevention and Public Health Fund to Jumpstart Community-Based Prevention Programs (June 18, 2010), http://healthyamericans.org/newsroom/releases/?releaseid=215.
[107] PPACA §§ 4002, 5204, 5206, 5313, 5314, 5315.
[108] Laboratory staffs make up only three percent of the public health workforce and state laboratories are chronically understaffed, jeopardizing the performance of important functions like bioterrorism preparedness work and the containment of infectious diseases. American Public Health Association, *Public Health Laboratory Capacity* 2 (2009) http://www.apha.org/NR/rdonlyres/16093859-CFE2-421E-B2C9-102CBB02CAEF/0/PHLabcapacityrevised09.pdf.

infrastructure of the public health system is of paramount importance. Unfortunately, the PPACA does little to improve the public health infrastructure.

The PPACA makes a very limited investment in information technology, surveillance, and laboratory capacity. When funding for primary care and the public health workforce is deducted from the $50 million in the Prevention Fund, the remainder will do little to ensure a robust and sustainable infrastructure. This nominal funding must stretch across all state and local health agencies, and pales in comparison to funding to sustain the health care system infrastructure.[109] Thus, the National Laboratory Training Network and Epidemiology and Laboratory Capacity Program will remain chronically underfunded, and surveillance capacity will not meet demands. Moreover, while stimulus legislation funneled resources into the healthcare sector to boost information technology development, no such funding has reached public health departments.[110] Tracking patterns of infectious and chronic disease, as well as monitoring preventive strategies continues to be an ideal rather than a norm.

The PPACA fails to facilitate integration with the health care system. For example, the new law does not expand funding for the National Environmental Public Health Tracking Program, one of the few federally coordinated public health surveillance efforts. Nor does it empower state and federal agencies to collect data from electronic health records or health plans to track benchmarks in health outcomes and preventive care, a tremendous opportunity for expanded surveillance efforts.

D. Criterion 4: Performance Measurement and Quality Improvement Based on Scientific Evidence

[109] The PPACA authorizes the Secretary to award up to $190 million in grants in FY 2010 to build state epidemiology and laboratory capacity. PPACA § 4304, 124 Stat. at 584. In contrast, the National Institutes of Health spends $41 billion per annum on biomedical research. National Institutes of Health, Office of the Budget, *Enacted Appropriations for FY 2008-FY 2010*, http://officeofbudget.od.nih.gov/pdfs/FY11/FY%202010%20Enacted%20Appropriations.pdf.

[110] Health Information Technology for Economic and Clinical Health Act (HITECH), American Recovery and Reinvestment Act (ARRA) of 2009, Pub. L. No. 111-5, § 3011, 123 Stat. 115, 160-78 (Feb. 19, 2009).

Evidence-based practices in public health remain nascent. A substantial federal investment is needed to develop and disseminate proven interventions based on objective and reliable outcome measures. Although federal goals for health outcomes have created uniform performance measures for preventive services, these measures have not been widely adopted and do not apply to a wide range of services performed by public health agencies.[111]

The PPACA creates and funds several demonstration projects to examine and ultimately inform best practices for preventive care and behavioral change. Community Transformation Grants will fund state and local health departments implementing preventive services found efficacious by the Community Preventive Services Task Force, including the promotion of active lifestyles. The law also promotes research in behavioral change, both through a Childhood Obesity Demonstration Project[112] as well as state-based grants for the study of interventions designed to promote healthy eating, activity, and weight and blood pressure reduction.[113]

The PPACA, however, misses opportunities to develop and use electronic records for public health improvement. Stimulus legislation authorized incentive payments in Medicare or Medicaid for providers that exhibited "meaningful use" of electronic health records.[114] "Meaningful use" includes valuable public health measures to track diagnoses, smoking and weight trends, and disparities.[115] However, the stimulus law neither mandates the collection of

[111] The Department of Health and Human Services has developed national objectives for prevention outcomes, including uniform performance measures. *See generally* U.S. Dept. of Health and Human Services, HEALTHY PEOPLE 2000: NATIONAL HEALTH PROMOTION AND DISEASE PREVENTION OBJECTIVES; U.S. Dept. of Health and Human Services, HEALTHY PEOPLE 2010: UNDERSTANDING AND IMPROVING HEALTH; U.S. Dept. of Health and Human Services, PROPOSED HEALTHY PEOPLE 2020 OBJECTIVES, *available at* http://www.healthypeople.gov/2020/about.history.aspx.

