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03 October 2023 03:40

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Older Americans' Preferences Between Lower Drug Prices and Prescription Drug Plan Choice, 2019

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ABSTRACT (ENGLISH)

Objectives. To assess older Americans' willingness to trade offthe possibility of choosing or changing their prescription drug plan for lower drug spending. Methods. We used data from the Kaiser Family Foundation Health Tracking Poll on prescription drugs carried out in February 2019. This nationwide telephone survey oversampled participants aged 65 years and older who, when weighted, were representative of the US older adult population. Results. Older adults were strongly in favor of the government negotiating drug prices in Medicare Part D (82% support); 60% of older adults would trade offthe possibility of choosing or switching their drug plan in favor of lower drug prices. All groups preferred lower spending over plan choice, but this preference was stronger among individuals who were in poorer health, had lower education and income, and found it very difficult to afford the drugs they needed. Conclusions. The results suggest that Medicare beneficiaries could support policies that limit plan choice, as long as drug prices actually decrease. (Am J Public Health. 2020; 110:354-356. doi:10.2105/AJPH.2019.305483)

FULL TEXT

Headnote

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Conclusions. The results suggest that Medicare beneficiaries could support policies that limit plan choice, as long as drug prices actually decrease. (Am J Public Health. 2020; 110:354-356. doi:10.2105/AJPH.2019.305483)

As Congress considers various approaches to address rising drug costs, one of the options is to allow Medicare to negotiate prices directly with drug manufacturers on behalf of Part D beneficiaries.1,2 One of this policy's biggest challenges is the potential need for Medicare to impose a restrictive formulary to negotiate effectively with drug companies.3 The question, therefore, becomes whether older Americans aged 65 years and older would be willing to accept forgoing the possibility of selecting or changing a drug plan if it meant obtaining lower drug prices. The vast majority-about 95%-of Medicare Part D beneficiaries are not enrolled in the plan that offers them the cheapest option given their condition and medication needs,4 but only about 13% switch their prescription drug plan in any given year.5 Potential savings from switching drugplans are modest (on average, $368 peryear) but could be $500 or more for about 20% of the beneficiaries.5 Part D beneficiaries tend not to switch their drug plan, even if they are dissatisfied with their plan or spend higher amounts on premiums and out-of-pocket payments than do their counterparts.6 We used a nationwide survey to examine older adults' preferences when considering the tradeoff between prescription plan choice and lower drug costs.

METHODS

The Kaiser Family Foundation conducted a national survey in February 2019 to assess the American public's opinion on a variety of prescription drug issues.7 They surveyed a total of 1440 people via landline and cell phone, including 606 adults aged 65 years and older.7 We analyzed the data collected from the older adults. This oversample was representative of the US population aged 65 years and older after applying sampling weights.7

RESULTS

Of the older adults, 55% were women; the average age was 74.5 years (range = 65-97 years; see the Appendix, available as a supplement to the online version of this article at http://www.ajph.org). A total of83% of older adults had some form of public or private insurance that covered drugs; 89% were taking prescription drugs, and 62% reported that either they or an immediate family member had a chronic condition. Overall, 82% of older adults supported Medicare negotiating drug prices directly with drug manufacturers.7,8

When presented with 2 options and asked to select which was more important to them, 60% of the older adults reported that it was more important to keep overall spending on prescription drug premiums and out-of-pocket payments as low as possible, whereas 35% reported that it was more important to have the option to choose from different drug plans and to be able to change the plan if they wanted. A total of 5% of older adults failed to make a tradeoff (1% chose both options, 3% chose neither, and 1% did not know or refused; Table 1).

We analyzed the respondents' preferences according to multiple characteristics (Table 1). Older adults who were Hispanic (88% vs 62% of non-Hispanic adults), had lower education (67% ofthose with no college vs 54% ofthose with college education or more), had lower income (66% of those earning less than $90 000/year vs 51% of those earning more), reported poorer health (72% of those in fair or poor health vs 60% of those with good to excellent health), and found it very difficult to afford the drugs they needed or did not need to pay for their drugs (81% and 88%, respectively, vs 61% of others) were statistically significantly more likely to prefer lower drug spending over plan choice than were their counterparts. By contrast, individuals who reported comparing plans before enrolling were statistically significantly less likely to choose low spending over choice than were those who did not make comparisons (51% vs 71%). No statistically significant difference was seen by age of the person, taking any drugs, number of drugs taken, having drug coverage, or having experienced coverage restrictions by their plans.

The association between participants' elicited preferences and political party affiliation was significant, although all groups preferred lower spending over plan choice: 55% of Republicans or leaning Republicans preferred keeping drug spending low over the possibility of choosing or changing plans compared with 69% of Democrats or leaning Democrats and 70% of Independent or undesignated-party individuals. Participants who had a very unfavorable opinion of the Affordable Care Act or were strongly opposed to Medicare for All were less likely to prefer keeping drug spending low than to prefer having the option to change drug plans as compared with those who were not against these policies (49% vs 71% and 54% vs 66%, respectively), although about half of those participants still preferred lower spending over plan choice.

DISCUSSION

Allowing Medicare to negotiate prices has strong public support. Government agencies such as the Department ofVeterans Affairs and Department of Defense have obtained lower drug prices than Medicare through unified formularies and negotiation with manufacturers, with no reduction in the quality of care provided.9,10 The experience of such government agencies in establishing drug formularies and negotiating significantly lower prices with manufacturers suggests that Medicare could establish a unified formulary that would address population needs while improving drug affordability. Currently, the ability to choose across prescription drug plans does not lead to actual savings in Medicare Part D, because very few beneficiaries use their option to switch plans, and switching plans may not result in substantial cost savings for most beneficiaries.4 6 The survey results suggest that Medicare beneficiaries could support a unified formulary that limits plan choice, as long as drug prices actually decrease.

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Sidebar

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This article was accepted November 8, 2019.

doi: 10.2105/AJPH.2019.305483

CONTRIBUTORS

M.P. Socal implemented the statistical analysis. Both authors jointly developed the concept for and design of the study, interpreted the data, and drafted and revised the article.

ACKNOWLEDGMENTS

This research was funded by a grant from ArnoldVentures.

The authors thank the Henry J Kaiser Family Foundation for providing access to the data collected in the Kaiser Family Foundation Health Tracking Poll, February 2019.

Note. Arnold Ventures had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the article; and decision to submit the article for publication.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

The study did not meet the criteria for human participant research, and institutional review board approval was not sought.

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DETAILS

Subject:	Prescription drug plans; Public health; Telephone surveys; Older people; Drugs; Prescription drugs; Government programs; Health education; Prices; Expenditures; Trade; Preferences; Medicare; Adults; Negotiations; Drug formularies; Cost control; Drug prices
Business indexing term:	Subject: Medicare Cost control Drug prices
Location:	United States--US
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	354-356
Publication year:	2020
Publication date:	Mar 2020
Section:	POLICY
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305483
ProQuest document ID:	2371374007

Document URL:	https://www.proquest.com/scholarly-journals/older-americans-preferences-between-lower-drug/docview/2371374007/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-06
Database:	Public Health Database

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Global Prison Health Care Governance and Health Equity: A Critical Lack of Evidence

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ProQuest document link

ABSTRACT (ENGLISH)

The large and growing population of people who experience incarceration makes prison health an essential component of public health and a critical setting for reducing health inequities. People who experience incarceration have a high burden of physical and mental health care needs and have poor health outcomes. Addressing these health disparities requires effective governance and accountability for prison health care services, including delivery of quality care in custody and effective integration with community health services. Despite the importance of prison health care governance, little is known about how prison health services are structured and funded or the methods and processes by which they are held accountable. A number of national and subnational jurisdictions have moved prison health care services under their ministry of health, in alignment with recommendations by the World Health Organization and the United Nations Office on Drugs and Crime. However, there is a critical lack of evidence on current governance models and an urgent need for evaluation and research, particularly in low- and middle-income countries. Here we discuss why understanding and implementing effective prison health governance models is a critical component of addressing health inequities at the global level. (Am J Public Health. 2020;110:303-308. doi:10.2105/ AJPH.2019.305465)

FULL TEXT

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The large and growing population of people who experience incarceration makes prison health an essential component of public health and a critical setting for reducing health inequities. People who experience incarceration

have a high burden of physical and mental health care needs and have poor health outcomes. Addressing these health disparities requires effective governance and accountability for prison health care services, including delivery of quality care in custody and effective integration with community health services.

Despite the importance of prison health care governance, little is known about how prison health services are structured and funded or the methods and processes by which they are held accountable. A number of national and subnational jurisdictions have moved prison health care services under their ministry of health, in alignment with recommendations by the World Health Organization and the United Nations Office on Drugs and Crime. However, there is a critical lack of evidence on current governance models and an urgent need for evaluation and research, particularly in low- and middle-income countries.

Here we discuss why understanding and implementing effective prison health governance models is a critical component of addressing health inequities at the global level. (Am J Public Health. 2020;110:303-308. doi:10.2105/AJPH.2019.305465)

On any given day, more than 10.7 million people are incarcerated worldwide.1 In many countries, reliance on systems such as bail and remand result in a large proportion of the prison population being incarcerated for weeks or months rather than years. As such, the number of people moving through prisons each year is undoubtedly much higher. Although the United States distinguishes between prisons and jails, most countries do not. Some countries also have separate youth detention centers for the incarceration of adolescents. In this article, we use the term prison to refer to all types of custodial correctional facilities.

The burden of mental illness and substance use disorder,2,3 communicable disease (including HIV, tuberculosis, and hepatitis4), noncommunicable disease,5 7 and cognitive disability8 is greater among people who experience incarceration than in the general population. People who experience incarceration are also less likely to have had a regular health care provider prior to incarceration and are disproportionately affected by the social determinants of health.6,9 Although this increased burden of disease in prisons is likely universal, the lack of basic epidemiological data on many health conditions, particularly in lowand middle-income countries,10 means that the potential for prison health services to contribute to global health efforts cannot yet be quantified.

Prisons are a setting in which the health needs of people from underserved populations can be diagnosed and treated and in which public health interventions may reduce disease burden and improve health equity.11 Prisons also provide an important opportunity to establish connections with sources of community support such as substance use services, health care facilities, and social services that can promote health and well-being among people after their release.12,13 The Lisbon conclusions from the World Health Organization (WHO) 2017 international meeting on prisons and health emphasized the importance of acknowledging "the role of prisons as important settings to address health inequalities and to recognize the status of people in prison as a disadvantaged group in terms of health and well-being."14

Investing in the health and health care of people who experience incarceration is important on human rights, public health, public safety, and economic grounds.15 International bodies such as the United Nations (UN) Human Rights Committee and the European Court of Human Rights have affirmed that to protect the rights of people who are incarcerated, including the right to personal security and the right to be free of torture and ill treatment, states have an obligation to provide access to adequate health services, including preventive 16

International standards such as the UN's Mandela Rules17 and Bangkok Rules18 affirm the responsibility of the state to ensure that people who are incarcerated are provided health care that is, at a minimum, equivalent to that available in the community (an affirmation known as the principle of equivalence). According to Mandela Rule 24.1, people who are incarcerated "should enjoy the same standards of health care that are available in the community, and should have access to necessary health care services free of charge without discrimination on the grounds of their legal status."17 States have a special duty of care to those who are incarcerated, because people in prisons have no alternative access to care and their living conditions are entirely controlled by the state.16,19 The higher burden of health needs among people who experience incarceration means that health care equivalent to that available in the community is likely insufficient to achieve equivalent health outcomes.20,21

The movement of people between correctional facilities and communities and the overrepresentation of underserved populations in prisons make prison health a critical component of public health. This has been highlighted repeatedly by international standards such as WHO's 2003 Moscow Declaration22 and 2010 Madrid Recommendation.23 Promoting strong, seamless connections between prison and community health care services is an essential part of providing adequate services and ensuring continuity of care. This is important for managing health conditions such as HIV or diabetes as well as for ongoing access to resources such as contraceptives or harm reduction services. Addressing disparities in prison health is important not only for managing communicable diseases and the burden of untreated chronic conditions but also for efforts to reduce social inequalities and improve the health of communities.24,25 Nosrati et al. estimated that for each additional person imprisoned per 1000 residents, there is a reduction in population life expectancy of 6 months among people in the lowest income quartile.25 The health of people who are released from custody also has an impact on the health oftheir families12,24,26 and plays a role in long-term success after release, given that health can influence housing, employment, and reincarceration.15 Realizing the public health potential ofprison health services is contingent on effective identification of health needs, delivery ofquality care in custody, and integration of prisons as part of the continuum of care in community health services. Despite substantial public investments in prison health services in many countries, little is known internationally about the governance of these services. Although there are many definitions of governance, in health care systems it is most often framed in responsibilities and principles of not only the formal administrative structures involved in health service delivery but also the relationships and power dynamics among stakeholders.27 For example, the responsibilities ofgovernance laid out in WHO's Action Plan: Health Systems Governance for Universal Health Coverage28 include formulating policy and strategic plans, generating intelligence, putting in place levers and tools for implementing policy, building collaboration and coalitions, and ensuring accountability.

There are critical, global gaps in our understanding of how prison health services are structured, the funding they receive, and the processes by which they are made accountable. Here we explore the arguments and evidence for different models of prison health care governance and why there is an urgent need for evidence and understanding of such governance to guide improvements in prison health services and improve health outcomes among people who experience incarceration.

DEBATES IN PRISON HEALTH GOVERNANCE

In recent years, there has been growing debate around models of governance for prison health care service delivery, particularly around whether some or all responsibilities and accountability for prison health care services should be under health ministries rather than ministries of justice. WHO and the United Nations Office on Drugs and Crime recommend that "health ministries. . .provide and be accountable for health care services in prisons and advocate healthy prison conditions."19 An important argument in support of this recommendation is the potential for role conflict among health care providers employed by a correctional authority and the imperative for clinical independence.29 Health care providers under the authority of correctional services may experience competing loyalties between their responsibilities to their patients and their obligations to their employer. For example, medical assessments after a use of force30 or patients disclosing illegal activities such as drug use place health care providers employed by correctional services in an ethically complex position.

Clinical independence is essential to care that is consistent with the principles of privacy, confidentiality, and consent.31 It is also essential to ensuring that medical staff do not participate in custodial actions such as body cavity searches, capital or corporal punishment, or assessments of fitness for solitary confinement.19,29,30 In addition, perceptions of dual loyalty may adversely affect relationships and trust between care providers and the people for whom they care. This is ofparticular importance in the prison setting, where people are unable to choose their care provider and may not engage with treatment or health examinations by choice but rather through compulsory procedures.29

A second argument in support of making health ministries responsible and accountable for prison health care services is that it may facilitate continuity of care between prisons and the community. The importance of continuity of care is recognized in Mandela Rule 24.2: "Healthcare services should be organized in close relationship to the general public health administration and in a way that ensures continuity of treatment and care, including for HIV, tuberculosis and other infectious diseases, as well as for drug dependence."17

Some jurisdictions that have transferred responsibility to their ministry ofhealth report that they have seen benefits such as raised clinical standards and greater transparency.32,33 Including prisons under the mandate of health care services may also help foster the inclusion of people in prison in broader public health initiatives.34 However, some jurisdictions in which health care is under the ministry ofhealth note remaining challenges, such as those related to financial and human resourcing for health care services32 and differences in organizational culture between corrections and health care.35 Although prisons are likely perceived as a small component of the mandate of health ministries, their continuing responsibility for the health of individuals after their release provides a structural incentive to invest in prison health.

There are also arguments for maintaining health care services in prisons under the ministry responsible for corrections. In a policy briefing for WHO Europe, Hayton et al. suggested that separating health care from corrections could lessen the influence of health professionals in prison management. As the determinants of health include the conditions in which people live, there may be disadvantages to structurally separating accountability for health care and accountability for the conditions that affect health, such as nutrition, sanitation, and solitary confinement.36 In addition, if health care priorities are seen as separate from corrections priorities, this could lead to deprioritization37 and, in some cases, underfunding of prison health services.

Although clinical independence and structural incentives for ministries of health provide compelling arguments for accountability and administration of prison health care to be the responsibility ofministries ofhealth, there are plausible counterarguments and diverse opinions in this sector. Furthermore, framing governance ofhealth care services in prisons as a binary choice may fail to capture the complexity of arrangements in many countries. There is a need to understand existing and potential models of shared responsibility between ministries of health and ministries ofjustice. Rigorous evaluations of existing as well as novel governance models are required to inform evidence-based decision-making.

EVIDENCE

Despite the importance of effective prison health care governance, there is a lack of basic information on prison health care governance arrangements in most jurisdictions, and these data have never been collated at a global level. In an initial effort to address this knowledge gap, the WHO (Europe) Health in Prisons Program and the UK Collaborating Centre for the WHO Health in Prisons Program conducted a survey in 2016-2017 of prison health in European member states. The data, collected as part of the Health in Prisons European Database (HIPED), were published by the WHO Global Health Observatory and provide new information on prison health governance, systems, and administration in 39 European countries38 (Table 139-44).

The data, although limited to the European region, highlight the diversity of governance models. Seven jurisdictions (Cyprus, Finland, France, Italy, Norway, Slovenia, and the United Kingdom) reported that both authority for and administration of prison health care budgets were governed by the ministry of health. Ten countries (Albania, Armenia, Czechia, Denmark, Iceland, Lithuania, Malta, Slovakia, Spain, and Switzerland) reported that responsibility for prison health care services was shared between the ministry of health and another ministry (such as the ministry of justice, the ministry ofthe interior, or the health care department of the prison system). In some jurisdictions, this may indicate shared responsibility; in others, however, it may reflect a transfer of responsibility in only some jurisdictions.

Beyond these European states, other jurisdictions, including Afghanistan,44 Kosovo,29 Taiwan,39 some Australian states,40 and some Canadian provinces,41 have transferred governance and accountability for prison health care services to the ministry of health. In Argentina, Montenegro, and Turkey, prison health care has been partially integrated within the national health system.29 In Brazil, states and municipalities can choose to be a part of the National Policy of Comprehensive Health Care for Persons Deprived of Liberty in the Prison System under the ministry of health.42 In Zambia, a memorandum of understanding articulates shared responsibilities for health care in prisons between the Zambian Correctional Service and the ministry ofhealth.43 In its current 10-year strategic plan, the Ghana Prisons Service lists the ministry of health and the National Health Insurance Authority as stakeholders in the delivery of health care in prisons.45

Although national-level data are important in understanding global trends in prison health, prison health care is organized partly or entirely at a subnational level in many countries. This means that data collection exclusively at the national level will fail to adequately capture current arrangements or the complexity and diversity of arrangements within and between countries.

Among national and subnational jurisdictions that have moved responsibility for prison health services to the ministry of health, research and evidence on this transfer and its impact on health outcomes and health equity are extremely limited. We were able to identify 3 evaluations available as published reports32,46,47; however, they were retrospective and, for the most part, relied on limited survey or interview data. In addition, Bengoa et al. compared the availability and use of resources in a correctional facility in which health care is under the Basque Health System with the situation in 4 facilities in other parts of Spain in which health care is under the department of corrections.48 In Zambia, document reviews and interviews were used to evaluate governance and other outcomes ofthe Zambian Prisons Health System Strengthening Project.43,49 With this notable exception, there is currently little evidence regarding the relative merits of different prison health care governance arrangements in low- and middle-income countries. This is a critical gap in our understanding, as the majority of the world's incarcerated population resides in such countries.1 It is also essential to understand prison health care governance in contexts of severe resource limitations and overburdened community health care systems. In most countries, there is little publicly available information on how health care is delivered in prison or what entities are responsible for prison health care. There is an urgent need for research and evaluation to document and understand models of governance in the delivery ofhealth care services in prisons in all jurisdictions, but particularly in low- and middle-income countries.

CONCLUSIONS AND FUTURE DIRECTIONS

Prison health is an important part of public health, and good governance in prison health care is essential to reducing health inequalities at the population level. Yet, there is very limited published evidence about either current prison health care governance arrangements or the impact of various governance arrangements on health outcomes. Multiple and multifaceted efforts from researchers, policymakers, governments, and international bodies are needed to address this knowledge gap. For example, although there are limitations in the data selfreported by participating countries, adaptation of the HIPED38 initiative in other WHO regions, along with expansion and refinement of data collection in the future, will lay the groundwork for the research and monitoring that are essential to implementing effective governance models.

Focused inquiries could include systematic reviews of information available on the Web sites of governments and nongovernmental organizations and from key informants. In addition, the development of global, standardized indicators will facilitate understanding of prison health across varied contexts, including identification and examination of global trends over time, comparisons between countries and regions, and knowledge regarding effects on other global targets such as the Sustainable Development Goals (SDGs). There is a high degree of variability in both health care and criminal justice systems between regions, so in addition to global measurements there is a need for local measures and indicators. These tools will generate critical context-specific evidence and understanding of prison health, facilitating comparisons between health services in prisons and those in communities, a better understanding of the health and needs of people who experience incarceration, and data to initiate and examine prison health system responses to those needs.

In addition to data collection and monitoring, rigorous and independent research on prison health care governance is required to capture the diversity and complexity of governance arrangements worldwide and to provide a sufficiently nuanced understanding of what arrangements are most effective for positive health outcomes, in what settings, for whom, and why. For example, linked administrative data could be used to quantify the impact of policy changes on health service use, health outcomes, and health care expenditures. Case studies of effective or novel governance arrangements including relevant policies and funding arrangements could help elucidate the effects of changes in policies, accountability mechanisms, and prison health care expenditures on health outcomes.

In addition, qualitative and participatory studies involving people who have experienced incarceration will be essential to understanding the experience, availability, accessibility, acceptability, and quality of health care services50 in the correctional context. Given the rapid churn of people through custodial settings, this research must consider not only the health ofpeople who are incarcerated and people working in these settings but also that of people released from custody, their families, and their communities. Underpinning research and efforts to assess governance models must be the recognition that one size does not fit all and that evidence generated in high-income Western countries may not be applicable in low- and middle-income countries.

Addressing the complex health needs of people who experience incarceration is a critical component of addressing health inequities at the population level. It is also essential in working toward realizing the SDGs of reducing inequalities (SDG 10), eliminating poverty (SDG 1), and promoting good health and well-being (SDG 3). Realizing the potential of good prison health services requires collaborative, integrative, whole of government approaches to prison health along with a foundation of robust indicators and ongoing research and monitoring. A]PU

CONTRIBUTORS

All of the authors contributed to the conceptualization, development, drafting, and review of this article.

ACKNOWLEDGMENTS

Stuart A. Kinner is supported by an Australian National Health and Medical Research Council (NHMRC) Research Fellowship (APP1078168). Rohan Borschmann is supported by an NHMRC Early Career Fellowship (APP1104464).

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

No protocol approval was needed for this analysis because no human participants were involved.

Sidebar

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Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted October 17, 2019.

doi: 10.2105/AJPH.2019.305465

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DETAILS

Subject:	Population; Mental health; Public health; Quality of care; Continuity of care; Community health care; Health care; Health disparities; Mental health services; Prisons; Correctional institutions; Critical components; Body cavity searches; Accountability; Crime; Imprisonment; Community support; Drug use; Responsibilities; Governance; Human rights; Health services; Disease; Evaluation research; Community health services; Inequality; Low income groups
Business indexing term:	Industry: 92214 : Correctional Institutions
Company / organization:	Name: World Health Organization; NAICS: 923120; Name: United Nations--UN; NAICS: 928120
Classification:	92214: Correctional Institutions
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	303-308
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal

Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305465
ProQuest document ID:	2371373914
Document URL:	https://www.proquest.com/scholarly-journals/global-prison-health-care-governance-equity/docview/2371373914/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

Document 3 of 45

The Capacity to Surprise: On the Importance of History for Public Health Policy

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ABSTRACT (ENGLISH)

History rarely repeats itself in any exact sense, but the research of professional historians can offer much to contemporary public health and other policy practitioners.1 History provides a rather longer time frame and a wider context for understanding the causes of a current problem, and these can both be crucial to its satisfactory resolution. History is alive to the importance of context, the precise sequence of events, and differences of perceptions and power that generate conflicts and misunderstandings. Historians locate the present within a dynamic flow of structures, relationships, and attitudes that have a momentum that needs to be researched and acknowledged.2 Well-intended, methodologically rigorous, and supposedly theoretically sound public health or development policy interventions applied in ignorance of these historicist factors are often doomed to fail or generate unfortunate unintended consequences when implemented.

Furthermore, although they may fail to consult relevant studies by professional historians, all policy interventions do make implicit background assumptions about historical change. Typically, the assumption is made either that history is irrelevant (because history is somehow stuck in the past) or that history is a familiar, easily knowable linear trajectory, termed the demographic, the health, the epidemiological, or the epidemiologic transition. Studying professional history can emancipate policy practitioners from these misleadingly simplistic assumptions.

Historical research has the capacity to spring very significant surprises. It can transform the imaginative resources available to policymakers, forcing both a reconsideration of the validity of current approaches and a reassessment of the feasibility of radical alternatives.

The Institute for Public Policy Research prize-winning essay that Hilary Cooper, Ben Szreter, and I wrote exemplifies this. The commonplace assumption today that universal welfare systems are a product only of the mid-twentieth century, established after "modernization," when Western liberal democracies became rich enough to support this "luxury," is entirely wrong. The causation goes in the other direction. In England, the epicenter of modern economic growth circa 1780 to 1850, the population had, uniquely, already enjoyed universal social security and health care for two centuries. These policies endowed its "modern" economic growth with voluntary labor mobility, hence more prosperity than any other country.

FULL TEXT

History rarely repeats itself in any exact sense, but the research ofprofessional historians can offer much to contemporary public health and other policy practitioners.1 History provides a rather longer time frame and a wider context for understanding the causes of a current problem, and these can both be crucial to its satisfactory resolution. History is alive to the importance of context, the precise sequence of events, and differences of perceptions and power that generate conflicts and misunderstandings. Historians locate the present within a dynamic flow of structures, relationships, and attitudes that have a momentum that needs to be researched and acknowledged.2 Well-intended, methodologically rigorous, and supposedly theoretically sound public health or development policy interventions applied in ignorance of these historicist factors are often doomed to fail or generate unfortunate unintended consequences when implemented.

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THE ELIZABETHAN POOR LAW

Although now largely forgotten or unknown, the Elizabethan Poor Laws of 1598 and 1601 established the world's first universal social security and welfare system: an absolute entitlement to life-preserving "relief" for every subject, primarily in the form of payments in kind or cash and medical attention. Poor Law funding, administration, and legal oversight were radically devolved. Each of the approximately 10 000 Anglican parishes of England and Wales had to establish a fund that would support orphans, widows, the old and disabled, the ill, and the involuntarily unemployed all year round in response to demand. It was funded by a progressive principle of taxation on the value of land in every parish.3

England soon became the first nation in Europe to be free from the age-old devastating insecurity of famine. From a position of economic backwardness in the late 16th century, it began to outperform the rest ofEurope, which it did for the next 250 years. The economy urbanized rapidly as labor streamed from the countryside to towns and cities to take better-paying artisanal and manufacturing jobs, safe in the knowledge that the elder generation was provided for in the rural parishes. This labor mobility was crucial for England's sustained economic growth, powered by a 350% urbanization rate circa 1600 to 1800-compared with just 10% to 25% elsewhere in Europe.4 The endpoint was the steamdriven Industrial Revolution and an unprecedented peak in labor productivity growth, at over 1% per annum, sustained from 1850 to 1873.

POLICY ORIGINS OF RELATIVE ECONOMIC DECLINE

The succeeding policy, the 1834 Victorian Poor Law, was a harshly deterrent system of workhouses and hard labor in which husbands and wives were separated so they could not reproduce at the expense of the community. The individualist teachings of Adam Smith, Thomas Malthus, Benthamite utilitarianism, and providential evangelicalism formed the governing ideology of the new policy, which justified the British state's failure to intervene decisively when more than a million died in 1845 to 1851 in Ireland's famine, the worst such event in modern European history.5

Another consequence of the failure after 1834 to nurture its own working class was the decline, from the 1870s, of productivity growth in Britain-as a result of which the country lost its world-leading place to the United States and Germany. By contrast, these countries were early adopters, respectively, of universal secondary education and, especially in Germany, national social insurance for their populations. UK productivity did not recover until the first-ever majority Labour government of 1945 reimplemented the universal welfare provisions that had initially powered the Industrial Revolution, establishing the National Health Service, family allowances, national insurance, universal pensions, and secondary education for all.

HISTORICAL LESSONS FOR PUBLIC HEALTH POLICY

Two important lessons, of many, from British history should inform contemporary public health policies.

First, if it had been clearly understood in the critical period of 1975 to 1985 that Britain's history demonstrated that the provision of a universal social security and primary health care system had fundamental importance for growing the economy, the Alma Ata Declaration, calling for such systems to be put in place in all lessdeveloped countries, might have been followed through on.

Instead, because the declaration made its case solely on humanitarian grounds, as Packard and others have shown, this proved to be insufficient when its opponents argued that developing countries' finances were too constrained for such humanitarian "generosity."6 Consequently, the World Bank, through the 537 adjustment loans it made to 109 countries in the 1980s and 1990s, pursued an entirely opposite policy of "selective" primary health care, only-imposing user fees wherever possible, to simulate a US model of commercialized medicine.7 Because of resurgent neoliberal economics, represented at the World Bank by ChiefEconomist Anne Krueger, this policy embodied beliefs similar to those of Smith, Malthus, and their followers when they replaced England's Elizabethan Poor Laws in 1834. According to neoliberal doctrine, developing economies should be opened up for free trade. Moreover, publicly funded and publicly provided services were deemed a costly "burden" impeding the growth of market economies. If the lessons of Britain's economic history had been properly understood, it would have been more obvious that these neoliberal policies were a misleadingly one-sided view of the relationship between welfare and growth.

Furthermore, the health and mortality consequences of these policies, for Africa in particular, have been as catastrophic in some cases as the Victorian Poor Law was for the Irish peasantry in the 1840s. Economic growth in emerging nations, meanwhile, has been slow, uneven, and inegalitarian-especially compared with countries in East Asia that resisted taking the conditional loans of the World Bank and instead, like Britain had earlier, invested heavily in economic security and primary health care for their populace before embarking on projects to stimulate growth of a market economy.

Second, Britain's history confirms that societies that assiduously protect their population's positive health, education, and security from the vagaries of accident, illness, old age, and downsizing in a market economy can grow their economies most productively. The austerity policy of the UK government since 2010 is not only immoral (because it forces the vulnerable to bear the brunt of subsidizing remedial policies for the 2008 financial crash, which was caused by the actions of others, mainly financiers) but also completely misguided because it ignores historical evidence. History shows that welfare systems are not a luxury. If they are reduced or eliminated then the economy suffers, as well as the public's health. >4jPI-l

Simon Szreter, PhD, MA

Sidebar

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This editorial was accepted November 23, 2019.
doi: 10.2105/AJPH.2019.305507

ACKNOWLEDGMENTS

Hilary Cooper and Ben Szreter coauthored the 20 000-word essay "Incentivising an Ethical Economics," which was joint winner in July 2019 of the inaugural £100000 Institute for Public Policy Research Economics Prize, the world's third largest economics prize.
I would like to thank the anonymous referees for their thoughtful comments.

CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

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DETAILS

Subject:	Health care policy; Historians; Secondary education; Neoliberalism; Law; Famine; Utilitarianism; Free trade; Public health; Education; Fatalities; Public policy; Downsizing; Health policy; Social security; Payments; International trade; Working class; Industrial Revolution; Health education; Primary care; Productivity; Welfare services; British history; Economic growth; Occupational mobility; Market economies; Illnesses; Economic history; Humanitarianism; Health care; Policy analysis; Policy making; Research; History; Modernization; Development policy; Health services; Epidemiology; 20th century
Business indexing term:	Subject: Economic growth Occupational mobility Productivity Market economies Economic history Social security

Location:	Ireland; United Kingdom--UK; Europe; United States--US; Germany; England
Company / organization:	Name: International Bank for Reconstruction &Development--World Bank; NAICS: 541720, 928120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	337-338
Publication year:	2020
Publication date:	Mar 2020
Section:	HISTORY
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305507
ProQuest document ID:	2371373913
Document URL:	https://www.proquest.com/scholarly-journals/capacity-surprise-on-importance-history-public/docview/2371373913/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-09-22
Database:	Public Health Database

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Riverboats and Aedes aegypti Expansion

Anonymous

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FULL TEXT

Between September and November 2016 (high-tide season) and May and July 2017 (low-tide season), Sinti-Hesse et al. assessed the entomological risk of riverboats, carriers of passengers and cargo, as a mean for the expansion of Aedes aegypti in the Loreto Region in Peru. The entomological risk was defined as an index based on the number of Aedes eggs divided by the number of positive traps. During the high-tide season, riverboats posed an entomological risk for spreading A aegypti between endemic and nonendemic populations. The risk was low in the low-tide season. Riverboats, the primary means of transportation in the Amazonian region, served as reservoirs for the spread of A aegypti between border communities.

