

## **Innovations in Obesity Policy**

# State and Municipal Innovations in Obesity Policy: Why Localities Remain a Necessary Laboratory for Innovation

Belinda Reeve, LLB, PhD, Marice Ashe, JD, MPH, Ruben Farias, MS, and Lawrence Gostin, LLD, JD

Municipal and state governments are surging ahead in obesity prevention, providing a testing ground for innovative policies and shifting social norms in the process.

Though high-profile measures such as New York City's soda portion rule attract significant media attention, we catalog the broader array of initiatives in less-known localities. Local innovation advances prevention policy, but faces legal and political constraints—constitutional challenges, preemption, charges of paternalism, lack of evidence, and widening health inequalities.

These arguments can be met with astute framing, empirical evidence, and policy design, enabling local governments to remain at the forefront in transforming obesogenic environments. (*Am J Public Health.* 2015;105:442–450. doi:10. 2105/AJPH.2014.302337)

#### **OBESITY POSES A CRITICAL**

threat to population health. More than one third of Americans are obese and over two thirds overweight or obese, with high risks of cancer, diabetes, and cardiovascular disease.<sup>1</sup> Policymakers often look to the federal government for solutions, but shepherding obesity policies

through Congress is fraught with interest group politics-e.g., agriculture, food, advertising, and retail corporate lobbying.<sup>2</sup> Even as the federal government inches forward with modest policy reforms under the Affordable Care Act (ACA; e.g., new funding for community-based prevention programs), federal action often comes with preemption that inhibits state and local experimentation.3,4 In this current political environment, states and localities provide a natural laboratory for testing innovative policies, a concept first expressed in 1932 by Justice Brandeis in a widely cited Supreme Court opinion.<sup>5,6</sup> States and municipalities (referred to generically as "localities" or "local" action) are acting boldly in the realms of diet (e.g., nutritional labeling, trans fat bans, portion sizes, and zoning out fast foods) and physical activity (e.g., bike shares, walking paths, parks, and recreation) to make health the easier choice.<sup>7</sup>

Policies in high-profile mega-cities have stirred a national conversation and attracted stinging refutations—such as for New York City's sugar-sweetened beverage portion limits. 8-10 Many such critiques (e.g., the "Nanny State") reflect traditional political divisions, and even some public health

advocates warn against getting ahead of public opinion.11 But despite flamboyant headlines, there are hubs of policy innovation in small towns, cities, and states, and these less-heralded efforts are setting the stage for fundamental shifts in social norms and improved health outcomes. Here, we argue that local action is critical to creating environments conducive to good health, specifically in terms of cataloguing a broad array of municipal and state obesity prevention measures, describing the political and legal constraints on local policymaking, and explaining how creative reform of city and rural landscapes could transform obesogenic environments. Social transformations demand a full suite of policies, together with effective framing of health policies in the face of entrenched corporate interests and political ideologies.

## INNOVATIVE STATE AND MUNICIPAL OBESITY PREVENTION POLICIES

In 2007, Mayor Mick Cornett stood before the elephant cage at Oklahoma City zoo and challenged residents to lose one million pounds. <sup>12,13</sup> He launched a Web site containing resources

for weight loss, encouraging groups to add their pounds lost to an overall achievement tally. <sup>12,14</sup> Cornett found inspiration for the program from his own weight-loss battle and from learning that Oklahoma City ranked among America's most obese locations.

Tapping into the city's infrastructure development program, Cornett created opportunities for residents to increase their physical activity.15 Drawing on a 1% sales tax increase, business loans, and federal funding, he improved parks, sidewalks, trails, bike lanes, and sports facilities. He targeted neighborhoods with high rates of heart disease, offering free medicine and check-ups in exchange for taking exercise classes.<sup>15</sup> In January 2012, Cornett announced that the city had cumulatively lost one million pounds,12 reportedly generating a cultural shift toward healthier lifestyles and contributing to a revitalized economy.<sup>13</sup>

Oklahoma City's story represents a growing trend of local experimentation to combat obesity and chronic disease. New York City's innovations are well known—trans fat bans in restaurants (designed to prevent cardiovascular disease rather than obesity), calorie displays in franchise



restaurants, bike shares, and new park designs.11 The city's portion size limit for sugary drinks attracted intense public criticism and was ultimately struck down by the state's highest court.11,16 But beyond such high-profile examples, scholars have not systematically examined a wide array of state and local policy initiatives.

Local action aims to reshape physical environments that powerfully influence personal lifestylesmaking health the easier choice while facilitating new social norms.2 These initiatives are designed to increase the availability and appeal of healthy food, decrease the

marketing of unhealthy products, and redesign environments to facilitate physical activity.<sup>7</sup> Public officials employ a suite of regulatory tools, including health information, taxes and economic incentives, altering the built environment, direct regulation, and dismantling laws that impede healthy lifestyles.<sup>17</sup> Governments use litigation to raise awareness, prompt industry self-regulation, and generate legislation.<sup>2</sup> They also deploy novel forms of public health governance, such as selfregulation and public-private partnerships that erect a framework of incentives for voluntary

industry action-as found in the "Let's Move" 18 and "Soda Free Summer" campaigns. 19

Authority for local prevention initiatives comes from various sources, including laws promulgated by state and city legislative bodies, regulatory rules developed by health agencies, and policies developed by schools and other organizations.5 Here we use "policy" as an inclusive term that incorporates laws, regulations, executive orders, and other legal and regulatory instruments. We include both state and local initiatives in our discussion, categorizing policies according to whether

their main focus is improving diet or encouraging physical activity.

