

Policy and Public Health: Reducing the Burden of Infectious Diseases

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The Centers for Disease Control and Prevention (CDC) works for a future free of HIV/AIDS, viral hepatitis, sexually transmitted diseases (STDs), and tuberculosis (TB). Policy can have powerful effects on the complex, multisectoral factors that influence the population-level morbidity, mortality, and health disparities of these and other diseases.¹⁻⁴ Public health policy approaches comprise laws, regulations, incentive systems, or other standardized procedures and practices aimed at influencing institutional and individual behavior to improve health and health equity.^{5,6} Laws and policies that were not designed to achieve health-related objectives also can have important, albeit unintended, health effects. A systematic study of the association between policies and population health is needed to guide the development and implementation of health-promoting policy strategies that are feasible and effective and that minimize harms. This supplemental issue of *Public Health Reports* provides timely research on policy interventions that have the potential to reduce the incidence, morbidity, or mortality of HIV/AIDS, viral hepatitis, STDs, and TB. Furthermore, the articles in this supplement demonstrate a typology of public health law and policy research that supports vital and comprehensive examination of the evidence on which policy interventions can be based. We summarize the proposed research typology, apply it to the diversity of articles included in this supplement, and discuss future directions for this important field of research.

Typology of Public Health Law and Policy Research

Burris et al have described a framework for public health law research that categorizes the principal forms of such research into 5 types: (1) policymaking studies, which examine the factors that influence policy adoption and the processes through which policies are adopted; (2) mapping studies,

which gather empirical data on the prevalence, distribution, and characteristics of adopted policies across jurisdictions and levels of government; (3) implementation studies, which examine how and to what extent adopted policies are implemented and enforced in practice; (4) intervention or evaluation studies, which measure the effects of policies on health; and (5) mechanism studies, which examine the causal pathways and processes by which policies affect health.⁶ Each category of policy research can provide useful perspectives and evidence to guide the design, adoption, and implementation of policy approaches to improve health. The articles in this supplement offer examples of mapping, implementation, and evaluation studies and illustrate the range of research that can guide and improve the impact of policy on health.

Mapping Studies

Legal mapping studies describe the key features of laws across multiple jurisdictions and capture in comparable form the diversity of state or local laws on important health matters. Such studies can reveal geographic or conceptual gaps in laws that affect health and can facilitate the identification of legal provisions that fail to conform to best practices or public health guidance. Mapping studies can also produce

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legal data for evaluation research and can help diffuse successful legal innovations.⁷ In this supplement, a mapping study of state syringe services program (SSP) laws found a doubling of the number of states that explicitly authorize SSPs during 2014-2019 and the persistence of legal barriers to ensuring that persons who inject drugs use new, sterile syringes.⁸ The study produced a data set of SSP laws that is posted online for research and other public uses.⁹ In this supplement, the US Surgeon General draws on epidemiological evidence and his personal experience as a state health officer to reinforce the importance of state and local policies that enable SSPs.¹⁰ A second mapping study that assessed the correspondence of CDC HIV testing guidelines and state laws found that no states had laws that would hinder compliance with CDC's 2006 revised HIV testing recommendations, but also that no state had laws enacting all relevant components for recommended HIV testing.¹¹ To illustrate the use of legal mapping to capture data on institutional policies, Moraras et al¹² collected data on policies related to the management of students with hepatitis B virus (HBV) infection from 83 Pennsylvania schools with accredited health professions programs. This information can be used to guide a discussion of law as a tool for combating HBV discrimination against students in accredited health professions programs.¹²

Implementation Studies

By reporting the early effects of policy change, implementation research can reveal if policy innovations are feasible, produce desired results, or have any negative effects. The implementation studies in this supplement are primarily case studies. Although case studies lack the rigor of more formalized implementation research designs, such studies nevertheless may be useful to state and local agencies that face similar challenges in the field. They can give an early indication of the usefulness of a policy innovation and can identify promising policy approaches for more formalized, and potentially costly, implementation or evaluation studies.

This supplement has 3 articles on health policy implementation in custodial settings. A study of the implementation of a California state law mandating condom access in state prisons concluded that the practice was safe, low cost, and had good inmate uptake, making it an optimal policy model for other states.¹³ A study of an age-based routine syphilis screening policy in a county jail identified a high number of cases requiring treatment.¹⁴ Lederman et al¹⁵ developed and pilot-tested a program of opt-out testing for sexually transmitted infections among immigrant detainees. Although the study leaves unanswered important questions about the effects and cost-effectiveness of immigrant detainee screening, it concludes that opt-out testing for sexually transmitted infections is worthwhile but only cost-effective for HIV when combined with screening for other sexually transmitted infections.