Citation. Sinti-Hesse C, Diaz-Soria F, Casanova-Rojas W, et al. [River boats as a means of expansion of Aedes aegypti toward border zones of the Peruvian Amazon]. Rev Peru Med Exp Salud Publica. 2019;36(3):392-399.

DETAILS

Subject:	Mosquitoes
Location:	Peru
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	262
Publication year:	2020
Publication date:	Mar 2020
Section:	Global News
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences

ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News
ProQuest document ID:	2371373806
Document URL:	https://www.proquest.com/scholarly-journals/riverboats-aedes-aegypti-expansion/docview/2371373806/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2021-09-09
Database:	Public Health Database

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A Population Health Perspective on the Trump Administration, Brexit, and Right-Wing Populism in Europe

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ProQuest document link

ABSTRACT (ENGLISH)

Recent electoral outcomes in many Western welfare democracies show a rise in voting for populist political options. Arguably, the two most impactful cases of this kind are the election of Donald Trump in the United States and the results of the referendum conducted in 2016 in the United Kingdom to leave the European Union, popularly known as "Brexit." Public health scholars and health professionals are already identifying ongoing and projected consequences of these electoral outcomes in terms of the effects on health care services and on the broader social determinants of health. After a steady decline in the level of the uninsured population in the United States, the recent data suggest that the number of uninsured people might be rising again, while in the United Kingdom, even the most positive Brexit scenarios are projected to lead to an overall negative effect on the National Health Service.

That there are consequences of electoral outcomes for health via policy changes is not surprising. Perhaps a more fundamental question is that of whether a population's health has played a role in the electoral shifts described. Economic insecurity, cultural backlash, and identity politics have been proposed as the most important explanations, but a number of recent studies have also shown an association between the worsening health of population across counties in the United States and the voting outcomes in the most recent presidential election. Yet, until now, there has been virtually no analogous research on population health as a contributor to the Brexit referendum outcome or to the rise of radical right parties across European societies.

In a new study, Koltai et al. (p. 401) tested a hypothesis that the increase in the number of "deaths of despair," including deaths attributable to drug use, alcohol, or suicide, was associated with the higher share of votes for the leave campaign during the Brexit referendum. A greater number of "deaths of despair" is assumed to be a good indicator of worsening social and economic conditions. The analysis conducted of data for 345 local authorities in England and Wales indeed suggests that the increase in "deaths of despair" from 2005-2007 to 2014-2016 was significantly associated with the higher share of votes for Brexit. The findings of Koltai et al., complementing evidence from the United States, suggest that population health and the electoral shifts toward populism are directly linked or at least share common explanatory factors.

FULL TEXT

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HOW TO EXPLAIN THE LINK?

Let us assume that the evidence from both sides of the Atlantic is good enough to establish an association; then the next important question is, what are the channels connecting population health and various manifestations ofpopulist voting? First, the overwhelming evidence on the social determinants of health suggests that socioeconomic conditions are causally associated with health outcomes. Second, the insights from political science also indicate that there are strong links between socioeconomic conditions and voting behaviors. Then we need to inquire ifpopulation health has a direct link to voting patterns when the effects of socioeconomic conditions on health and voting are accounted for.2 The findings from Koltai et al. and other related studies from the United States reveal that the association between increasing mortality and populist voting is substantially reduced or even becomes insignificant when models are adjusted with an array of socioeconomic characteristics, such as the depth of economic austerity.

Nonetheless, several studies also identify a residual unexplained association between worsening health outcomes and votes cast for Trump in the presidential election. Even if we assume that a direct link exists, it is not entirely clear what mechanisms are at work behind this association. It is known that various indicators of good health are associated with more right-wing ideology,3 while population health also affects electoral turnout. These two premises imply that worsening health does not necessarily turn individuals into a populist electorate. Instead, worsening health problems can reduce turnout levels of voters for more mainstream political options and this consequently leads to a higher share ofpopulist votes on election day.4

A more straightforward explanation of this shifting electoral behavior is that individuals who start experiencing health problems or witness deteriorating health in their families, neighborhoods, or communities are desperate for systemic changes and switch their allegiance to more radical political options. The main constraint for testing this hypothesis is that the research designs used by Koltai et al. and others are not suitable to observe if individuals depart from their earlier political preferences as a result of their own health concerns or because of the tragic outcomes of others in cases of "deaths of despair."

This methodological problem can be mitigated by using survey data consisting ofinformation on both individuals' changing health and voting behaviors. The results from ecological studies and individual-level analysis, however, might not always overlap. For instance, Figure 1 shows the association between the share of good self-reported health and the share of votes for populist right-wing parties across 20 European countries in 2002 to 2018. If anything, this association appears to be positive, but if the same data with about 230 000 participants are analyzed on an individual level, good selfreported health is negatively associated with voting for populist right-wing parties (odds ratio = 0.88; 95% confidence interval = 0.85, 0.92), even when models are adjusted for sociodemographic characteristics.

HEALTH INEQUALITIES AND EQUALITY OF OPPORTUNITIES

So far, the existing studies on the nexus between population health and electoral shifts have almost exclusively studied changes in absolute measures of health as a predictor of populist voting. Yet, based on the extensive literature on inequalities in morbidity and mortality, the widening socioeconomic gaps in health could be an even more important explanation of the populist electoral shifts than the absolute changes in the levels of mortality. In fact, a recent study has revealed the positive association between inequalities in mortality and inequalities in political participation in Europe.5 Whether widening health inequalities played any role during the Brexit referendum, in Trump's victory, and in other manifestations of populist electoral gains in Europe or elsewhere is an intriguing research question to be pursued.

In terms of exploring the common fundamental causes of population health and electoral upheavals, one area that deserves further attention is the degree to which individuals can shape their lives regardless of their social origins and other ascribed characteristics, such as gender, race, and ethnicity. Stalled upward social mobility is arguably one of the main reasons for people's frustration, but recent studies for the United States and Europe have also revealed that equality of opportunity is associated with improved health-related behaviors, better self-rated health, and lower levels of mortality.6,7 The lack of fairness in the distribution of life chances and limited possibilities for upward social mobility can cause anxiety among individuals, gradually compromise their health, and facilitate the rejection of the conventional mode of politics.

Many Western industrialized nations have engaged in the last decades in a race to the bottom in terms of welfare state retrenchment and income redistribution policies, leading to the slow but steady erosion of the social safety nets and an increased concentration ofwealth, under the guise of economic austerity. This has happened under both nominally "right" and "left" governments, leading to increased voter despondency among marginalized groups. Such changes have had a major negative impact in the population's health, possibly being the "cause of causes"-a common upstream determinant- of both deteriorating health and populist voting decisions.

Lastly, the policy changes brought about by the Trump administration and Brexit are projected to have a negative effect on health. If deteriorating population health is indeed associated with electoral shifts, those populist political actors and policy campaigns that have seen electoral gains in recent years, including in the 2019 UK general election, might themselves suffer electoral losses in the years to come.

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Sidebar

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This editorial was accepted December 15, 2019.
doi: 10.2105/AJPH.2019.305535
ACKNOWLEDGMENTS
This work was supported by the National Science Centre of Poland, Program SONATA 14, grant UMO-2018/31/D/HS6/ 01877.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

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DETAILS

Subject:	Population; Socioeconomic factors; Mortality; Politics; Health disparities; Equality; Political behavior; Hypotheses; Uninsured people; Voting; Health services; Public health; Political campaigns; Election results; Sociology; Populism; Presidential elections; Elections; Mental health; Counties; Alcohol; Security; Economic conditions; Political parties; Medical personnel; Suicide; Economic analysis; Identity politics; Fatalities; Radicalism; Cultural identity; Health care policy; Income redistribution; Upward mobility; Social mobility; EU membership; Referendums
Business indexing term:	Subject: Uninsured people Income redistribution Upward mobility Social mobility EU membership; Industry: 92111 : Executive Offices
Location:	United Kingdom--UK; Poland; Europe; United States--US
People:	Trump, Donald J Jr
Classification:	92111: Executive Offices
Publication title:	American Journal of Public Health; Washington

Volume:	110
Issue:	3
Pages:	274-276
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305535
ProQuest document ID:	2371373797
Document URL:	https://www.proquest.com/scholarly-journals/population-health-perspective-on-trump/docview/2371373797/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Deaths of Despair and Brexit Votes: Cross-Local Authority Statistical Analysis in England and Wales

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To test the hypothesis that deaths of despair, a marker of social suffering, were associated with greatersupport for Brexit in the United Kingdom's 2016 European Union referendum. Methods. We used cross-local authority regression models of Brexit vote shares on changes in suicide and drug-related death rates before (2005-2007) and after the recession (2014-2016), adjusting for sociodemographic factors.The population comprised 345 local authorities in England and Wales. Results. Mortality rates were associated with voting patterns. An increase of 10 drug-related deaths per 100 000 was associated with a 15.25-percentage-point increase in Brexit votes (95% confidence interval [CI] = 10.27,20.24), while an increase of 10 suicides per 100 000 was associated with a 9.97-percentage-point increase in vote shares for Brexit (95% CI = 6.25, 13.70). These results were substantially attenuated after we adjusted for education, and reduced to nonsignificance for drug mortality (b = 2.18; 95% CI = -0.21,4.57) and suicide (b = 0.94;95% CI= -0.32, 2.21) upon inclusion of other sociodemographic factors. Conclusions. Worsening mortality correlated with Brexit votes. These phenomena appear to share similar antecedents. A rise in such deaths may point to deeper social problems that could have political consequences. (Am J Public Health. 2020;110:401-406. doi:10.2105/AJPH.2019.305488)

FULL TEXT

Headnote

Objectives. To test the hypothesis that deaths of despair, a marker of social suffering, were associated with greatersupport for Brexit in the United Kingdom's 2016 European Union referendum.

Methods. We used cross-local authority regression models of Brexit vote shares on changes in suicide and drug-related death rates before (2005-2007) and after the recession (2014-2016), adjusting for sociodemographic factors.The population comprised 345 local authorities in England and Wales.

Results. Mortality rates were associated with voting patterns. An increase of 10 drug-related deaths per 100 000 was associated with a 15.25-percentage-point increase in Brexit votes (95% confidence interval [CI] = 10.27,20.24), while an increase of 10 suicides per 100 000 was associated with a 9.97-percentage-point increase in vote shares for Brexit (95% CI = 6.25, 13.70). These results were substantially attenuated after we adjusted for education, and reduced to nonsignificance for drug mortality (b = 2.18; 95% CI = -0.21,4.57) and suicide (b = 0.94;95% CI= -0.32, 2.21) upon inclusion of other sociodemographic factors.

Conclusions. Worsening mortality correlated with Brexit votes. These phenomena appear to share similar antecedents. A rise in such deaths may point to deeper social problems that could have political consequences. (Am J Public Health. 2020;110:401-406. doi:10.2105/AJPH.2019.305488)

On June 23, 2016, UK citizens voted to leave the European Union (EU) by a margin of 3.8%. Arguably the single most important political event in Western Europe in recent decades,1 it is now clear that Brexit will have profound and far-reaching implications for the health of the British population,2 with leading medical journals3,4 and organizations representing health professionals united in calling for a second vote or opposing it "as a whole."5-7

Rising support for populist parties has gripped the politics ofmany Western societies in recent years, prompting a surge ofresearch investigating the causes and correlates of this phenomenon. In one intriguing line of inquiry, several studies have found strong statistical associations between worsening population health and the geographical distribution of votes for Donald Trump in the 2016 US presidential election.8-13 Bor found that those counties in which life expectancy stagnated or declined from 1980 to 2014 exhibited substantially higher vote shares for Trump in the 2016 presidential election.8 Goldman et al. reported gains in the Republican vote percentage in (2016 vs 2008) in counties that endured increased rates of "deaths of despair," a group comprising deaths attributable to drug use, alcohol, or suicide.9 Monnat similarly documented more Trump support in counties with the highest drug, alcohol, and suicide mortality rates.10 Two studies found correlations between declines in county-level physical and mental health indicators and swing votes for Trump.11,12 Bilal et al. found a significant uptick in age-specific (45-54 years) all-cause mortality from 1999-2005 to 2009-2015 in counties where the Democrats won the 2 previous elections (2008 and 2012), but where the Republicans won in 2016.13

While a number of industrialized countries have experienced a slowdown in historic increases in life expectancy in recent years, 1 study showed that the United Kingdom and United States compete for the worst performance in this respect.14 Thus, as both experienced major electoral upsets in 2016, it has been suggested15 that the health of those living in the United Kingdom may have been associated with the Brexit vote, just as declining health seems to have been associated with increased votes for Donald Trump in the 2016 US presidential election.

Several studies have examined evidence of worsening health in the United Kingdom (noting that there are different death registration systems in England and Wales, Scotland, and Northern Ireland, so many analyses are limited to 1 of these territorial divisions). England and Wales experienced one of the largest percentage increases in mortality in the postwar period between 2014 and 2015.16 As Hiam and Dorling describe, the agestandardized mortality rate had declined for several years, with some year-to-year fluctuations, until its reversal after 2011; by 2015, it was higher than in any year since 2008 and was 4.8% higher than in 2014.16 Turning to specific causes of death, drug-related mortality rates in England and Wales rose markedly since 2011 (Figure 1),17 coinciding with the introduction of large budget reductions. According to the United Kingdom's Office for National Statistics, drug-related deaths tend to be concentrated in more economically deprived areas.18 Increases in suicide rates between 2008 and 2010 were greatest in those English regions most affected by the economic crisis,19 an association that has continued as can be seen with more recent data (Appendices A and B, available as supplements to the online version of this article at http://www.ajph.org).

Here, we tested the hypothesis that "deaths of despair" in the United Kingdom are correlated with Brexit votes, which political scientists have viewed as a populist outcome akin to support for President Trump.20 Previous studies have investigated the regional patterning of Brexit, finding that regional socioeconomic factors including unemployment, austerity, import shocks, low education, immigration, and declines in manufacturing employment may have played a role.1,21-25 To our knowledge, however, the role of these "deaths of despair" as a marker of suffering has yet to be examined in detail. Building on Bor8 and Bilal et al.,13 Figure 2 illustrates our conceptual framework for understanding the interrelations among populist support, socioeconomic conditions, and deaths of despair.

METHODS

We obtained data on voting patterns for each local authority in England and Wales in the 2016 EU referendum from the Electoral Commission. We focused on England and Wales because vote shares for Brexit for Northern Ireland were reported by parliamentary constituency and not by local authority, and comparable suicide and drug-related mortality rates across local authorities in the time period under study were not available for Scotland.

We extracted data on age-standardized mortality rates per 100 000 from suicide and drug-related deaths, standardized to the 2013 European Standard Population, from the Office for National Statistics (ONS). Ideally we would have included alcohol mortality rates following Monnat,10 but unfortunately, to our knowledge, alcohol-related mortality rates were not available covering both England and Wales at the local authority level for the time period under study. Furthermore, the ONS does not report rates when deaths are fewer than 10, and, to reduce measurement errors, report data are 3-year moving averages. We removed 1 local authority, Boston, England, in analyses of drug-related mortality and Brexit votes, as this area was a clear outlier in the association (Appendix H, available as a supplement to the online version of this article at http://www.ajph.org). After we removed cases with missing values on covariates, this yielded a final analytical sample for drug-related deaths of n = 257 (reflecting more missing data from small numbers) and for suicides of n = 345.

Independent Variables

Our independent variables were the change in suicide rates and drug-related death rates from the average rates in the 3-year period before the financial crisis (2005-2007) and subsequent imposition of austerity to those in the period immediately leading up to the Brexit referendum (2014-2016). These were selected for coherence with recent studies on Brexit determinants, including changes in unemployment rates before and after the 2008 financial crisis.21 A detailed description of the codes used in this study from the International Classification of Diseases, Tenth Revision, is provided in Appendices C and D (available as supplements to the online version of this article at http://www.ajph.org).

Statistical Models

Although we sought to quantify the association of deaths of despair and Brexit votes, we also employed multivariate regression models to adjust for several socioeconomic and demographic factors, including the following.

Area and turnout. We first included dummy variables for London and Wales, as London was different from the rest ofEngland in terms of voting patterns, and, as a separate nation with its own assembly, there are specificities in Wales. We also included percentage voter turnout in the Brexit referendum for each local authority, which was extracted from data held by the Electoral Commission, which provides full data summaries on voting participation and turnout among individuals.26

Immigration trends. Following Becker et al.,22 we adjusted for immigration trends by using data from the 2001 and 2011 censuses. We included growth rates in 3 groups defined by place or origin: non-EU migration, the 15 EU countries, and the 12 EU accession countries that joined the EU in 2004 and 2007.

Population and age structure. We obtained data from the Electoral Commission and the 2011 census to capture the population size at the time of the referendum, the log of population density in 2011, the proportion of population aged 60 years and older in 2011, the median age in 2011, and the share of White individuals in 2011.

Socioeconomic factors. We adjusted for changes in unemployment rates between 2005 and 2015 by using model-based estimates of annual unemployment rates derived from the Annual Population Survey.27 We derived changes in median hourly pay between 2005 and 2015 from the Annual Survey of Hours and Earnings.28 We used a measure of the depth of austerity compiled by Beatty and Fothergill,29 which included spending cuts affecting housing benefits, nondependent deductions, disability living allowance, incapacity benefits, child benefits, and tax credits, expressed in terms of the financial loss per working adult in pounds sterling per year (2010-2015). We used their overall measure. We also included the percentage of the population with no education qualification and percentage with level-1 qualification for each local government area by using data from the 2011 census.

We conducted all regression models with Stata version 15.1 (StataCorp LP, College Station, TX), estimated with robust standard errors30 (using the ROBUST command in Stata) and present R2 values as a measure of goodness of fit. We performed a series of robustness tests to assess potential outliers, bias from missing data, and multicollinearity.

RESULTS

Figure 3 depicts the unadjusted association of local authority mortality rates and Brexit voting proportions. As shown in the figure, there was a moderate link between mortality rates, whether measured as suicide (Pearson's r= 0.30; P< .01) or drug-related mortality (Pearson s r = 0.34; P< .01) and Brexit votes. The unadjusted models in Table 1 quantify this association. Each increase of 10 suicides per 100 000 was associated with a 9.97-percentage-point increase in vote shares to "Leave" the EU (95% confidence interval [CI] = 6.25, 13.70). Similarly, an increase of 10 drug-related deaths per 100 000 was associated with a 15.3-percentage-point increase in vote shares for Brexit (95% CI = 10.27, 20.24).

Table 1 further shows the results from multivariate regression models, with adjustment for potential sociodemographic factors. Adjusting for voter turnout and immigration trends attenuated the associations but not significantly so. Similarly, adjusting for unemployment changes, median pay changes, and austerity measures did not alter substantially the estimated association of mortality with Brexit votes. However, after we adjusted for the percentage of the population with low education, the coefficient sizes diminished significantly to 2.70 (95% CI = 0.12, 5.27) for drug-related mortality and to 2.69 (95% CI = 1.17, 4.20) for suicide mortality rates. Including all covariates in the final model completely attenuated the association of mortality measures with Brexit voting, reflecting the role of mortality as a correlate.

We performed a series of robustness and sensitivity tests. First, to assess whether the missingness of data could potentially confound our associations, we estimated a logistic regression model of the odds of sample inclusion (Appendix E, available as a supplement to the online version of this article at http://www.ajph.org). As anticipated, reflecting that ONS does not report data with very small numbers, we found that data were more likely to be missing where the population size (here measured as the electorate) and budget cuts were smaller (itself a correlate of drug-related mortality). As a further step, we then calculated the inverse probability weight and included it as a further adjustment for missingness, finding that none of our results were qualitatively changed (Appendix F, available as a supplement to the online version of this article at http://www.ajph.org). As an additional step, we imputed data with neighboring year values, when reported. Thus, if available, we replaced missing values for 2005 to 2007 with values from 2006 to 2008 or 2004 to 2006. This procedure increased the sample to 298; as shown in Appendix G (available as a supplement to the online version of this article at http://www.ajph.org), our results were consistent with our main findings. In addition, although we selected the years 2005 to 2007 and 2014 to 2016 for coherence with previous studies, we further tested the 2004 to 2006 versus 2013 to 2015 periods, finding similar results.

Second, we tested nonlinearities by using a locally weighted smoother (LOWESS in Stata; Appendices H-J, available as supplements to the online version of this article at http://www.ajph.org). This confirmed that Boston was an outlier and leverage point. As shown in Appendix I andJ, there did not appear to be a nonlinear association between our mortality measures and Brexit voting. To test further for outliers and leverage points, we removed standardized residuals with absolute value greater than 2 (n = 14 for drug-related mortality and n = 17 for suicide mortality). After we removed these data points in separate analyses, our results did not qualitatively differ. Appendices K and L (available as supplements to the online version of this article at http://www.ajph.org) show residuals versus fitted values plots for the association between deaths of despair and Brexit votes, which showed that, after we removed Boston (Appendix K), there appeared to no longer be a leverage and influence point.

To test for multicollinearity, we calculated variance inflation factors. These were 1.27 and 1.16 for suicide and drug-related death rates, respectively, in the fully adjusted models, which was below conventional thresholds, indicating the presence of multicollinearity.31,32

Finally, we tested the association between Brexit vote shares and changes in the age-standardized mortality rate from all causes to probe whether our findings were specific to deaths of despair or whether they simply reflected broader mortality patterns. Appendix M (available as a supplement to the online version of this article at http://www.ajph.org) shows a scatter plot for the relationship between changes in the agestandardized mortality rate from all causes and vote shares for Brexit, illustrating a similar pattern, but weaker association: Pearson's r = 0.20 for the age-standardized mortality rate-Brexit association versus Pearson's r = 0.30 and 0.34 for suicides and drug mortality rates, respectively. Appendix N (available as a supplement to the online version of this article at http://www.ajph.org) reports these associations in a regression context. In the unadjusted model, an increase of 10 deaths per 100000 was associated with a 0.25-percentage-point increase (95%
CI = 0.06, 0.45) in vote shares to leave the EU. The association was reduced to statistical nonsignificance when we adjusted for each separate covariate group. These analyses suggest a stronger association between proBrexit vote shares and despair-related mortality compared with mortality from all causes.

DISCUSSION

So far, evidence ofan association between worsening population health and electoral support for a populist agenda has largely come from the United States. Here we extended this work to a new setting, the United Kingdom, a country that has much in common with the United States but also many differences. Consistent with Bor,8 we found that the associations we observed were explained by the wider social and economic situation in which people live. Bor found that adjusting for state fixed effects, rural status, percentage college educated, county economic characteristics, and racial/ethnic composition completely explained the association between declining life expectancy and votes for Trump in the 2016 US election. Thus, worsening health and growth in support for populist views appear to share similar antecedents.

Limitations

As with all observational studies, our analysis had several important limitations. First, there were missing data for small numbers of drug-related deaths, and, unfortunately, alcohol mortality data at local authority levels were unavailable, to our knowledge. This resulted in a smaller sample size, and, as our robustness tests revealed, patterns of missing data did not appear to influence our results, thus potentially producing overly conservative estimates of the Brexit-mortality association. Second, our research did not investigate the underlying causes of suicide and drug-related mortality, which may also have underpinned populist voting. However, we did observe that low education seemed to play a significant role in attenuating the Brexit-mortality association, which is consistent with the possibility that it serves as an underlying factor in both mortality changes and Brexit voting. It is also known that populist sentiment rose markedly among low-skill, low-education sectors of the electorate in the United Kingdom. Further research is needed to investigate these underlying mechanisms and better understand the complex causal chains involved.

In sum, we provide evidence that a correlation between deteriorating population health and support for populist sentiments extends beyond the US context, and, consistent with findings presented by Bor, Monnat, and Bilal et al.,8,10,13 declining economies, austerity, and demographic factors seem to be determinants of both avoidable mortality and Brexit voting patterns. As Monnat observed, deaths of despair "are occurring within a larger context of people and places desperate for change."10(p7)

Public Health Implications

More than 150 years ago, Rudolf Virchow drew attention to the association between politics and health.33 While the ecological correlations between "deaths of despair" and Brexit votes should not be interpreted causally, our results nevertheless support the notion that epidemiological data can serve as a "canary in the coalmine," highlighting the existence of areas and groups that are being left behind by social developments, which may in turn reflect fertile ground for the growth of populist sentiments. ÂfPU

Sidebar

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This article was accepted November 17, 2019.

doi: 10.2105/AJPH.2019.305488

CONTRIBUTORS

J. Koltai created the study, conducted the analysis, and wrote the first draft of the article. F. M. Varchetta helped compile, clean, and analyze the data. D. Stuckler and M. McKee oversaw the design of the study, facilitated interpretation of the findings, and helped write the article. All authors edited the final article.

ACKNOWLEDGMENTS

D. Stuckler is funded by a Wellcome Trust investigator award and European Research Council, Health Resilience and Economic Shocks: Analysis ofQuasiNatural Experiments Using Multi-Level Modelling (grant 313590).

CONFLICTS OF INTEREST

The authors have no conflicts to declare.

HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not needed because we analyzed secondary public data.

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DETAILS

Subject:	Mental health; Quantitative analysis; Mortality; Regression analysis; Social conditions; Mortality rates; Immigration; Hypotheses; Voting; Suicide; Election results; Alcohol; Public health; Populism; Fatalities; Local government; Suicides &suicide attempts; Population; Socioeconomic factors; Trends; Regression models; Statistical analysis; Social problems; Life expectancy; Referendums; Age; Confidence intervals; Sociodemographics; Presidential elections; Economic conditions; Economic crisis; EU membership
Business indexing term:	Subject: Economic conditions Economic crisis EU membership; Industry: 92111 : Executive Offices
Location:	United Kingdom--UK; United States--US; Scotland; England; Northern Ireland; Wales
People:	Trump, Donald J
Company / organization:	Name: European Union; NAICS: 926110, 928120
Classification:	92111: Executive Offices
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3

Pages:	401-406
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305488
ProQuest document ID:	2371373133
Document URL:	https://www.proquest.com/scholarly-journals/deaths-despair-brexit-votes-cross-local-authority/docview/2371373133/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-06
Database:	Public Health Database

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The Threat to Air Pollution Health Studies Behind the Environmental Protection Agency's Cloak of Science Transparency

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ABSTRACT (ENGLISH)

This year marks the 50th anniversary of the first Earth Day (April 22), the Clean Air Act of 1970, and the creation of the Environmental Protection Agency (EPA). Over those five decades, we have seen remarkable improvements in air quality across the United States and significant improvements in public health. Indeed the Office of Management and Budget reports that regulation of fine particle (PM2.5) air pollution is the most cost effective of all federal regulations.1 This success in controlling air pollution should be celebrated as a public health triumph. Thus, the EPA's proposal to restrict the use of key scientific evidence regarding the health effects of air pollution under the guise of "scientific transparency" is disturbing.2

The EPA's "Strengthening Transparency in Regulatory Science" rule is the ratification of efforts by special interests over more than two decades to undermine the science underpinning air pollution regulations. Twenty-five years ago, we published with our colleagues results of two prospective cohort studies, the Harvard Six Cities Study3 and the American Cancer Society Study,4 reporting that mortality risk increased linearly with long-term exposure to PM2.5 air pollution. Observed PM2.5-mortality associations were remarkably robust, especially for cardiopulmonary mortality. Furthermore, associations were much larger than expected based on previous short-term associations observed in daily time series studies.

FULL TEXT

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Under common scientific practice, publication of these results would lead to attempts to verify and replicate these results using studies in independent populations by independent investigators. However, because the EPA cited these studies as key in setting air quality standards for PM2.5, there were calls for examination ofthe validity, analytic methods, and data quality of the original studies and demands for access to the raw data.

We support principles of data accessibility and transparency in conducting and reporting scientific research. We also respect and adhere to ethical and legal obligations to protect the private and confidential data of study participants, including guarantees of confidentiality given to each participant, agencies providing mortality data, and institutional review boards (human studies committees) overseeing these studies. Nevertheless, given the public health and policy importance of these studies, investigators of both studies agreed to provide cohort and related data for an unrestricted, intensive reanalysis by an independent research team selected and overseen by the Health Effects Institute with full assurance of confidentiality of participant information. These independent reviewers conducted data quality audits, evaluated the reproducibility of the originally published findings, and assessed the sensitivity ofthe analyses to alternative methods and additional data. After a three-year effort, they published a 300-page report that found the data were of good quality, the original analyses could be reproduced, and the results were relatively unaffected by alternative analyses.5

Although this reanalysis was reassuring, it does not provide the scientific validation that comes from replicating these results by independent investigators in independent cohorts. In the 25 years since these two seminal studies were published, there have been dozens of additional longitudinal cohort studies published using independent cohorts from the United States, Canada, Europe, and Asia, confirming and building on the PM2.5-mortality association.6

Despite these efforts, the American Cancer Society and Harvard Six Cities studies continue to be characterized by special interest groups as "secret science." This characterization is simply false on its face. The methodology, protocol, and results ofthese studies have been published in high-quality peerreviewed scientific journals. We provided full data access for audits and independent reanalyses. We have continued to be actively involved in open, collaborative, extended analysis efforts in a way that contributes to scientific understanding and that does not violate commitments to the privacy and confidentiality of research participants.

Prominent scientific organizations, editors of major scientific journals, and others have affirmed that some of the most important and informative studies in medicine generally, and environmental medicine particularly, include private and confidential data that cannot be fully made public.7 They have noted the imprudence ofdiscounting or disallowing the use ofresults from these studies in science-based public policy. Special interest groups still demand the release of the individual data and argue that without such release these studies should not be used to inform public policy.

Why can't we just anonymize the data, as is standard practice in clinical trials? In a clinical trial, essential individual data include age, sex, race, and an indicator of randomized treatment group. Participants can feel safe that they and their records cannot be identified. In environmental epidemiology, the essential individual data likewise include age, sex, race, and environmental exposure. However, environmental exposure is not randomly assigned. Rather a study participant's environment is defined by where they live, that is the air, the water, and the land at or near their residential location.

Consider PM2.5 air pollution that can now be modeled and mapped across the United States by metropolitan areas, counties, zip codes, census tracts, onekilometer square grids, and even geocoded residential addresses. Would people be willing to participate in a public health study if they understood that they could likely be identified based on their age, sex, race, and where they live? Even the US National Center for Health Statistics, which provides de-identified mortality and national health interview survey data, severely restricts the use and reporting of data linked to geographic information, because of the high risks of compromising required and assured confidentiality.

Further consider how environmental epidemiology informs public health policy. In evaluating therapeutic interventions, clinical trials provide evaluation of safety and efficacy before release to the public. In addition, retrospective postmarketing surveillance is required to detect unexpected adverse effects. For environmental contaminants, there is no prerelease evaluation of effects in populations who are exposed. Primary evidence ofadverse effects comes from environmental epidemiology studies, often looking retrospectively at previous exposures based on residential location. That is, environmental epidemiology provides a critical scientific approach for detecting adverse effects of contaminants in the environment.

The EPA transparency rule would not only preclude consideration of previous studies but also hamstring future epidemiologic studies of hazards based on residential location, including air pollution, water contamination, hazardous waste, radiation, spills and accidental releases, and other known or unidentified hazards. The effect not only suppresses previous inconvenient evidence but also discourages participation in future epidemiologic studies. If potential participants are discouraged from participating in population studies, opponents of environmental regulation will have succeeded in removing a key scientific approach to detect and quantify hazards.