#### **Diet and Nutrition**

Table 1 illustrates how governments target multiple points along the food supply chain in their attempts to reshape the food system. Production and manufacturing interventions include nutritional composition (reducing salt, sugar, and fat), with other policies encouraging local production through community gardens and urban agriculture. For example, under the Californian Urban Agriculture Incentive Zones Act, cities grant tax breaks to landowners

Food System Sectors	Example	Description
Production/manufacturing	New York City ban on trans fat <sup>89</sup>	A 2006 amendment to New York City's Health Code requiring that all restaurants and mobile-food vendors discontinue use of trans fat in foods.
	California's Urban Agriculture Incentive Zones Act 2014 <sup>20</sup>	Legislation reducing property taxes for landowners who commit their land to local urban agricultural use for 5 years or more.
Marketing	California's SB 1000 Soda Warning Label Bill 2014 <sup>90</sup>	The proposed law would label sugar-sweetened beverages with a warning that consumption contributes to obesity, diabetes, and tooth decay.
	San Francisco County's Healthy Food Incentives Ordinance <sup>22</sup>	A Health Code ordinance that prohibits free toys from being offered with children's fast-food meals, unless meals meet set nutrition standards.
	Maine School Advertising Law <sup>91</sup>	The first state law prohibiting brand-specific advertising of unhealthy foods and beverages in schools.
Retail	Minneapolis Staple Foods Ordinance <sup>25</sup>	The law requires food and grocery stores to stock a minimum number of "staple foods" such as vegetables, fruits, and cereals.
	Philadelphia's Healthy Corner Store Initiative <sup>92</sup>	This public-private initiative provides technical training and financial incentives to corner stores operating in food deserts.
Purchasing by consumers	Double Up Food Bucks SNAP Michigan <sup>93</sup>	An NGO initiative that increases the buying power of SNAP recipients by matching food purchases in farmers' markets.
	King County's (WA) "Let's Do This" Campaign <sup>94</sup>	A multilingual, multimedia public education campaign promoting healthy eating.
	Healthy Diné Nation Act <sup>95</sup>	The Act set an additional 2% sales tax on "junk food" sold within the Navajo Nation.
Purchasing by governments	MA State Agency Food Standards <sup>96</sup>	Standards requiring that state executive agencies follow dietary guidelines when providing foods and beverages (directly or through contract).
Developing government infrastructure to facilitate healthy local food systems	Food Policy Advisory Committee New Orleans <sup>97</sup>	Formed by the New Orleans City Council in 2007 to identify ways that city and state officials can support equitable access to fresh, healthy food.

Note. NGO = nongovernmental organization; SNAP = Supplemental Nutrition Assistance Program.



in designated zones who commit their land to agricultural use for a 5-year minimum.<sup>20</sup>

Localities are targeting the pervasive effects of unhealthy food and beverages in schools, as well as mandating calorie displays on menus. Voluntary partnerships between "Change the Future Western Virginia" and grocery store owners aim to create healthy check-out aisles.<sup>21</sup> San Francisco and Santa Clara require restaurants offering free toys or games with children's meals to meet nutritional standards. 22,23

Some local governments regulate food retailing, such as a Los Angeles prohibition on new fastfood restaurants in 3 regions with a high density of fast-food chains and liquor stores, but few grocery

retailers ("food deserts").24 In 2008 Minneapolis pioneered a policy requiring grocery stores to stock a minimum number of "staple foods" as a condition of licensing.25

Food assistance and education campaigns support individuals and families in purchasing healthier foods and beverages, while "fat taxes" (taxes on energy-dense products high in salt, saturated/ trans fat or sugar) and portion size limits aim to shift purchasing choices away from unhealthy products. Policies also focus on food procurement and availability in schools, childcare centers and other government institutions. Colorado requires school districts to restrict sugary beverages in schools, 26 as does California's

"healthy beverage" law.27 Finally, the appointment of food policy directors or councils creates government infrastructure that supports new initiatives.

#### **Physical Activity**

Like innovative policies to improve the food environment, urban planning, transportation, and architectural design seek to promote physical activity-as demonstrated in Table 2.28 The Nashville Metropolitan Planning Organization (MPO) awards federal transportation funding, giving preference to infrastructure that improves health and promotes physical activity.<sup>29</sup> In 2013, Massachusetts issued a Healthy Transportation Policy Directive, requiring all projects funded or

designed by the transportation department to "seek to increase and encourage more pedestrian, bicycle and transit trips."30

"Complete Streets" policies transform road design to cater to pedestrians and cyclists,<sup>31</sup> while bike-sharing schemes encourage active transport.32 In addition to creating new parks and trails, joint-use ventures open up existing venues for physical activity and recreation. Crime prevention may promote obesity prevention by providing more walk-friendly, livable cities,<sup>33</sup> as may road safety initiatives such as the "New York City Pedestrian Safety Study and Action Plan"-an evidence-based policy addressing the preventable causes of pedestrian injuries and deaths.34 Physical activity

TABLE 2-Local and State Interventions to Encourage Physical Activity

Activity Sectors	Example	Description
Active transportation	Capital Bikeshare, Washington, DC, Area <sup>98</sup>	The nation's first and largest bike-sharing program, serving Washington, DC, and surrounding areas.
	Complete Streets Policy, Baldwin Park, CA <sup>99</sup>	Baldwin Park had the highest-rated complete streets policy in 2011, incorporating all 10 elements recommended by the National Complete Streets Coalition.
	Healthy Transportation Policy Directive, MA <sup>30</sup>	A directive requiring that MassDOT fund and design projects to encourage active transport.
	Safe Routes to School National Partnership, multiple states <sup>100</sup>	This organization collaborates with local partners to develop programs that help students walk or bike safely to and from school.
Physical activity and recreation	Joint-use agreement, City of Tucson, $\mathrm{AZ}^{101}$	The City and Tucson Unified School District opened up 12 school sites to the public, with the police department providing extra patrols around sites to ensure community safety.
	Atlanta Beltline, Atlanta, GA <sup>102</sup>	An ambitious project fusing economic development with transportation planning to create new small businesses, housing, parks, and transit along 22 miles of repurposed trails.
	Play Streets, multicity initiative <sup>103</sup>	An initiative that closes streets to traffic and opens up reclaimed space for children's play and physical activity.
	Druid Hills Revitalization Project, Charlotte, NC <sup>104</sup>	A partnership between Charlotte Police and a local nonprofit that significantly improved safety in high-crime neighborhoods by creating a community taskforce, remodeling old housing stock, and raising funds for a community park.
	Sarah Vaughn Field of Dreams baseball park, Greenville, ${\rm NC}^{105}$	Renovations to Elm Street Park's baseball park made it fully accessible to children with disabilities.