[112] PPACA § 4306, 124 Stat. at 587.

[113] $74 million of the Prevention Fund's appropriations for the fiscal year 2010 will support the implementation of evidence-based interventions to address tobacco control, obesity prevention, disparities in HIV, and to increase physical activity and promote good nutrition. PPACA § 4002, 124 Stat. at 541; Koh & Sebelius, *supra* note 90.

[114] HITECH, § 4311.

[115] For a concise analysis of mandatory and discretionary "meaningful use" of electronic health records, see David Blumenthal & Marilyn Tavenner, *The "Meaningful Use" Regulation for Electronic Health Records*, 10 NEW ENG. J. MED. 1 (2010).

these data nor the submission of reportable laboratory results to public health agencies.[116] Because public health departments must access medical records to track injuries, diseases, and health disparities, as well as to enable timely response to health hazards, it will be necessary to mandate inter-operability between the two data systems. This would build the evidence base in public health without requiring substantial increased investment.[117]

E. Criterion 5: Reducing Health Disparities

The PPACA addresses disparities in health in two ways. First, the law will indirectly reduce disparities by significantly expanding access to health care. Enhanced access will help low-income individuals receive timely and effective clinical prevention and treatment, reducing the need for avoidable emergency interventions that involve high cost and invasive procedures. The PPACA increases health care access by significantly expanding private and public insurance coverage, affording greater health security by reducing the risk that a beneficiary will lose protection upon falling ill or exceeding yearly or lifetime benefits caps, and funding a pilot program implementing wellness programs in health centers located in low-income communities.

Second, the PPACA increases identification and tracking of health disparities. The Act creates an Office of Minority Health within the Department of Health and Human Services, broadens the National Institute of Health's Center on Minority Health and Health Disparities into an Institute, and increases funding for minorities seeking health care training.[118]

Aside from increased health care access and surveillance, the PPACA does little to fund or mandate decisive interventions to reduce health inequalities based on race, income, or other

[116] Blumenthal & Tavenner, *supra* note 115, at 1.
[117] *See, e.g.*, Brian Robinson, *Health IT Key to National Health Security Plan*, GOVERNMENT HEALTH IT, (July 27, 2010), http://www.govhealthit.com/newsitem.aspx?tid=74&nid=74316 (noting that the Department of Health and Human Services' Biennial Implementation Plan for national security necessitates real time access to all electronic health records in the event of a national emergency).
[118] Assn. of Am. Med. Colleges, *Summary of PPACA Provisions Related to HRSA's Health Professions Programs and Other PHSA Workforce Programs*, *available at* https://www.aamc.org/download/131010/data/hrsa.pdf.pdf.

factors. Further action will be necessary to develop disparity reduction initiatives, both in the health sector as well as in numerous government activities that are better situated to address the socio-economic root causes of ill health, such as housing, education, employment, and welfare.

In summary, the PPACA undoubtedly enhances prospects for population health improvement by expanding health care access, making prevention and primary care a high priority, and creating crucial institutional structures and demonstration projects in public health research and practice. Yet, the Act fails to truly modernize public health. Most importantly, the law does not create a sufficient and sustainable funding stream for public health departments to reliably build durable programs, hire well educated professionals, and evaluate evidence-based practices.[119] The Prevention Fund, although vitally important, authorizes funding that is both categorical and time-limited.[120] Moreover, the Prevention Fund is politically fragile, with recent attempts to divert funding to other programs, which is emblematic of public health's second-rate standing.[121] Even if the Fund endures budgetary challenges, it will not be sufficient to support the infrastructure needs of faltering health departments.[122] What is needed is a well endowed

[119] Future funding is not guaranteed but rather provided for as "such funds as may be necessary for each fiscal year," and "out of any monies in the Treasury not otherwise appropriated." Letter from Congressional Budget Office to Congressman Jerry Lewis, Ranking Member, Committee on Appropriations (May 11, 2010), *available at* http://www.cbo.gov/ftpdocs/114xx/doc11490/LewisLtr_HR3590.pdf.