The EPA rule, although appearing to formalize good scientific practice under the cloak of scientific transparency, would severely limit the use of epidemiology for surveillance of the deleterious health effects of contaminants in the environment and surreptitiously discourage participation in studies that address environmental issues.

Imagine the effect of a rule that required release of approximate residential addresses of participants in clinical trials or in other studies that use medical records and other clinical-based data. The impact would be devastating to the conduct of these studies and in advancing knowledge and practice in clinic medicine. Imagine further a rule that similarly required release of approximate addresses of participants in postmarketing surveillance epidemiologic studies. The ability to detect and monitor unexpected adverse effects and interactions would be severely compromised. Why does the EPA propose to restrict our scientific ability to detect the adverse effects of environmental contaminants under the cloak of scientific transparency? Â1PU

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The authors contributed equally to this article.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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This editorial was accepted December 14, 2019.
doi: 10.2105/AJPH.2019.305531

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DETAILS

Subject:	Science; Environmental protection; Mortality; Air pollution; Transparency; Air pollution control; Data quality; Confidentiality; Regulation; Public health; Pollution effects; Air pollution effects; Legislatures; Public policy; Health risks; Ratification; Cancer; Environmental regulations; Epidemiology; Interest groups; Air quality; Outdoor air quality; Cost analysis; Access; Air quality standards; Resource management; Environmental management; Clinical trials; Particulate matter; Environmental policy; Cohort analysis; Health surveillance; Mortality risk; Federal regulation
Business indexing term:	Industry: 92312 : Administration of Public Health Programs
Location:	United States--US
Company / organization:	Name: Health Effects Institute; NAICS: 541714; Name: Environmental Protection Agency--EPA; NAICS: 924110; Name: Office of Manage ment &Budget--OMB; NAICS: 926110; Name: American Cancer Society; NAICS: 813212
Classification:	92312: Administration of Public Health Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	286-287
Publication year:	2020
Publication date:	Mar 2020
Section:	ENVIRONMENTAL HEALTH WORKFORCE &REGULATION
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305531
ProQuest document ID:	2371373094

Document URL:	https://www.proquest.com/scholarly-journals/threat-air-pollution-health-studies-behind/docview/2371373094/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-09-19
Database:	Public Health Database

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Building Up Housing to Break Down Health Disparities

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ProQuest document link

ABSTRACT (ENGLISH)

When the foreclosure crisis struck the United States in 2007 to 2008, millions ofhomeowners lost their homes, greatly limiting economic opportunity and wealth-building potential.1 Subsequently, a new calamity arose: the affordable housing crisis. As the availability of affordable apartments declined by more than 50%, the search for affordable housing led many middle- and upper-income individuals to migrate to lowincome communities where rents were more reasonable. This trend, gentrification, placed low-income communities at further risk for residential displacement.2 With stagnant wages and diminished housing affordability, many could no longer meet costly rent requirements and were faced with a sobering and precarious reality- homelessness.

FULL TEXT

When the foreclosure crisis struck the United States in 2007 to 2008, millions ofhomeowners lost their homes, greatly limiting economic opportunity and wealth-building potential.1 Subsequently, a new calamity arose: the affordable housing crisis. As the availability of affordable apartments declined by more than 50%, the search for affordable housing led many middle- and upper-income individuals to migrate to lowincome communities where rents were more reasonable. This trend, gentrification, placed low-income communities at further risk for residential displacement.2 With stagnant wages and diminished housing affordability, many could no longer meet costly rent requirements and were faced with a sobering and precarious reality- homelessness.

HOUSING ASA FUNDAMENTAL CAUSE

Substandard housing and the lack of housing are associated with high rates of respiratory infections and tuberculosis. In addition, chronic diseases such as asthma and cancer have been linked to poor housing and the absence ofhousing in general. It is expected then that individuals who are homeless are at disproportionate risk for a variety of health disparities in comparison with the general population. Without a consistent and adequate nighttime residence, other ailments such as physical disability are also frequently observed in individuals who are homeless.

While the compounded impact of poverty and health issues may precipitate homelessness, the experience of homelessness can also worsen health or introduce illness, attributable to novel hurdles in accessing health care.3 Reducing resource inequality is a health policy implication tied to Link and Phelan's fundamental cause theory. The role of housing as one of the fundamental causes of homelessness and poor health cannot be ignored and should be recognized as a health-relevant policy.4 If the public health field is to address the fundamental causes of illness in populations who are unstably housed and homeless, health disparities in these communities can no longer be perceived as irrevocable norms but rather as a reflection of improper and inconsistent shelter and an indicator of a failing housing system.

EXPANDING THE SCOPE OF PUBLIC HEALTH

Housing is a foundational human right. As such, it belongs in the forefront of the research, policy analysis, and intervention development undertaken by public health practitioners. Housing First is a promising programmatic model that prioritizes permanent housing instead of standard emergency shelter for individuals who are homeless. The Housing First approach can serve as platform for developing innovative social policies and has already demonstrated great potential in places includingNew York City, California, Pennsylvania, and Washington. Housing First does not require that individuals who are homeless address behavioral health-related problems before "graduating" through a series of programs or services to obtain shelter. Instead, this model shifts the paradigm by recognizing that housing is a human right that should not be withheld from anyone.5 Importantly, evidence of its impact can be found across a plethora ofstudies and has been associated with positive residential and health-related outcomes, including improved housing retention rates, decreased criminal justice system involvement, fewer psychiatric hospitalizations, less emergency department utilization, and fewer costs incurred over time to hospitals.6 Hospitals and health care organizations are uniquely positioned to engage in this housingcentered work.

Precipitated by the housing crisis and perhaps inspired by the core values of Housing First, some hospitals and health systems are beginning to prioritize the provision of adequate and stable places to live as essential to patient health. The Better Health Through Housing project at the University of Illinois Hospital, for example, conducted a three-year experiment investigating the effects of providing housing for patients who were unstably housed and homeless who frequented the emergency department with severe and chronic health problems. The program resulted in less health care costs for the hospital, more consistent visits between patients and primary care providers, and increased use ofmore preventive health measures.7 When housing is recognized as a fundamental cause ofhealth, the impact is measurable.

Despite the obvious potential of Housing First, the framework has not been immune to critique, as efforts to evaluate long-term health impacts of Housing First models have been sparse. While many ofthe short-term indicators for Housing First are promising and relevant, particularly with respect to housing retention and hospitalization rates, the field has yet to determine whether there are significant and lasting changes in residents' health.6 Public health research is critically needed to address this void. By expanding the evidence base for Housing First, public health researchers can generate more support for this approach. This can prompt endorsement from various stakeholders, including policy-makers and social service providers.

The most significant gap, however, is that the standardization of the Housing First model has not been completed. The fundamental values of the framework are often inconsistently defined and applied. There is a crucial need to unify the core principles of the model, such that Housing First is consistently advantageous across a variety of settings. Naturally, the housing needs of each community may differ, especially those comprising diverse populations. It is important that Housing First is aligned not only with the needs of local populations but also the regional policies and available social services in the areas targeted by this intervention.6 The emerging field of dissemination and implementation science within public health is directly equipped to meet this challenge. Through a more unified Housing First approach, cohesiveness may be achieved in its use, which enhances the reliability of this promising housing intervention.

Although the involvement of hospitals and health systems in housing-centered efforts is innovative, action to address housing must extend beyond social service agencies and health care organizations. The affordable housing crisis is far too substantial to be met with limited effort. The public health field must work with policy-makers to design affordable housing opportunities that yield costsaving benefits to other sectors, ranging from the criminal justice system to real estate development.7 Moreover, the use of Medicaid funding for affordable housing might be achieved by framing particular health ailments as "housing-sensitive conditions" that can be improved with the provision of stable and adequate housing. These housing-centered efforts require the advocacy of public health practitioners and policy-makers alike.

The impact of the housing crisis placed millions at greater risk for unstable housing and even homelessness. Because of the persistence of the housing crisis and the now mounting crisis of homelessness, there is substantial opportunity for the field of public health to intervene. Housing First, hospital-based housing programs, the creation of cost-saving incentives across various sectors, and the enlistment of Medicaid in this housing effort, should be just the beginning.

It is essential that intervention and prevention are both emphasized to put an end to this current crisis. However, a unique tension often exists between the efforts required to address homelessness and those required to prevent it. When the acute needs of a community are vast, intervention may inadvertently eclipse advantageous prevention efforts. Thus, it is important that public health practitioners also pay close attention to individuals who are unstably housed, but not yet homeless, as they represent a unique opportunity for prevention. Surely, shifting the status quo to a focus toward the appreciation and provision ofhousing will contribute to our ongoing efforts to promote health and prevent disease. There are few issues for public health practice that deserve greater concern than working to eliminate this preventable dilemma.

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CONFLICTS OF INTEREST

The authors report no conflict ofinterests.

Sidebar

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This editorial was accepted December 14, 2019.

Note. The opinions expressed in this article are those of the authors. They do not purport to reflect the official views or positions of the Collaborative for Homeless Healthcare.

doi: 10.2105/AJPH.2019.305521

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DETAILS

Subject:	Research; Homelessness; Housing; Health care policy; Intervention; Chronic illnesses; Hospitals; Health disparities; Gentrification; Prevention; Homeless people; Low income groups; Public health; Crises; Urban renewal; Wealth; Low income areas; Relocation; Income; Apartments; Rents; Medicaid; Wages &salaries; Foreclosure; Affordable housing; Emergency medical care; Housing costs; Displaced persons
Business indexing term:	Subject: Medicaid Foreclosure Affordable housing; Industry: 62211 : General Medical and Surgical Hospitals
Location:	Pennsylvania; United States--US; New York; California
Company / organization:	Name: University of Illinois; NAICS: 611310; Name: Columbia University; NAICS: 611310; Name: National Community Reinvestment Coalition; NAICS: 813410
Classification:	62211: General Medical and Surgical Hospitals
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	301-302
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article

DOI:	https://doi.org/10.2105/AJPH.2019.305521
ProQuest document ID:	2371373049
Document URL:	https://www.proquest.com/scholarly-journals/building-up-housing-break-down-health-disparities/docview/2371373049/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-06
Database:	Public Health Database

Document 9 of 45

Preexposure Prophylaxis Indication Criteria Underidentify Black and Latinx Persons and Require Revision

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ProQuest document link

ABSTRACT (ENGLISH)

HIV preexposure prophylaxis (PrEP) provides more than 99% protection against HIV transmission when taken as indicated. Side effects of PrEP are low, but costs of the medication and related clinical care are high. Efforts to end the HIV epidemic hinge on PrEP, with both mathematical models and real-world data suggesting that bringing PrEP to scale among groups with high HIV incidence will substantially affect the HIV epidemic.1 The US Centers for Disease Control and Prevention (CDC) provides guidance for PrEP indication to assist clinicians in determining who should be provided PrEP.

FULL TEXT

HIV preexposure prophylaxis (PrEP) provides more than 99% protection against HIV transmission when taken as indicated. Side effects of PrEP are low, but costs of the medication and related clinical care are high. Efforts to end the HIV epidemic hinge on PrEP, with both mathematical models and real-world data suggesting that bringing PrEP to scale among groups with high HIV incidence will substantially affect the HIV epidemic.1 The US Centers for Disease Control and Prevention (CDC) provides guidance for PrEP indication to assist clinicians in determining who should be provided PrEP.

CLINIC DATA ON PREP

In this issue of AJPH, Pyra et al. (p. 370) analyze data on PrEP provision and PrEP indication from a federally qualified health care center in Chicago, Illinois. The authors present data in the form of several ratios: PrEP users divided by incident HIV diagnoses (PrEP:HIV, also termed PrEP-to-need),2 PrEP users divided by persons for whom PrEP is indicated (PrEP: Indication), and persons for whom PrEP is indicated divided by HIV diagnoses (Indication: HIV). The goal in using these ratios is to provide information regarding disparities in who is receiving PrEP. Pyra et al. found that Blacks, Latinx, and transwomen had substantially lower PrEP:HIV and Indication:HIV ratios than did White and cisgender men populations. Relative to their need as determined by incident HIV infection, these groups were less likely to be indicated for PrEP and also less likely to receive it.

OTHER EVIDENCE

Previously, cohort data from two studies found that behavioraland sexually transmitted infection-based PrEP indication criteria, such as the CDC guidelines, perform poorly in predicting incident HIV infection among Black men who have sex with men (MSM).3,4 In fact, one of the cohort studies found that race alone better predicted HIV incidence than did any of the risk screening tools,3 supporting the concept that sexual networks confer risk more than does individual behavior. This aligns with a meta-analysis that found risk behavior of Black MSM to be lower than risk behavior of White MSM,5 in stark contrast to HIV incidence, which is substantially higher among Black MSM than White MSM.

When this previous evidence is considered, PrEP screening tools predominantly composed of risk behavior data seem destined to perform poorly for Black MSM. The work of Pyra et al. provides clinic-level data supporting this conclusion. The implications are potentially enormous: clinicians strictly following CDC guidelines will exclude or deemphasize PrEP for a number of Black and Latinx persons who are at high risk of acquiring HIV, unintentionally increasing racial/ethnic disparities in HIV incidence. This also leads to a potential inefficient allocation of resources: organizations funded by CDC to conduct PrEP outreach to highly affected populations such as Black MSM may then proceed to not recommend PrEP to members of populations that are excellent candidates but lack a guidelinesbased indication.

Some have suggested using abbreviated PrEP behavioral guidelines to facilitate clinical use, demonstrating that such criteria performed well for members of the iPrEx study (the Preexposure Prophylaxis Initiative trial).6 Yet, as the authors of that study acknowledge, such indications would likely perform poorly for Black MSM. Alternatives include individually tailored indications based on machine-learning models.7 This approach has the advantage ofa high ability to predict incident infection that could alleviate disparities in indication but also the disadvantage of feasibility of scale-up and complexity of patient communication. Another possible approach would be to consider prescribing PrEP for all members of high-prevalence or high-incidence groups. Additional thought would be needed on potential cut points and how to approach other groups with greater heterogeneity of outcomes.

METHODOLOGICAL
CONSIDERATIONS

Pyra et al. sought to incorporate some of the additional detail in the CDC PrEP indication guidance that notes clinicians should consider the local epidemiological context. They used a criterion that prescribed PrEP for all persons in zip code areas with 2% or more HIV prevalence. This did not resolve observed PrEP ratio disparities.

It is important to note that the authors did not use such prevalence thresholds in at-risk populations. For instance, a 2% or even 10% HIV prevalence threshold assessed for MSM or transwomen populations would result in universal indication for all members of each group, resolving PrEP ratio disparities.

The article by Pyra et al. has several limitations. It is from a single health center that serves sexual and gender minority populations, making generalizability challenging. Yet the poor performance of PrEP indication criteria is consistent with both cohort data and our expectations for indication criteria that consist mainly of risk behavior data. As the authors note, PrEP indications in the data set may be underreported because of data limitations of electronic medical records. Last, as the authors acknowledge, the study used an ecological design with crosssectional data, a design that does not allow direct exploration of whether lower PrEP indication caused lower PrEP prescribing. Self-referral into PrEP has been found to be common in other studies, and some clinicians may not use PrEP indication criteria. Nonetheless, given that many clinicians report being aware of and using CDC PrEP guidance, it seems likely that it has some impact on shaping PrEP discussions between providers and their patients.

CONCLUSIONS

Pyra et al. note that their work extends arguments regarding the insufficiency of current PrEP indication guidance and emphasize that improving access should not contribute to any further stigmatization. It is noteworthy that the CDC conducted some of the initial PrEP trials and provided some of the earliest guidance regarding PrEP. The US Food and Drug Administration was one of the first bodies to approve a medication for PrEP. This type of leadership is encouraging and merits confidence that current challenges with PrEP indication guidance are likely to be addressed in short order. Recently, the CDC predicted that in the absence of intervention 1 in 2 Black MSM, 1 in 5 Latinx MSM, and 1 in 11 White MSM will acquire HIV in their lifetimes. Given the high safety and efficacy of PrEP, it is hard to justify communication with any member of these groups that would not support PrEP use.

Aaron J. Siegler, PhD

Sidebar

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This editorial was accepted December 4, 2019.

doi: 10.2105/AJPH.2019.305514

ACKNOWLEDGMENTS

This work was supported by the National Institute of Mental Health (grant R01MH114692) and the Adolescent Medicine Trials Network for HIV/AIDS Interventions (protocol 159) from the National Institutes of Health (NIH; grant U19HD089881). The work was facilitated by the Emory Center for AIDS Research (grant P30AI050409).

Note. The contents are solely the responsibility of the author and do not necessarily represent the official views of the NIH.

CONFLICTS OF INTEREST

A. J. Siegler is a coinvestigator on a grant funded by the Gilead Foundation.

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DETAILS

Subject:	Epidemics; Infections; Prophylaxis; Behavior; Criteria; Disease control; Human immunodeficiency virus--HIV; Prevention; Mathematical models; Acquired immune deficiency syndrome--AIDS; Indication; Side effects; Disease transmission; Disease prevention; Ratios; White people
Business indexing term:	Subject: Ratios
Location:	Chicago Illinois; Atlanta Georgia; United States--US; Illinois
Company / organization:	Name: National Institute of Mental Health; NAICS: 541714, 621112; Name: Emory University; NAICS: 611310; Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120; Name: National Institutes of Health; NAICS: 923120; Name: Food &Drug Administration--FDA; NAICS: 922190
Publication title:	American Journal of Public Hea lth; Washington
Volume:	110
Issue:	3
Pages:	267-268
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305514
ProQuest document ID:	2371373029
Document URL:	https://www.proquest.com/scholarly-journals/preexposure-prophylaxis-indication-criteria/docview/2371373029/se-2?accountid=211160

Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Health and Health-Related Resources in Newly Designated Federally Qualified Opportunity Zones: United States, 2012-2016

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To characterize health and health-related resources in the new qualified opportunity zones (QOZs) relative to tracts not selected or not eligible for this federal investment incentive. Methods. We used tract-level data from the 498 largest cities in the contiguous United States (n = 24 409), categorized using designations from the Department of Treasury. We compiled data on population characteristics, health-related resources, and health from the American Community Survey, the National Establishment Time Series, the National Land Cover Dataset, and the US Small-Area Life Expectancy Estimates Project and the 500 Cities projects. We calculated means and SDs for ineligible, eligible (but not designated), and designated QOZ tracts. Results. In general, designated QOZ tracts had lower access to health care facilities, physical activity resources, and healthy food. They had a higher prevalence of unhealthy behaviors and worse health outcomes across most measures. Conclusions. By benchmarking conditions, we facilitate tracking and assessment of QOZ impacts.Public Health Implications. QOZ could spur unprecedented neighborhood change with substantial influence on health resources and outcomes. Public health collaboration and strategic local governance of QOZ will be crucial for yielding health benefits for existing residents. (Am J Public Health. 2020;110:407-415. doi:10.2105/AJPH.2019.305489)

FULL TEXT

Headnote

Objectives. To characterize health and health-related resources in the new qualified opportunity zones (QOZs) relative to tracts not selected or not eligible for this federal investment incentive.

Methods. We used tract-level data from the 498 largest cities in the contiguous United States (n = 24 409), categorized using designations from the Department of Treasury. We compiled data on population characteristics, health-related resources, and health from the American Community Survey, the National Establishment Time Series, the National Land Cover Dataset, and the US Small-Area Life Expectancy Estimates Project and the 500 Cities projects. We calculated means and SDs for ineligible, eligible (but not designated), and designated QOZ tracts.

Results. In general, designated QOZ tracts had lower access to health care facilities, physical activity resources, and healthy food. They had a higher prevalence of unhealthy behaviors and worse health outcomes across most measures.

Conclusions. By benchmarking conditions, we facilitate tracking and assessment of QOZ impacts.

Public Health Implications. QOZ could spur unprecedented neighborhood change with substantial influence on health resources and outcomes. Public health collaboration and strategic local governance of QOZ will be crucial for yielding health benefits for existing residents. (Am J Public Health. 2020;110:407-415. doi:10.2105/AJPH.2019.305489)

New federal legislation intended to incentivize investment in distressed communities could have a dramatic effect on US neighborhoods and the health of residents. On December 22, 2017, the federal government added qualified opportunity zones (QOZs) to the Tax Cuts and Jobs Act.1,2 Since the passage of the law, more than 8700 QOZs have been designated in all 50 states, the District of Columbia, and 5 US possessions.

HOW QUALIFIED OPPORTUNITY ZONES WORK

To incentivize investment in QOZs, the law (1) temporarily defers taxes on previously earned capital gains that are invested in a QOZ, (2) reduces taxes on previously earned capital gains if assets in the QOZ are held long enough, and (3) permanently excludes taxes on any new capital gains earned on assets in the QOZ. This incentive only applies to previously earned capital gains that are put into qualified opportunity funds (QOFs) to spend within QOZs.1-3

Tracts were eligible to be QOZ if they had a poverty rate of at least 20% or median family income no greater than 80% of the state median for nonmetropolitan tracts or the state or the metropolitan area median (whichever is higher) for metropolitan tracts, determined using American Community Survey (ACS) 2011 to 2015 data. Tracts adjacent to qualifying low-income tracts were eligible if their median family income did not exceed 125% of the median family income of the adjacent qualifying tract. More than half of US census tracts qualified as eligible. From these eligible tracts, state or territory governors nominated up to 25% (or 25 tracts in states and territories with fewer than 100 tracts), which the Department of Treasury approved and designated as QOZs. The nomination process varied substantially across states,3 with some governors incorporating community or city voices into selection and others using less public engagement and discourse. Designations are final, immutable for 10 years, and based on 2018 tract boundaries. Even after QOZ designation, state governors continue to shape how this federal policy fits into regional and local priorities.4 A broad range of activities, including commercial and industrial real estate, housing, infrastructure, and existing or start-up businesses, can be financed under the program.3

POTENTIAL PUBLIC HEALTH IMPACTS

Neighborhood research has illustrated the importance oflocal contexts for health and illuminated inequities in health across neighborhood sociodemographic, economic, and racial lines.5,6 Yet neighborhood characteristics and the resulting spatial pattern of health are not immutable, as neighborhoods are in constant flux. Three dynamic and intertwined processes are often identified as determinants of neighborhood change: movement of people, changing public policies or public investment, and flows of private capital.7 Intended to use private investment to spur economic development in distressed communities, QOZs could greatly affect neighborhood resources and ultimately health. Specifically, QOZ designation could increase investments in businesses that create jobs, raise income, and change the neighborhood's retail and physical environment. These changes could promote healthy behaviors such as physical activity8,9 and improve cardiovascular and other health outcomes.10-12 However, QOZs could also have less beneficial effects through gentrification and the displacement of vulnerable populations. Beyond the health impacts of housing insecurity, gentrification and displacement may increase stress, decrease social connections, and decrease self-rated health, especially among racial 13-16 minorities.

Evaluating the effects of QOZ on health is important because previous research linking place-based policies such as QOZ to health is limited.17 No extant evidence relates QOZ to health, and even the economic effects of place-based policies remain uncertain; a few studies report positive results on employment, poverty, or wages,18,19 but most find null results.20-22 Given the potential public health impacts of this new policy and the limited research on place-based policies, describing conditions at baseline, before implementation, is imperative. Our aim was to compare health and health-related resources in newly designated QOZs, eligible but not designated tracts, and ineligible tracts in large US cities.

METHODS

We employed tract-level data from 24 409 contiguous US census tracts (US Census Bureau 2016 TIGER Line Geodatabase files representing 2010 geographies). We focused on tracts in the 500 Cities health data set (https://www.cdc.gov/500cities/index.htm) to use this national project's tract-level estimates of health and health behavior. Of 72 538 census tracts characterized in the ACS 2012 to 2016, we excluded any that were outside the contiguous United States or the 500 Cities health data set. The 500 Cities data used city boundaries delineated by block rather than tract. Therefore, we excluded tracts if less than 80% of their population was covered by the 500 Cities data set (comparing population from 500 Cities data set to tract population from the 2010 US Census). We refer to the remaining tracts as "city tracts."

Federally Qualified Opportunity Zones

We obtained a full list (current as of December 14, 2018) of QOZ designations from the US Department of the Treasury.2 Tracts were categorized as (1) a designated QOZ, (2) eligible but not designated as a QOZ, or (3) ineligible.

Sociodemographic and Economic Characteristics

Tract sociodemographic and economic factors, derived from ACS 2012 to 2016, included population size, race/ethnicity (proportion non-Hispanic White), immigration (proportion foreign born), age structure (percentage ‡65 and £18 years), economic status (proportion in poverty or unemployment, median household income), housing (proportion owning a home, median rent or home value), and education (proportion of persons aged 25 years or older with a college degree).

Health-Related Resources

We compiled neighborhood healthrelated resources, including business data and greenness, and processed them as part of the Retail Environment and Cardiovascular Disease study.

We used data from the National Establishment Time Series (NETS) database to characterize US business establishments in 2014. The Retail Environment and Cardiovascular Disease study has categorized more than 58 million NETS establishments from 1990 to 2014 using business and industry classifications, supplemented by Nielsen TDLinx marketing data. Not mutually exclusive categories include health care facilities (i.e., all clinical treatment, hospitals and inpatient care, ambulatory care, kidney centers, physical therapist, residential facilities with health care, all pharmacies and drug stores), physical activity resources (i.e., all physical activity facilities, multiuse facilities, walkable destinations for daily living including all destinations to which an individual may walk), food stores (i.e., all food stores, healthy food sales, all unhealthy food sources including fast food and restaurants, all fast food), and other health-related businesses (i.e., cognitive enrichment destinations such as libraries or universities, frequent social destinations, individual and family social services, bars and nightclubs serving alcohol, liquor stores). We geolocated each business, aggregated to 2010 census tracts, and calculated density ofeach resource type per square kilometer. Further details about cleaning, categorization, and coding can be obtained from the authors.

We classified greenness (in km2) using the 2011 National Land Cover Dataset, a 20-class land cover classification scheme derived from Landsat satellite imagery that is available for the contiguous United States at a spatial resolution of 30 meters. To calculate tract-level neighborhood greenness, we summed categories greater than 40 including "forest," "shrubland," "herbaceous," "planted or cultivated," and "wetlands" (https://www.mrlc.gov/data/legends/national-land-cover-database2011-nlcd2011-legend).

Health Behaviors and Outcomes

We obtained health behaviors and outcomes from the 500 Cities project, which created census tract-level estimates of 2015 to 2016 Behavioral Risk Factor Surveillance System (BRFSS) measures for 500 large US cities. Detailed methods can be found elsewhere.23

Briefly, tract estimates were derived through a multilevel strategy that linked geocoded county-level BRFSS measures to block-level demographic data from the 2010 census to predict health characteristics for these small areas. We used these model-based estimates ofunhealthy behaviors (i.e., physical inactivity, binge drinking, current smoking, sleeping fewer than 7 hours per day, obesity), health outcomes (i.e., physical health not good for ‡14 days, mental health not good for ‡14 days, stroke, coronary heart disease, cancer, arthritis, diagnosed diabetes, high cholesterol among those screened in past 5 years, high blood pressure, current asthma among adults, chronic obstructive pulmonary disease, chronic kidney disease, all teeth lost among adults ‡65 years), and prevention practices (i.e., current lack of health insurance, up-to-date on a core set of clinical preventive services, visits to the doctor for routine checkup within the past year, visits to the dentist or dental clinic, cholesterol screening, taking medication for blood pressure control among those with high blood pressure, colonoscopy, mammography, Papanicolaou smear use). Papanicolaou smear use data were not available from the 2016 BRFSS for 8 states (Arizona, Arkansas, Connecticut, Maryland, New Hampshire, Rhode Island, Vermont, and Washington) and therefore not available for this project.

Life Expectancy at Birth

We obtained life expectancy at birth data from the US Small-Area Life Expectancy Estimates Project.24 This project estimated life expectancy for every US census tract for 2010 through 2015, with the exception ofMaine and Wisconsin and of census tracts with a 6-year population below 5000.

Analyses

We linked data from all sources using unique census tract identifiers. We calculated means and SD of all characteristics across QOZ categories. We displayed differences between designated QOZs and eligible but not designated tracts graphically. To distinguish differences attributable to overall disparities from differences attributable to targeting more distressed communities, we calculated residuals of a linear regression of the difference between designated and eligible tracts on the total disparity, both at the state level. We measured the total disparity using the coefficient of variation, calculated as the SD over the mean values of the health outcome for every state. Because we aimed to describe baseline conditions rather than assess causality, we did not formally test any hypotheses. Given differences in designation strategy by state, we also presented statespecific analyses in tabular form (Appendix A, available as a supplement to the online version of this article at http://www.ajph.org) and in an interactive online dashboard (https://neighborhooddata.shinyapps.io/FQOZ_ Benchmark).

RESULTS

Of the 24 409 census tracts in the 498 cities in the contiguous United States, 66.4% (n= 16 211) were eligible, and 13.5% (n = 3303) were designated as QOZs (Appendix B, available as a supplement to the online version of this article at http://www.ajph.org). Compared with eligible but not designated and ineligible tracts, on average QOZs had fewer people, a younger population, and lower proportions of nonHispanic White residents (Table 1). As expected given federal eligibility criteria, QOZs and eligible tracts had lower economic status than did ineligible tracts. Further, designated tracts had lower economic status than did eligible but nondesignated tracts.

Designated QOZs had lower overall clinical treatment facility density, primarily driven by less ambulatory care (Table 1), but a higher density of hospitals and inpatient care and pharmacies or drug stores. Compared with ineligible tracts, QOZs had substantially lower density of physical activity resources, including multiuse facilities and proportion green, but were similar to eligible tracts across these resources. QOZs had a higher density of walkable destinations for daily living than did other eligible or ineligible tracts. Overall, QOZs had more food stores, primarily driven by a higher density of unhealthy food sources. Consistent with their higher holistic walkability, QOZs had more social destinations and social services. QOZs and other eligible tracts had a much higher density of liquor stores than did ineligible tracts. Differences in other health-related businesses were inconsistent.

The prevalence of all unhealthy behaviors except binge drinking was highest in QOZs, intermediate in other eligible tracts, and lowest in ineligible tracts (Table 2). Binge drinking showed a reverse pattern, with ineligible tracts having the highest prevalence. A similar monotonic pattern was evident for health outcomes: designated QOZs had the poorest health outcomes across all measures except cancer. Prevention practices were less consistent; although QOZ had a higher proportion without health insurance and a lower proportion being up-to-date on clinical preventive services, cholesterol screening, colonoscopy, and visits to the dentist, they also had a higher prevalence of visits to the doctor for routine checkup. There was no difference in proportions with blood pressure medication, mammogram, and Papanicolaou smear use. Life expectancy at birth followed a pattern similar to those of health behaviors and outcomes, as it was highest in ineligible areas and lowest in designated areas. The difference in life expectancy in QOZs was 6.3 and 2.3 years compared with ineligible and eligible but not designated areas, respectively.

Between states, there was substantial variability by QOZ designation in sociodemographic and economic status, healthpromoting businesses, and health outcomes (Appendix A; visualization tool available at https://neighborhooddata.shinyapps.io/ FQOZ_Benchmark). For poor physical health (physical health not good for ‡14 days among adults aged ‡18 years), the difference in proportion between designated and eligible tracts ranged from 5.3% for Georgia to 0.1% for Mississippi (Figure 1). All other measures can be explored using the supplement or the app.

By graphing against total disparity, we examined whether differences were attributable to overall disparities or to targeting of more distressed communities. Some states did better than others in selecting QOZs needing investment: for "negative outcomes" (e.g., poor physical health, where we expect targeted designation to mean more positive differences), states above the line were doing better and states below the line were doing worse at targeting tracts that needed investment. For example, when the difference in poor physical health was graphed against total disparity, New Hampshire performed better than when we examined only differences (Figure 2).