Note. DOT = Department of Transportation; MassDOT = Massachusetts Department of Transportation.



interventions often focus on school settings, for example, Safe Routes to School programs, and mandated periods for physical instruction or play.<sup>35</sup>

## THE VALUE OF LOCAL INNOVATION

Public health advocates recognize the close relationships between healthier populations and economic prosperity, arguing that healthy populations stimulate economic growth, lower health care costs, lure new businesses, and create jobs.<sup>36</sup> Attractive urban centers (e.g., bike shares, pedestrian-friendly streets, and parks) appeal to younger, highly skilled workers critical to development. As explained later, these economic gains can come at a cost, including displacement of lowincome residents and gentrificationas younger workers drive up rents, sales prices and taxes, and drive out the very residents that need access to amenities and services.

Federalism-when it works as intended-can create synergies at all levels of government. The federal government has power to tax and spend, which supports urban infrastructure, promotes physical activity (e.g., mass transit, walking paths, and recreational facilities), and encourages healthy eating (e.g., the 2014 Farm Bill increases access to fruits and vegetables). 2,17,37 Under the Constitution, states retain inherent authority for legislation that promotes the health, safety and welfare of their populations, and can exercise these "police powers" to regulate businesses and encourage individuals to make healthier choices.<sup>17</sup> Localities-through state delegations of power, such as "home rule"—are closer to the people, often able to enact bolder reforms. <sup>2,4</sup> Local governments can exercise their legislative and administrative rule-making powers to serve as laboratories of innovation. <sup>5,6</sup>

State and local innovation is at the cutting edge of public health governance. Absent local action, there would be few opportunities to implement and evaluate novel interventions. Local policies can inform the political community about what works, while being tailored to the social, economic, cultural, and demographic features of a region. Local innovators sometimes get ahead of popular opinion, testing the boundaries of public acceptability and fostering shifts in social mores. Although tobacco control was initially divisive (e.g., smoke-free laws), it is now broadly accepted. So too, could cities stimulate social acceptance of contested nutritional policies, such as trans fat bans, menu labeling, and portion limits.5

Municipalities create policy models that can be emulated, so that prevention initiatives diffuse vertically (nationally and statewide) and horizontally (to other localities).<sup>5</sup> Many cities, counties, and states adopted New York City's 2008 menu board labeling, with policy diffusion culminating in the ACA's calorie labeling for menus and menu boards in restaurants and food retailers operating nationwide. 5,7,38a,38b Although jurisdictional variability creates inconsistency, the history of tobacco control suggests it also spurs policy innovation.<sup>39</sup> Federalism encourages state and local governments to innovate, setting

a benchmark for other jurisdictions; fosters the diffusion of successful models; and enables jurisdictions to "leapfrog" existing policy models by creating stronger and more comprehensive laws. 39,40

Local innovation is crucial in a political climate that stifles national action, with the federal government more likely to be constrained by industry lobbying, budgetary constraints, and partisan gridlock. 41 The Federal Trade Commission, for example, researches and regulates food marketing, as well as bringing enforcement actions. However, food industry lobbying has stymied the agency, rendering it unable to effectively restrict the marketing of unhealthy foods to children.<sup>2,42</sup> Similarly, Congress blocked school meal requirements, so that pizza and french fries count as fruits and vegetables. In general, the federal government rarely is in the vanguard of obesity prevention, and federal (and state) preemption can even thwart local innovation.

Local leaders are closer to their constituents, enabling local politicians to be more responsive (and accountable) to their communities, acting as public health champions. Industry lobbyists are also less likely to target local officials. 41 Advocates can generate bottom-up social mobilization. Residents clamoring for healthier foods spurred Los Angeles to limit the expansion of fast-food restaurants.<sup>43</sup> Local policy-making fosters community dialogue, education, and engagement, thus erecting a base of public understanding and "ownership" of policy solutions, to better ensure their sustainability.<sup>3</sup>

The ACA recognizes the value of local innovation, creating a

national framework for obesity prevention.43 The National Prevention Council, comprising representatives of 20 federal agencies, provides national leadership and coordination of prevention initiatives. 44 The 2011 National Prevention Strategy aims to promote health "at every stage of life," fostering "healthy and safe community environments" and evidence-based local preven- ${\rm tion.}^{36}$  The Prevention and Public Health Fund provides Community Transformation Grants (CTG) for local experimentation with chronic disease prevention.45 Unfortunately CTG grants will be eliminated in the 2015 federal fiscal year, and it remains to be seen if the new Partnership to Improve Community Health (called PICH) and Racial and Ethnic Approaches to Community Health (called REACH) grants will provide strong opportunities for effective disease prevention programs. New federal support under the ACA aims to encourage local innovation in prevention policy,46-48 although funding for prevention remains a fraction of what is spent on the treatment of chronic disease.48

## CONSTRAINTS ON LOCAL-LEVEL ACTION

Cities benefit from streamlined law-making such as unicameral legislatures, often with concentrated political majorities facilitating efficient policymaking. <sup>41</sup> Local policymaking, however, faces political and legal constraints. Although most cities have expansive rule-making authority, some states delegate only narrow



powers, constraining local action and creating variability.<sup>2,4</sup>

Innovative public health policies can face constitutional challenges. Certainly, local governments can engage in economic regulations (e.g., zoning and licensing) with minimal constitutional oversight. In a bitterly contested decision, *Kelo v. City of New London*, the Supreme Court even allowed local government to use eminent domain to transfer private property to spur economic growth. <sup>49</sup> Several states, however, deny local governments land use authority.

The courts can strike down public health laws that tread on constitutional rights. In 2001, the tobacco industry successfully challenged a Massachusetts law banning tobacco advertising within 1000 feet of schools and playgrounds, arguing that the ban violated commercial free speech.50 Similar constitutional pitfalls could extend to nutritional policies; for example, the food industry likely would challenge restrictions on billboard advertising for unhealthy foods and beverages near schools.<sup>2,50</sup> These first amendment hurdles help explain why few governments at any level have restricted food advertising outside of K-12 public schools.

Federal or state preemption can be a powerful tool either for, or against, the public's health. "Floor" pre-emption that sets minimal standards can facilitate innovation. The US Department of Agriculture's nutritional standards for school meals<sup>51</sup> require state compliance but permit schools to improve nutritional quality. "Ceiling" preemption that caps standards or

forbids localities from introducing more rigorous health measures can undermine local creativity.<sup>3,4</sup> The ACA's menu labeling, for example, sets standards for restaurant chains and food outlets with 20 or more locations, preventing states and localities from introducing more stringent standards for restaurants covered by the Act.