[120] Federal task forces and advisory committees are funded only "as available through the annual budget process." PPACA § 4003, 124 Stat. at 541.

[121] Shortly after President Obama signed the PPACA into law, Senators Johanns and Thune introduced an amendment to divert eleven billion dollars from the Prevention Fund into the general federal budget to compensate for lost tax revenue that would have resulted from the proposed repeal of small business tax reporting requirement. Small Business Paperwork Mandate Elimination Act, S.3578, 111th Cong. (2010)

[122] The Prevention Fund is designed to provide baseline funding of public health activity, supplemented as necessary. For the fiscal year 2011, the Senate Appropriations Committee allocated approximately $6 billion to the CDC, in addition to $663 million from the Prevention Fund. Comm. on Appropriations, Dept. of Labor, Health and Human Services, and Education, and Related Agencies Appropriation Bill 2011, S.3686, 111th Cong. (2010). This pales in comparison to federal spending in other areas such as national defense ($707 billion in 2010), *available at* http://www.gpoaccess.gov/usbudget/fy10/pdf/summary.pdf.

Public Health Investment Fund--originally part of both House and Senate bills[123]--that would award grants to state health departments to rebuild the public health workforce, develop evidence-based practices, and modernize laboratories and information technology.

V. Toward a Robust Health Reform to Significantly Improve the Public's Health

What would a genuine, population-based health reform look like if policymakers adopted the criteria articulated in Part III? We propose three major policy reforms that have the potential to significantly improve the public's health, particularly when compared to the health gains likely to be realized from a continued focus on health care services: (1) changing the environment to make healthy behaviors the more likely choice; (2) strengthening the public health infrastructure at the state and local levels; and (3) developing a health in all policies strategy that would engage all government agencies in improving health outcomes.

As we have stressed throughout this paper, improving health means far more than just providing access to high-technology medical care. Thus, the focus of our policy approach is on changing the emphasis from individual health factors to the broader determinants of health. Continuing to invest in high technology solutions will result in ever-increasing health care costs without commensurate population health benefits. Taken together, the policies we discuss below represent a fundamental change, not just for public health, but also for the way in which the nation organizes and provides health care.

A. Changing the Environment

[123] Section 2002 of H.R. 3962, the Affordable Health Care for America Act, as passed by the House of Representatives, provided for a Public Health Investment Fund amounting to 4.6 billion dollars in FY 2011, and increasing to 9 billion dollars in FY 2015. This provision was eliminated by the Senate, and the final text of the law, the Preservation of Access to Care for Medicare Beneficiaries and Pension Relief Act of 2010, did not include a Public Health Investment Fund. The Senate, however, had also considered a similar fund. In a hearing on June 17, 2009, the Senate Health, Education, Labor and Pensions Committee introduced the Affordable Health Choices Act, which would have created a Prevention and Public Health Investment Fund, authorizing up to 10 billion dollars annually in public health spending.

As described above, the environment--and the behaviors it facilitates--is a core determinant of health. Yet the PPACA offers minimal financial support for improvements in the built environment that would reduce the incidence of obesity and other harms. Congress should make PPACA-authorized state grants contingent on state and local laws that impose minimum requirements on public school physical education periods and on zoning regulations that alter the built environment to maximize activity and access to healthy foods. Although National School Lunch Act funding is already subject to the incorporation of physical activity into the school day,[124] state requirements vary widely and many schools have shortened or eliminated recess and gym periods in response to budget deficits and low achievement scores.[125] As a result, over seventy-five percent of children are not active for even thirty minutes a day.[126] Increasing childhood activity levels nationwide would slow childhood weight gain[127] and would likely produce results that continue into adulthood.[128] In addition, attaching federal funding to state and local zoning policies that improve the built environment would provide incentives to develop sidewalks, bike paths, and farmers' markets in low-income neighborhoods, and might encourage the dilution of concentrated fast food restaurant clusters.[129]

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[124] *See* Child Nutrition and WIC Reauthorization Act of 2004, 42 U.S.C. § 1751 (2010) (providing that participating school systems must include "goals for nutrition education, physical activity, and other school-based activities that are designed to promote student wellness in a manner that the local educational agency determines is appropriate").