DISCUSSION

To facilitate research on the implications of the QOZ incentive on health and health inequities, we benchmarked demographic and status, healthrelated environment features, and health in city tracts designated as QOZs, eligible but not designated, and ineligible. To our knowledge, this is the first study to characterize health or health-related resources in QOZs compared with other neighborhoods. Although health was not a criterion for QOZ eligibility or designation, we found that on average residents of QOZs had poorer health outcomes, outcomes, behaviors, and prevention practices than did other eligible or ineligible tracts. As others have found for economic indicators, differences in health between QOZs and other eligible tracts were not large, indicating only modest targeting of tracts for investment benefits. We also found city QOZ tracts to be more walkable than in eligible and other eligible tracts, a feature that could help them attract investment.25

This Program Compared with Others

Evaluation of the health effects of QOZs remains critical for supplementing previous, insufficient evidence on place-based policies' impacts on health.17 Although QOZs could improve access to jobs and health resources in high-need areas, these effects may vary across place26 and could be negated by gentrification and displacement of low-income residents.27 In many states, QOZ tracts had higher homeprice appreciation or more rapid sociodemographic and economic change than did other eligible (but not selected) tracts-in other words, states may have prioritized tracts in which gentrification was already under way.3,28 This may be critical for health equity, as gentrification can undermine health,13-16 with non-Hispanic Black residents facing the largest impacts.14

Details of QOZ policy design are critical to likely outcomes of this new policy. The federal Empowerment Zone program bundled tax incentives with business assistance, infrastructure spending, and job training; it is unclear that the QOZs' tax incentives alone will produce the same effects. In particular, QOZ policy does not ensure equal (or any) investment across QOZs; some economists predict that a large proportion of QOZs may get no investment, as investors aim to maximize return by targeting tracts already undergoing increases in property value.3 In Cleveland, Ohio, for instance, the typical home value in QOZ communities can range from $52 000 to $137 000; in this context, experts speculate, just 10% to 15% of the "hottest" QOZs may capture a majority of investment.29

If these differences in investments are patterned by economic status or health, economic or health inequities could widen. In addition, there may be different policy outcomes for different assets. For example, QOF can invest in businesses rather than real estate. Because an investor receives the largest tax incentive when the asset is sold at a profit (which is tax exempt), this process could shape which companies accept QOF investments and who within the community they serve. Some small businesses needing investment may not want to sell part or all of their companies within the policy timeframe, ultimately having important implications for which neighborhood healthpromoting businesses are available to residents. Finally, there is no system to track QOF spending; the only check on investments would be a federal tax audit by the Internal Revenue Service. By stark contrast, other programs are tracked through the Department of Housing and Urban Development or other community development agencies.

State-level variability highlights the difference from previous policies and future opportunities to examine QOZ and health. We found large cross-state differences in the extent to which QOZ selection targeted high-need tracts. Because we describe these independent of overall disparities, these differences are likely attributable to state variation in QOZ designation, rather than just wider within-state disparity. This state-level variability may reflect differences in process: some states solicited local nominations, whereas others used centralized systems. Because investors can choose to allocate money into any QOZ, states that designated higher need (and potentially lower return on investment) tracts may receive little or no investment. This has the potential to widen cross-place economic and health inequity, as high-need tracts are left behind. Now, after designation, governors again have the chance to influence the way this federal policy is realized within their states.4 Future work assessing this policy should incorporate these state-level differences but may also aim to examine city-level differences by comparing cities experiencing different trajectories (e.g., growing, shrinking, and recovering).

Public Health Implications

QOZs could improve health and reduce neighborhood-level health inequity by creating jobs, raising incomes, and increasing the number of health-relevant businesses in disadvantaged neighborhoods. An extensive set of neighborhood characteristics has been associated with an equally broad range of health behaviors and outcomes,6 including mental health,30 early child health outcomes,31 intimate partner violence,32 obesity and physical activity,8,9 cardiovascular disease,10 and all-cause mortality and other general health outcomes.11,12 Given these associations, QOZs may become a transformative force for health within our communities if managed carefully.

Some features of the QOZ program will facilitate future evaluation. The broad eligibility criteria and only modest targeting provide ample numbers of comparison tracts similar to QOZ tracts receiving the policy "treatment," whereas the selection of QOZ across multiple contexts allows consideration of the moderating effects of geographic and policy context. As mentioned, state variation in the extent of targeting provides a natural experiment. These differences are further emphasized after the designation by state officials' decisions about how this federal policy is implemented.4

Challenges for evaluation include the nonrandom selection of QOZs, the very limited monitoring and transparency, and the difficulty of documenting the displacement of existing residents. Specific to this study, challenges include data sets of varying age and a lack of national health data outside cities. Nonetheless, all data preceded the implementation of the tax policy in 2017 and the QOZ designation in 2018, and the areas analyzed represent about one third of the US population. Accordingly, to assess the health consequences of QOZs, public health should track (1) distribution of investments (from both QOF and other private investors) into QOZ and other tracts; (2) changes in the built and social environments; (3) population dynamics, with a focus on displacement; and (4) changes in health behaviors and outcomes at the individual and neighborhood levels. These indicators will help identify pathways through which this policy affects population health.

QOZs will most benefit distressed communities if investors, local governments, and community organizations guide investment and shape how this policy is implemented. Building on previous discussions, key strategies for maximizing community benefits from QOZs are as follows.33,34 First, given limited federal transparency for investments, local jurisdictions could add tracking of QOF investments in land use variance forms, building permits, and similar transactions. Second, using inclusionary zoning or policies to incentivize or subsidize affordable housing in QOZs could reduce displacement and increase benefits for existing residents.

Third, public health should collaborate with local urban planning departments to use zoning or development incentives to encourage the growth of healthpromoting businesses in QOZs. Similarly, local agencies could ensure that design, form, and function of spaces remain health focused. This could include public space requirements, landscapes that facilitate green space, local art, street scale for walkability, and similar features. Fourth, local jurisdictions could pair public investment with private investment for larger benefits. Such public investment may include building new parks, trails, bike lanes, transit, or other amenities in QOZ, which could both improve the health of local residents and increase the return on investment for QOF. Alternatively, requirements on private investments for neighborhood amenities (e.g., public art, green space) may have similar effects.

Fifth, because QOZ designation could affect health inequity, special attention in future evaluations must be paid to changes in disparities at the state or city level. Specifically, understanding differences in how this policy plays out across lower government levels, with attention to equity in private and public investment, may aid the future implementation of effective federal policies. Sixth and finally, QOZ designation could promote local engagement and mobilization. Public health engagement priorities could include identifying existing community health strengths that could appeal to QOF investment while mapping neighborhood health-related gaps that might be filled through additional investment. To this end, requiring and performing health impact assessments for all developments in QOZ may clearly articulate potential outcomes of individual QOF investment.

In collaboration with other experts aiming to understand the social, economic, or business outcomes of this federal legislation, public health has a key role to play; we must work to ensure that the health impacts of this place-based policy are not just tracked across time but also used to advance health equity across communities. Á¡P4

Sidebar

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This article was accepted November 17, 2019.

doi: 10.2105/AJPH.2019.305489

CONTRIBUTORS

J. A. Hirsch and Y. L. Michael conceptualized and designed this project. J. A. Hirsch, Y. Zhao, and U. Bilal performed analyses and produced all tables and figures. J. A. Hirsch, U. Bilal, K. M. Neckerman, and Y. L. Michael interpreted all analyses. All authors drafted, revised, and approved the article.

ACKNOWLEDGMENTS

U. Bilal was supported by the Office ofthe Director of the National Institutes of Health (award DP5OD26429). Data for this work was supported by the National Institute ofAging (grants 1R01AG049970, 3R01AG049970-04S1), the Pennsylvania Department ofHealth (Commonwealth University Research Enhancement program SAP no. 4100072543), the Urban Health Collaborative at Drexel University, and the Built Environment and Health Research Group at Columbia University.

The authors acknowledge analysis guidance from Kari Moore. Topics for the discussion were informed by the National Neighborhood Indicator Partnership and the Urban Institute.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not obtained because all human participants' data are publicly available.

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DETAILS

Subject:	Physical fitness; Ambulatory care; Nominations; Public health; Physical activity; Datasets; Life span; Neighborhoods; Population characteristics; Health facilities; Time series; Land cover; Gentrification; Food; Health care facilities; Residents; Health care; Sociodemographics; Land use; Cardiovascular disease; Life expectancy; Fast food; Governors; Family income; Governance; Cities; Census of Population; Capital gains; Taxes; Population; Health behavior; Poverty; Opportunity zones; Health care access
Business indexing term:	Subject: Capital gains Taxes Opportunity zones; Industry: 92111 : Executive Offices
Location:	United States--US
Company / organization:	Name: Department of the Treasury; NAICS: 921130
Classification:	92111: Executive Offices
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3

Pages:	407-415
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305489
ProQuest document ID:	2371373007
Document URL:	https://www.proquest.com/scholarly-journals/health-related-resources-newly-designated/docview/2371373007/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-04
Database:	Public Health Database

Document 11 of 45

Anticipating and Defeating Preemption Across Public Health

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ProQuest document link

ABSTRACT (ENGLISH)

Preemption occurs when a higher level of government withdraws or limits the authority of a lower level of government to enact policy. State legislatures have enacted preemptive legislation to limit local government's ability to enact public health protections across policy domains.1 Preemption is thus a barrier to public health policymaking and undermines community self-determination and local democracy.

The only context in which public health stakeholders have regularly defeated and repealed preemptive legislation is tobacco control. Yet, the threat of preemption in tobacco control -as in all of public health-is far from over. To support public health practitioners in anticipating preemption across policy domains, Crosbie and Schmidt (p. 345) explored tobacco industry tactics that further state preemption and identified successful responses by the tobacco control community. Examining methods for public health stakeholders to counter preemption is critical to the field. I provide an example of the nuanced nature of tobacco industry tactics identified by Crosbie and Schmidt, integrate their framework for responding to preemption with previous research, and encourage the public health community to adopt additional strategies to counter and repeal preemption.

FULL TEXT

Preemption occurs when a higher level of government withdraws or limits the authority of a lower level of government to enact policy. State legislatures have enacted preemptive legislation to limit local government's ability to enact public health protections across policy domains.1 Preemption is thus a barrier to public health policymaking and undermines community self-determination and local democracy.

The only context in which public health stakeholders have regularly defeated and repealed preemptive legislation is tobacco control. Yet, the threat of preemption in tobacco control -as in all of public health-is far from over. To support public health practitioners in anticipating preemption across policy domains, Crosbie and Schmidt (p. 345) explored tobacco industry tactics that further state preemption and identified successful responses by the tobacco control community. Examining methods for public health stakeholders to counter preemption is critical to the field. I provide an example of the nuanced nature of tobacco industry tactics identified by Crosbie and Schmidt, integrate their framework for responding to preemption with previous research, and encourage the public health community to adopt additional strategies to counter and repeal preemption.

INDUSTRY TACTICS

Crosbie and Schmidt identified four primary tactics used by the tobacco industry to secure state preemption: promoting preemption through front groups, lobbying policymakers, inserting preemption through various legislative avenues, and issuing legal threats and challenges. The 2019 policy landscape for Tobacco 21 laws, which raise the minimum age of sale for tobacco products to 21 years, provides a useful lens through which to view industry's subtle use of these tactics at the state and federal levels.

Starting in 2015, state and local jurisdictions began enacting Tobacco 21 laws.2 Although tobacco retailers sued the first Michigan county that passed such a law, arguing that it was preempted by the state, the broader tobacco industry (e.g., Altria, Juul) publicly supported these laws for a variety of reasons. Yet, the American Cancer Society Cancer Action Network found that of the 88 state Tobacco 21 bills tracked in 2019, 51 favored tobacco interests by weakening retailer restrictions and preempting a broader range of public health protections than age limits alone.2 Thus, industry used its support for the policy as a vehicle to quietly lobby for broader preemption through passage of these laws.

At the federal level, tobacco industry-funded legislators proposed Senate Bill 1541 (2019); on its face this was a federal Tobacco 21 bill. However, the original bill would have revised a federal law passed in 1992 that contains the Synar Amendment. The Synar Amendment requires states to enact and enforce laws prohibiting the sale of tobacco products to individuals younger than 18 years to receive federal funding under a block grant program. The bill would have changed the age limit to 21 years by "forcing" potentially ill-prepared states to update theirlaws to remain in compliance and continue to receive federal funds.3 If such a federal law was enacted, state legislatures could expect a barrage of industry activity aimed at adding preemption and overhauling current protections.3 This provision has since been amended, but an important lesson is that public health should anticipate that preemption remains among industries' ultimate goals even ifit is not obvious at the outset.

PUBLIC HEALTH RESPONSE

Crosbie and Schmidt identified four actions that tobacco control stakeholders have taken to block preemption: media advocacy, educating policymakers, mobilizing national opposition, and expanding legal networks to defend local governments. Bare et al. similarly identified four methods to combat and discourage the introduction of preemption: anticipate and monitor preemption, engage grassroots, unify allies, and use media advocacy.4 As detailed in the respective articles, these are evidence-based methods that complement and overlap with one another. Figure 1 displays this convergence and adds two challenges for public health.

First, it is important to elevate countering preemption to be on par with primary public health policy activities. What truly sets tobacco control stakeholders apart from other areas of public health is that they have made opposition to preemption part and parcel of their fight for tobacco control. Their refusal to accept preemption is based on an understanding that preemption undermines future policy success, so the two goals go hand in hand.

Second, as public health practitioners, advocates, and researchers, we have a responsibility to educate ourselves-in addition to policymakers-on the detrimental aspects of preemption. Educating ourselves includes gaining an appreciation of the harm caused by preemption and the tactics employed by preemption proponents, while clarifying our own use of imprecise language to avoid inadvertently supporting industry objectives. Lack of transparency underlies pro-preemption activities. Legislative dealings happen behind closed doors. Preemptive clauses are added after bills have been openly debated. Preemptive bills and laws use vague undefined terms.5

Preemption proponents foster confusion among policymakers and public health stakeholders,5 so it is important that our communications be informed and clear. For instance, "ceiling preemption" is the legal term for preemption that is of concern for public health. "Floor preemption" is the legal term for minimum standards, which may confuse even sophisticated experts to conflate minimum standards with concerns over preemption. However, preemption, in a pragmatic sense, inherently limits laws that are stronger than or differ from the preempted provision. For example, the federal menu labeling law prohibits states from enacting different or additional disclosure requirements for covered restaurants. Conversely, minimum standards set the floor and allow communities to provide additional protections. For example, the federal Civil Rights Act and many state smoke-free air acts provide minimum standards upon which states and localities can build by protecting groups not protected by federal civil rights laws and applying smoke-free air ordinances to locations not covered by state law. For this reason, the Institute of Medicine and other experts agree that minimum standards can support public health objectives, whereas ceiling preemption should be avoided.6

In recent years, public health lawyers have also started using ill-defined terms characterizing preemption as "good" or "bad," which has created confusion among policymakers and public health stakeholders. There is no question that in a basic sense preemption is simply a legal tool that can be used to hinder or support public health and social justice. Practically, however, the question is largely academic in the context of tobacco products, firearms and accessories, food and nutrition, rent control, plastics, factory farms, fracking, fire sprinklers, and employee rights, protections, and benefits, among other issues.7 The vast majority of preemptive legislation thwarts local public health action across states and across issues.7

Ultimately, no one in public health seeks laws that harm health or social justice; we continue to work against these and in favor of laws that support both-but this is a separate issue from the current fight against preemption. Over the previous decade, states have overwhelmingly preempted local governments from enacting policies that support public health and social justice.7 A clear understanding of the realities of preemption is key to defeating it.

Although industry's tactics are evolving, the need for advocates, researchers, practitioners, and policymakers to join together to fight preemption has never been more straightforward. Given the political strength of industries supporting preemption, Crosbie and Schmidt aptly identified the benefits of a national network across public health to fight preemption. We can better accomplish this by educating ourselves and each other, adopting clear language, and elevating our opposition to preemption of public health policymaking to the same level as our support for public health.

Jennifer L. Pomeranz, JD, MPH

Sidebar

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This editorial was accepted December 15, 2019.

doi: 10.2105/AJPH.2019.305528

ACKNOWLEDGMENTS

The author would like to thank Michael Tynan (Centers for Disease Control and Prevention) forhis insightful comments on previous drafts ofthis editorial and Cathy Calloway (American Cancer Society) for her help identifying tactics used by the tobacco industry to pass preemption.

CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

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DETAILS

Subject:	Standards; Smoke; Preemption; Small arms; Intensive farming; Legislation; Employee benefits; Social justice; Public health; Tobacco; Sprinklers; Law; Civil rights; Cancer; Polymers; Researchers; Nutrition; Advocacy; Preempting; Self determination; Democracy; Policy making; State legislatures; Local government; Tobacco industry; Industrial policy; Health care policy; Health policy
Business indexing term:	Subject: Tobacco industry; Industry: 81331 : Social Advocacy Organizations 31223 : Tobacco Manufacturing
Location:	Michigan; United States--US; New York

Company / organization:	Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120; Name: Institute of Medicine; NAICS: 541714; Name: American Cancer Society; NAICS: 813212; Name: Senate; NAICS: 921120
Classification:	81331: Social Advocacy Organizations; 31223: Tobacco Manufacturing
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	268-270
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305528
ProQuest document ID:	2371372786
Document URL:	https://www.proquest.com/scholarly-journals/anticipating-defeating-preemption-across-public/docview/2371372786/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-10
Database:	Public Health Database

Equity for Whom? The Example of Qualified Opportunity Zones

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ProQuest document link

FULL TEXT

Advancing equity challenges public health researchers and practitioners to interrogate our traditional assumptions and methods. In this issue of AJPH, Hirsch et al. (p. 407) offer both breadth and depth in establishing baseline measures for evaluating the effects of the federal qualified opportunity zone (QOZ) program. Specifically, the authors make a strong case for why this type of evaluation is critical for public health to understand both intended and unintended effects of economic policy, aiming to examine aspects of health improvement and gains in social and health equity resulting from QOZ implementation. This raises critical issues for public health regarding our definitions of equity and how we intend to achieve it.

DISCONNECTED INTERVENTIONS

Perhaps the biggest issues are the relations among the root causes of inequity, what we identify as levers of change, what mechanisms will enable us to realize equity through those levers, and what action we ultimately take. Unfortunately, the mechanisms we envision and our subsequent actions often are disconnected from our understanding of root causes. In many instances, policies subtly position equity as a side effect offree-market capitalism, such that wealth is a central component of an equation from which social and health equity will emerge. As an example, the QOZ program offers tax incentives for investment in property in designated lowincome, often historically marginalized communities. The benefits of incentives on taxed income increase as profit increases; this positions the investors' profit as the central focus. In other words, the policy is focused on the other definition of equity-ownership of assets. More specifically, the program allows investors to avoid taxes on capital gains, which is an income stream already taxed at a lower rate than labor income, and yields disproportionate benefit to the wealthiest in our society.1 We must then ask, does the QOZ program seek to improve the situations of distressed people and communities or to commodify distressed property?

CAPITALISM DOES NOT ADVANCE EQUITY

Let's be real. We will never achieve social and health equity as a by-product of capitalist policies aimed at making money for the wealthy.1 Gains in equity require intentional policy action focused on people. When policies focus on property, wealth and power become fundamental drivers of the outcomes. Phelan and Link's explanation of fundamental causes tells us why and how-that underlying ideology (in their example, racism) achieves outcomes through multiple replaceable mechanisms that influence access to flexible resources and socioeconomic status.2 Whether those mechanisms are de jure policies or de facto practices, they achieve the same outcomes. Before the Civil Rights Act, housing and economic policies created racial segregation, suppressed property values, and inhibited wealth accumulation among minoritized communities. Following the Civil Rights Act, legally sanctioned discrimination shifted to systemic discrimination perpetrated within the practices of private institutions. Today, the QOZ program offers up many of the communities affected by previous inequitable policies as an opportunity for wealthy investors to shelter their capital gains from taxes while earning additional profit at the expense ofdistressed communities. Thus, historical policies played a role in suppressing the values of these neighborhoods, and now policies present those communities as profitable, incentive-based tax-avoidance investment opportunities, with no assurance that communities will not be further marginalized. Why do people invest money? To make money. And where will they choose to invest? Where they have the highest likelihood of making money with acceptable risk. In focusing on property rather than people, QOZ and similar policies extract wealth from socioeconomically distressed property rather than assist socioeconomically distressed people in creating wealth within their communities. This does nothing meaningfully to advance social or health equity.

Contrary to a popular narrative regarding distribution of wealth, achieving equity does not come at the expense of our prosperity as a community-in fact, it will yield greater prosperity. Research from PolicyLink's National Equity Atlas supports racial equity as a superior economic growth model, showing that racial equity would yield trillions more dollars in gross domestic product, billions more in tax revenue, and more available resources for community investment because millions fewer Americans would live in poverty and rely on social services.3 However, equity will happen only through praxis-we have to reflect on what we are trying to achieve and realistically how our actions are moving us toward the goal and then adjust our actions accordingly. As acknowledged by Hirsch et al., the QOZ and policies like it often result in negative outcomes for socioeconomically marginalized populations through mechanisms of gentrification and population displacement. If we truly want to advance social and health equity, we must recognize that all policy is health policy; thus, all policy must go farther than considering equity to intentionally and actively promoting equity. This means anticipating and building in policy safeguards, such as rent control for revitalized neighborhoods or income restrictions for properties in economically distressed communities, to ensure accessibility by marginalized populations.4

What outcomes we use and how we measure them are essential to understanding the true effect of policies like QOZ. It is important to choose measures that tell us who is benefiting, not just asking whether certain populations are getting better; this requires informed disaggregation of data and likely of data from beyond the QOZs themselves because the investors most likely do not reside within the QOZs.5 For example, we know that focusing on income data may indicate progress in closing the racial equity gap. However, as illustrated in Figure 1, simultaneously considering concomitant wealth data tells a radically different story about the gap's exponential increase. Thus, we cannot focus solely on gains made among the most vulnerable while the magnitude of inequality continues to grow.

To participate in casting capitalist policies as potential mechanisms for advancing equity, public health practitioners risk complicity in what Freire7 termsfalse generosity. He explains it this way:

In order to have the continued opportunity to express their "generosity," the oppressors must perpetuate injustice as well. An unjust social order is the permanent fount of this "generosity," which is nourished by death, despair, and poverty . . . False charity constrains the fearful and subdued, the "rejects oflife," to extend their trembling hands. True generosity lies in striving so that these hands- whether of individuals or entire peoples-need to be extended less and less in supplication, so that more and more they become human hands which work and, working, transform the world.7(pp'26-27)

We must acknowledge the policies and practices that have created and maintained socioeconomically distressed communities throughout US history. Many communities across the United States are now actively pursuing social and health equity and dismantling this legacy. They should be particularly interested in monitoring and accountability related to the QOZ program and similar policies. Advocates of equity must pressure local and state governments to use designated opp ortunity zones for the benefit and empowerment of the communities in which they exist. If we continue waiting for justice from policies that are not designed to deliver it, we will keep reaping inequity and wondering why our programs do not work.

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Sidebar

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This editorial was accepted December 15, 2019.
doi: 10.2105/AJPH.2019.305532

CONTRIBUTORS

Both authors contributed equally to this editorial.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

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DETAILS

Subject:	Poverty; Neighborhoods; Wealth; Praxis; Taxation; Economic growth; Economic models; Radicalism; Values; Social services; Investors; Policies; Growth models; Oppression; Public health; Investments; Gross Domestic Product--GDP; Investment; Civil rights; Economic development; Capitalism; Capital gains
Business indexing term:	Subject: Capitalism Capital gains Wealth Gross Domestic Product--GDP
Location:	Louisville Kentucky; United States--US; New York
Company / organization:	Name: Federal Housing Administration; NAICS: 925110; Name: University of Louisville; NAICS: 611310; Name: PolicyLink; NAICS: 813410
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	280-281
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS

Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305532
ProQuest document ID:	2371367917
Document URL:	https://www.proquest.com/scholarly-journals/equity-whom-example-qualified-opportunity-zones/docview/2371367917/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-10
Database:	Public Health Database

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Comparison of State Hospital Visits With Housing and Urban Development Estimates of Homeless: Illinois, 2011-2018

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ABSTRACT (ENGLISH)

Objectives. To assess the value of hospital records in augmenting information on homelessness counts at a state level. Methods. We used data from the Illinois Hospital Discharge Database (2011-2018) to identify outpatients and inpatients identified as affected by homelessness. We used probabilistic linkage methodology to estimate unique individuals rather than visits and compared them with US Department of Housing and Urban Development annual estimates of homelessness based on point-in-time counts. Results. Department of Housing and Urban Development point-in-time estimates indicate a substantial decline of approximately 24% in homelessness in Illinois;however, estimates of unique individuals visiting the hospital with a code for homelessness more than doubled in this same period. Conclusions. Other data sources, such as hospital records, are increasingly able to identify and report information related to homelessness. Using these additional data sources may help to augment the Department of Housing and Urban Development point-in-time estimates to provide more accurate estimates of homelessness that are used to direct resources and assess policy and support services for those affected by homelessness. (Am J Public Health. 2020;110:391-393. doi:10.2105/AJPH.2019.305492)

FULL TEXT

Headnote

Objectives. To assess the value of hospital records in augmenting information on homelessness counts at a state level.

Methods. We used data from the Illinois Hospital Discharge Database (2011-2018) to identify outpatients and inpatients identified as affected by homelessness. We used probabilistic linkage methodology to estimate unique individuals rather than visits and compared them with US Department of Housing and Urban Development annual estimates of homelessness based on point-in-time counts.

Results. Department of Housing and Urban Development point-in-time estimates indicate a substantial decline of approximately 24% in homelessness in Illinois;however, estimates of unique individuals visiting the hospital with a code for homelessness more than doubled in this same period.

Conclusions. Other data sources, such as hospital records, are increasingly able to identify and report information related to homelessness. Using these additional data sources may help to augment the Department of Housing and Urban Development point-in-time estimates to provide more accurate estimates of homelessness that are used to direct resources and assess policy and support services for those affected by homelessness. (Am J Public Health. 2020;110:391-393. doi:10.2105/AJPH.2019.305492)

As antihomeless rhetoric has increased in recent years, there is a growing imperative for accurate data to inform policies that address homelessness.1 3 Annually, the US Department of Housing and Urban Development (HUD) publishes the results of an annual pointin-time (PIT) estimate of those suffering from homelessness by state. This estimate is the most widely used estimate ofhomelessness nationally and drives policy and funding, but it has been acknowledged that this count of sheltered and unsheltered individuals experiencing homelessness is an undercount.4 Alternative data sources can be used to provide information to supplement these estimates. We aimed to evaluate hospital records for their value in augmenting homelessness counts at the state level.

METHODS

We used data from the Illinois Hospital Discharge Database for years 2011 to 2018 to identify outpatient and inpatient visits in which patients were identified as having a lack of housing or being affected by homelessness. The outpatient database includes all patients treated in emergency departments for less than 24 hours who were not admitted to the hospital. The inpatient database includes all patients treated for 24 hours or more for any medical reason. Based on the annual state audit of hospitals, the hospitals included in the data sets used for this analysis comprise 96.5% of all patient admissions statewide.5 We used data from HUD annual estimates of homelessness based on PIT counts for Illinois 6 as a comparison.

We identified patient visits with a billing code of V60.0 for "lack of housing" (International Classification of Diseases, Ninth Revision [Geneva, Switzerland: World health Organization; 1980]) or the equivalent code of Z59.0 for "homelessness" (International Classification of Diseases, Tenth Revision [Geneva, Switzerland: World health Organization; 1992]) as cases in accordance with previous studies using hospital data to examine homelessness.7 We did not include alternative codes for inadequate housing (V60.1), which refers to poor infrastructure, and unspecified housing or economic circumstances (V60.9), despite their inclusion in broader definitions8 because

HUD uses a narrow definition for its estimates and we were unable to verify unstable or lack of housing as opposed to inadequate housing.

We used probabilistic linkage methodology to estimate unique individuals using direct matching.9 Because individuals affected by homelessness are more likely to be highly transient geographically, we provide 3 estimates for unique cases: (1) we treated cases per year that match by date of birth, gender, race/ ethnicity, and zip code as the least conservative estimate of unique individuals because they allow someone that moved to a different zip code within that year but had multiple visits to be counted as separate individuals; (2) we used matched cases on date of birth, gender, and race/ethnicity to identify a moderate estimate of unique individuals; and (3) we used matched cases by date of birth and gender to identify the most conservative estimate of unique individuals, as it is likely that multiple individuals could have the same date of birth and gender and would be counted as 1 unique person. We chose these variables because they were nearly universally reported and they were not specific to a reason for the visit, which may change within the year. We ran crude autoregressive models using maximum likelihood estimation to test significance of temporal trend. We did not observe evidence of serial correlation based on the Durbin-Watson statistic. We analyzed data using SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

HUD PIT estimates indicate a substantial decline of approximately 24% in homelessness in Illinois from 2011 to 2018 (Table 1; P> .001). However, hospital visits with a code for homelessness tripled in this same period (Table 1; P> .001). Similarly, estimates of unique individuals visiting the hospital with a code for homelessness more than doubled in this period (Table 1; P> .001). Beginning in 2015, the estimated number of unique individuals classified as homeless using the moderate estimate exceeded the HUD estimates, and the gap continues to widen through 2018 (Table 1).

DISCUSSION

Hospital billing data indicate that the estimated number of unique individuals experiencing homelessness is increasing, whereas HUD estimates show a significant average annual decline of 544 individuals experiencing homelessness per year. The hospital data exceeded the HUD estimates by the year 2016 even when we used the most conservative deduplication strategy. This implies a substantial undercount in HUD estimates based on PIT counts even though it is unlikely that every homeless individual would be treated in a hospital in any given year. In 1 study, approximately one third of those in a health care program for the homeless were hospitalized and two thirds had an emergency department visit.10 Hospital data will likely miss healthier and younger individuals experiencing homelessness who are unsheltered, living in vehicles, or temporarily homeless because of socioeconomic conditions.

There may be many explanations for the increase in Illinois hospital visits of those identified as homeless, such as better identification of these individuals by providers and enhanced reporting within hospital systems. As identification and reporting improve, hospital claims become a more viable source to estimate counts ofhomelessness that could augment current HUD PIT estimates. Hospital claims data also present opportunities to determine the impact of policy changes on those affected by homelessness.7

Another explanation for the rise in visits is increased hospital utilization by individuals experiencing homelessness. Individuals experiencing homelessness have been reported to be more likely than the nonhomeless to seek care at an emergency department.11 Increased Medicaid coverage through the Patient Protection and Affordable Care Act, implemented January 1, 2014, may allow increased access of care outside emergency departments. This population has still shown higher rates of hospitalization visits despite Medicaid and universal health care coverage, which may be because of a lack of alternative 10,11 services.

HUD PIT estimates provide critical data, but because of limitations in defining and accessing the homeless population, supplementing their estimates with alternative data sources would enhance surveillance. Different sources have been proposed, such as Department of Education, American Community Survey, and other data to help augment measures for specific subpopulations of the homeless.4,12 Although using hospital data may not adequately capture healthy individuals or those who seek care elsewhere, it could capture estimates for larger geographical areas, provide a way to measure some of those often missed in PIT counts, and continuously capture data throughout the year through a data system in existence in almost every state.

There are several limitations in this study. First is the lack of unique identifiers to deterministically identify the number of individuals seen in Illinois hospitals who are affected by homelessness. Additionally, there may be misclassifications because ofthe use of billing records and variations by facility in identifying and reporting homelessness in the billing records.

PUBLIC HEALTH IMPLICATIONS

Although HUD estimates suggest that homelessness is decreasing in Illinois, hospital records show that the numbers of those suffering from homelessness is increasing. As other data sources, such as hospital records, are increasingly able to identify and report information related to homelessness, using these additional data sources may help to augment HUD PIT estimates to provide more accurate estimates of homelessness. These estimates are of critical public health importance because they are used to direct resources and assess the reach and efficacy of policy and supportive services for those affected by homelessness. >4jPI-l

Sidebar

Correspondence should be sent to Dana Madigan, DC, MPH, 1603 W. Taylor St., Chicago, IL 60612 (e-mail: dmadig2@ uic.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted November 16, 2019.

doi: 10.2105/AJPH.2019.305492

CONTRIBUTORS

D. Madigan and L. S. Friedman performed the analysis. All authors conceptualized and designed the study and drafted the brief.