This supplement also includes informative case studies of multifaceted plans for improving public health services and outcomes. Morne et al¹⁶ studied the implementation of New York State's Ending the Epidemic (ETE) initiative at its half-way point. By using 13 metrics, the authors estimated that the ETE initiative had achieved 42% of the intended progress toward the goal of ending the HIV epidemic.¹⁶ A case study in Washington, DC, describes early challenges in implementing a change to a unit-cost reimbursement mechanism for HIV prevention and care services, combined with a merger of prevention and care-planning bodies.¹⁷ Finally, a case study from Massachusetts describes the rollout and results of the first 4 years of an approach to managing HIV, viral hepatitis, STD, and TB control services that integrates provider, laboratory, and public health capacities. The article explains how the synergies achieved contributed to a 106% increase in testing for HIV from 2014 to 2018.¹⁸

Evaluation Studies

The most important category of public health law and policy research concerns the effects of policy approaches. The methods used in evaluation studies vary in rigor and in the strength of support they can provide for causal inferences. This supplement includes several retrospective evaluation studies and innovative examples of modeling techniques for predicting the population health impacts of policy innovations. Several studies investigated HIV policy interventions. A study of the association between changes in syringe access policies and programs and syringe sharing by persons who inject drugs in Denver, New Orleans, and Philadelphia provides further evidence that providing syringe access leads to reduced syringe sharing.¹⁹ Truman et al²⁰ address the challenge of reducing disparities in HIV infection in the United States through an analysis of federal HIV funding allocations and age-adjusted HIV death rates during 1999-2017. The study found that higher spending was associated with faster decreases in age-adjusted HIV death rates for Hispanic and non-Hispanic black residents than for US residents in other racial/ethnic groups.²⁰ A modeling study tested the effect of key elements of New York's ETE initiative on new HIV infections. The findings demonstrate that meeting the final ETE policy goals will depend on reducing the number of new HIV infections among men who have sex with men and that enhanced linkage to and retention in care and preexposure prophylaxis will have the largest effects.²¹

Two studies in this supplement address the effects of TB control policy in 2 settings. In Atlanta, required TB screening in homeless shelters and expanded outreach to persons experiencing homelessness were associated with higher self-reported TB screening and TB awareness among this population.²² To estimate the impact of implementing US Preventive Services Task Force recommendations or a tool and user guide for TB risk assessment developed by the California Department of Health, Parriott et al²³ used an

individual-based Markov micro-simulation model to compare each new approach with California's baseline latent TB infection control measures. The model predicted that adherence to either new standard would likely cut the cumulative number of cases of TB disease by 40% during a decade.

To reduce mother-to-child transmission of syphilis and HBV infections, in July 2014, the New York City Department of Health and Mental Hygiene amended its health code to require laboratories to include known or probable pregnancy status in electronic laboratory reports associated with these infections. A study by Liao and colleagues²⁴ found that the proportion of electronic laboratory case reports of syphilis and HBV infection that contained information on pregnancy status increased by more than one-third in the 4 years after implementation of the amended health code. Finally, a systematic review of systems-level opioid policy evaluations determined that available research failed to target certain important opioid health outcomes and that only 18% of studies evaluated the combinations of interventions characteristic of the policy landscape.²⁵

This supplement also includes valuable nonempirical content. One commentary offers a model of law as a driver of social determinants of health and compelling examples of research that illuminates how law's influence on structural, economic, health care, and social factors ultimately shapes the level and distribution of infectious disease.²⁶ A methodological commentary makes a case for mixed-methods, multidisciplinary policy assessments to better identify and study policy effects on populations at high risk for STDs.²⁷ A third commentary highlights how a comprehensive CDC collaboration with several university-based teams modeled TB incidence; the prevalence of latent TB infection; interventions for diagnosing, treating, or preventing TB disease; intervention costs; and cost-effectiveness for guiding policymaking and implementation.²⁸ Analysis of legal doctrine is a crucial link between empirical evidence and practice and is represented in this issue by an analysis of law as a tool to challenge treatment restrictions for hepatitis C virus infection.²⁹

Conclusions

The diverse articles in this supplement demonstrate multiple types of public health law and policy research and commentary related to HIV/AIDS, viral hepatitis, STDs, or TB. Policies can affect infectious disease testing, morbidity, mortality, and disparities in various ways. Examples include laws that reduce barriers to HIV testing,³⁰ the removal of cost barriers to curative therapy for hepatitis C virus infection,³¹ requiring syphilis screening and treatment for pregnant women to prevent congenital syphilis,³² and policy changes to allow electronic directly observed therapy as a cost-effective approach to reduce TB transmission.³³ Policy decisions involve tradeoffs, and varied research methods^{34,35} are available to establish a sound evidence base for developing and

selecting public health policy approaches.¹ Mapping, implementation, and evaluation studies such as those presented in this supplement can provide complementary evidence that supports policy action. Studies of policymaking processes and of the mechanisms through which policies affect health also are needed. Although most of the studies in this supplement use relatively simple methods, increased rigor of policy research designs is warranted for complicated interventions that might be expensive or difficult to scale. To support the development and scale-up of evidence-based policies, funding³⁶ and mechanisms for monitoring and evaluating the effectiveness of policy interventions should be considered during intervention planning.¹ Moreover, given the challenges of conducting public health policy research at a pace that is commensurate with the often rapid diffusion of laws and policies across jurisdictions,^{37,38} modeling is an innovative and important tool to rigorously test policy ideas and to guide early adoption of promising interventions. Finally, although not grounded in science, doctrinal legal analysis is important for developing legal approaches, assessing the legality of policy changes, and helping public health practitioners and policy makers better understand law as a tool for improving health and reducing health disparities.

Disclaimer

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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