[125] *See, e.g., State Physical Education Requirements: 2005*, NATIONAL CONFERENCE OF STATE LEGISLATURES, *available at* http://www.ncsl.org/Default.aspx?TabID=14027 (Dec. 2005) (charting the differences in physical education requirements by state) David Satcher, *Healthy and Ready to Learn*, 63 EDUCATIONAL LEADERSHIP 26, 26 (2005) ("During the last two decades, many school systems have abolished recess and cut back on physical education and extracurricular sports.").

[126] Satcher, *supra* note 125, at 26.

[127] *See* Kevin Patrick, et al., *Diet, Physical Activity, and Sedentary Behaviors as Risk Factors for Overweight in Adolescence*, 158 ARCHIVES OF PEDIATRICS & ADOLESCENT MED. 385 (2004) (finding among a sample of adolescents that inadequate activity was the only common risk factor associated with being overweight).

[128] Increased physical activity has proven to have lasting impact on weight. *See* Rachael W. Taylor, et al., *Two-year Follow-up of an Obesity Prevention Initiative in Children: the APPLE Project*, 88 AM. J. CLINICAL NUTRITION 1371 (2008) (finding during a two-year follow-up that benefits to body mass index remained apparent in children involved with the original study).

[129] *See, e.g.*, Roger S. Magnusson & Ruth Colagiuri, *The Law and Chronic Disease Prevention: Possibilities and Politics*, 188 MED. J. AUSTL. 104, 105 (2008) (suggesting that governments should develop walking-friendly communities with fewer fast food outlets).

As a supplement to improving the built environment, policies that encourage the availability of healthy foods and decrease the barriers to healthy eating and lifestyles can help change the course of some chronic diseases, including obesity and diabetes. Congress should use its taxing and spending powers to help shape purchasing behavior. Consumers are highly responsive to fluctuations in price, and can be persuaded or dissuaded from selecting certain foods based on their comparative cost value. In an extensive literature review, Andreyeva *et al.* found that soft drinks and food eaten away from home were particularly sensitive to changes in price. Purchasing Trends are inversely related to price change, however nominal.[130] Moreover, price is more influential on purchasing behavior than nutrition information.[131] Thus, there is strong evidence that excise taxes would discourage consumption of calorically dense (e.g., sugared soft drinks) and sodium rich foods, just as they have discouraged smoking.[132]

B. Strengthening the Public Health Infrastructure

Before there can be a truly integrated health system--and a system that is designed to improve population health--the infrastructure of the existing public health system needs to be substantially improved. As currently organized, there are serious questions as to the public

[130] *See, e.g.*, Tatiana Andreyeva, Michael W. Long & Kelly D. Brownell, *The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food*, 100 AM. J. PUB. HEALTH 1238, 216-222 (2010) (finding that soft drinks and food eaten away from home were particularly sensitive to changes in price); Simone A. French, et al., *Pricing and Promotion Effects on Low-Fat Vending Snack Purchases: the CHIPS Study*, 91 AM . J. PUB. HEALTH 112, 114 (2001) (finding that 10, 25, or 50% reductions in price of low-fat vending machine snacks increased sales by 9, 39, and 93% of those foods, respectively, with no change in overall sales); Simone A. French, et al., *Pricing Strategy to Promote Fruit and Vegetable Purchase in High School Cafeterias*, 97 J. AM DIET ASSOC. 1008, 1008-09 (1997) (finding that a 50% reduction in price of fruit and vegetables in a high school cafeteria resulted in a four-fold increase in fruit sales and doubling of carrot sales, with all sales returning to baseline levels when price reductions were removed).