ACKNOWLEDGMENTS

The research reported in this publication was funded, in part, by the National Institute for Occupational Safety and Health, Illinois Education and Research Center (grant T42OH008672).

This project partially fulfilled D. M.'s doctoral degree dissertation requirements at the Graduate College of the University of Illinois at Chicago.

Note. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. The sponsors had no role in the design, methods, participant recruitment, data collection, or analysis, or preparation of the

CONFLICTS OF INTEREST

The authors have no competing interests.

HUMAN PARTICIPANT PROTECTION

This study received University ofIllinois at Chicago institutional review board approval (protocol no. 2008-0060).

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DETAILS

Subject:	Public health; Homelessness; Urban development; Housing; Support services; Estimates; Data sources; Gender; Hospitals; Ethnicity; Urban areas; Patients; Federal agencies; Probabilistic methods; Data; Health care; Homeless people; Uniqueness; Databases; Medicaid; Patient Protection &Affordable Care Act 2010-US; Emergency medical care; Health services; Archives &records
Business indexing term:	Subject: Medicaid Patient Protection &Affordable Care Act 2010-US; Industry: 62211 : General Medical and Surgical Hospitals 92511 : Administration of Housing Programs
Location:	Switzerland; United States--US; Illinois
Company / organization:	Name: Department of Housing &Urban Development--HUD; NAICS: 925110
Classification:	62211: General Medical and Surgical Hospitals; 92511: Administration of Housing Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	391-393
Publication year:	2020

Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washing ton
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305492)
ProQuest document ID:	2371367888
Document URL:	https://www.proquest.com/scholarly-journals/comparison-state-hospital-visits-with-housing/docview/2371367888/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-05-23
Database:	Public Health Database

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The Case for Product-Specific Surveillance

Dasgupta, Nabarun, MPH, PhD

ProQuest document link

FULL TEXT

I recently joined the editorial team of AJPH, overseeing the surveillance part of the Survey and Surveillance and Survey Methods section. I am particularly interested in receiving descriptions of new data collection systems, especially those that take novel approaches to reduce the reliance on highly structured coding schema. This is particularly relevant for safety surveillance involving new medical and consumer products and emerging psychoactive substances. But creating surveillance systems with flexible categories could also empower us to move away from rigid buckets ofrace/ ethnicity and sexual identity as well as increasingly complex medical procedures and diagnoses. Misclassification is the enemy of all public health data.

Longer drop-down menus of ontologies will not lead to more accurate identification: since the recent switch to ICD-10-CM (International Classification of Diseases, 10th Revision, Clinical Modification), which allows greater drug specificity in hospital emergency records, there has been a rise in the use of drug-unspecified codes, presumably from overwhelming choice and changes in drug composition. Innovation is needed to reduce coder subjectivity and create more flexible groupings. QR codes and photos of batch numbers could enable immediate identification in upgraded surveillance systems. But it all begins with more conversations about corporate determinants of health.

Day to day, we are influenced by profitoriented organizations. From cars to medical apps, the primary responsibility for consumer product and health safety surveillance in the United States is left largely to corporations. The time has come for surveillance systems to evolve and collect more product-specific information for the sake of holding manufacturers accountable.

Until the synthetic chemistry revolution of the 1800s expanded the palette, humans consumed a handful of naturally derived substances: caffeine-like stimulants, tobacco, opium, alcohol, cannabis, and ethnohallucinogens. Those who devise inertia-bound surveillance systems seem content to categorize modern renditions using broad historical categories. For example, differentiating between cannabis products modifies our understanding of safety, edibles emerging as more problematic. Public health data systems have not distinguished between heroin types (e.g., black tar, cold shake), creating a blind spot to illicitly manufactured fentanyl analogs. Blood alcohol concentrations and milligrams of morphine equivalents can homogenize productspecific risks, losing nuance worth probing.

Take also the recent furor over electronic cigarettes. In early 2019, steadily mounting reports of vaping-related lung injury sparked generalized public concern over the delivery mechanism. However, by summer's end, a specific contaminant-found in a particular pseudobrand-was found to be disproportionately responsible for much of the alarm. The recent national fascination with cannabidiol is ripe for a similar cycle of generalized alarm and emergent specific risks. Will product-specific surveillance rise to the challenge?

To be clear, policy questions are informed by patterns that emerge in aggregate, especially for mature products. As globalization (perhaps) enters a phase of renewed localized manufacturing, terroir shifts will yield intentional and inadvertent changes in product-based risks. Tying specific harms to specific products provides a compelling angle by which to hold manufacturers responsible, with less perception of overreach.

However, in collecting product-specific data we should be careful not to implicitly endorse industries that pose fundamental risks. Differentiating between types of firearms in assaults can help shape legislation yet should be placed in a broader context.

A seasoned Food and Drug Administration regulator recently told me that the administration's primary responsibility was to make decisions, not write discussion sections. Some consumers, too, make careful selections and develop deeply held product preferences. To make our work more relevant to a data-aware public, it is incumbent on us to provide information at a level that consumers and patients can also use to make decisions.

DETAILS

Subject:	Caffeine; Cannabis; Public health; Emergency medical services; Surveillance; Tobacco; Classification; Data systems; Stimulants; Alcohol; Fentanyl; Marijuana; Heroin; Surveillance systems; Opium; Consumers; Manufacturing
Business indexing term:	Subject: Consumers Manufacturing
Location:	United States--US
Company / organization:	Name: Food &Drug Administration--FDA; NAICS: 922190

Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	261
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITOR'S CHOICE
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305542
ProQuest document ID:	2371367883
Document URL:	https://www.proquest.com/scholarly-journals/case-product-specific-surveillance/docview/2371367883/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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New Code Serves as Ethical Guidance for Public Health

Barna, Mark

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FULL TEXT

An updated Public Health Code of Ethics, released in November, offers guidance for ethical and fair decisionmaking in public health practice and policy. Noting changes in the public health field, the American Public Health Association's (APHA's) Ethics Section formed a taskforce in 2015 to update a code released almost 2 decades ago. The new code is designed to get stakeholders talking about both ethical tradeoffs and practical issues, such as conducting fair and moral community interventions that respect and listen to community members.

"It is meant to stimulate a conversation about ethics that might not otherwise have occurred," APHA member Bruce Jennings, MA, an adjunct associate professor in the Center for Biomedical Ethics and Society at theVanderbilt Medical Center and coleader of the ethics task force, said at APHA's 2019 Annual Meeting and Expo.

The new code shares ethical guidelines that should be followed when conducting assessments on population health, investigating environmental health hazards, engaging with a community, developing policies and plans, and applying evidence-based research, among other principles.

Read the full article in The Nation's Health at http://thenationshealth.aphapublications.org/content/49/10/1.3

DETAILS

Subject:	Public health; Community; Ethics; Health care
Company / organization:	Name: American Public Health Association; NAICS: 813910
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	263
Publication year:	2020
Publication date:	Mar 2020
Section:	News From The NATION'S HEALTH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences

ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News
DOI:	https://doi.org/10.2105/AJPH.2019.305534
ProQuest document ID:	2371367395
Document URL:	https://www.proquest.com/scholarly-journals/new-code-serves-as-ethical-guidance-public-health/docview/2371367395/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Preemption in Tobacco Control: A Framework for Other Areas of Public Health

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ABSTRACT (ENGLISH)

Preemption-when a higher level of government limits the authority of a lower level to enact new policies- has been devastating to tobacco control. We developed a preemption framework based on this experience for anticipating and responding to the possibility of preemption in other public health areas. We analyzed peer-reviewed literature, reports, and government documents pertaining to tobacco control preemption. We triangulated data and thematically analyzed them. Since the 1980s, tobacco companies have attempted to secure state preemption through front groups, lobbying key policymakers, inserting preemption into other legislation, and issuing legal threats and challenges. The tobacco control community responded by creating awareness of preemption through media advocacy, educating policymakers, mobilizing national collaborations, and expanding networks with the legal community. Ten of the 25 state smoke-free preemption laws have been fully repealed. Repeal, however, took an average of 11 years. State preemption has been detrimental to tobacco control by dividing the health community, weakening local authority, chilling public education and debate, and slowing local policy diffusion. Health scholars, advocates, and policymakers should use the framework to anticipate and prevent industry use of preemption in other public health areas. (AmJPublicHealth. 2020;110: 345-350. doi:10.2105/AJPH.2019. 305473)

FULL TEXT

Headnote

Preemption-when a higher level of government limits the authority of a lower level to enact new policies- has been devastating to tobacco control. We developed a preemption framework based on this experience for anticipating and responding to the possibility of preemption in other public health areas. We analyzed peer-reviewed literature, reports, and government documents pertaining to tobacco control preemption. We triangulated data and thematically analyzed them.

Since the 1980s, tobacco companies have attempted to secure state preemption through front groups, lobbying key policymakers, inserting preemption into other legislation, and issuing legal threats and challenges. The tobacco control community responded by creating awareness of preemption through media advocacy, educating policymakers, mobilizing national collaborations, and expanding networks with the legal community. Ten of the 25 state smoke-free preemption laws have been fully repealed. Repeal, however, took an average of 11 years.

State preemption has been detrimental to tobacco control by dividing the health community, weakening local authority, chilling public education and debate, and slowing local policy diffusion. Health scholars, advocates, and policymakers should use the framework to anticipate and prevent industry use of preemption in other public health areas. (AmJPublicHealth. 2020;110: 345-350. doi:10.2105/AJPH.2019. 305473)

Local governments serve as important testing grounds for introducing public health policy innovations that later influence state and national policy.1 A key tobacco industry strategy to block the diffusion of innovative local laws is preemption, which occurs when a higher level of government (e.g., astate) limits the authority of a lower level (e.g., a city) to enact new laws.2 Whereas floor preemption provides a minimum level of protection, ceiling preemption (as described in this article) sets a maximum level of protection. In some areas, such as inclusionary zoning and civil rights, preemption can limit local laws that promote health inequality.3 In rare cases, federal public health preemption is appropriate, such as the federal airline smoking ban.4 However, state public health preemption usually prevents local governments from enacting laws to address community-specific needs.5 In 2011, the Institute of Medicine concluded that federal and state governments should avoid ceiling preemption because it can often be harmful to innovative local health laws. Higher levels of government should set minimum standards (floor preemption) that allow localities to protect the health and safety of their inhabitants.6

The frequent use ofpreemption by tobacco companies provides the best case for understanding these trends. Whereas various other industries-including firearms, alcohol, food and beverage-are using preemption to preclude lower levels of government from passing progressive public health measures,2,4,7-13 the tobacco industry has a long, sustained, and largely successful history of securing state preemption. Tobacco companies have used preemption to block, weaken, and delay innovative local tobacco control laws, including clean indoor air, advertising, tax, retailer licensing, and youth access restrictions. To date, researchers have examined particular aspects of preemption,2,14 and although some frameworks exist for decisionmakers4 and health advocates,15 none integrate industry practices and the impact of preemption. Recently, scholars have enriched the discussion of preemption by highlighting how preemption is an obstacle to local policymaking,16 18 debunking propreemption arguments,19 and emphasizing the consequences of preemption.20 However, none of these studies synthesize previous evidence on how advocates and policymakers have responded to and resisted preemption.

We propose an integrated framework (Figure 1) that we synthesized from an analysis of the tobacco control experience and its lessons for confronting similar state preemptive attempts in other noncommunicable disease-related areas of public health, such as nutrition and alcohol. The tobacco experience highlights key challenges and opportunities for protecting local authority against industry preemptive attacks and serves as a useful example for the importance of monitoring public health policymaking and conducting comparative research.

METHODS

Between February 2018 and April 2019, we conducted a comprehensive review on tobacco control preemption using PubMed and Google Scholar as well as tobacco control state reports from the Center for Tobacco Control Research and Education at the University of California, San Francisco (https://tobacco. ucsf.edu/states). The search terms were "preemption," "preempt," "tobacco," "tobacco control," and "tobacco industry." We located and reviewed a total of 244 documents. A total of 70 documents, comprising 36 peer-reviewed articles and 34 reports, were deemed relevant on the basis of our inclusion criterion: that each document discussed state preemption of tobacco control in the United States. We excluded any documents pertaining to federal or global preemption or that merely highlighted the existence of preemption. Stanton Glantz, PhD, and Jennifer Pomeranz, JD, should be credited for conducting the bulk of the research on tobacco control preemption, thus laying the foundation for this work and future studies of preemption in public health.

E. C. coded the documents and analyzed the consistent themes across the literature using standard thematic analyses.21 The specific major themes coded were (1) tobacco industry efforts to secure state preemption, (2) public health community responses to preemption, and (3) the impact and effects ofstate preemption oflocal tobacco control (Appendix, available as a supplement to the online version of this article at http://www.ajph.org).

RESULTS

We present an analysis ofstate preemption in tobacco control that focuses on tobacco industry efforts, health advocacy responses, and consequences for public health.

Tobacco Industry Efforts

Since the 1980s, tobacco companies have been concerned about the diffusion of innovative public health laws in the United States, especially at the local level. Local regulatory battles were demanding and costly.2 A former industry lobbyist noted that local activity drove tobacco companies "crazy," because when he "put out a fire one place, another one would pop up somewhere else."22(p199) Local citizens and community organizations also had more influence with local representatives that they "may live next door to."22 Tobacco interests were viewed as outsiders and "big time lobbyists."2,22

Beginning in the mid-1980s, tobacco companies embarked on a vigorous campaign to reverse local laws by promoting weak tobacco control legislation at the state level, where industry's influence was more concentrated.23 By the period 1991 to 1996, there were 17 smoke-free state preemption laws, a 41% increase from the 7 state preemption laws enacted between 1986 and 1991.24 It proved easier and less costly to fight a single state battle than to fight numerous local ones within a state.25,26 One lobbyist noted that the tobacco companies' "first priority has always been to preempt the field. "22(p199) Tobacco companies have inserted statewide legislation that preempts local smoke-free environments, tobacco retail licensing restrictions, tobacco youth access restrictions, and tobacco tax increases, often as a direct response to local progress.26 We identified 4 key tactics used by the tobacco industry to achieve this (Table 1).

1. Promoting preemption through front groups. Because of tobacco companies' declining credibility in the 1980s and 1990s, front groups supported and promoted preemptive state tobacco control laws.2,25 Front group support came from traditional allies such as restaurant associations, hotel associations, restaurant and bar owners, beverage and liquor associations, trade and labor groups, retail merchants, and gaming associations. Several received direct funding from tobacco companies to act as a mouthpiece.

Front groups argued that statewide preemption was necessary to establish "uniform" laws that diminish competitive economic disadvantages for businesses in relation to neighboring communities.26 Preemption would promote fairness among businesses free of government interference,25,26 eliminating a "patchwork" of inconsistent local laws. Tobacco companies produced brochures and editorials supporting "uniform standards" and creating a "level playing field," slogans later echoed to justify statewide preemptive legislation.

2. Lobbying policymakers. Tobacco companies have made financial contributions and political donations to state House and Senate representatives willing to introduce statewide preemptive legislation. The industry strategically targeted members of health committees and high-ranking politicians, including Senate presidents, Senate majority leaders, House speakers, and a president pro tempore. These efforts enabled companies to introduce weak state preemptive bills, securing their passage out of committee before full floor votes took place.

3.Inserting statewide preemption through varied legislative avenues. Tobacco companies lobbied policymakers to introduce (or sponsor) new preemptive tobacco control legislation or to attach amendments or preemption clauses to already existing bills. Companies used deceptive and weak "look alike" bills alongside competing strong bills. They revived bills repeatedly under different names, and snuck in 11th-hour preemption clauses, leaving the public health community with little time to mobilize opposition. Tobacco companies also mounted "look alike" direct ballot initiatives (also known as voter initiatives) in efforts to confuse voters favorable to strong tobacco control ballot initiatives. They slipped preemption into legislative bills focused on other issues, including bills pertaining to property taxes, gambling, pesticides, and education.

4.Issuing legal threats and challenges. Fearing the growing momentum of local-level progress in tobacco control, companies have threatened local governments with state preemption to deter diffusion to other localities.2 They successfully threatened to sue local governments over tobacco control laws. When the threats failed, tobacco companies sued to secure court rulings that preemption existed when it was unclear or to enforce preemptive laws that had already been passed. Tobacco companies claimed that state laws explicitly or implicitly preempted localities from enacting such measures. Tobacco companies assumed that lawsuits would continue to deter localities, but most cases lost in court because preemption explicitly or implicitly did not exist. Tobacco companies also had front groups file some lawsuits, but these also usually lost in court.

Health Advocacy Responses

National health organizations, including the American Heart Association, American Lung Association, and American Cancer Society, alongside local grassroots organizations, successfully countered state preemption efforts through 4 means (Table 1): media advocacy, educating policymakers, mobilizing national opposition, and expanding legal networks.

Media advocacy. Advocates from local and national health groups used earned media in several states to promote public awareness about preemption, its impact on local control, and the tobacco industry's involvement. Media advocacy included press conferences, press releases, flyers and brochures, op-eds, and media interviews. Framing emphasized the positive aspects of "local choice" and "local authority" in contrast with "state-only control." These messages targeted at the general public and policymakers resonated with citizens and stirred public debates, further enabling local anti-preemption grassroots coalitions to grow. "Local control" messaging gained less traction, sometimes because of industry counternarratives emphasizing government intrusion on personal behavior and private business decisions. Health groups responded by shifting media advocacy to the negatives of "state-only control," leading some policymakers to reject state preemption legislation. Health advocates in several states also used earned media to educate the public and policymakers about industry attempts to slip preemption into other legislation, to expose industry front groups, and to identify deceptive industry practices surrounding preemption attempts.

Educating policymakers. Local and national health advocates in several states educated key government officials about the nature of state preemption and its impact on local control. They built relationships with political champions, wrote letters to government officials, testified during public hearings, and issued public comments. When these efforts failed, advocates targeted committee presidents and Senate majority leaders to halt preemptive legislation-similar to what tobacco companies had done. These efforts often synergized with media advocacy promoting local control and the need for transparency about industry's role in preemption. Advocacy also involved lobbying state governors to veto preemption laws. Advocates urged the public to contact governors and lieutenant governors, resulting in some strongly worded veto messages.

Mobilizing national opposition. In response to a rapid increase in statewide preemption bills, health organizations formed a national preemption task force in 1994.25 The task force, which expanded in 1996, led to the mobilization of grassroots movements and more coherent counterstrategies and tactics, and it increased capacity and expertise.25 The task force cultivated best practices for countering preemption. These were codified in handbooks and campaign materials, and shared at national conferences.25 Prominent national political figures-including Henry Waxman (D-California), Mike Synar (D-Oklahoma), and Hillary Clinton-became supportive.26 By 1997 through 2008, only 7 states passed state preemptive smoke-free laws, a 72% decline from 1993 to 1996.27 In 2000, the Centers for Disease Control and Prevention (CDC) published Healthy People 2010, which sought the elimination oftobacco state preemptive laws. Delaware became the first state to repeal tobacco preemption in 2002. In 2009, the CDC's Healthy People 2020 renewed the call to eliminate tobacco state preemption.26

Expanding legal networks. Health advocates forged partnerships with the legal community. Massachusetts, California, Michigan, Minnesota, and Maryland helped fund legal resource centers that worked with local departments of health. These became a vital resource for drafting tobacco control measures that could withstand industry challenges and later for defending these laws when challenged by tobacco companies. Advocates promoted antipreemption clauses-known as a "savings clause" or "home rule"-that established minimum standards, thus permitting localities to pass laws that shielded against state preemption lawsuits. In 2002, legal resource centers founded a consortium offering technical assistance. It worked with state attorneys general to scrutinize preemption provisions, sometimes offering formal opinions respected by judges, which emboldened localities to pass stricter tobacco laws despite industry litigation threats.

Consequences for Public Health

The public health community's initial response to state tobacco preemption involved strong disagreements among stakeholders. National health organizations and others initially accepted state preemption as a reasonable compromise for incremental progress. Too much effort, they argued, had gone into passing state tobacco control bills to throw the legislation away; they assumed that these laws could be repealed later. Smaller grassroots organizations, including Americans for Nonsmokers' Rights, opposed preemption of any kind, arguing that state tobacco control laws were weak and ineffective compared with local ones. For example, weak state preemptive laws would permit designated smoking areas in public places, whereas strong local laws would establish 100% smoke-free environments. The divide within the public health community made it difficult to help policymakers reject preemption laws. Well-intentioned but misguided legislators in several states mistakenly believed that preemption language could be easily removed at a later time.

Preemption also had a chilling effect on building grassroots movement, encouraging debates, opportunities to shift norms,28 raising awareness about the health effects of smoking,23,26 and informing policymakers.29 Enactment of local laws is associated with increased news coverage and higher compliance rates.24 State tobacco preemption eliminated opportunities to shift social norms on the acceptability of smoking,23 which is an important mechanism in smoking cessation and decreased initiation.30

State preemption also significantly halted momentum in the diffusion of strong local tobacco controls, leading to fewer ordinances and reduced support for smoke-free laws,31 especially among smokers.26 Once state preemption laws were in force, local governments experienced significant constraints on enacting progressive policies (e.g., prohibiting smoking in city parks). Local populations with smoke-free laws could dispel negative myths by showing the firsthand evidence of their benefits, especially for smokers.26

Industry's threats of lawsuits also impeded the diffusion of innovative local public health laws. Upon being legally threatened or sued by industry, some localities have withdrawn, weakened, or delayed tobacco control laws.2 Intimidating localities canleadto a "chilling effect" by casting fear into nearby localities.32

By the early 2000s, health advocates and lawyers working with policymakers in several states to repeal state preemption, but this proved far more difficult than expected.29 In at least 12 states, attempts to repeal preemptive language were unsuccessful.25,28,33-35 Between 2004 and 2009, in only 7 of the 19 states with preemptive smokefree laws were these laws repealed through anti-preemption legislation, ballot measures, and court rulings.28 As of 2019, only 12 of the 25 state preemption smokefree laws have been fully repealed, taking an average of 11 years from the date the law was enacted.27 Between 2000 and 2010, the number of preemptive state tobacco advertising laws remained constant at 18, while state youth access restrictions actually increased from 21 to 22.33

DISCUSSION

Our analysis of the US tobacco control experience reveals tobacco industry strategies to secure state preemption, public health community responses to preemption, and the impact and effects ofstate preemption of local tobacco control. On the basis of this analysis of tobacco preemption, we propose a framework of industry strategies and tactics in relationship to public health advocacy responses and outcomes (Figure 1). Although the framework can continue to be used to analyze and resist preemption in tobacco control (e.g., regulating electronic cigarettes and raising the legal age for purchasing tobacco from 18 to 21 years), it is also intended for use in anticipating preemption in other areas of public health, such as alcohol and nutrition.

The framework underscores the importance of advocates' use of media messaging in efforts to resist state preemption. Like the tobacco industry, the alcohol, food, and beverage industries work with and fund restaurant and hotel associations and retail merchants to promote state preemption, with messages about the need for a "level playing field" for businesses in different localities.36 Advocacy groups should counter these messages by first exposing these front group ties to the industry. Although advocacy groups should emphasize the importance of "local control," they should mostly stress the negatives of "state-only control" because voters tend to vote for initiatives when such changes are framed in terms of their potential to avert negative situations (e.g., "state-only control") rather than to make positive improvements (e.g., importance of local control).

The framework shows that public health advocates must counter industry's lobbying of high-ranking policymakers with proactive outreach and education on the true nature ofpreemption bills and industry's deceptive practices. Advocates' failure to adequately do precisely this recently led to the preemption of local sugar-sweetened beverage tax increases.7

Figure 1 highlights the importance of national efforts to swing the pendulum on state preemption. Industry will continue to use established networks of front groups and politicians nationally to promote preemption through sneak preemption clauses in the 11th hour, leaving little time to mobilize effective opposition. The beverage industry's recent efforts to promote state preemption of sugar-sweetened beverage taxes have already caught health advocates off guard. In the lastminute introduction of a state preemption law prohibiting local sugar-sweetened beverage taxes in California, industry used a ballot initiative threatening to end all local taxes as extortion.7

Similar to tobacco control, public health advocates have begun developing handbooks, campaign materials, and toolkits to combat preemption ofalcohol control and nutrition policies. Groups including the Local Solutions Support Center, the Campaign to Defend Local Solutions, Grassroots Change, ChangeLab Solutions, and Voices for Healthy Kids (a joint initiative of the Robert Wood Johnson Foundation and the American Heart Association) have created national preemption task forces to mobilize grassroots movements, counter industry strategies and tactics, and increase capacity and legal expertise. These groups should continue to expand their connections with prominent national political figures and leading health agencies (e.g., the CDC) and work together to unify their voices against the harms of the threat of state preemption to public health.

The framework reveals that industry is likely to use the threat of litigation-and actual litigation- to prevent the diffusion of best public health practices.32 The alcohol industry has used this strategy to intimidate local governments and deter local action in alcohol advertising and retail licensing restrictions,2 and the food and beverage industry has begun following suit.37 Advocates in the United States should expand their networks with the legal community through legal resource centers and state attorneys general. Advocates should be more proactive in lobbying policymakers to adopt anti-preemption "home rule savings" clauses that in some states allow the possibility of local action on public health matters, and in other states permit local governments to enact laws shielding against state preemption lawsuits. In nutrition menu labeling and alcohol restrictions, there has been a good start,13 but these efforts should be redoubled.

Advocates for nutritional and alcohol control policies should take note of timing: early failures to match the tobacco industry's efforts at state preemption divided the public health community, weakening local authority, chilling education and public debate, and slowing policy diffusion. Our framework suggests that public health advocates should be wary of industry divide-and-conquer strategies. The beverage industry in California and Washington pitted unions against health groups7 to encourage acceptance of preemption as a reasonable compromise that could be reversible. A key lesson from tobacco control is that repealing preemption is extremely difficult. Advocacy groups should not agree to accept incremental improvements at the expense of state laws that will thwart local activities that raise public awareness and education, gradually changing social norms.

Limitations

The analysis was confined to the state preemption of local public health laws, although this can occur at higher levels of government. A few authors have discussed national2,12 and global preemption.38-40 Although this material was important background information, analyzing strategies and responses at higher levels of government was out of the scope of this study. Despite several tobacco control state reports, there is a lack of detailed cases within these reports concerning preemption, thereby limiting details in these lessons learned.

Conclusions

A review of tobacco control preemption in the United States reveals the damaging effects that state preemption has had on local tobacco control efforts. Public health scholars and advocates examining continued state preemption efforts in tobacco control and other areas of public health should systematically apply lessons learned from the tobacco experience to identify key industry strategies and effective public health responses, and to prevent the deleterious effects that state preemption can have on local policymaking. ÂfPU

Sidebar

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This article was accepted October 26, 2019.

doi: 10.2105/AJPH.2019.305473

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E. Crosbie conceptualized the study, collected the raw data, and prepared the first and subsequent drafts of the article. Both authors contributed to revisions of the article.

ACKNOWLEDGMENTS

This work was supported by the National Center for Advancing Translational Sciences, National Institutes ofHealth (grant UCSF-CTSI ULI TR001872), the Laura andJohnArnoldFoundation, the National Cancer Institute (training grant 2T32 CA113710-11), and the University of Nevada, Reno.

We thank Casey Palmer for providing feedback on this study.

Note. The contents of this article are solely the responsibility ofthe authors and do not necessarily represent the official views of the National Institutes of Health or the University of Nevada, Reno.

CONFLICTS OF INTEREST

The authors have no conflicts to declare.

HUMAN PARTICIPANT PROTECTION

Protocol approval was not needed for this study because it was an analysis ofprevious literature.

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DETAILS

Subject:	Research; Legislation; Public health; Tobacco; Preemption; Lobbyists; Litigation; Advocacy; Diffusion rate; Lobbying; Education; Local government; Tobacco industry; Government; Policy making
Business indexing term:	Subject: Tobacco industry; Industry: 31223 : Tobacco Manufacturing
Location:	United States--US
Company / organization:	Nam e: Senate; NAICS: 921120
Classification:	31223: Tobacco Manufacturing
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	345-350

Publication year:	2020
Publication date:	Mar 2020
Section:	LAW &ETHICS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305473
ProQuest document ID:	2371367355
Document URL:	https://www.proquest.com/scholarly-journals/preemption-tobacco-control-framework-other-areas/docview/2371367355/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

Document 17 of 45

Beyond a Good Head and a Good Heart for Prison Health

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FULL TEXT

The late President Nelson Mandela (1918-2013) of South Africa, who spent 27 years in prison, might be an ideal person to explain how to improve the health and well-being of prisoners. One of his most powerful messages is "It is said that no one truly knows a nation until one has been inside its jails. A nation should not be judged by how it treats its highest citizens, but its lowest ones."1(p276) Two years after his death, the "Nelson Mandela Rules" or United Nations Standard Minimum Rules for the Treatment of Prisoners, was published.2 It includes 122 rules from admission to release of prisoners. Of 122, 12 concern the provision of health care (rules 24-35), which suggests how important health is for inmates, who number more than 10.74 million across the world.3

The sustainable development goals were written to include people who experience incarceration as part of its target of ensuring "no one left behind" (https://sustainabledevelopment.un.org). However, even after the publication of these monumental rules and the start of the era of sustainable development goals, prison health research remains limited. In their analytic essay, "Global Prison Healthcare Governance and Health Equity: A Critical Lack of Evidence," in this issue of AJPH (p. 303), McLeod et al. analyzed available data about prison health governance from around the world and particularly stressed its importance at the global level.

They discussed their data in terms of how the ministry in charge of the prison health system affects how effectively the system is governed. Specifically, they considered whether the ministry of health or a non- health ministry, particularly the ministry of justice, should be in charge or whether governance should be shared between them. Proponents for the ministry of health argued that this ministry is better suited to ensure that people who experience incarceration receive a high level of health care that continues after their release. In addition, governance by the ministry of health gives health care providers the independence to act solely in the interest ofthe incarcerated patient. On the other hand, placing the governance of health services within the judicial system helps ensure that aspects ofprison life that affect health, such as nutrition, sanitation, and solitary confinement, are given due consideration.

The data that were included in this study came primarily from the European region. Interestingly, within this single region the researchers observed a diversity of governance approaches and were therefore able to make insightful comparisons.

Effective governance goes beyond the ministry that is in charge of it. Consider national nutrition governance, for example, which is described in detail by Sunguya et al.4 Nutrition governance can be measured using 10 criteria, such as the existence of a strategic plan, budget allocation, and whether the strategic plan is part of a national policy. Based on these criteria, the governance can be scored as strong, medium, or weak. Using their analysis of nutrition policy and nutrition governance, the researchers found that policy alone was not enough, and a detailed analysis of governance is key to overcoming malnutrition in lowand middle-income countries.4 If similar types of evidence about governance became available for prison health, it would be very useful for policymakers to create strategies to improve this system.

From the global perspective, a standardized indicator is crucial for comparing trends among different countries and could act as an index to reduce health inequalities between and within nations. As context is very important in prison health care, qualitative studies are also recommended to explore the experience and perceptions ofboth the people who experience incarceration and those who are directly involved in prison health care management. The findings could complement epidemiological data to provide better evidence for policymakers.

Obtaining evidence beyond governance may help prison health advocacy be successful, but we need to consider how long prisoners can wait for the arrival of evidence to free them from ill treatment. Simply put, how much do we need to know to take meaningful action? Nelson Mandela once said, "A good head &a good heart are always a formidable combination. "5(p286) A good head, or brain, will be able to find and assess good evidence to improve prison health. Then what can a good heart do? If evidence is limited, sometimes, a strong political will with a good heart can overcome the difficulties.