Health innovations can create a backlash, prompting conservative states to stifle local action. Before the ACA's enactment, for example, Georgia, Tennessee, and Utah expressly prohibited localities from mandating menu labeling.4 San Francisco and Santa Clara's ban on free toys in children's meals spurred Arizona, Florida, and Ohio to preempt similar local measures.2 As local innovation advances, industry may lobby for preemption strategically against obesity-prevention, just as Big Tobacco undermined local tobacco control.2-4

#### **Political Barriers**

Beyond legal constraints, cities face political barriers, particularly the paternalistic framing of obesity prevention. Tobacco control advocates were able to deflect the "Nanny State" critique by demonstrating the harms of second-hand smoke and the industry's deceit. The media, however, often frames obesity prevention as entailing only self-regarding behavior and government intervention to encourage healthy eating and drinking as unnecessarily infringing individual freedom. The epitaph "Nanny Bloomberg" haunted Michael Bloomberg's administration.9,52 Critics also argue that

there is no evidence indicating that policies will reduce obesity— a claim made by industry associations in legal proceedings against New York City's soda portion ban.<sup>11</sup>

#### **Ethical Barriers**

Relatedly, some obesityprevention strategies disproportionately impact racial minorities and the poor, given their high burdens of chronic disease. 53,54 Soda taxes, for example, are regressive because they fall more heavily on lower-income groups who drink more soda and have fewer resources to absorb tax increases. New York City's diabetes surveillance system largely monitors lower-income patients, raising similar charges of injustice and unequal privacy intrusions. 11 Yet, the greater injustice is when public officials fail to act-passively allowing disadvantaged groups to bear a disproportionate burden of debilitating chronic disease. The health benefits of obesity prevention significantly outweighs the relatively small limits on personal autonomy.11

Effective policies can fail to reduce—and can even exacerbate—health disparities. Health policies tend to benefit higher-educated and higher-income groups, while failing to reach vulnerable communities. Higher-income and well-educated communities are more likely to make successful behavior changes that improve health outcomes, as demonstrated with sharp declines in smoking among the middle class that have not extended to the poor. 55

Poor health outcomes are not simply the result of personal

choice, but also of social, environmental, and economic barriers. Yet readjusting these structures risks unintended consequences. Health advocates urge locating schools near children's home to encourage walking and cycling, but this could increase racial and economic segregation in schools.<sup>56</sup> Redesign of the urban landscape can increase gentrification, pushing low-income residents out of the inner city into areas with fewer parks and grocery stores, and little public transportation. Public health, then, risks improving quality of life for the well-off, while leaving the poor disadvantaged.43,56,57

## COUNTERING OBSTACLES TO LOCAL INNOVATION

Although innovative prevention policies face political and legal challenges, political opposition can be countered empirically or resolved through policy design.

#### **Political Barriers**

Backlash. Some public health advocates express concern that forward-thinking policies risk political backlash, potentially hampering future creativity. Yet, the success of tobacco control shows how progressive action can spark social change, draw media attention to unethical corporate practices, and pave the way for profound health improvements.<sup>2</sup> Though there are real risks in bold governance, oftentimes a single elected official bolstered by engaged advocates can champion public health issues and bring along more reluctant colleagues to push the boundaries in prevention-even



getting ahead of public opinion—to break through entrenched social mores.<sup>58</sup>

Paternalism. Obesity is too often perceived as a matter of choice and personal failings, yet arguably it can be reframed as a market failure, particularly pertaining to children, who lack the capacity for fully informed, rational decision making.<sup>59</sup> Research shows that policies addressing the environmental drivers of obesity are more cost-effective than individual-level interventions (e.g., dieting),60 with many local-level programs showing promise. 61-63 Public health advocates should be cautious of engaging in dialogue that frames obesity in terms of personal choice,64 given evidence that the fundamental drivers of chronic disease lie outside individual control,65 and wide consensus that comprehensive, communitybased strategies are needed to address the chronic disease epidemic. 48,66-68

Evidence. Public health policies are often held to exacting evidential standards (e.g., a certainty or high probability of success). Proving effectiveness is difficult given the multiple social, economic, and cultural influences on human behavior, and given that many strategies often comprise a single package of policy interventions. 69,70 Society achieved enormous success in tobacco control from a combination of taxes. labeling, smoke-free laws, and advertising restrictions; apportioning a share of the decline to any single initiative is complex, while failing to account for multiple policies working in tandem. 2,11,71 Tobacco control

benefited from substantial evidence establishing a causal link between smoking and multiple health hazards, <sup>72</sup> while the causal chain between food consumption and obesity is more difficult to establish. <sup>73</sup> However, studies suggest that similar combinations of policies are needed for successful obesity prevention. <sup>48,69,74</sup>

Community-level prevention policies are a relatively new area of intervention, and the results of evaluation studies are still emerging.<sup>75</sup> However, some local initiatives have produced demonstrable changes in health-related behavior and weight status. 61,62 Low-income schools in King County, Washington, experienced declines in obesity among students in grades 8, 10, and 12, after introducing nutrition standards for school meals and high-quality physical education programs in 2010. Obesity rates did not decline in county schools that failed to embark on similar initiatives.76 Yet, despite the growing array of highly promising policies and practices many of the initiatives described here still lack causal evidence to support their efficacy and effectiveness in reducing obesity. 70,77

Local governments must progress with policy innovation despite gaps in the evidence base. Obesity prevention strategies "should be based on the best available evidence—as opposed to waiting for the best possible evidence." Policymakers should draw upon different types of evidence, 77,79 for example citing strong correlations between soda consumption and obesity to support experimental initiatives that seek to reduce soda consumption.<sup>2</sup>

Policymakers must carefully evaluate the growing number of community initiatives targeting environmental change, <sup>75</sup> but ideally, with ongoing monitoring and evaluation the evidence base will build over time and allow underperforming interventions to be strengthened. <sup>43</sup>

#### **Ethical Barriers**

Widening health inequalities. Some public health measures, such as smoking reduction programs, may improve the health of the wealthy more than those in lower socioeconomic groups. Although it is not inherently unethical to improve the health of the affluent to a greater extent than the poor, it is preferable to narrow health disparities while retaining absolute gains. 43 Emerging literature proposes local-level strategies aimed at improving health outcomes in lower-income and less-educated communities, 43,80,81 and documents the success of communitybased organizations in reducing urban health inequalities.82,83