[131] *See* Katherine Battle Horgen & Kelly D. Brownell, *Comparison of Price Change and Health Message Interventions in Promoting Healthy Food Choices*, 21 HEALTH PSYCHOLOGY 505, 510 (2002) (demonstrating that reduced price increased sales of lower fat foods significantly more than prominent displays of nutritional information).

[132] Experts project that a one dollar per pack increase in cigarette taxes could reduce the number of adult smokers by 6.25%. *See* Policy Brief, Association of Schools of Public Health, *Executive Summary, to Creating a Culture of Wellness: Building Health Care Reform on Prevention and Public Health*, July 14, 2009, http://www.asph.org/UserFiles/Prevention-and-Public-Health-Strategies-for-HC-Reform-asph-policy-paper2009.pdf; Dan E. Peterson, Scott L. Zeger, Patrick L. Remington, and Henry A. Anderson, *The Effect of State Cigarette Tax Increases on Cigarette Sales*, 82 Am. J. Pub. Health 94, 94-95 (1992) (noting that decreased sales have followed both state and federal excise taxes increases)

health system's capacity to meet the challenges at hand.[133] Unfortunately, neither state nor local governments are in a position to invest in the public health infrastructure, and the PPACA provides only limited funding for capital improvements.

Compounding the problem is that there is no consensus on how to rebuild public health capacity and how it should be organized. Should public health services be organized under a central authority at the state level, or by local health departments in a decentralized manner? Should public health services be provided along regional lines, or along county lines, as is the current system? Should the emphasis be on emergency preparedness or on routine public health issues? What role should the private sector play, particularly in an integrated system? How can public health services be measured? Should public health attempt to become more entrepreneurial?

As important as these questions are, they are secondary to the fundamental need to invest in the public health infrastructure. Improving the public health infrastructure is important because the system's organizational structure significantly affects the public's health. The system's structure influences practitioners' ability to respond to public health emergencies and the capacity to adapt to changing circumstances. As society is only willing to expend limited resources for public health, it is essential to have a structure in place that most appropriately and efficiently allocates those resources. This is especially true at a time when the public health system is expected to incorporate multiple mandates, both funded and unfunded.

Although it is beyond the scope of this article to specify the shape of a re-imagined public health system,[134] two aspects raised above seem essential for a viable public health system. The first is bricks and mortar; the second is a well trained public health workforce. As

[133] *See, e.g.*, Nicole Lurie, *What the Federal Government Can Do About the Nonmedical Determinants of Health*, 21 HEALTH AFF. 94 (2002) (questioning what would be done differently if the public health system could be rebuilt from scratch).

[134] The Institute of Medicine has devoted two committees to this task. *See* THE FUTURE OF THE PUBLIC'S HEALTH IN THE 21ST CENTURY, *supra* note 24 (assessing America's public health system and making recommendations); Committee on Public Health Strategies to Improve Health (Reports Forthcoming 2011).

indicated above, the PPACA makes some progress on the latter, but none on the former. A legitimate question, though, is to ask whether the government should invest in public health while simultaneously calling for a more integrated system. The answer is an unequivocal yes. For the PPACA's investment in prevention and wellness to be effective, a strong public health system is essential. Without a robust public health system, the health care system as currently organized is not in a position to effectuate the PPACA's prevention and wellness objectives. Provided that government commits to strengthening the public health infrastructure, a new, integrated system will emerge over time that embeds population health as part of its core mission. Until then, it is vital to invest in the bricks and mortar needed to sustain the public health system. In fact, the failure to invest will impede the transition to an integrated health system.