The prison system of Zambia (a middle-income country, with a gross national income per capita of US$1430 in 2018 [by Atlas method] and life expectancy of 63 years in 2017) provides a good example of knowledge working together with political will to improve prison health. A prison health project began in Zambia in 2013, with total funding of £660 000 over four years from the European Union. The Zambian Corrections Service worked with partners and established facilitybased prison health committees, in which inmates and officers worked together, and their efforts resulted in short- and middle-term benefits. For example, inmates reported being empowered, and inmate-officer relations improved.6

As in many other low- and middle-income countries, the prison health system in Zambia faces many challenges: lack of financing, outdated prison infrastructure, lack of human resources for health, and weak health governance.7 Under such conditions, strategies to prioritize prison health are a major challenge. Not only must prison health become a priority for Zambia, it must also be raised as an important issue for donor agencies. Among many competing needs, how can a donor agency be motivated to invest in improving the health of prisoners?

The case ofZambia shows that taking action is possible by using the available good heads and good hearts. If this was accomplished only by using "good heads" without the motivation of "good hearts," it would be difficult to scale up this success to other lowand middle-income countries. As we learn more about the effective governance of prison health systems and as we inspire the will to put this knowledge into action, we hope to be able to respond to the waiting calls of inmates, their families, and friends. ÂfPU

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CONTRIBUTORS

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K. I. C. Ong performed the literature review and provided critical comments.

N. L. Sieber provided critical comments and reviewed the editorial. All authors wrote the editorial.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

Sidebar

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This editorial was accepted December 14, 2019.
doi: 10.2105/AJPH.2019.305530

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DETAILS

Subject:	Sustainable development; Health; Human resources; Life span; Nutrition; Researchers; Prisons; Prisoners; Correctional system; Editorials; National income; Imprisonment; Income; Financial support; Life expectancy; Literature reviews; Heart; Governance; Prisoner treatment
Business indexing term:	Subject: Sustainable development; Industry: 92214 : Correctional Institutions
Location:	Zambia; Switzerland; United Sta tes--US; South Africa; New York; Japan
People:	Mandela, Nelson (1918-2013)
Company / organization:	Name: United Nations--UN; NAICS: 928120; Name: University of London; NAICS: 611310; Name: European Union; NAICS: 926110, 928120
Classification:	92214: Correctional Institutions
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	282-283
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305530
ProQuest document ID:	2371367354

Document URL:	https://www.proquest.com/scholarly-journals/beyond-good-head-heart-prison-health/docview/2371367354/se-2?accountid=211160
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Last updated:	2023-03-01
Database:	Public Health Database

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Molecular HIV Surveillance: Balancing Outbreak Detection and Control and the Rights of Persons Living With HIV

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ProQuest document link

ABSTRACT (ENGLISH)

The sharp reduction in new diagnoses of HIV among people who inject drugs (PWID) since the height of the HIV/AIDS epidemic is one of the great achievements of national and international HIV prevention efforts. But these gains are threatened by the current opioid use epidemic affecting a new generation of opioid users as well as by the growth of injected methamphetamine and cocaine use. Following evidence oflarge outbreaks of HIV infection among PWID in Indiana and Massachusetts,1,2 Samoff et al. (p. 394) describe the detection of and response to an emergent cluster of HIV infection among PWID in western North Carolina and the successful deployment of molecular HIV surveillance, disease intervention specialist outreach, and new syringe services programming to contain this outbreak.

The national Ending the HIV Epidemic (EHE) initiative's fourth pillar, Respond, frames the use of modern epidemiological methods to detect outbreaks in their early stages and to prompt rapid and focused delivery of care and prevention services. Samoff et al. present an excellent example of how a jurisdiction's epidemiological systems and processes and expanded field response and preventive services worked together to address an emergent outbreak of HIV in a vulnerable community.

FULL TEXT

The sharp reduction in new diagnoses of HIV among people who inject drugs (PWID) since the height of the HIV/AIDS epidemic is one of the great achievements of national and international HIV prevention efforts. But these gains are threatened by the current opioid use epidemic affecting a new generation of opioid users as well as by the growth of injected methamphetamine and cocaine use. Following evidence oflarge outbreaks of HIV infection among PWID in Indiana and Massachusetts,1,2 Samoff et al. (p. 394) describe the detection of and response to an emergent cluster of HIV infection among PWID in western North Carolina and the successful deployment of molecular HIV surveillance, disease intervention specialist outreach, and new syringe services programming to contain this outbreak.

The national Ending the HIV Epidemic (EHE) initiative's fourth pillar, Respond, frames the use of modern epidemiological methods to detect outbreaks in their early stages and to prompt rapid and focused delivery of care and prevention services. Samoff et al. present an excellent example of how a jurisdiction's epidemiological systems and processes and expanded field response and preventive services worked together to address an emergent outbreak of HIV in a vulnerable community.

NORTH CAROLINA'S EARLY RESPONSE

The North Carolina public health response was driven by linking a small number of new diagnoses of HIV in PWID through the use of molecular HIV surveillance methods, differentiating this cluster from background HIV incidence in PWID and other at-risk communities. It identified a significant number (177) of sexual and needle-sharing contacts through a combination of molecular and field techniques. In turn, integrated targeted testing detected several new cases of HIV, hepatitis C virus, and hepatitis B virus infection among these contacts. Molecular techniques established that the timing of this outbreak was proximal to the diagnoses of almost all of the original seven cases. Supported referrals of newly diagnosed individual led to the successful linkage to care and subsequent viral suppression.

The role of molecular surveillance is particularly significant in this context. In Indiana and Massachusetts, examination of the phylogenetic dynamics of their respective outbreaks helped define and describe their scope, time frame, associated risk behaviors, and size. In the former case, it was determined that a single introduction of HIV infection into an existing, locally situated needle-sharing network led to this large outbreak; in the latter case, multiple introductions into a highly mobile, geographically extended needle-sharing and sexual network were detected. Follow-up investigation identified the role of different opioids (oxymorphone in Scott County, IN, and fentanyl in Lowell and Lawrence, MA). North Carolina similarly was able to identify a temporally and geographically cohesive set of links between members of the state's original cluster and to describe this cluster's transmission dynamics to inform public health follow-up. North Carolina found that in its western county outbreak opioids played a lesser role and injected stimulants a greater role. The North Carolina example is particularly noteworthy because it detected a cluster in its early stages and prevented the small number of cases from becoming a more widespread outbreak. Timescaled phylogenetic analysis is a powerful public health tool, and its deployment will be essential to the fourth pillar of EHE if the country is to avoid undetected and uncontrolled outbreaks undermining the success of the other pillars (Diagnose, Treat, and Prevent) and the overall goals of EHE.

CHALLENGE TO MOLECULAR HIV SURVEILLANCE

However, because oflegitimate and ongoing concerns about anti-HIV stigma and particularly the persistence of laws, regulations, and associated legal actions that seek to criminalize and punish persons living with HIV infection who may be involved in HIV transmission (or, in some cases, simply engaging in selected HIV risk behaviors), the implementation of molecular HIV surveillance in the United States has been recently challenged in the advocacy community.3 Along with their legal advocates, people living with HIV have raised alarms about the risk of being prosecuted through the linking of viral genetic data. Much of this alarm is rooted in the fear that analyses ofthese data may draw definitive, temporal links between individuals in a given transmission network and enable prosecution of alleged HIV transmission or nondisclosure of status. Although it is true that molecular techniques can differentiate between people whose viral genomes are more or less closely related, and molecular analyses can suggest the relative recency of clusters of HIV transmission, these analyses cannot determine whether any two individuals were directly involved in HIV transmission, much less assert the directionality ofthat transmission. Nonetheless, there are historic examples of spurious scientific claims being used to advance prosecutions and other actions against persons living with HIV. Public health officials are therefore well advised to advance these new surveillance approaches in a transparent manner that fully engages people living with HIV and HIV advocacy communities and to promote legal and programmatic frameworks that maximize the protection of privacy and the rights of people living with HIV.

STIGMATIZING AND THREATENING FRAMEWORKS

The majority of US states continue to have HIV-specific criminal laws regarding persons living with HIV, and more of them have nonspecific laws that can be used to treat HIV transmission, risk behaviors, or nondisclosure as a crime.4 Notably in the current context, North Carolina recently revised its public health regulations to take into consideration scientific evidence about how viral suppression and preexposure prophylaxis affect HIV transmission risk and softened its prior stance prohibiting all nondisclosed and condomless sex in the context of HIV infection. However, these same regulations continue to prohibit the sharing of injection drug equipment by persons living with HIV, potentially undermining trust in public health workers and efforts to investigate outbreaks and support entry into preventive and care services.

MODERN HIV SURVEILLANCE DATA SOURCES

Core HIV surveillance has maintained detailed, named records on persons diagnosed and reported with HIV infection for over two decades in most jurisdictions of the United States. Epidemiological investigations generate additional information held in secure surveillance systems about risk behaviors, partners, and care engagement of persons living with HIV. HIV prevention and care strategies increasingly depend-as they did in North Carolina-on integrated data systems to confirm risk behaviors, estimate testing coverage, ensure linkage to and engagement in care, observe patterns of coinfection, and determine levels of viral suppression, all critical measures of public health and clinical success. These data may be derived, as they were in North Carolina, from laboratories (HIV and infectious disease, viral load, and drug resistance testing), programs and payers (Medicaid, CAREWare, AIDS Drug Assistance Programs), and integrated surveillance systems (HIV, hepatitis B and C virus, and sexually transmitted infection surveillance). Together, they help state and local health departments and their partners identify gaps in prevention and care service delivery and prioritize the direction of public health resources to individuals and communities at greatest need. Molecular HIV surveillance complements these well-established data sources. But valid concerns about privacy and the inappropriate use of personal data persist. Public health officials have an obligation to fully describe the purpose of any proposed expansion of these data sources, whether personally identifiable or not; ensure confidentiality; and respond honestly and responsibly to the expressed concerns of vulnerable communities. If these tools are to maximally support the goal of EHE, we need to vigorously and concurrently commit to dismantling stigmatizing and threatening laws, regulations, and other frameworks that wrongly and unjustly blame at-risk individuals and communities for infectious disease threats that undermine personal and public health. Kevin Cranston, MDiv

Sidebar

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This editorial was accepted December 16, 2019.

doi: 10.2105/AJPH.2019.305540

CONFLICTS OF INTEREST

The author has no conflicts of interest to report.

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k%20on%20State%20Fed%20HIV%20Criminal%20Law%20and%20Practice%20062519.pdf. Accessed December 12, 2019.

DETAILS

Subject:	Laboratories; Infections; Infectious diseases; Surveillance; Criminalization; Phylogenetics; Human immunodeficiency virus--HIV; Disease prevention; Prevention; Drug resistance; Narcotics; Epidemics; Criminal law; Public health; Acquired immune deficiency syndrome--AIDS; Hepatitis; Disease transmission; Epidemiology; Amphetamines; Drug abuse; Outbreaks; Services; Intervention; Jurisdiction; Methamphetamine; Cocaine; Opioids; Stigma; Health surveillance
Business indexing term:	Industry: 92312 : Administration of Public Health Programs
Location:	Indiana; Jamaica; United States--US; Massachusetts; North Carolina
Company / organization:	Name: Department of Public Health-Massachusetts; NAICS: 923120
Classification:	92312: Administration of Public Health Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	276-278
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article

DOI:	https://doi.org/10.2105/AJPH.2019.305540
ProQuest document ID:	2371367308
Document URL:	https://www.proquest.com/scholarly-journals/molecular-hiv-surveillance-b alancing-outbreak/docview/2371367308/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-12
Database:	Public Health Database

Document 19 of 45

Using Market Availability Data to Support Foodborne Disease Outbreak Investigations

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ProQuest document link

ABSTRACT (ENGLISH)

Leafy greens, including romaine lettuce, are frequently the cause of foodborne disease outbreaks. Indeed, as the current outbreaks of Escherichia coli O157: H7 in the United States and Canada attributable to romaine lettuce highlight,1 3 mitigating the infectious disease risks associated with these foods continues to challenge growers, producers, and public health. In this issue of AJPH, Astill et al. (p. 322) present a new approach to assessing potential sources of romaine lettuce during outbreak investigations, a tool we can consider for our public health practice toolbox.

In their analysis, Astill et al. examined data on daily US romaine lettuce shipments via rail, truck, and air at international and national ports, by growing region, as a measure of the availability of product for consumption. By linking these data to timelines for US Food and Drug Administration (FDA) investigations of three outbreaks from E coli O157:H7 in romaine lettuce that occurred in 2017 to 2018 (Figures 3 and 4, pp. 325-326), they conclude that market data can help to rule out an entire production region because romaine was not being shipped from that region when the first outbreak case had their onset of illness. In addition, they illustrate that the three outbreaks occurred at the tail end of the relevant region's growing season, at a time when romaine lettuce production shifted to the other major US growing region (i.e., from California's Central Coast to Yuma, AZ, orvice versa). Finally, Astill et al. discuss the implications of their findings for minimizing the financial losses of romaine lettuce producers and note that labeling with region of origin seems unlikely to substantially avoid illness.

FULL TEXT

Leafy greens, including romaine lettuce, are frequently the cause of foodborne disease outbreaks. Indeed, as the current outbreaks of Escherichia coli O157: H7 in the United States and Canada attributable to romaine lettuce highlight,1 3 mitigating the infectious disease risks associated with these foods continues to challenge growers, producers, and public health. In this issue of AJPH, Astill et al. (p. 322) present a new approach to assessing potential sources of romaine lettuce during outbreak investigations, a tool we can consider for our public health practice toolbox.

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STUDY CONTRIBUTIONS AND LIMITATIONS

This study applied a new data source to an ongoing challenge faced during outbreak investigations with a suspected food cause: the need to quickly and accurately narrow the list of suspected foods and effectively make use of epidemiological, laboratory, and traceback resources. The main contributions of this study are that (1) market availability data can help determine whether certain subset(s) of a food item, here romaine from a particular growing region, was on the market when cases started occurring, and (2) Ecoli O157:H7 outbreaks attributable to romaine lettuce appear to occur during the tail end of a region's growing season.

A main limitation of the study is that it did not fully explore additional timeline considerations inherent to outbreak investigations. Outbreak timelines are in retrospect linear, progressing neatly from the onset date of the first case, through the various stages of notification (e.g., of cases to public health authorities, from public health authorities to food safety agencies) and investigation, to the onset date of the last case, and the conclusion of both the outbreak and its investigation. However, as an outbreak investigation unfolds in real time, the necessary information, particularly on cases of illness and their onset dates, arrives in the hands of the public health authorities more irregularly. For example, while final outbreak curves show the onset dates for the first and last outbreak cases, these are not necessarily the first and last cases notified to public health.

Therefore, this assessment would be strengthened had the authors included not only the dates when the FDA was notified of the outbreak but also the dates that the state and federal public health authorities were notified of cases, identified that there was a cluster or an outbreak, identified romaine as a suspected food vehicle, etc. Doing so would allow a more accurate estimate of the potential cases averted had market data been examined as part of the outbreak investigation-for example, if state and federal public health authorities could query market data for a given food product at the moment their working hypothesis flagged it as suspect. Finally, this assessment would be strengthened by retrospectively assessing market data not only against the final outbreak timeline (per Figures 3 and 4, pp. 325-326) but also against when information became available to investigators-for example, at the onset date for the first notified illness associated with the outbreak (which may or may not have been the first illness of the outbreak). Both of these explorations are important areas for further assessment, particularly regarding the potential utility of market data to expedite an investigation, narrow suspected food items, and ideally avert illnesses.

PUBLIC HEALTH IMPLICATIONS

Astill et al. present a sufficient argument that market data be considered in concert with other evidence during outbreak investigations and reinforce both the need for labeling foods with region of origin and the importance of assessing multiple sources of information during foodborne disease outbreak investigations. Similar to consumer food purchase data used to generate hypotheses about outbreak vehicles and aid traceback where a suspected vehicle was identified,4 market availability data offer the potential to narrow potential vehicles, focus traceback efforts, and more accurately inform the public about foods to avoid. A next step will be to assess extending the approach from Astill et al. to other sources of market availability data and to other products beyond romaine lettuce. In addition, it will be important to assess the utility of market availability data prospectively during future outbreaks, to document when such data are useful and for what purpose (e.g., Could market availability information be used by public health at first suspicion of an outbreak?), and to explore other potential benefits and limitations of their use beyond those put forward by the authors.

Finally, Astill et al. provide several hypotheses for why the outbreaks they assessed occurred during transition between growing regions. These lines of inquiry are important areas for future research that may inform the control of E coli in romaine specifically and may potentially offer lessons for the control of pathogens in leafy greens or produce more generally. In addition, given that possible reasons cross domains of wildlife, animal and plant agriculture, production systems, industry operations, and others, these lines of inquiry would benefit from multidisciplinary and OneHealth5 perspectives.

POSITIONING FOOD SAFETY IN THE WIDER FOOD SYSTEM

Beyond the implications for outbreak response and the avoidance of industry financial losses raised by Astill et al., an additional benefit of being able to quickly narrow food sources-here, ruling out an entire production region for a commonly consumed vegetable-is that food safety professionals can be more responsive to broader issues of food waste and food security. While food safety is a recognized component of food security,6 less attention has been given to the relationship between food recalls and food waste and the ways this might have an impact on food (in)security. Minimizing the foods recalled, destroyed, and not eaten during a foodborne illness outbreak via the use of market data seems a logical step in reducing food waste, with potentially no negative consequences for food safety (though, of course, this remains to be assessed).

CONCLUSIONS

On November 20, 2019, precisely one year after the November 20, 2018, FDA advisory to avoid romaine presented by Astill et al. in Figure 4 (p. 326), the FDA and the US Centers for Disease Control and Prevention announced investigation of another outbreak of E coli O157:H7, linked to romaine lettuce, likely from Salinas Valley (located in California's Central Coast).2 Although the November 20 date is undoubtedly coincidental, that another outbreak ofthis pathogen in this food product appears to be occurring at the end of the growing season underscores the need for continued and enhanced investment in foodborne disease prevention and control, including but not limited to multidisciplinary research studies and outbreak response capacity. Using market availability data as another tool in our outbreak investigation toolbox is warranted, as is further assessment of the real-time utility of such data during outbreak investigations. Â1PİA

Shannon E. Majowicz, PhD

Sidebar

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This editorial was accepted December 16, 2019.

doi: 10.2105/AJPH.2019.305536

CONFLICTS OF INTEREST

S.E. Majowicz was an epidemiologist with the Canadian federal government (Health Canada, Public HealthAgency of Canada) from 2001 to 2011, working in the area of food safety. She holds or has held research grants and contracts from the British Columbia Centre for Disease Control; the Canadian federal government (Health Canada, Public Health Agency of Canada, the Canadian Safety and Security Program); the Canadian Institutes ofHealth Research; the Dairy Farmers of Canada's Research Funding Program; the Ontario Ministry of Agriculture, Food, and Rural Affairs' Food Safety Research Fund; the University of Waterloo (various seed funds); and the World Health Organization. She is an associate editor at Epidemiology and Infection, for which she receives a small honorarium, and she has served as a paid expert on behalfofthe Attorney General of Canada in legal proceedings, providing evidence on the public health risks and benefits of unpasteurized milk. She also provides unpaid expertise via participation on the Joint Food and Agriculture Organization of the United Nations/World Health Organization Expert Meetings on Microbiological Risk Assessment Roster ofExperts and the editorial boards ofFoodborne Pathogens and Disease and Environmental Health Review. She has previously provided expertise to the Joint Food and Agriculture Organization/World Health Organization Core Expert Group on verotoxin-producing Escherichia coli/ Shiga toxin-producing Escherichia coli, and to the World Health Organization's Foodborne Disease Burden Epidemiology Reference Group; except for the research contract declared previously, these were unpaid activities with reimbursed travel to attend face-to-face meetings. She has previously provided unpaid expertise as a member of the Scientific Advisory Committee for Cancer Care Ontario's Infectious Agents and Cancer Report, and the FoodNet Canada (formerly C-EnterNet) Advisory Committee (Public Health Agency of Canada).

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DETAILS

Subject:	Food safety; Pathogens; Public health; Food products; Markets; Epidemiology; E coli; Outbreaks; Lettuce; Food waste; Vehicles; Labeling; Hypotheses; Epidemics; Illnesses; Disease control; Production; Shipments; Infectious diseases; Availability; Ports; Data; Health risks; Food consumption; Disease; Regulatory agencies; Rules; Foodborne diseases; Food security; Escherichia coli
Business indexing term:	Subject: Food security; Industry: 92312 : Administration of Public Health Programs
Location:	Canada; United States--US; California
Taxonomic term:	Escherichia coli
Company / organization:	Name: World Health Organization; NAICS: 923120; Name: University of Waterloo; NAICS: 611310; Name: Food &Drug Administration--FDA; NAICS: 926150; Name: Health Canada; NAICS: 923120
Classification:	92312: Administration of Public Health Programs

Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	278-280
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305536
ProQuest document ID:	2371367295
Document URL:	https://www.proquest.com/scholarly-journals/using-market-availability-data-support-foodborne/docview/2371367295/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-04
Database:	Public Health Database

Document 20 of 45

Anchor Institutions: Best Practices to Address Social Needs and Social Determinants of Health

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ABSTRACT (ENGLISH)

"Anchor Institutions"-universities, hospitals, and other large, place-based organizations- invest in their communities as a way of doing business. Anchor "meds" (anchor institutions dedicated to health) that address social needs and social determinants of health have generated considerable community-based activity over the past several decades. Yet to date, virtually no research has analyzed their current status or effect on community health. To assess the current state and potential best practices of anchor meds, we conducted a search of the literature, a review of Web sites and related public documents of all declared anchor meds in the country, and interviews with 14 keyinformants. We identified potential best practices in adopting, operationalizing, and implementing an anchor mission and using specific social determinants of health strategies, noting early outcomes and lessons learned. Future dedicated research can bring heightened attention to this emerging force for community health. (Am J Public Health. 2020;110: 309-316. doi:10.2105/AJPH. 2019.305472)

FULL TEXT

Headnote

"Anchor Institutions"-universities, hospitals, and other large, place-based organizations- invest in their communities as a way of doing business. Anchor "meds" (anchor institutions dedicated to health) that address social needs and social determinants of health have generated considerable community-based activity over the past several decades. Yet to date, virtually no research has analyzed their current status or effect on community health. To assess the current state and potential best practices of anchor meds, we conducted a search of the literature, a review of Web sites and related public documents of all declared anchor meds in the country, and interviews with 14 keyinformants. We identified potential best practices in adopting, operationalizing, and implementing an anchor mission and using specific social determinants of health strategies, noting early outcomes and lessons learned. Future dedicated research can bring heightened attention to this emerging force for community health. (Am J Public Health. 2020;110: 309-316. doi:10.2105/AJPH. 2019.305472)

Anchor institutions"- large, place-based establishments-invest in their surrounding communities as a way of doing business.1 Coined in 2001 by the Aspen Institute, the term encompasses universities, sometimes known as anchor "eds."2 A 2017 National Academy of Medicine report urged hospitals and health systems to follow suit as anchor "meds."3 Together, these anchor institutions commit major financial, human, and intellectual resources to address social challenges, understanding that their future is inextricably linked to the community outside their walls.4 US hospitals spend more than $1.1 trillion annually (2017)5,6 and employ between 7.5% and 10.4% of the US labor force (2016; depending on the region of the country).7

The anchor institution concept first arose in the 1960s,8 primarily in major urban areas characterized by social need and unrest. Mid- to late 20th-century cities witnessed strained race relations and White flight that relegated those left behind, often minority and with low income, to limited economic opportunities.8 The departure of businesses with substantial taxbased revenue, combined with growing globalization and corporate mobility, pushed the remaining "anchored" institutions to accept more direct responsibility for confronting neighborhood poverty, low wages, and other social issues. A business strategy for better engaging surrounding communities evolved as a form ofenlightened self-interest.8

Although health institutions have historically provided some level of charity care, the public has long viewed large ones in their midst as powerful and resource rich, with obligations to be better neighbors.9 Most US nonprofit hospitals are exempt from federal, state, and local taxes; questions often arise about how they justify their favored tax status.10 Furthermore, elected officials regularly ask hospitals and health systems to offset costs of city services,11 whereas advocates often push to end untoward debt collection strategies, hire more local employees, and provide free care. All these themes have legal and social ramifications. For example, in 2004, in part because 2 hospitals were viewed as using overly aggressive debt collection tactics against nonpaying, indigent patients,12 the Illinois Department of Revenue revoked their taxexempt status after deeming them no longer qualified to be charitable institutions.

Anchor meds usually rank among the largest property owners and business employers in their communities. Such large institutions have "sticky capital" (i.e., "significant infrastructure in a specific community that is therefore unlikely to move")13(p2) and, knowingly or unknowingly, affect their neighborhoods through everyday operations, including hiring practices, wage policies, and purchasing goods and services.9,13 Intentionally adopting an anchor strategy as part of a preferred long-term business scenario can heighten their community roles as employer, purchaser, or real estate developer (see the box on page 310).9

Growing national activity led the Democracy Collaborative (2017) to convene a health care anchor network; member organizations make a wide range of commitments to address social determinants of health (SDOH). We sought to inform the establishment and future development of anchor meds through a better understanding of current best practices, opportunities, and challenges. Doing so is timely, especially because a recent national representative survey of 300 hospitals and health systems found that most reported committing to tackling health-related social needs or SDOH.14

METHODS

We searched 3 major databases (MEDLINE and PubMed, Embase, and Web of Science) for all extant publications related specifically to anchor medical institutions, using individual search terms (e.g., "anchor institutions," "anchor mission," "anchor strategy") as well as a combination of terms (e.g., "community-institutional relations," "community relations," "urban health services/organization and administration," "urban health, public relations, and anchor institutions"). Although we identified a number of articles addressing related topics such as hospital community benefits, only 2 published articles15,16 specifically mentioned anchor meds-both commentaries.

Hence, we pivoted to extensive Internet searches and identified 42 self-identified anchor meds, all part of the health care anchor network (Table C [available as a supplement to the online version of this article at http://www.ajph.org]).17 About two thirds are health systems (i.e., more than 1 hospital sharing common governance). Collectively, these institutions have more than $150 billion in investment assets, purchase more than $50 billion annually, and employ more than 1 million people.17

We then examined individual Web sites for each identified anchor med. We reviewed relevant online reports, articles, linked documents, and other publicly available materials in their organizational mission and vision statements; procedures for adopting the anchor mission; funds and types ofcommitments to address SDOH; other evidence of resource commitment; and outcomes on behaviors and health costs, if available. We attempted to confirm any statements of resource commitments with public media announcements and newspaper articles.

To identify exemplar institutions, we also conducted semistructured interviews with leaders at the Democracy Collaborative and used a snowball sample to identify 9 institutions that had anchor missions widely viewed as robust. We then interviewed leaders at these 9 institutions to gain a deeper understanding of their initiatives. From them, we identified 3 for inclusion as mini- case studies based on the extent and longevity of their anchor activities. We also identified others that served as examples of specific aspects of the anchor mission. In total, we conducted interviews with 14 anchor med leaders to probe the process of, and reasons for, adopting an anchor mission, its implementation, and the types and outcomes of commitments.

RESULTS

In recent years, several structural and policy changes have shaped community interactions and potential investments by health institutions. The search for alternative payment models to fee-for-service reimbursement systems, the advent of managed care, and the 2010 Affordable Care Act (ACA; Pub L No. 111-148), for example, have accelerated national attention to value-based purchasing dependent on patient outcomes, not volume. Moreover, certificate of need programs in 35 states and the District of Columbia offer18 a way for hospitals to offer community resources as part of formal conditions for expanding services or undertaking significant capital projects. For example, Massachusetts, which may have been the first US state to establish voluntary guidelines for community benefits, uses a comprehensive and formal process that pushes organizations to consider community responsibilities. A hospital seeking physical expansion, for example, must first have its proposal approved by the state's public health council, with public hearings often featuring advocates highlighting community concerns. Updated 2017 Massachusetts regulations encourage applicants to improve the health of disadvantaged populations19 by addressing priority SDOH areas, with 5% of the hospital's capital project costs allocated for community health initiatives.20

The ACA created new community benefit standards that nonprofit hospitals must meet to receive federal tax exemptions (more than 20 states have also established community benefit requirements for state tax exemptions and nonprofit status).21,22 The ACA requires that all US taxexempt hospitals conduct a community health needs assessment at least every 3 years23 and establish a plan to prioritize needs, set targets, and engage community representatives in aligning services, many related to SDOH. Such assessments can guide future hospital activities because most currently direct community benefit activities toward the patient, not the community.24 Also, ongoing congressional scrutiny of nonprofit hospitals,25 as well as legal decisions before and after ACA's passage, underscore the necessity for nonprofit hospitals to adhere to community benefit guidelines. For example, in 2017, the Internal Revenue Service prominently announced revoking a nonprofit hospital's federal tax exemption for failing to conduct and make available a community health needs assessment.26

All these trends have bolstered consideration of Porter and Kramer's "shared value"27 concept, which views business efforts to advance social outcomes as integral to company operations. Such a strategy, distinct from more traditional models of philanthropy or even corporate social responsibility, motivates anchor meds to contribute not just to the health of the community but also potentially to that of their employees, consumers, and the environment.28 Doing so enables hospitals to both promote health equity by addressing SDOH (Table 1)29 and enhance their own business reputations, which can attract employees and patients.

Although most mission or vision statements of the 42 anchor meds reviewed through our Internet search note the importance of community, only about 15 mention "anchor" on their Web site; none explicitly use the term in their mission statements. Without formal certification or standards, the organization usually takes on the anchor designation by itself, usually without a formal board vote.

One exception is the Rush University Medical Center. In 2016, the Rush University Medical Center's board changed its corporate mission from "be the best inpatient care" to "improving health,"30 operationalized by a senior leadership team overseeing human resources, budgets, hiring, local procurement, community engagement, and metrics. This process explicitly started with employee consultations about how to support stronger neighborhoods. As of fiscal year 2018, more than 16% of new hires, close to their goal of 18%, came from Chicago's West Side, the low-wealth community where Rush University Medical Center is targeting its efforts.31

To enhance broader collaboration, Rush University Medical Center also leads CASE (Chicago Anchors for a Strong Economy), a coalition of medical and community stakeholders harnessing the collective power of 16 Chicago anchor institutions to boost the city's overall economy.30 Efforts by the nonprofit public- private partnership World Business Chicago channel financial resources to CASE to support procurement spending for small local businesses. Between 2014 and mid-2017, such efforts led to nearly 50 multiyear contracts worth $51.6 million32; further information on the impact on minority groups and social outcomes is needed.

The Democracy Collaborative has recently recommended anchor planning and action through extensive toolkits33 (each more than 100 pages) regarding (1) workforce and inclusive local hiring to support employment opportunities and job training for local low-income and minority residents, often in partnership with community-based groups; (2) purchasing and inclusive local sourcing to revamp procurement policies to prioritize diverse local suppliers (especially because US health systems spend less than 2% of the estimated $340 billion annually on goods and services through minority- and womenowned business enterprises [MWBEs]); and (3) investment and place-based investing to identify opportunities for bringing resources into community economic development projects through a range of financial assets.33 The toolkits offer various metrics to track outcomes.34-36

Implementing the Anchor Mission

We highlight several prominent anchor meds. To begin, however, we note that almost all available data focus on inputs (e.g., resources invested in SDOH programs or the number ofpeople receiving social needs screenings) with virtually no evaluation information on outputs such as health outcomes. Many organizations await research to demonstrate the long-term benefits of addressing SDOH and health inequities and have chosen anchor strategies to confront ongoing pressing needs.37

Kaiser Permanente. More than 15 years ago, Kaiser Permanente, which is one of the largest US not-for-profit health plans and serves more than 12 million members in 39 hospitals,38 began to increase access to high-quality produce by, for example, updating healthy nutrition standards for food purchased for meetings and events as well as hospital-based farmers' markets.39 In 2005, Kaiser Permanente launched the Kaiser Permanente Community Health Initiative, a community-level approach to reduce obesity in low-wealth neighborhoods through healthy eating and active living.40 The Community Health Initiative invested more than $60 million in 58 communities in Colorado, California, the Pacific Northwest, Maryland, and Georgia.40 A 2018 published evaluation reviewing strategies affecting more than 700 000 individuals found that almost 70% (98 of 143) showed positive behavior change.40 Higherdose strategies showed that the greatest impact occurred with respect to youths in schools: nearly 40% of communities documented increased youth physical activity40 although the evaluation did not measure obesity reductions. Implementation challenges included achieving the "dose" (scale) needed to create positive population health effects.40

Kaiser Permanente then expanded its SDOH commitments and funded housing units for low-income residents, joined a bipartisan coalition (Mayors and CEOs for US Housing Investment), and supported state and local affordable housing policies.41 In 2018, as part of impact investing initiatives that included committing $200 million via its Thriving Communities Fund, it partnered with local nonprofit housing developer Enterprise Community Partners in a joint equity fund that led to purchasing and upgrading a 41-unit affordable apartment building in East Oakland (near Kaiser Permanente's national headquarters).42 The partnership also yielded a $100 million loan fund to build and maintain affordable housing for low-wealth individuals in regions where Kaiser Permanente operates.42

Kaiser Permanente has additionally used its purchasing power to support MWBEs through a national supplier diversity program, spending more than $1 billion annually since 2014.43 Moreover, it revamped its energy strategy with the goal of attaining carbon neutrality by 2020, including renewable energy investments sufficient to power 27 of its hospitals, utility-scale solar and wind farms, and one of the country's largest battery energy storage systems.38

ProMedica. In 2009, ProMedica, a not-for-profit health system headquartered in Toledo, Ohio, embraced an "all-in" anchor mission. Motivated by, among other factors, the 2008 national economic downturn that exacerbated local social needs in northwestern Ohio and southeastern Michigan, ProMedica adopted a new mission statement: "Whoever you are, and wherever you live in our extensive service area, our mission is to improve your health and well-being."37 To support this mission, ProMedica revamped its organizational infrastructure with respect to strategic planning, staffing, and budgeting.