General policies can reduce health disparities, particularly when accompanied by resources directed to underserved populations, but targeted policies still may be necessary.<sup>43</sup> Interventions should focus on underserved populations experiencing high rates of obesity or poor health. 43 New York City's Food Retail Expansion to Support Health (FRESH) initiative, for example, offered zoning and financial incentives to developers opening stores in underserved communities.<sup>84</sup> Targeted policies can generate controversy, appearing discriminatory or stigmatic. It is therefore essential to meaningfully

engage affected communities, giving them the opportunity to participate in health governance.85 Health impact assessments and community consultations can help pinpoint disparities and target interventions, as well as ensuring community support and enhancing effectiveness. 43 Inclusive policy processes may enable communities to become active participants in the obesity prevention agenda rather than passive objects of interventionin turn potentially helping to address concerns about government paternalism.86

Addressing socioeconomic determinants can be effective in changing nutritional and physical activity patterns, narrowing health inequalities.82 To ensure fair benefits for all community members, policymakers must pay attention to multiple non-health specific factors, such as residential segregation, public education, employment, and income support. 43,56,57 To reduce health care costs, for example, New York State invested in supportive housing targeted to high-risk homeless and unstably housed Medicaid recipients.87 This initiative could reduce the state's obesity burden given the high prevalence of excessive weight among the homeless.88

## UNLEASHING THE POWER OF STATE AND LOCAL GOVERNMENTS

Local and state governments are in the vanguard of obesity prevention, with new federal measures under the ACA fostering local-level innovation. Municipalities can test and diffuse innovative policies, given the



manifest national political constraints. Yet localities encounter their own challenges, including preemption, public backlash, and nagging concerns about paternalism, evidence, and widening health inequalities. However, the difficulties localities face can be ameliorated by astute framing, marshaling evidence, ongoing evaluation, and community participation. A broad suite of interventions, together with a "health-in-allpolicies" strategy can improve health and narrow disparities. Given the high value of local action, social mobilization, and political activism, municipal and state governments should lead the nation in obesity prevention, fulfilling their historic role as innovative laboratories.

#### **About the Authors**

Belinda Reeve is with the Faculty of Law, University of Sydney, Sydney, Australia. Lawrence Gostin is with the O'Neill Institute for National and Global Health Law, Georgetown University Law Center, Washington, DC. Marice Ashe and Ruben Farias are with ChangeLab Solutions, Oakland, CA.

Correspondence should be sent to Belinda Reeve, Sydney Law School, F10 Eastern Avenue, Camperdown, NSW 20006, Australia (e-mail: Belinda.reeve@ sydney.edu.au). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted September 19, 2014.

#### **Contributors**

B. Reeve led the project, conducted research, and drafted the initial manuscript. R. Farias undertook research for the paper. M. Ashe and L. Gostin made significant contributions to the writing and editing of the manuscript.

#### **Acknowledgments**

The authors would like to acknowledge the assistance of Ellie Gladstone and Suneel Jain (of ChangeLab Solutions) in referencing the paper.

#### **Human Participant Protection**

The research for this article did not involve human participants. The study adheres to the Principles of Ethical Practice of Public Health of the American Public Health Association.

#### References

- 1. Centers for Disease Control and Prevention. Health, United States, 2013. Washington, DC: Department of Health and Human Services; 2014: 227. Available at: http://www.cdc.gov/nchs/data/hus/ hus13.pdf. Accessed on May 27, 2014.
- 2. Graff SK, Kappagoda M, Wooten HM, McGowan AK, Ashe M. Policies for healthier communities: historical, legal, and practical elements of the obesity prevention movement. Annu Rev Public Health. 2012;33:307-324.
- National Policy and Legal Analysis Network to Prevent Childhood Obesity (NPLAN). The Consequences of Preemption for Public Health Advocacy. 2010. Available at: http://publichealthlawcenter. org/sites/default/files/resources/nplan-fsconsequences-2010.pdf. Accessed on March 19, 2014.
- 4. Diller PA, Graff S. Regulating food retail for obesity prevention: how far can cities go? J Law Med Ethics. 2011;39(Suppl 1):89-93.
- 5. Diller PA. Local health agencies, the Bloomberg soda rule, and the ghost of Woodrow Wilson. Fordham Urban Law J. 2013;40:1859-1901.
- 6. New State Ice Co. v Liebmann, 285 US 262, 311 (1932) (Brandeis J, dissenting).
- 7. Ashe M, Graff S, Spector C. Changing places: policies to make a healthy choice the easy choice. Public Health. 2011;125 (12):889-895.
- 8. Jacobson PD, Parmet WE. Defending public health regulations: the medium is the message. Hastings Cent Rep. 2014;44
- 9. Hitchens C. I fought the law. Vanity Fair. February 1, 2004. Available at: http://www.vanityfair.com/politics/ features/2004/02/hitchens200402. Accessed on March 24, 2014.
- 10. Harned K. The Michael Bloomberg Nanny State in New York: a cautionary tale. Forbes Opinion. May 5, 2013. Available at: http://www.forbes.com/sites/realspin/ 2013/05/10/the-michael-bloombergnanny-state-in-new-york-a-cautionary-tale. Accessed on July 30, 2014.
- 11. Gostin LO. Bloomberg's health legacy: urban innovator or meddling nanny? Hastings Cent Rep. 2013;43(5):19-25.