C. Adopting Health-in-All Policies

In an integrated health system, all government policies must reflect the ultimate goal of improving the health of the population as a whole. As we argued above, it is crucial to focus not only traditional public health goals--effective infectious disease response, health promotion, and disease prevention--but also on the amelioration of social and economic disparities, which profoundly influence health status. Indeed, investing in health fosters economic stability and growth, and may in turn improve the health system's fiscal sustainability.[135]

A Health in All Policies (HiAP) or "All of Government approach requires that government consider the impact of all of its policies on the population's health status and the impact of health on other sectors of society. A strategy to help strengthen the link between health and other social policies, HiAP addresses the effects on health across areas as diverse as

[135] *See* HEALTH IN ALL POLICIES: PROSPECTS AND POTENTIALS xxiv (Timo Stahl et al., eds., 2006), *available at* http://www.euro.who.int/__data/assets/pdf_file/0003/109146/E89260.pdf ("[I]t has been demonstrated that good health contributes positively to the economy while poor health can have substantial negative effects.").

agriculture, education, the environment, urban planning, fiscal policies, housing, and transport. The fundamental insight of HiAP is that health is not just a function of medical care or even broader public health; health is as much a result of food, income, environmental, and other policies as it is of health policy. As such, "HiAP is not confined to the health sector and to the public health community, but is a complementary strategy with a high potential towards improving a population's health, with health determinants as the bridge between policies and health outcomes."[136]

Put somewhat differently, HiAP examines the determinants of health controlled by spheres other than the health system.[137] Health is an issue that transcends governmental policy portfolios, organizational boundaries and academic disciplines. A HiAP approach requires integration between health and other sectors through cross-disciplinary collaboration and cooperation, shared and compatible data systems, and new organizations, partnerships, or initiatives that cut across traditional boundaries. The WHO has drawn attention to the need for "joined-up" government action and has called on member states to increase collaboration across traditional boundaries and generate cross-sector policy design.[138] In a report that emerged from a recent *Health in All Policies International Meeting*, the WHO details the extent to which all sectors--including the economy, housing, agriculture, justice system, transportation, and education--affect and are affected by population health.[139]

Nonetheless, the United States overinvests in expensive, high technology health care to treat disease, while under-investing in strategies to prevent or at least ameliorate the causes of morbidity and mortality. The current bifurcation between public health and medical care and its

[136] *Id.* at xviii.
[137] *See* Marita Sihto, Eeva Ollila, & Meri Koivusalo, *Principles and Challenges of Health in All Policies*, in HEALTH IN ALL POLICIES: PROSPECTS AND POTENTIALS 4 (Timo Stahl, et al., eds., 2006) ("The core of HiAP is to examine determinants of health . . . which can be influenced to improve health but are mainly controlled by policies of sectors other than health.").
[138] *See* WORLD HEALTH ORG. & GOVERNMENT OF S. AUSTL., HEALTH IN ALL POLICIES, ADELAIDE 2010 3-4 (2010) (citing certain examples of "joined-up" government action).
[139] *Id.* (discussing the interrelationships between health and overall well-being).

attendant lack of coordination exacerbates the problem. In this context, HiAP must support an integrated health system in reducing the burden of chronic diseases.

The importance of a HiAP approach is illustrated by the profound effect of urban planning on health. Half of Americans now live in suburban settings, increasing reliance on automobiles. This creates air pollution, which is linked to chronic respiratory ailments, and facilitates increasingly sedentary lifestyles, which is directly contributing to weight gain. Despite the close connection between health and urban planning, public health officials have been largely absent from these policy decisions.[140] Similarly, agricultural subsidies resulting in the overproduction of corn have significantly increased food manufacturers' use of high-fructose corn syrup, contributing to consumption of calorie-dense foods.[141] Assessing the impact of all government policies on health would ensure that the determinants of health are addressed in a more systematic and effective manner. Through the community health needs assessment process described earlier,[142] the PPACA begins the process of integrating population health into the medical care system. Expanding this approach to incorporate a health impact analysis as part of the policy development process for all sectors of government policymaking would be an important next step toward a HiAP approach.[143]

To most effectively reduce premature morbidity and premature mortality and lower medical costs, we believe that policymakers should adopt the reforms we have proposed. We recognize that our reforms would not be easy to implement and could face significant political obstacles. For instance, what are the logistics of integrating population health and medical care into one system? What skill set is needed for practitioners to include population health with