In 2013, ProMedica addressed hunger by screening hospital patients for food insecurity.37 Two years later, it established a "food pharmacy" (where patients could fill prescriptions for healthy food) as well as a nonprofit grocery store (with a teaching kitchen).37 Internal reports note that more than 2200 of more than 57 000 patients screened positive for food insecurity in 201 644 and that the nearly half of Medicaid patients who successfully accessed ProMedica's food pharmacy had substantially decreased hospital readmission rates and monthly member costs44; such preliminary results await more formal evaluation.

In the past several years, ProMedica has expanded its SDOH screening (inpatient and outpatient) as well as other efforts to address education, employment, housing, transportation, and violence.37 For example, it agreed to contribute $11.5 million and raise an additional $10 million37 to strengthen community education, nutrition, employment, and housing as part of the Ebeid Neighborhood Promise45; opened a Financial Opportunity Center (2016) offering access to financial coaching46; and partnered with a local nonprofit to create47 a $25 million, place-based impact pool for capital projects and local MWBEs in low-income neighborhoods.37,48 Metrics include tracking reduction in low birth weight babies and infant mortality, numbers of providers performing screening, needs resolved for patients identified with SDOH issues, improved credit scores, andjobs created. Nationally, ProMedica has partnered with the AARP Foundation to start the Root Cause Coalition, which now involves 65 organizations committed to addressing SDOH and health equity.48

The Greater University Circle Initiative. In a major collaboration joining eds, meds, and civic organizations, the Cleveland Foundation (Cleveland, OH) and local advocates helped create, in 2005, the Greater University Circle Initiative (GUCI), bringing together Case Western Reserve University, University Hospitals, and the Cleveland Clinic.49 Their goal is to boost income and opportunities for the 60 000 residents of the 7 low-income neighborhoods surrounding them. Working to overcome previous inclinations to view each other as rivals, GUCI partners have, over time, worked collaboratively to generate funds and pool resources "to buy locally, hire locally, live locally, and connect" through projects related to housing, transit infrastructure, workforce development, and education and training.49 Collaboration on transportation infrastructure projects alone, amounting to $44 million, allowed relocation of a rapid transit station to, among other things, facilitate access to health care facilities49; evaluation is needed to gauge further outcomes.

GUCI partners have also engaged in various "hire local" initiatives to spur employment of residents from target low-wealth neighborhoods. This included the 2009 launch of 3 "evergreen cooperatives" (local, cooperatively owned businesses): a commercial laundry, a renewable energy equipment installation firm, and a produce cultivation company.

In related efforts, GUCI anchors, which procured $3.6 billion worth of goods and services in 2017, are individually and jointly increasing purchases from local vendors in their overall supplier pool while also working to attract businesses to their neighborhoods.50 During construction of 5 new medical facilities in the early 2000s, University Hospitals, a GUCI anchor, surpassed important procurement standards by exceeding goals of spending 80% of the $1.2 billion project with local and regional suppliers, 15% with minority-owned firms, and 5% with women-owned operations.51 University Hospitals' practice now encourages existing large suppliers to subcontract to local vendors or relocate to Cleveland. University Hospitals' policy also requires that 1 or more MWBE participate in the bidding process for any contract more than $20 000.51 Of the $852 million University Hospitals spent on goods and services (2015), some $62 million flowed to MWBE suppliers and $199 million to Cleveland vendors.51 To foster accountability, the overall supply chain leadership (rather than a single department or position) is responsible for meeting localsourcing goals, and the University Hospitals board of directors receives quarterly updates.51 Cleveland Clinic now also requires select large vendors to procure 10% ofthe total contract from local businesses50; 1 report notes $131 million for certified diverse suppliers in 2016.52

A 7-year internal evaluation report notes outcomes.50 With respect to increasing the local share oftotal anchorprocurement, from 2010 to 2017 the overall value ofpurchasing increased 20% and purchases from businesses in the surrounding county increased 27%-although, purchases from businesses within the city itself decreased 26%.50 Although the Greater Circle Living program aims to support new residents in target neighborhoods with home purchases, rental assistance, home improvements, and exterior repairs, residential construction can also involve higher-income buyers, leaving some residents in fear of being priced out.50

Other examples. Developments across the country, some very recent, reflect rising commitment to anchor themes. Although more detailed description is not possible here, one example is the Atlanta Regional Collaboration for Health Improvement, founded in 2011 by United Way, Atlanta Regional Commission, and the Georgia Health Policy Center, which brings 100 or more partners together in a 28-year strategy to improve regional health.53 Also, in 2018, Intermountain Healthcare, Utah's largest private employer with nearly 40 000 employees54 caring for 45% of the state's population,55 launched the Utah Alliance for the Determinants of Health, a $12-million, 3-year investment for community health, health care access, and reduced health care costs for high-risk Medicaid beneficiaries in 2 underserved counties.56 Moreover, the Newark Anchor Collaborative (2018) made commitments that include enhanced local procurement and accepting the city government's challenge to provide jobs for 2020 unemployed Newark residents by 20 20.57 Meanwhile lessons from the Kaiser Permanente Community Health Initiative have extended to nearly 60 communities in Colorado, California, the Pacific Northwest, Maryland, and Georgia.40

Using Commitments to Social Determinants

Local hiring. Partners Health System, which includes Massachusetts General Hospital and Brigham and Women's Hospital, launched its Partners in Career and Workforce Development program (2003) to provide training, internships, career counseling, job placement, and sustaining wages for low-income community residents.58 Efforts include youth training and internship programs as well as workforce development programs for existing employees, such as higher education tuition reimbursement, loan forgiveness, and online college preparation. In fiscal year 2016, Partners Health System invested $223 million in community health programs targeting low-wealth patients, accounting for 4.2% of its total patient care-related spending that year.58

Local sourcing. Parkland Health and Hospital System (Dallas, TX) has embedded supplier diversity into its localsourcing and contractingpractices, including integrating a full-time supplier diversity manager into the hospital system's supply chain operations, contacting vendors and advocacy agencies about open bids, and offering technical assistance on risk and insurance issues.59 As part of its more than $ 1 billion state-of the-art hospital construction project completed in 2014, Parkland Health and Hospital System awarded MWBE vendors some $400 million in contracts and exceeded its 35% MWBE participation goal.60 Further information is needed about these strategies' effect on improved community health.

Place-based investments. Place-based impact investments -equity venture capital, loans, bonds, or other financial instruments-can theoretically be selfsustaining, ifreturn is at least equal to investment.61 Options include investing through an impact investment fund or through financial intermediaries such as community development financial institutions and banks, partnering with nonprofits or local businesses and developers, or investing directly in specific projects. One report notes the importance of organizations understanding various investing methods and involving residents in pinpointing investment priorities.61

Impact investments commonly address housing insecurity. For example, Dignity Health, which in 2017 devoted some 45% of its $97 million in community development lending to affordable housing,62 has committed to investing up to 5% of its overall investment portfolio to community health nonprofit organizations. Recently merging with the Catholic Health Initiative63 to create CommonSpirit Health (which operates 39 hospitals),64 Dignity Health, since the early 1990s, has provided more than $245 million in loans to support affordable housing, as well as healthy food projects and small business initiatives for low-income people.64 Dignity Health's approach also recognizes the potential long-term consequences on gentrification; many communities remain wary of displacement of long-time residents and small businesses.

Trinity Health, headquartered in Michigan and one of the country's largest Catholic health care systems with 93 hospitals in 22 states,3 has, for more than a decade, provided low-interest loans to low-income organizations through community development financial institution intermediaries.3 Using about 1% of their operating investment portfolio, Trinity Health has invested more than $35 million cumulatively to support loans for affordable housing, early childhood education, and other urban revitalization efforts.3 Bon Secours Mercy Health, a nonprofit Catholic institution headquartered in Maryland with acute care hospitals and other facilities in 7 states,65 aims to invest up to 5% of its long-term reserve fund with intermediaries such as community development financial institutions to support low-income communities.66 Since 2008, it has spent more than $26 million, or about 2.5% of its $1 billion long-term reserve fund, to support community projects such as affordable housing and economic development.66

Evaluation. Crucial questions center on how best to monitor outcomes and impact. Standardized metrics for monitoring outcomes, especially health outcomes, need dedicated development. The Democracy Collaborative's Anchor Dashboard (Table 1) serves as a starting point for core measures that institutions and low-income communities care about and find relevant29; domains include poverty, segregation, availability of modest-cost housing, and levels of income inequality.67 Few indicators, however, are specifically dedicated to health. Tracking outcomes not only monitor progress but also flag developments that could run counter to the goals of anchor strategies, such as gentrification, which can push low-income groups out of the community. Any evaluation should involve communities to assess anchor med activity. Aligning assessments from the community health needs assessment process could also offer an integrated way to determine action priorities.68 70

Anchor meds can also integrate evaluation and activities with other national community health improvement efforts. The Center for Disease Control and Prevention's HI-571 initiative focuses on 14 evidence-based, communitywide, population health interventions. CityHealth (an initiative of the de Beaumont Foundation and Kaiser Permanente)72 rates the nation's 40 largest cities based on their adoption of 9 evidencebased policies to improve community health. Other evaluation-related efforts include Kaiser Permanente's collaboration with the Robert Wood Johnson Foundation to build consensus on metrics for measuring SDOH outcomes (Social Intervention Research and Evaluations Network, or SIREN as well as Kaiser Permanente's recently launched social program benchmarking initiative (known as Social Needs Network for Evaluation and Translation, or SONNET).73 At the national level, Healthy People tracks leading health indicators that could be incorporated into many anchor med activities.74

DISCUSSION

This analysis provides some initial insights into anchor meds, including the importance of (1) a strong anchor mission and narrative; (2) robust partnerships with community institutions that have the readiness, capacity, and commitment to engage; (3) willingness to commit years of time engaging key internal and external audiences because "change happens at the speed of trust"; and (4) identifying collaborative projects attractive enough to gain private and public funding. These efforts broaden the current definition of community health improvement.22

Our analysis can also stimulate further discussion on options regarding the relative responsibilities and roles ofprivate institutions and government in addressing SDOH. Such discussion is vital in an era when more attention is being focused on value-based payment for care and population health management. Policy incentives from state and local government leaders could determine how anchor meds grow, or transition to, another platform to address SDOH and work with policymakers to drive positive social change.22 Exploring future directions for place-based investments will be critical for communities.

Challenges for anchor meds remain considerable, however. Making the concept take hold will require overcoming longstanding mistrust between institutions and community members. Most anchor meds are health systems; it remains to be seen how well individual hospitals can mobilize and use resources for community impact. Nonalignment of anchor priorities can create competition between anchors in the marketplace and disagreements about credit and branding. Formal standards and criteria are necessary to clarify the breadth and depth of community commitments and to identify how best to monitor key outcomes. Articulating a model of change for the anchor institution movement could help evaluate future approaches. Developing measurable indicators demonstrating improved living conditions for communities without displacing poor residents through gentrification remains a majorpriority. Although a number of anchor meds have substantial commitments and activities, few, if any, have data on outcomes related to health and health equity. Outcomes noted in internal reports need validation and more formal evaluation in the peer-reviewed literature.

Despite these challenges, forces of community need, advocacy, politics, and business strategy have clearly begun converging to animate the growth and development of anchor meds. More dedicated research can define how they can shape the future of population health and health equity. /4JPI-I

CONTRIBUTORS

H. K. Koh conceptualized the study and oversaw data collection and analysis, writing, and revisions. A. Bantham and P. Yatsko contributed to data collection and key informant interviews. A. Bantham, P. Yatsko, A. C. Geller, K.M. Emmons, M.A. Rukavina, and R. Restuccia contributed to data analysis and critical review of the essay. A. Bantham, P. Yatsko, A. C. Geller, and K. M. Emmons contributed to writing and revisions. A. C. Geller and K. M. Emmons contributed to study methodology. M. A. Rukavina and R. Restuccia contributed to data analysis and revisions. All authors, except R. Restuccia, who passed away before the essay was completed, approved the final version to be published.

ACKNOWLEDGMENTS

This work was supported in part by the Robert Wood Johnson Foundation (award 74275 to H. K. K. and A. C. G.) and the Harvard Catalyst Community Engagement Program, Harvard Clinical and Translation Science Center (award UL1TR002541 to K. M. E. andH. K. K.).

We thank Kirk Vanda, MBA, for his invaluable help. We dedicate this article to the life and legacy of Rob Restuccia.

Note. The opinions expressed in this essay represent the personal views of the authors and not necessarily those of their employers or the Robert Wood Johnson Foundation. Any reference to a business, product, or service does not represent endorsement.

CONFLICTS OF INTEREST

The authors declare no conflict of interest or financial conflicts.

HUMAN PARTICIPANT PROTECTION

No protocol approval was necessary because no human participants were involved in this study.

Sidebar

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This article was accepted October 25, 2019.

doi: 10.2105/AJPH.2019.305472

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DETAILS

Subject:	Public health; Collaboration; Community relations; Race relations; Literature reviews; Institutions; Nonprofit hospitals; Hospitals; Certificates of need; Nonprofit organizations; Social responsibility; Best practice; Employees; Tax exemptions; Health planning; Operational definitions
Business indexing term:	Subject: Social responsibility Best practice Employees Tax exemptions; Industry: 62211 : General Medical and Surgical Hospitals
Location:	United States--US; Massachusetts
Classification:	62211: General Medical and Surgical Hospitals
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	309-316
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association

Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305472
ProQuest document ID:	2371367247
Document URL:	https://www.proquest.com/scholarly-journals/anchor-institutions-best-practices-address-social/docview/2371367247/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-09-07
Database:	Public Health Database

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30 Years Ago/41 Years Ago

Anonymous

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FULL TEXT

Public Health's Responsibility for Training Environmental Health Leaders

The public health community has not perceived the environmental health workforce as a priorityor as their responsibility for the past 20 years. This abrogation of public health leadership has contributed to the widespread deficits of properly trained environmental health personnel. . . . Individuals with little knowledge of epidemiology, biostatistics, toxicology, and risk assessment are filling key environmental agency positions which require such knowledge. ...Toa significantdegree, schools of public health have also abrogated their responsibility to educate environmental health practitioners. Most of today's environmental health practitioners are being trained in accredited environmental health programs outside schools of public health.

From AJPH, August 1990, p. 904

41 Years Ago

Environmental Health Manpower: EPA's Role

In 1977, the National Academy of Sciences issued its comprehensive report, . . . which prescribed a major role for the U.S. Environmental Protection Agency in ensuring an adequate supply of well-trained environmental professionals to meet the nation's long-term needs_There are... major actions which EPA should take to assure an adequate supply of professional pollution control specialists: 1. Encourage, stimulate, and support a strong leadership role by state environmental protection agencies in the higher education and training of professional environmental pollution control personnel.... 2. Provide direct continuing technical and financial support to a select group of universities for the development and conduct of professional level specialized training programs in environmentalcontrol.The universities selected for this assistance . . . should be geographically distributed so that every region in the country would have at least one such institution.

From AJPH, February 1979, pp. 118-119 passim

DETAILS

Subject:	Public health; Environmental health; Public health education; Environmental protection
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	261
Number of pages:	1
Publication year:	2020
Publication date:	Mar 2020
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
ProQuest document ID:	2371367230

Document URL:	https://www.proquest.com/scholarly-journals/30-years-ago-41/docview/2371367230/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Eliminating Gaps in Medicaid Coverage During Reentry After Incarceration

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ABSTRACT (ENGLISH)

This commentary explores the health and social challenges associated with gaps in Medicaid health insurance coverage for adults and youths exiting the US criminal justice system, and highlights some potential solutions. Because a high proportion of recently incarcerated people come from low-income backgrounds and experience a high burden of disease, the Medicaid program plays an important role in ensuring access to care for this population. However, the Medicaid Inmate Exclusion Policy, or "inmate exclusion," leads to Medicaid being terminated or suspended upon incarceration, often resulting in gaps in Medicaid coverage at release. These coverage gaps interact with individual-level and population-level factors to influence key health and social outcomes associated with recidivism. Ensuring Medicaid coverage upon release is an important, feasible component of structural change to alleviate health inequities and reduce recidivism. High-yield opportunities to ensure continuous coverage exist at the time of Medicaid suspension or termination and during incarceration prior to release. (Am J Public Health. 2020;110:317-321. doi:10.2105/ AJPH.2019.305400)

FULL TEXT

Headnote

This commentary explores the health and social challenges associated with gaps in Medicaid health insurance coverage for adults and youths exiting the US criminal justice system, and highlights some potential solutions. Because a high proportion of recently incarcerated people come from low-income backgrounds and experience a high burden of disease, the Medicaid program plays an important role in ensuring access to care for this population. However, the Medicaid Inmate Exclusion Policy, or "inmate exclusion," leads to Medicaid being terminated or suspended upon incarceration, often resulting in gaps in Medicaid coverage at release. These coverage gaps interact with individual-level and population-level factors to influence key health and social outcomes associated with recidivism.

Ensuring Medicaid coverage upon release is an important, feasible component of structural change to alleviate health inequities and reduce recidivism. High-yield opportunities to ensure continuous coverage exist at the time of Medicaid suspension or termination and during incarceration prior to release. (Am J Public Health. 2020;110:317-321. doi:10.2105/ AJPH.2019.305400)

On any given day in the United States, approximately 2.2 million adults and 45 000 youths are incarcerated in prisons or jails, or in residential placement in juvenile facilities.1,2 Incarceration has long-term health,3,4 social,5 and economic6 consequences in the lives of adults and youths. One important pathway to these negative consequences is often overlooked: the disruption in Medicaid coverage at intake.

A high proportion of people in the criminal justice system are eligible for Medicaid. This is especially true in states that expanded Medicaid under the Patient Protection and Affordable Care Act (ACA), where it is estimated that 80% to 90% of incarcerated people are now eligible.7 Given that 650 000 people are released from prison8 and more than 10 million are admitted to local jails annually,9 Medicaid is an important form ofhealth insurance coverage for at least several hundred thousand justice-involved individuals each year.

However, because of federal legislation that established the Medicaid Inmate Exclusion Policy, or "inmate exclusion," nearly all incarcerated people on Medicaid lose coverage upon entering the criminal justice system.10 The inmate exclusion prohibits payment of federal Medicaid funds for services provided to an "inmate of a public institution," except when the person is a "patient in a medical institution,"11 typically only for inpatient care. As a result, Medicaid is commonly suspended or terminated at intake. The exclusion applies both to adults in correctional facilities and to youths who have been involuntarily detained.12 Too often, this disruption means that people who arrived with Medicaid leave the correctional system without insurance coverage.

Prior literature has emphasized the negative impact of the inmate exclusion on health care quality during incarceration.13 We extend this discussion by highlighting the law's impact during an incarcerated person's reentry to the community. It is likely that the disruption in Medicaid coverage caused by the inmate exclusion contributes to persistent low rates of insurance coverage among formerly incarcerated people. Even after implementation of the ACA, in 2014, over 30% of nonelderly adults with recent justice system involvement remained uninsured, compared with 15% ofthose with no involvement.14 Thus, despite the landmark case Estelle v. Gamble, which established a right to health care during imprisonment,15 current law may actively create barriers to care following imprisonment by causing Medicaid disenrollment or suspension. Beyond legal rights, the inmate exclusion may also threaten the human right to health by limiting access to services.16 In this commentary, we examine the issue of gaps in Medicaid coverage for people reentering the community after incarceration, and propose solutions to disrupt current trends.

IMPORTANCE OF MEDICAID AFTER INCARCERATION

Under the ACA, adults in Medicaid expansion states can qualify for coverage if their household income is below 138% of the federal poverty level.17 A large proportion of formerly incarcerated people meet this criterion. One study found that in the year after incarceration only 55% of working-age men reported earnings, with median annual earnings of $10 090, signifying that most would qualify for Medicaid after release.18

Medicaid is also important because of the disproportionate disease burden in the incarcerated population. One analysis found that compared with the general population aged 18 to 65 years, adults in prison had 1.2 times the odds of having hypertension, 1.3 times the odds of asthma, 4.2 times the odds of hepatitis, and 4.8 times the odds of cervical cancer.19 Over half of incarcerated adults meet criteria for drug dependence or abuse, and between 15% and 25% meet criteria for serious psychological distress, compared with 5% of the general population.20,21 Similar trends of disproportionate morbidity exist for youths. Approximately 50% to 75% of justice-involved youths meet criteria for a mental health disorder.22 This population also experiences high rates ofsubstance use disorder, sexually transmitted infections, and reproductive health needs compared with the general youth population.23 Table A (available as a supplement to the online version of this article at http://www.ajph.org) compares the health status, utilization, and insurance coverage of justice-involved individuals and the general population.

These health conditions can be exacerbated by reentry, when formerly incarcerated people often face difficulties related to unemployment, housing, reconnecting with services, and reestablishing social connections. For example, one analysis found that self-reported health status worsened for those with physical health conditions during the year following release. During incarceration, one quarter of men and one third of women rated their health as fair or poor, whereas after release one third of men and half of women reported fair or poor health.26 A national study using Medicare data found that formerly incarcerated people had 2.5 times the odds ofmatched controls of being hospitalized within 7 days of release.27 A similar study found that compared with adults with no criminal justice involvement, adults on parole had 1.2 times the odds of having been hospitalized in the past year and 1.4 times the odds of an emergency department visit.28 Formerly incarcerated people also experience markedly high mortality during reentry. One analysis found that justice-involved individuals had 12.7 times the risk of death within two weeks after release compared with state residents ofthe same age, gender, and race, and 3.5 times the risk of death during the average follow-up period of 1.9 years.29

Ensuring access to preventive health services during reentry may be especially critical for incarcerated people with mental illness or substance use disorder. One study ofpeople on parole in California found that 53% of those with mental illness were reincarcerated within one year, compared with 30% of those without mental illness. Importantly, reincarceration for those with mental illness was often due to technical violations such as failing to attend mental health appointments.30 Similarly, a systematic review of behavioral health interventions concluded that providing interventions after release is important for preventing recidivism.31 Medicaid coverage could thus reduce risk of reoffending by increasing access to behavioral health care. Indeed, Medicaid has been associated with increased utilization of mental health and substance use treatment among formerly incarcerated people,14 suggesting that coverage may be key to successful reentry.

Additional subpopulations may be highly affected by gaps in Medicaid coverage. For example, continuity of coverage may be important for youths, given the biological and psychological vulnerability associated with their age.32 At the same time, older incarcerated people are likely to have higher rates and earlier onset of geriatric conditions compared with nonincarcerated older adults,33 and may rely on Medicaid until eligible for Medicare. Furthermore, because structural inequities lead to a disproportionate rate of both poor health and incarceration for people of color,34 36 Medicaid coverage during reentry may be particularly important for incarcerated people from diverse racial and ethnic backgrounds.

HEALTH AND SOCIAL EFFECTS OF GAPS IN COVERAGE

Because Medicaid plays a crucial role in the lives of justice-involved people, it is imperative to understand how the inmate exclusion influences gaps in coverage, and thereby affects health and social outcomes. We developed a conceptual diagram of how the inmate exclusion may affect these factors (Figure A, available as a supplement to this article at http://www.ajph.org).

It is important to recognize that the inmate exclusion operates in the context of populationlevel inequities that influence how individuals experience health care and the criminal justice system. For example, in 2017, sentenced Black males were imprisoned in state and federal facilities at nearly six times the rate of White males.37 As has been extensively documented, structural racism leads to high rates of both incarceration and morbidity for people of color,34 and researchers have documented links between incarceration and health disparities between racial groups.35,36 Related to these systemic inequities, individual-level factors such as health, socioeconomic status, and prior interactions with the legal system also influence risk of incarceration,38 leading to disproportionate rates of Medicaid suspension and termination for certain populations.

Upon incarceration, disruption of Medicaid places a burden of reenrollment on agencies and justice-involved people.39 Additional research is needed to confirm the causes of discontinuous Medicaid coverage at release, but it is likely that resource and process barriers within correctional and Medicaid organizations contribute to coverage gaps. In addition, release dates can be unpredictable, making it difficult to coordinate the timing of Medicaid applications. One study of people with severe mental illness in jail found that 49% were released through unpredictable mechanisms and only 19% had adequate time for reentry planning.40 As a result, eligible people may frequently not be enrolled in Medicaid upon release.

Unfortunately, current literature provides limited information on the prevalence of Medicaid coverage gaps during reentry for the justice-involved population. However, it is clear that gaps occur.14,41 One pre-ACA study of formerly incarcerated people found that 78% of men and 66% ofwomen were uninsured two to three months after release, and 68% of men and 58% of women were still uninsured eight to 10 months later.26 Studies of the general population have documented associations between gaps in Medicaid coverage and increased emergency room use,42,43 increased rates of hospitalization for chronic conditions,44 and decreased rates of filling prescriptions.42 Given the high burden of disease and challenges of reentry, it is likely that these adverse utilization patterns in the general population could be even more harmful for formerly incarcerated people who experience discontinuous Medicaid coverage.

In addition to potential negative health effects, gaps in Medicaid coverage during reentry may be linked to recidivism. One study of people with HIV undergoing reentry found that those with health insurance during the 30 days following release had approximately 60% lower odds of recidivism compared with those without insurance, and that being uninsured was associated with shorter time to reincarceration.45 Thus, gaps in Medicaid coverage can perpetuate social inequities by contributing to cycles of reincarceration, rather than treatment and rehabilitation.

POINTS OF INTERVENTION AND MODEL STRATEGIES

Literature on Medicaid enrollment during reentry indicates two main opportunities for intervention to eliminate gaps in coverage: (1) at the point of Medicaid suspension or termination and (2) prior to release, either during reentry or earlier in incarceration.

Suspension or Termination

The most far-reaching strategy to eliminate gaps in Medicaid during reentry would be ending the inmate exclusion, allowing federal Medicaid funds to pay for preventive and other nonemergency medical care during incarceration. Removing the payment restriction could improve quality of care during incarceration by increasing treatment options, especially for substance use disorder.13 It would also greatly reduce or eliminate gaps in Medicaid coverage during reentry, thereby addressing an important factor that contributes to adverse outcomes. Although ending the inmate exclusion would require federal legislation or a successful judicial challenge, doing so would relieve the administrative burden associated with suspending or terminating Medicaid,39 and mitigate the negative outcomes that occur when recently incarcerated people face coverage gaps.

Although less impactful than ending the inmate exclusion, the effect of Medicaid disruption could be lessened by adopting suspension-only policies that temporarily inactivate, rather than terminate, coverage. Currently, about one in four states terminate, rather than suspend, Medicaid.46 Suspension has been associated with timely Medicaid reactivation,47 and advocates note that it requires little administrative burden and can often be implemented without legislation.48

Notably, and relevant to youths, in 2018 the federal government passed the Substance Use-disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act (SUPPORT for Patients and Communities Act), H.R.6,49 which instructed that states "shall not terminate eligibility for medical assistance" and "may suspend coverage" for youths in the juvenile justice system. This statute will likely mitigate issues associated with Medicaid coverage gaps for youths, as changing state policy from termination to suspension has been associated with improved continuity ofinsurance.50 One high-impact strategy may be for stakeholders to ensure effective implementation of the SUPPORT for Patients and Communities Act so that Medicaid is no longer terminated for justice-involved youths.

Opportunities Prior to Release

Another approach encouraged by the SUPPORT for Patients and Communities Act, for both youths and adults, is pursuing "innovative strategies" to ensure that eligible people are enrolled in Medicaid upon release.49 Model strategies for enrollment already exist in many jurisdictions. Under a Section 1115 Medicaid waiver, the Cook County Jail in Illinois implemented a program to enroll incarcerated people in Medicaid at intake; intake was selected rather than reentry because release can occur at unpredictable times, leading to incomplete screening.51 A similar program in Connecticut enrolled detained people in health insurance prior to trial.52 In North Carolina, a state that did not expand Medicaid, a program to enroll hospitalized incarcerated people in Medicaid led to approximately $10 million in savings for the state's prison system, and demonstrated the importance of projected cost savings in generating legislation.53 Programs that enroll people during incarceration can also reach those who are eligible for Medicaid but not enrolled at intake, thereby widening access to health care services when formerly incarcerated people return to their home communities.

Reducing the amount oftime required to process Medicaid applications may also help eliminate gaps in coverage. In Washington State, a program to expedite coverage for incarcerated and institutionalized people with mental illness increased Medicaid enrollment and use of outpatient mental health services within 90 days of release.54

Additionally, once people are enrolled in Medicaid, there may be value in helping them navigate the health system. An evaluation ofa health insurance literacy curriculum for incarcerated people in Montana found that participants improved their knowledge of the ACA and health insurance plans.55

Reducing administrative silos between Medicaid and criminal justice agencies could also facilitate Medicaid enrollment during reentry by enabling information transfer and establishing interorganizational processes. For example, government agencies in Arizona and Washington State strengthened data systems to improve information sharing between health care and correctional institutions, with a goal of enrolling justice-involved people in insurance.56 Public agencies in Maryland and in Los Angeles County, California also established organizational infrastructure that engaged staff across agencies to link incarcerated people to health insurance and services upon release.57

Finally, states that have not yet expanded Medicaid under the ACA should consider the impact of Medicaid restrictions for the criminal justice system. One commentary underscored Medicaid expansion in Southern states as an important opportunity to improve health outcomes for justice-involved people.58 Another analysis argued that Medicaid expansion will be most effective for incarcerated people if it involves cross-sector coordination between health care organizations and correctional institutions, and is accompanied by a suspension-only policy.59

CONCLUSIONS

There is a need for action to eliminate gaps in Medicaid coverage at release from incarceration. Given the success of current initiatives that prevent coverage gaps, policymakers and practitioners should consider scaling up existing models. It may also be beneficial to expand policies developed in the juvenile justice context to the adult context. For example, the prohibition on Medicaid termination stipulated in the SUPPORT for Patients and Communities Act could be extended to the adult correctional system. Additionally, as public discourse continues around health reform in the United States, it may be strategic to include provisions in future legislation that eliminate or mitigate the negative impacts of the inmate exclusion. To inform policy development, research should identify the prevalence and impact of gaps in Medicaid coverage during reentry, and evaluate prospective solutions. Implementing these or other strategies to ensure Medicaid continuity during reentry represents a feasible, high-yield opportunity to transform current systems to reduce recidivism and alleviate health inequity. ÂjPU

CONTRIBUTORS

E. M. Albertson conceptualized and drafted the article. C. Scannell, N. Ashtari, and E. Barnert contributed to conceptualization and provided critical input at all stages of article development.