- 12. Paynter B. The city that shed a million pounds. Business Week: Politics and Policy. August 23, 2012. Available at: http://www.businessweek.com/articles/ 2012-08-23/the-city-that-shed-a-millionpounds. Accessed on March 5, 2014.
- 13. Cornett M. This city is going on a diet. TEDMED YouTube channel. Published July 2, 2013. Available at: http:// www.youtube.com/watch?v=6YKi7jOgA-o& feature=youtube\_gdata\_player. Accessed on March 5, 2014.
- 14. Million OKC. Available at: http:// www.thiscityisgoingonadiet.com. Accessed on March 6, 2014.
- 15. Tavernise S. Door to door in Oklahoma City, preaching healthy living. The New York Times. September 10, 2012. Available at: http://www.nytimes.com/ 2012/09/11/health/door-to-door-inoklahoma-city-preaching-healthy-living. html. Accessed on March 6, 2014.
- 16. NY Statewide Coal of Hispanic Chambers of Commerce v NYC Dept of Health and Mental Hygiene, No. 134, 2014 NY LEXIS 1442 (NY June 26, 2014).
- 17. Gostin LO. Public Health Law: Power, Duty, Restraint. Berkeley, CA: University of California Press; 2008.
- 18. Let's Move. Available at: http://www. letsmove.gov. Accessed on May 14, 2014.
- 19. Alameda County Public Health Department. Rethink Your Drink! Soda Free Summer. Available at: http://www.sodafreesummer. org. Accessed on May 14, 2014.
- 20. Cal Govt Code § 51042 (West 2014).
- 21. Change the Future WV. Healthy Checkout Aisles. Available at: http:// www.changethefuture.wv.gov/Pages/ HealthyCheckoutAisles.aspx. Accessed on May 14, 2014.
- 22. SF, Cal, Health Code art 8, §§ 471.1-471.9 (2011).
- 23. Santa Clara, Cal, Code of Ordinances § A18-352 (2010).
- 24. LA, Cal, Ordinance 180103 (Aug. 4, 2008).
- 25. Minneapolis, Minn, Food Code ch 203 (2008).
- 26. Colorado Department of Education. Rules for the Administration of the Healthy Beverages Policy, no 1 CCR 301-79 (2008).
- 27. Cal Educ Code § 49431 (West 2014).
- 28. New York City Department of Design and Construction. Active Design. Available at: http://www.nyc.gov/html/ ddc/html/design/active\_design.shtml. Accessed on May 14, 2014.

- 29. Nashville Area Metropolitan Planning Organization. Health & Wellbeing. Available at: http://www.nashvillempo. org/regional\_plan/health. Accessed on May 14, 2014.
- 30. MassDOT. Healthy Transportation Policy Directive. Available at: http:// www.massdot.state.ma.us/Portals/0/docs/ GreenDOT/DirectiveHealthyTransportation. pdf. Published September 9, 2013. Accessed May 14, 2014.
- 31. National Complete Streets Coalition. What are complete streets? Smart Growth America. Available at: http://www. smartgrowthamerica.org/completestreets/complete-streets-fundamentals/ complete-streets-faq. Accessed on March 11, 2014.
- 32. Martin EW, Shaheen SA. Evaluating public transit modal shift dynamics in response to bikesharing: a tale of two US cities. J Transp Geogr. 2014;41:315-324.
- 33. Cozens P. Public health and the potential benefits of crime prevention through environmental design. NSW Public Health Bull. 2007;18(11-12): 232-237.
- 34. New York City Department of Transport. The New York City pedestrian safety study & action plan. Available at: http://www.nyc.gov/html/dot/html/ pedestrians/pedsafetyreport.shtml. Accessed on May 14, 2014.
- 35. Milford School District. Student Wellness Policy. Policy no. 6116. Amended January 27, 2014. Available at: http://www.milfordschooldistrict.org/ pdf/district/board\_policy/6116.pdf. Accessed on March 11, 2014.
- 36. National Prevention Council. National Prevention Strategy. Washington, DC: Department of Health and Human Services; 2011. Available at: http:// www.surgeongeneral.gov/initiatives/ prevention/strategy/report.pdf. Accessed on May 27, 2014.
- 37. Agricultural Act of 2014, Pub L. No. 113-79, §10010, 128 Stat. 949, 950 (to be codified at 7 USC 1621).
- 38a. 21 USC §343(q)(5) (2012).
- 38b. Food Labeling; Nutrition Labeling of Standard Menu Items in Restaurants and Similar Retail Food Establishments, 79 Fed Reg 79, 230 (December 1, 2014) (to be codified at 21 CFR).
- 39. Marmor TR, Lieberman ES. Tobacco control in comparative perspective: eight nations in search of an explanation. In: Feldman EA, Bayer R, eds. Unfiltered: Conflicts Over Tobacco and Public Health.



- Cambridge, MA: Harvard University Press; 2004:276–291.
- Studlar DT. Ideas, institutions and diffusion: what explains tobacco control policy in Australia, Canada and New Zealand? Commonw Comp Polit. 2007;45(2):164-184.
- 41. Diller PA. Why do cities innovate in public health? Implications of scale and structure. *Washington University Law Review.* 2014; 91(5):1219–1291. Available at: http://works.bepress.com/paul\_diller/10. Accessed on May 27, 2014.
- 42. Pomeranz JL. Television food marketing to children revisited: the Federal Trade Commission has the constitutional and statutory authority to regulate. *J Law Med Ethics*. 2010;38(1): 98–116.
- 43. Fry C, Zimmerman S, Kappagoda M. Healthy reform, healthy cities: using law and policy to reduce obesity rates in underserved communities. *Fordham Urban Law J.* 2013;40(4):1265–1321.
- 44. 42 USC §300u-10 (2011).
- 45. Centers for Disease Control and Prevention. Community transformation grants. 2013. Available at: http://www.cdc.gov/nccdphp/dch/programs/index. htm. Accessed on March 19, 2014.
- 46. Preston CM, Alexander M. Prevention in the United States Affordable Care Act. *J Prev Med Public Health*. 2010;43(6):455–458.
- 47. Shaw FE, Asomugha CN, Conway PH, Rein AS. The Patient Protection and Affordable Care Act: opportunities for prevention and public health. *Lancet*. 2014;384(9937):75–82.
- 48. Bauer UE, Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21<sup>st</sup> century: elimination of the leading preventable causes of premature death and disability in the USA. *Lancet*. 2014;384(9937):45–52.
- $49. \;$  Kelo v City of New London,  $545 \; US \;$   $469 \; (2005).$
- 50. Lorillard Tobacco Co v Reilly, 533 US 525, 553–66 (2001).
- 51. 7 CFR § 210.10 (2014).
- 52. Dicker R. "Nanny Bloomberg" ad in New York Times targets NY Mayor's anti-soda crusade. *Huffington Post.* June 4, 2012. Available at: http://www.huffingtonpost.com/2012/06/04/nanny-bloomberg-ad-in-new\_n\_1568037.html. Accessed on March 24, 2014.
- 53. Beckles GL, Chou CF. Diabetes— United States, 2006 and 2010. MMWR Surveill Summ. 2013;62(3):99–104.