[140] *See* Wendy Collins Perdue, Lesley A. Stone & Lawrence O. Gostin, *The Built Environment and Its Relationship to the Public's Health: The Legal Framework*, 93 AM. J. PUB. HEALTH 1390, 1393 (2003) (stating ways in which the built environment is adversely affected by laws and suggesting that the public attempt to influence legislatures).
[141] *See* Liselotte Schafer Elinder, *Obesity, Hunger, and Agriculture: the Damaging Role of Subsidies*, 331 BRIT. MED. J. 1333, 1333 (2005) ("But we argue it is equally important to tackle the oversupply of food, driven by agricultural subsidies.").
[142] *See supra* Part I.C.4 (explaining how the health needs assessment process advances integration).
[143] *See, e.g.*, KICKBUSCH & BUCKETT, *supra* note 52, at 18 (describing how this analysis has had positive effects in Canada).

medical care? Where does accountability reside, especially for current public health services such as surveillance and quarantine? What are the consistent themes that should animate a Health in All Policies strategy?

Regardless of the implementation difficulties likely to emerge, adopting the three reforms in this Part would strengthen the capacity of the public health system to respond to injury and disease threats, improve health status, and prepare the nation for an integrated health system. As we have argued throughout this article, realizing improved population health will require disruptive change, but the benefits of an integrated system far outweigh the implementation challenges.

Conclusion: The Building Blocks of Health

Our core premise is that health reform's central purpose ought to have been the improvement of the population's health. Although the PPACA is a major step forward in meeting the nation's goal of improving access to health care services, better health outcomes would be achieved--at a lower cost--by shifting priorities toward health promotion and disease prevention. The PPACA improves access to preventive care and provides modest additional funding for public health services, but it fails to make population-based services a central component of health reform. As a result, the Act will not realize the substantial gains in health status that are associated with robust health promotion and disease prevention initiatives.

We have argued that public health and health care should not be treated as competing disciplines for political and financial attention, but rather that they should be organized as two parts of a single health system. In other words, "restoring health to health reform" necessitates a return to a unified health system, one in which we move beyond disciplinary and organizational boundaries.

To illustrate the value of an optimally functioning "health system," we presented five normative criteria against which we evaluated health reform. These are the building blocks of health: prevention and wellness, human resources, a strong infrastructure, performance measurement, and disparity reduction. Analyzing health reform in the context of these criteria allows policymakers to assess the extent to which the legislation will improve the population's health status. The PPACA falls short because it fails to adequately fund or imaginatively reform the public health enterprise. Furthermore, it does not advance the integration of public health and health care. In short, the act's focus on clinical preventive services and expanded coverage is notable but too narrow to achieve marked progress in population health.

To ensure a safer and healthier population, implementation and future legislation should carefully address the building blocks of health and fundamentally transform health policy in the following ways. First, by re-shaping the natural and built environments in which people live, federal and state policymakers can make healthy behaviors the more viable choice. Second, by strengthening and modernizing the public health infrastructure, policy makers could ensure sustainable capacity to monitor and effectively respond to injuries, diseases, and public health emergencies. Finally, by facilitating progressive thinking about Health in All Policies, a wide range of government agencies could contribute to the public's health, cognizant that health care plays a relatively minor role in health.

We are mindful that reigniting the health reform flame may prove politically treacherous, but we remain steadfast that the movement cannot rest here. Thus, we end with a call to stakeholders (the health professions, health institutions, health advocates, and the academy) to serve as catalysts for full integration of public health and health care--and a voice for the policies we have argued embody its value. These stakeholders have the knowledge, skill, resources, and political clout to expedite integration. To date, however, few have acted as informed advocates for public health. Most consider population health an afterthought in the shadow of a far more visible and powerful health care industry. Yet, true integration is not

feasible so long as public health remains an orphan specialty in the health care community. And much is at stake as the nation moves into the post-health care reform era--not only for patient access and economic cost but, more fundamentally, for the health of this nation.