- 54. May AL, Freedman D, Sherry B, Blanck HM. Obesity—United States, 1999–2010. *MMWR Surveill Summ*. 2013;62(3):120–128.
- 55. Tavernise S, Gebeloff R. Smoking proves hard to shake among the poor. *The New York Times*. March 24, 2014. Available at: http://www.nytimes.com/2014/03/25/health/smoking-stays-stubbornly-high-among-the-poor.html. Accessed on April 10, 2014.
- 56. PolicyLink. ChangeLab Solutions, Safe Routes to School National Partnership. Maximizing Walkability, Diversity, and Educational Equity in US Schools. Available at: http://changelabsolutions.org/publications/maximizing-walkability-diversity-and-educational-equity-us-schools. Accessed on March 24, 2014.
- 57. Freeman L, Rashawn R. Michael Bloomberg: big brother or pioneer? Room for Debate. *The New York Times*. December, 25, 2013. Available at: http://www.nytimes.com/roomfordebate/2013/12/25/michael-bloomberg-big-brother-or-pioneer. Accessed on March 25, 2014.
- 58. Roeseler A, Burns D. The quarter that changed the world. *Tob Control*. 2010;19(Suppl 1):i13-i15.
- 59. McCormick B, Stone I, for the Corporate Analytical Team. Economic costs of obesity and the case for government intervention. *Obes Rev.* 2007;8(Suppl 1): 161–164.
- 60. Gortmaker SL, Swinburn BA, Levy D, et al. Changing the future of obesity: science, policy and action. *Lancet*. 2011;378(9793):838–847.
- 61. Economos CD, Hyatt RR, Goldberg JP, et al. A community intervention reduces BMI z-score in children: Shape Up Somerville first year results. *Obesity (Silver Spring)*. 2007;15(5):1325–1336.
- 62. Economos CD, Hyatt RR, Must A, et al. Shape Up Somerville two-year results: a community-based change intervention sustains weight reduction in children. *Prev Med.* 2013;57(4):322–327.
- 63. TenBrink DS, McMunn R, Panken S. Project U-Turn: increasing active transportation in Jackson, Michigan. *Am J Prev Med.* 2009;37(6, Suppl 2):S329–S335.
- 64. Wiley LF, Berman ML, Blanke D. Who's your nanny? Choice, paternalism and public health in the age of personal responsibility. *J Law Med Ethics*. 2013;41 (Suppl 1):88–91.

- 65. Swinburn BA, Sacks G, Hall KD, McPherson K, Finegood DT, Moodie ML, Gortmaker SL. The global obesity pandemic: shaped by global drivers and local environments. *Lancet.* 2011;378(9793): 804–814.
- Institute of Medicine. Local Government Actions to Prevent Childhood Obesity. Washington, DC: National Academics Press; 2009.
- 67. Barnes M. Solving the Problem of Childhood Obesity Within a Generation. Washington, DC: Executive Office of the President; 2010. Available at: http://www.letsmove.gov/white-house-task-force-childhood-obesity-report-president. Accessed on August 11, 2014.
- 68. Khan LK, Sobush K, Keener D, et al. Recommended community strategies and measurements to prevent obesity in the United States. *MMWR Recomm Rep.* 2009;58(RR-7):1–26.
- 69. French SA. Population approaches to promote healthful eating behaviors. In: Crawford D, Jeffery RW, Ball K, Brug J, eds. Obesity Epidemiology: From Aetiology to Public Health. New York: Oxford University Press; 2010:161–185.
- 70. Brennan L, Castro S, Brownson RC, et al. Accelerating evidence reviews and broadening evidence standards to identify effective, promising, and emerging policy and environmental strategies for prevention of childhood obesity. *Annu Rev Public Health*. 2011;32:199–223.
- 71. US Department of Health and Human Services. Reducing Tobacco Use: A Report of the Surgeon General. Atlanta, Georgia: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2000.
- 72. US Department of Health and Human Services. Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service.

  Washington, DC: US Department of Health and Human Services, Public Health Service; 1964.
- 73. Yach D, Hawkes C, Epping-Jordan JE, et al. The World Health Organization's Framework Convention on Tobacco Control: implications for global epidemics of food-related deaths and disease. *J Public Health Policy.* 2003;24(3/4):274–290.
- 74. Chomitz VR, McGowan RJ, Wendel JM, et al. Healthy Living Cambridge Kids: a community-based participatory effort to

- promote healthy weight and fitness. *Obesity (Silver Spring)*. 2010;18(Suppl 1): S45–S53.
- 75. Cheadle A, Samuels SE, Rauzon S, et al. Approaches to measuring the extent and impact of environmental change in three California community-level obesity prevention initiatives. *Am J Public Health*. 2010;100(11):2129–2136.
- Kern E, Chan NL, Fleming DW, Krieger JD; Centers for Disease Control and Prevention. Declines in student obesity prevalence associated with a prevention initiative—King County, Washington, 2012. MMWR Morb Mortal Wkly Rep. 2014;63(7):155–157.
- 77. Institute of Medicine. Bridging the Evidence Gap in Obesity Prevention: A Framework to Inform Decision Making. Washington, DC: National Academies Press: 2010.
- Institute of Medicine. Preventing Childhood Obesity: Health in the Balance. Washington, DC: National Academies Press; 2005:3.
- 79. Kumanyika S, Brownson RC, Cheadle A. The L.E.A.D. Framework: using tools from evidence-based public health to address evidence needs for obesity prevention. *Prev Chronic Dis.* 2012;9:E15.
- 80. Freudenberg N, Libman K, O'Keefe E. A tale of two obesCities: the role of municipal governance in reducing childhood obesity in New York City and London. *J Urban Health*. 2010;87 (5):755–770.
- 81. Friel S, Akerman M, Hancock T, et al. Addressing the social and environmental determinants of urban health equity: evidence for action and a research agenda. *J Urban Health.* 2011; 88(5):860–874.
- Jenkins C, McNary S, Carlson BA, et al. Reducing disparities for African Americans with diabetes: progress made by the REACH 2010 Charleston and Georgetown Diabetes Coalition. *Public Health Rep.* 2004;119(3): 322–330
- 83. Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008. Available at: http://www.cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/tools/pdf/SDOH-workbook.pdf. Accessed May 27, 2014.
- 84. Department of City Planning City of New York. Food Retail Expansion to



Support Health. Available at: http://www.nyc.gov/html/misc/html/2009/fresh.shtml. Accessed on April 10, 2014.

- 85. Barten F, Akerman M, Becker D, et al. Rights, knowledge, and governance for improved health equity in urban settings. *J Urban Health*. 2011;88(5): 896–905.
- 86. Morain S, Mello MM. Survey finds public support for legal interventions directed at health behavior to fight noncommunicable disease. *Health Aff (Milhaod)*. 2013;32(3):486–496.
- 87. Doran KM, Misa EJ, Shah NR. Housing as health care—New York's boundary-crossing experiment. *N Engl J Med.* 2013;369(25):2374–2377.
- 88. Schwarz KB, Garrett B, Hampsey J, Thompson D. High prevalence of overweight and obesity in homeless Baltimore children and their caregivers: a pilot study. *MedGenMed.* 2007;9(1):48.
- 89. New York City Health Code §81.08 (2012).
- 90. Sen. bill 100, 2013–2014, Reg. Sess (Cal 2014).

- 91. 20-A MRSA §6662, sub-§3 (2014).
- 92. The Food Trust. Philadelphia's Healthy Corner Store Initiative. Available at: http://www.foodfitphilly.org/FOODFITPHILLY/assets/File/HCSI\_Y2report\_FINAL%202012.pdf. Accessed January 16, 2015.
- 93. Double Up Food Bucks. Available at: http://doubleupfoodbucks.org. Accessed January 16, 2015.
- 94. King County. Let's Do This! Available at: http://www.kingcounty.gov/healthservices/health/partnerships/CPPW/campaigns.aspx. Accessed January 16, 2015.
- 95. 22nd Navajo Nation Council, Office of the Speaker. Navajo Nation enacts the Healthy Diné Nation Act of 2013. January 30, 2014. Available at: http://www.navajo-nsn.gov/News%20Releases/NNCouncil/2014/jan/NNC%20enacts%20the%20Healthy%20Dine%20Nation%20Act%20of%202013.pdf. Accessed January 16, 2015.
- 96. Massachusetts Department of Health. Executive Order 509: Nutrition Standards for State Agencies. Available

- at: http://www.mass.gov/eohhs/docs/dph/com-health/nutrition-phys-activity/eo509-fact-sheets.pdf. Accessed January 16, 2015.
- 97. The New Orleans Food Policy Advisory Committee. Available at: http://nolafpac.org/?page\_id=5. Accessed January 16, 2015.
- 98. Capital Bikeshare. Available at: https://www.capitalbikeshare.com. Accessed January 16, 2015.
- 99. Renew Los Angeles County. Baldwin Park recognized for strongest "Complete Streets" policy in the nation. Marketwired. August 18, 2011. Available at: http://www.marketwired.com/press-release/baldwin-park-recognized-for-strongest-complete-streets-policy-in-the-nation-1551497.htm. Accessed January 16, 2015.
- 100. Safe Routes to School National Partnership. Available at: http:// saferoutespartnership.org. Accessed January 16, 2015.
- 101. Tuscon Unified School Districts. Planning & Rental Services—Intergovernmental Agreements.

Available at: http://www.tusd1.org/contents/depart/efp/planning\_iga.asp. Accessed January 16, 2015.

- 102. Atlanta Beltline. Available at: https://beltline.org. Accessed January 16, 2015.
- 103. Partnership for a Healthier America. About Play Streets. Available at: http://ahealthieramerica.org/play-streets/play-streets-full. Accessed January 16, 2015.
- 104. Local Initiatives Support Corporation. Druid Hills Revitalization. Available at: http://www.lisc.org/csi/strategies\_&\_ solutions/crime\_prevention\_through\_ environmental\_design/druid\_hills\_ revitalization.php. Accessed January 16, 2015.
- 105. PITT Community College. Ripken, PCC Alum on Hand to Announce Sarah Vaughn Field of Dreams Renovation. April 16, 2012. Available at: http://www.pittcc.edu/news/news-articles/2012-news-archive/120416-sarah-vaughnfield-of-dreams.htm. Accessed January 16, 2015.

# **Legal Action Against Health Claims on Foods and Beverages Marketed to Youth**

Lainie Rutkow, JD, PhD, MPH, Jon S. Vernick, JD, MPH, Danielle M. Edwards, JD, MS, Sarah O. Rodman, MPH, and Colleen L. Barry, PhD, MPP

The prevalence of obesity among US children raises numerous health concerns. One pathway to reduce childhood obesity is by decreasing energy intake through the ingestion of fewer calories. Yet, food and beverage manufacturers often promote energy-dense items for children via varied health claims.

Deceptive health claims are prohibited, and may be addressed through litigation or governmental regulatory efforts. While the amount of legal action against these potentially deceptive claims has

increased, no comprehensive assessment has been conducted.

This article, which analyzes litigation and governmental regulatory activities, considers key factors that may influence decisions to take legal action against potentially deceptive health claims on foods and beverages, including scientific support, forum selection, selection of plaintiffs, and potential public health impact. (*Am J Public Health*. 2015;105: 450–456. doi:10.2105/AJPH. 2014.302376)

#### **DURING THE LAST 3 DECADES,**

the prevalence of obesity among US children has increased. Today, one third of youths are overweight or obese, and 17% are obese. Childhood obesity raises numerous health concerns, including greater likelihood of cardiovascular disease risk factors, presence of pre-diabetic indicators, and psychosocial issues. Descendidren are more likely to become overweight or obese adults, with attendant risks for cardiovascular disease, metabolic challenges, and certain cancers. Chem.

Decreasing energy intake through the ingestion of fewer

calories represents one pathway to reduce childhood obesity. <sup>10</sup> Yet, companies that advertise foods and beverages often promote energy-dense items for children (i.e., items high in sugar, fat, or calories, such as sugar-sweetened beverages or certain breakfast cereals). <sup>11,12</sup> This may be particularly confusing for parents seeking nutritious choices for their children, since some companies use health-related claims to promote energy-dense products (e.g., "good source of vitamin C"). <sup>13</sup>

By law, however, "deceptive" claims are prohibited. <sup>14</sup> A

Copyright of American Journal of Public Health is the property of American Public Health Association and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.