ACKNOWLEDGMENTS

E.M. Albertson was supported by a National Institutes ofHealth/National Center for Advancing Translational Science UCLA CTSI grant (TL1TR001883). C. Scannell was supported by the VA Office of Academic Affiliations through the VA Advanced Fellowship National Clinician Scholars Program. E. Barnert was supported by the National Institute on Drug Abuse (K23 DA045747-01), by the California Community Foundation (BA-19-154836), and by the UCLA Children's Discovery and Innovation Institute.

Note. The contents of this article do not necessarily represent the views of the US Department of Veterans Affairs, the United States Government, or other institutions that supported members of the research team.

CONFLICTS OF INTEREST

There are no conflicts of interest for any of the authors.

Sidebar

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This article was accepted September 15, 2019.

doi: 10.2105/AJPH.2019.305400

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DETAILS

Subject:	Population; Judicial system; Public health; Medicaid; Trends; Health care policy; Mental health care; Mental disorders; Health disparities; Criminal justice; Juvenile justice; Prisons; Government programs; Influence; Health care industry; Crime; Recidivism; Adults; Minority &ethnic groups; Imprisonment; Low income groups; Drug use; Population policy; Health insurance; Patient Protection &Affordable Care Act 2010-US; Medicare; Insurance coverage; Health care access; Mental health
Business indexing term:	Subject: Medicaid Patient Protection &Affordable Care Act 2010-US Medicare Insurance coverage Health insurance
Location:	United States--US
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	317-321
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305400
ProQuest document ID:	2371367217

Document URL:	https://www.proquest.com/scholarly-journals/eliminating-gaps-medicaid-coverage-during-reentry/docview/2371367217/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

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Identifying Needs for Advancing the Profession and Workforce in Environmental Health

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ProQuest document link

ABSTRACT (ENGLISH)

An ever-changing landscape for environmental health (EH) requires in-depth assessment and analysis of the current challenges and emerging issues faced by EH professionals. The Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health initiative addressed this need. After receiving responses from more than 1700 practitioners, during an in-person workshop, focus groups identified and described priority problems and supplied context on addressing the significant challenges facing EH professionals with state health agencies and local health departments. The focus groups developed specific problem statements detailing the EH profession and workforce's prevailing challenges and needs according to 6 themes, including effective leadership, workforce development, equipment and technology, information systems and data, garnering support, and partnerships and collaboration. We describe the identified priority problems and needs and provide recommendations for ensuring a strong and robust EH profession and workforce ready to address tomorrow's challenges. (Am J Public Health. 2020;110:288-294. doi:10.2105/ AJPH.2019.305441)

FULL TEXT

Headnote

An ever-changing landscape for environmental health (EH) requires in-depth assessment and analysis of the current challenges and emerging issues faced by EH professionals. The Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health initiative addressed this need.

After receiving responses from more than 1700 practitioners, during an in-person workshop, focus groups identified and described priority problems and supplied context on addressing the significant challenges facing EH professionals with state health agencies and local health departments. The focus groups developed specific problem statements detailing the EH profession and workforce's prevailing challenges and needs according to 6 themes, including effective leadership, workforce development, equipment and technology, information systems and data, garnering support, and partnerships and collaboration.

We describe the identified priority problems and needs and provide recommendations for ensuring a strong and robust EH profession and workforce ready to address tomorrow's challenges. (Am J Public Health. 2020;110:288-294. doi:10.2105/ AJPH.2019.305441)

Public health is evolving with a focus on enhancing leadership capabilities and data-driven decision-making, demonstrating improvements in community health outcomes, and preparing a workforce that is equipped to tackle current and future challenges.1,2 Environmental health (EH) is a foundational area of state health agencies and local health departments3 and is in the midst of this transformation with rapidly increasing and expanding responsibilities for responding to emerging issues and emergencies to protect the public from exposures to environmental hazards. Extreme weather events and natural disasters, Legionnaires' disease outbreaks, and establishing new regulatory processes for cottage foods and food additives are examples ofcomplex challenges stressing the EH profession. Although charged with critical responsibilities for addressing these challenges, the EH workforce struggles with needs for increased resources in areas such as information technology and workforce development.

In 1942, Kroeze noted that the role ofsanitarians, now commonly classified as EH professionals:

is being further expanded through the broader program of local sanitation work resulting from better coverage of previously recognized problems and also the appearance of new modern problems.4(p613)

This perspective has been consistently echoed within the EH profession in response to an ever-changing technological, societal, and political landscape.5,6 Considering these changing landscapes, it is paramount to develop a comprehensive understanding ofneeds and implications to ensure that the EH profession and workforce can respond to emerging issues. In fact, a need remains to define what resources and tools EH professionals in health departments will need to effectively deliver the "10 essential environmental public health services," which describe the necessary actions for protecting and improving EH.7

In response to this need, the Centers for Disease Control and Prevention (CDC), the National Environmental Health Association, and Baylor University conducted an assessment of the EH workforce of US state, tribal, local, and territorial public health departments. This unique initiative, Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health (UNCOVER EH), consisted of a Web-based assessment and 2 in-person workshops.8 The first in-person workshop was held in June 2018 during the National Environmental Health Association (NEHA), Annual Educational Conference in Anaheim, California. This initial workshop focused on EH programmatic and technical areas (e.g., drinking water quality, food safety, vector control) and identified timely EH practice and research needs.9 The second in-person workshop, held in August 2018 at the NEHA headquarters in Denver, Colorado, examined topics affecting EH professionals in state health agencies and local health departments (e.g., leadership, partnerships, workforce development). We present and analyze the priority problems and needs determined during the second in-person workshop and provide recommendations for strengthening the EH profession and workforce.

PRIORITY ISSUES AND NEEDS

The focus groups produced 29 problem statements organized by 6 preidentified themes, including effective leadership, workforce development, equipment and technology, information systems and data, garnering support, and partnerships and collaboration. A focus group methods description is provided in the appendix (available as a supplement to the online version of this article at http://www.ajph.org). The problem statements identify and provide context on the priority issues and challenges facing the EH profession and workforce. We present the key issues represented in the problem statements, discuss their implications, and provide recommendations, which are summarized in the box on page 290.

Effective Leadership

Across the related problem statements, key challenges are characterized by leaders' needs to increase knowledge, skills, and competencies for effectively leading EH programs and their professionals. These needs are compounded by limited availability of leadership training and development opportunities and by not institutionalizing aspects of leadership into workforce development and planning efforts (see the box on page 291). This situation is further complicated by politics that influence leaders' decision-making processes. The upcoming cadre of EH professionals must have opportunities to build strong leadership capabilities and be empowered to lead their organizations.

Needs for strengthening EH professional leadership competencies have been previously identified and recognized as a significant challenge.10 Although the EH workforce continues to face longstanding challenges in this area, Public Health 3.0, a recent initiative to advance public health, reinforces a strategic perspective while encouraging leaders to enhance capabilities to address public health challenges that include systematic and datadriven approaches.1 Although leadership training is recognized as an important need for the EH workforce,8 there are limited opportunities for training and development opportunities.

Establishing formal training programs can address gaps in leadership development and aid in building related competencies. For example, the Environmental Public Health Leadership Institute, funded by the CDC for 8 years (2004-2011) provided classroom and practice-based education and experience in areas such as partnership building, conflict resolution, problem solving, and systems thinking for more than 200 EH professionals.11 Participation in this leadership institute was intended to build and strengthen a range of leadership abilities and empowered graduates to bring about organizational change.12 However, programs such as these are resource intensive and difficult to sustain.

Considering the resourceintensive nature of national-level leadership institutes, exploring possible frameworks for implementing state- or local-level programs is a viable approach for facilitating comprehensive EH professional leadership training opportunities. Establishing and encouraging the development of formal mentorship programs is a key component of fostering EH leadership competency building. The National Association of County and City Health Official's Retail Food Program Standards Mentorship Program is an example of a multifaceted mentorship program that facilitates mentor-mentee relationships and interaction.13 These efforts require a concerted effort among stakeholders, including governmental and nongovernmental organizations, to establish the frameworks, develop curricula, and provide resources and tools for jurisdictions across the nation to use.

Workforce Development

There is an overarching need to standardize EH professional qualifications, educational requirements, and credentialing to enhance the ability to generate evidence of the profession's effectiveness and value to support and inform workforce development initiatives (see the box on page 291). Varied educational and credentialing requirements contribute to a poorly defined profession and hinder support for enhancing the EH workforce and increasing awareness of the services delivered by EH professionals. Developing a standard identity for the profession can lead to greater appreciation and recognition for the EH profession, which would ultimately attract more highly qualified candidates to the workforce.

The state health agency and local health department workforce, of which EH is one of the largest segments, has been subject to recent challenges affecting recruitment and retention of staff.14-16 In recent years, local health department EH programs have experienced budget cuts and reductions in services along with a reduction of more than 2000 EH full-time equivalents over an 8-year period (2008-2016).15,17 Additionally, the EH workforce appears to be aging with the highest percentages of EH professionals older than 45 years, whereas approximately a quarter of the workforce plans to retire within 5 years.8 In some locallevel jurisdictions, finances and capacity are stabilizing, potentially presenting an opportunity to strengthen the EH workforce and services delivery system.17,18 However, lack of a common identity for the EH professional is an area of concern and hinders workforce development efforts regardless of available resources.

Effective design and implementation of workforce development efforts depends heavily on the ability to accurately describe and identify the professionals ofa particular discipline and its practice. Discrepancies in defining and describing professions and credentialing apply to the general public health workforce and specifically to EH.19,20 This contributes to EH being an "invisible" profession whose efforts often go unnoticed because of the preventive nature of its work.6,21

Nationally, EH professional and workforce characteristics such as educational background, credentials, andjob titles appear to vary greatly, which presents challenges for describing the EH profession and professionals working in health departments.8 Describing the profession is further complicated at the organizational level by wide variation in health department EH program characteristics and differences in locallevel EH services delivery, which is associated with governance type (e.g., state-governed local health departments vs home rule jurisdictions) among other organizational characteristics.22 Public health workforce taxonomy is an approach to describing public health workforce characteristics23; however, a consolidated strategy is needed for standardizing such criteria specific to the EH profession for establishing a professional identity along with the educational and credential requirements necessary for ensuring accurate and effective workforce development efforts.

Equipment and Technology

EH professionals routinely conduct inspections and complex investigations that require sophisticated equipment and technological resources. However, resource limitations, specifically lack of advanced instrumentation and technologies, hinder abilities to consistently and effectively deliver essential services (see the box at the top of page 292). Additionally, the availability of current technologies, equipment maintenance, and replacement of aging equipment used for inspections and investigations is inconsistent among health departments and is highly dependent on the availability of financial resources.

Increasing the availability of resources such as modern electronic inspection software can increase efficiencies and economic benefits. Otherwise, resource limitations limit the quality of routine services and responses to emergencies, potentially leaving local communities at risk. Demonstrating potential gains in productivity or return on investment for adopting new technologies, such as shifting from paper-based processes to electronic inspections, can provide important information for realizing economic benefits and encouraging resource allocation for acquiring new technologies. Implementing data management systems that seamlessly transfer information among software systems is another important consideration for EH professionals.

A collaborative effort, facilitated at the national level, needs to be established for sharing information pertaining to advances in equipment and technology. Promoting training and sharing information on new technologies can increase awareness and support for acquisition or adoption of new equipment and technologies. One result of the collaborative should be developing a repository that houses resources and information, including best practices, success stories, training descriptions, core laboratory service providers, and other materials demonstrating the effective application, return on investment, and utility of various EH inspection and investigation instrumentation and technologies.

Information Systems and Data

EH information and data management systems are commonly available, yet levels oftheir capacity, utility, and use of existing data vary across jurisdictions (see the box at the top of page 292). Additionally, diverse data sets from national surveillance systems along with local and state-level data sources are available; however, these inconsistently focus on particular EH topic areas and are difficult to integrate. These limitations affect the potential use of data to identify emerging EH issues and determine the effectiveness of EH services and their impact on health outcomes. Increased consistency and capacity of these systems can support the use ofdata to inform and drive improvements in essential EH services.

Public health informatics embraces the use of actionable data for advancing efforts to address community health concerns and other determinants of health leading to inequities.24 Initiatives to promote the use ofinformatics to show the collective value of EH services and activities could spur the use of diverse data streams and analytics to advance EH practice. As the role for informatics increases, there are related training needs for the local health department workforce and identified gaps in EH professionals' skills and abilities in data collection and analysis.8,25 Incorporating related core competencies into workforce development efforts for the public health workforce in general and EH professionals in particular can build EH professionals' abilities to gather, analyze, and interpret data.26-28

To address the identified information system and data use challenges, the development of comprehensive guidance or frameworks, with engagement of EH programs and professionals with informatics experience and expertise, is needed for identifying appropriate information systems and functionality to meet jurisdictional needs for collecting, managing, and analyzing data. This guidance must also include resources and recommended training for increasing informatics-related workforce competencies. In terms of surveillance systems, conducting an evaluation of current and universally accessible EH-related surveillance systems and possibilities for data integration will increase the understanding of potential uses and application for monitoring EH issues in communities served and examining the impact of EH services.

Garnering Support

Support for the EH profession fluctuates with changing economic and political conditions and influences, which leads to inconsistent and unsustainable programs and services (see the box at the bottom of page 292). EH inclusion and strengthened contributions to initiatives, such as national voluntary accreditation for public health departments, could increase recognition and support. However, a persisting lack of awareness of the EH profession, its benefits, and its contributions to public health is a barrier to realizing its value and sustaining funding. Using data to generate this evidence coupled with effective messaging to build advocacy is crucial for increasing the awareness of the profession and its value.

In the broader public health context, more research is needed on workforce effectiveness.29 Generating data on the work of the EH profession and its impact on improving health outcomes is necessary for increasing awareness of the profession's value and importance. The National Environmental Health Partnership Council's exploratory study examining the value of EH services provided a key statement, "Environmental public health action saves lives, saves money and saves the future."30(p1) The council's report revealed evidence of the economic value of EH services; however, it acknowledged critical gaps in evaluating the health impacts and benefits of EH interventions.30 Undertaking a similar study is a necessary step forward for describing the impact of EH services or interventions on improving health outcomes. In addition, the study needs to identify appropriate and reliable health and environmental outcome indicators for measuring impact but also to support ongoing EH surveillance, which is necessary for the longitudinal monitoring of EH hazard trends and health effects.31 These results could catalyze jurisdictional approaches to establishing specific indicators to measure successes and inform decision-making about the effective delivery of EH services. This effort can produce invaluable information for marketing efforts for the EH profession, similar to a recent initiative that sought to understand effective ways to communicate with the public about the field of EH.32 Incorporating data about the impact of the EH profession will strengthen the messaging to build advocacy for the profession.

Partnerships and Collaboration

There is a need for strengthening relationships and networking between EH and partners or stakeholders across regions to address complex traditional and emerging public health issues (see the box at the bottom of page 292). As a form of partnership, state health agencies and local health departments engage in cross-state or jurisdictional sharing of resources to increase capacity for providing public health services.15,16 Aside from sharing resources, networking and exchange of information are beneficial for facilitating coordinated responses to EH challenges at a regional level.

Broadening the intersections among public health and nongovernmental partners, including multisectoral partnerships, is encouraged for addressing topics such as population health and health equity.33 EH needs to strengthen partnerships and engagement in collaborative efforts with other agencies, stakeholders, or community organizations to address emerging issues, such as the health impacts of climate change. Furthermore, EH engagement with other governmental agencies and nongovernmental organizations with EH roles and responsibilities can foster stronger relationships for forming comprehensive strategies to address public health challenges. Considering the many factors for identifying potential partners and establishing strong, collaborative relationships with stakeholders, a comprehensive framework needs to be developed to aid EH programs and professionals in forming effective partnerships.

CONCLUSIONS

EH professionals fulfill a vital role in protecting the nation's health. UNCOVER EH revealed a range of priority challenges and needs for ensuring the EH workforce is enabled, capable, supported, and prepared to fulfill this critical role and respond to current and future public health threats. The magnitude and scope of EH practice and workforce challenges related to those we have described might change, but we see a consistency in the nature and context of the identified problems over time. For example, in 2003, the CDC convened a workgroup of stakeholders in an extensive process to develop A National Strategy to Revitalize Environmental Public Health Services.10 Participants focused on 6 overarching goals, including build capacity, support research, foster leadership, communicate and market, develop the workforce, and create strategic partnerships. Many of these challenges also apply to the broader public health workforce.34 A multifaceted response is required for resolving persisting and underlying deficiencies to advance the EH profession and protect the health of local communities in the future.

This workshop and its focus groups included a relatively small sample of EH professionals with limited representation of the overall workforce. However, participant selection was informed by a purposive sampling strategy that resulted in participants from varied position levels (directors, managers, and filed staff), levels of government (state and local), and different states. The workshop focused on EH professionals and professionals in state health agencies and local health departments, yet there are other governmental agencies, particularly at the state level, with EH responsibilities.35 Future efforts might address the EH professionals and their practice in these other agencies.

Focus group participants provided a well-informed consensus on a range ofpriority issues, many ofwhich are consistent with the focus areas of past initiatives and current efforts to enhance the public health and EH workforces. Holistically, the identified problems show a need to use data and evidence to demonstrate the value and effectiveness of the EH profession and practice. Addressing these problems will project the EH profession toward a future with increased recognition, strengthened partnerships, and more support and resources for sustainably protecting the nation's health.

UNCOVER EH is fulfilling a longstanding need to conduct an in-depth analysis of the EH profession, identifying prevailing challenges and priority issues, and supplying essential information for ensuring a strong and robust EH workforce consisting of professionals ready to meet the challenges of the 21st century. Leaders and decision-makers at all governmental and nongovernmental levels have an unprecedented opportunity to consider these findings, derived directly from practicing EH professionals, as they determine strategies, approaches, or allocation ofresources to strengthen and enhance the EH profession and workforce. ÂjPU

CONTRIBUTORS

J. A. Gerding led the drafting of the essay. J. A. Gerding, B. W. Brooks, E. Landeen, S.Whitehead, K. R. Kelly, andJ. Sarisky conceptualized, designed, and led the Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health initiative and planned and facilitated the workshop. A. Allen, D.Banaszynski, M. Dorshorst, L. Drager, T. Eshenaur, J. Freund, A. Inman, S. Long, J. Maloney, T. McKeever, T. Pigman, N. Rising, S. Scanlan,J. Scott, C. Shukie, G. Stewart, D. Tamekazu, V. Wade, and C. White participated in the workshop and made invaluable contributions to the study and its results and finalized the essay.

ACKNOWLEDGMENTS

The Understanding the Needs, Challenges, Opportunities, Vision and Emerging Roles in Environmental Health (UNCOVER EH) initiative was funded by the Centers for Disease Control andPrevention (contract 200-201357475). The authors would like to acknowledge the contributions ofenvironmental health professionals who contributed to the UNCOVER EH initiative.

Note. The findings and conclusions in this report are those ofthe author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

HUMAN PARTICIPANT PROTECTION

The Centers for Disease Control and Prevention, National Center for Environmental Health, Office ofScience reviewed and deemed the study exempt from institutional review board review.

Sidebar

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This article was accepted October 11, 2019.

doi: 10.2105/AJPH.2019.305441

SUMMARY OF RECOMMENDATIONS FOR STRENGTHENING THE ENVIRONMENTAL HEALTH PROFESSION AND WORKFORCE

Effective leadership

Explore options for designing and implementing state- or local-level leadership development and training programs. Establish and encourage the development of formal mentorship programs as a key component of building EH professional leadership competencies. This will require a concerted effort among governmental and nongovernmental stakeholders to establish the frameworks, develop curriculum, and provide resources and tools for jurisdictions across the nation.

Workforce development

Develop a consolidated strategy for standardizing EH professional qualifications, educational requirements, and credentialing. A standardized identity is needed for describing the EH professional workforce and efforts to demonstrate EH impact and value, which is necessary for ensuring accurate and effective workforce development efforts.

Equipment and technology

Establish a collaborative effort, facilitated at the national level, for sharing information pertaining to advances in equipment and technology. This should include development of a repository for housing information and resources such as best practices, success stories, training descriptions, and other materials demonstrating the effective application and utility of various EH inspection and investigating equipment and technologies.

Information systems and data

Form comprehensive guidance and tools, through engagement of EH programsand professionals with informatics experience and expertise, for determining necessary and appropriate EH information system functionalities to meet jurisdictional needs for collecting, managing, and analyzing data. This includes promoting resources and training to increase informatics-related workforce competencies. Additionally, conduct an evaluation of EH-related surveillance systems and possibilities for integrating data, monitoring EH issues, and examining the impact of EH services.

Garnering support

Conduct studies to determine the impact of EH services or interventions on improving health outcomes. To support this research, an initiative is needed for identifying appropriate and reliable health and environmental outcome indicators for measuring impact and to support ongoing EH surveillance. Resulting data about the impact of the EH profession can be incorporated into messaging intended to build awareness and advocacy for the profession.

Partnerships and collaboration

Produce a comprehensive framework to assist EH programs and professionals with identifying potential partners and fostering strong, collaborative relationships with governmental and nongovernmental agencies, organizations, and other stakeholders.

Note. EH = environmental health.

ENVIRONMENTAL HEALTH LEADERSHIP AND WORKFORCE DEVELOPMENT PROBLEM STATEMENTS

Effective leadership

1. EH leaders do not always use data or evidence or consider day-to-day realities in the field for determining necessary staff competencies, skills, and training needs.
2. Politics influence leadership decisions and can result in appointment and hiring of leaders who lack a thorough understanding of EH practice.
3. Mentoring or coaching is essential for building staff leadership competencies, yet there is limited support, encouragement, and ability to mentor.
4. All EH professionalscan be leaders; however, there are limited opportunities to develop leadership skills and competencies, along with staff empowerment to engage in leadership.
5. Leadership capacity and capability needs to be a consideration in workforce development, succession planning, and credentialing.

Workforce development

6. Data and evidence for the impact of the EH profession and its work (i.e., reduction of illness) and description of workforce challenges (supply and demand) does not exist, but it is essential for promoting and maintaining a robust workforce.
7. Defining and standardizing national-level EH professional job qualifications, educational requirements, and necessary credentials are needed to strengthen recognition as a profession.
8. A unified strategy is needed for ensuring EH professionalsand prospective professionals (i.e., college graduates) are prepared and ready to enter the workforce with the necessary soft skills, technical and scientific knowledge, and practice-based experience (i.e., completed internships).
9. The EH profession must evolve according to generational and workforce trends, changing demographics, and innovative work models to attract and retain highly qualified graduates and skilled professionals.
10.There is a lack of common definition or identity for the EH profession, which leads to limited public recognition of its value and importance.

Note. EH = environmental health.

ENVIRONMENTAL HEALTH TECHNOLOGY, DATA, AND INFORMATION PROBLEM STATEMENTS

Equipment and technology

1. Electronic inspection technologies and hardware (portable tools) provide return on investment (e.g., quality, consistency, reporting, financial) but are differentially available, understood, and communicated.
2. Equipment used for inspections is differentially available and supported (directly by leadership, technical support), ofvariable quality, not consistently maintained or upgraded, and often surpassing EH capacity by private industry (public image or perceptions of EH service delivery or competency).
3. Advanced equipment, processes (structure differences), and services (public partnerships with academia, businesses) for general EH issues and illness investigations are not consistently provided (resource access), shared (partnerships), and understood (training, maintenance).
4. EH is increasingly called on for emergency response, yet planning for and access to equipment and technologies must become a priority for health departments. Information systems and data
5. Inconsistent and inaccessible EH data collection and analysis tools preclude effective and efficient intervention decisions and communication.
6. Failure of consistent, sustainable, and resilient data management systems adversely affects delivery of essential EH services.
7. Software and data automation tools used by EH professionals are not consistently adaptable, supported, nor understood.
8. National surveillance systems exist for select EH programs, but whether these operate effectively or could serve as models for other EH programs is not known.
9. Identifying health outcomes resulting from delivery of EH services is limited by integration of diverse data sets.

Note. EH = environmental health.

ENVIRONMENTAL HEALTH SUPPORT AND PARTNERSHIP PROBLEM STATEMENTS

Garnering support

1. Lack of awareness and understanding of the impact of EH programs and professionals leads to a lack of support and funding.
2. EH concerns and issues need to be better represented in the health department accreditation process, which could lead to increased support of EH programs.
3. EH issues are perceived as partisan, which presents challenges for receiving consistent levels of support.
4. Data, metrics, and best practices are necessary for defining EH successes and increasing awareness of impacts.
5. Funding sources do not always promote sustainability (e.g., grants, out-of-date fee structures), which can lead to negative impacts on program capacity.

Partnerships and collaboration

6. Increased understanding of what EH is and how EH professionals protect the public's health is needed for building stronger partnerships.
7. Expectations to do more with less creates a need for EH to establish effective partnerships and collaboration to address emerging and traditional issues.
8. Networking across jurisdictions is needed for addressing current and emerging EH threats that are cross-sector and regional in nature.
9. Current and emerging EH effects of climate change are not being addressed, which requires increased collaboration.
10. EH is not addressing health equity, and it needs to be a part of the conversation.

Note. EH = environmental health.

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DETAILS

Subject:	Environmental assessment; Public health; Legionnaires disease; Collaboration; Leadership; Information systems; Environmental changes; Environmental health; Profession; Equipment; Professionals; Credentialing; Focus groups; Partnerships; Medical personnel; Decision making; System effectiveness; Departments; Information technology; Workshops; Training; Workforce; Organizational change
Business indexing term:	Subject: Workshops Training Leadership Workforce Organizational change Information systems Professionals
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	288-294
Publication year:	2020
Publication date:	Mar 2020
Section:	ENVIRONMENTAL HEALTH WORKFORCE &REGULATION
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English

Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305441
ProQuest document ID:	2371367106
Document URL:	https://www.proquest.com/scholarly-journals/identifying-needs-advancing-profession-workforce/docview/2371367106/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-07
Database:	Public Health Database

Marijuana Decriminalization, Medical Marijuana Laws, and Fatal Traffic Crashes in US Cities, 2010-2017

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To examine gaps in identification of preexposure prophylaxis (PrEP) candidates, uptake, and use of PrEP by populations most likely to seroconvert. Methods. At a federally qualified health center in Chicago, Illinois, we used electronic medical records, prescription data, and our best approximation of Centers for Disease Control and Prevention PrEP guidelines to determine how many patients were indicated for PrEP relative to HIV diagnoses (indication:HIV), how many were on PrEP relative to indications (PrEP:indication), and how many were on PrEP relative to HIV diagnoses (PrEP:HIV). We compared these ratios across age, gender and orientation, race/ethnicity, and insurance. Results. Overall, there were 32 indications per incident diagnosis and 16 patients on PrEP per incident diagnosis. In adjusted models, Whites had higher indication:HIV and PrEP:HIV ratios compared with Blacks, men who have sex with men had higher indication: HIV and PrEP:HIV ratios compared with transwomen but lower PrEP:indication ratios, and uninsured patients had higher indication:HIV but lower PrEP:indication and PrEP:HIV ratios compared with those with insurance. Conclusions. PrEP use, relative to HIV diagnoses, differs by important patient characteristics. While improved guidelines will address some of the disparity, better approaches for determining PrEP candidates and more normalized patient-provider communication are needed to ensure better PrEP access to all individuals at high risk for HIV. (Am J Public Health. 2020;110:370-377. doi:10.2105/AJPH.2019.305469)

FULL TEXT

Headnote

Objectives. To determine the impact of city-level cannabis decriminalization and medical marijuana laws (MMLs) on fatal traffic crashes in US cities.

Methods. Using a census of fatal traffic crashes from the 2010 to 2017 Fatality Analysis Reporting System, we examined MMLs and cannabis decriminalization on fatal crashes by age and sex of driver. We used a Poisson difference-in-differences approach, exploiting temporal and geographic variation in marijuana decriminalization laws.

Results. Cities experienced a 13% increase in fatal crashes involving 15- to 24-year-old male drivers following decriminalization (incidence rate ratio =1.125; 95% confidence interval = 1.014, 1.249). This effect was immediate and strongest on weekend nights. We found no effect on female drivers or older males. Conversely, we found that MMLs were associated with fewer fatal crashes for both males and females, which was most pronounced in 15- to 24-year-old drivers.

Conclusions. Unlike MMLs, which are associated with fewer fatal crashes, cities experienced a relative increase in fatal crashes involving young male drivers following marijuana decriminalization.

Public Health Implications. MMLs stipulate consumption occurs at home, whereas decriminalization only lessens the penalty for marijuana possession. Therefore, travel incentives of such laws have heterogeneous effects on traffic safety. (Am J Public Health. 2020;110:363-369. doi:10.2105/AJPH.2019.305484)

Marijuana is federally prohibited in the United States. However, since 1996, 33 states and Washington, DC, have passed laws legalizing medical marijuana. Of those 33 states, 20 enacted medical marijuana laws (MMLs) after a 2009 federal memorandum stated that federal funds would not be used to prosecute those in compliance with state MMLs. Following the 2009 Ogden Memorandum,1 the number of medical marijuana patients and dispensaries increased exponentially and the number of fatal crashes in which marijuana was detected in a driver increased by approximately 50%.2,3 Although increased drug testing likely contributed to greater marijuana detection in drivers, recent studies found that MMLs are associated with a lower perceived risk of marijuana use among adults.4,5

For states that have not enacted an MML, marijuana remains illegal. However, select municipalities in states without MMLs recently began reducing the criminal penalty for marijuana possession. Although many decriminalization laws were passed following the Controlled Substances Act of 1970 and well before states began enacting MMLs, recent decriminalization laws are viewed as a middle ground between prohibition and legalization. Decriminalization became more common within non-MML-adopting states after the issuance of the 2009 Ogden Memorandum, as cities reduced penalties for possession of small amounts of marijuana without contradicting state laws. Because severity of punishment is a cost associated with consumption,6 decriminalization will reduce the nonpecuniary costs associated with cannabis. Studies examining early decriminalization laws found a positive relationship between cannabis decriminalization and marijuana consumption among young adults.7,8

Marijuana is the most commonly used illicit substance in the United States9 and is the most frequently detected nonalcohol substance in traffic crashes.10 It impairs the cognitive and psychomotor skills associated with driver-related functions,11-13 and acute usage increases the risk of motor vehicle collisions.14,15 Therefore, as more states legalize medical marijuana and municipalities reduce the severity ofpunishment ofcannabis possession, traffic safety may be adversely affected by increased driver impairment.

Even so, recent research examining the impact of marijuana legalization found that MMLs are associated with fewer traffic fatalities in those aged 15 to 24 or 25 to 44 years.16 An earlier study found similar results and argued that the decline is driven by reductions in alcohol-related crashes.17 This suggests a substitutability between alcohol and marijuana. However, although MMLs provide legal protection to marijuana consumers, the laws also include stipulations that restrict marijuana consumption to a private residence. Thus, the incentives to travel concurrently or shortly after consuming marijuana are diminished. It is not clear whether consumers are substituting away from other substances or away from travel.

Because decriminalization reduces the severity and probability of punishment without directly affecting consumer incentives to travel, we examined and compared the heterogeneous effects of marijuana decriminalization and medical marijuana legalization on fatal traffic crashes. Although there is evidence to suggest individuals are not fully aware of the extent of punishment for marijuana possession,18 earlier research examining the period after the first wave of state-level marijuana decriminalization bills in the 1970s found that individuals in decriminalized states were aware of their state marijuana laws.19 Moreover, recent municipality-level decriminalization laws attracted attention from local and national media as well as state-level legislatures whose laws now differed from the local municipality, increasing the likelihood that citizens were aware of the reduced penalty associated with marijuana consumption.

By examining the impact of both decriminalization and MMLs, we were able to disentangle the channels through which marijuana policies and traffic safety are related. We also explored how this relationship varied by age and gender. Because traffic fatality rates and illicit drug use are highest among young drivers, and men are more likely than are women to drive under the influence of drugs or alcohol,20,21 we expected these demographics to be more responsive to changes in marijuana-related policies. Similarly, because drug and alcohol use is highest on weekend nights,22 we examined changes in fatal crashes by time of day. This last specification also validated our approach because statistically significant changes in weekday daytime crashes when drug and alcohol use is low are evidence of omitted variables confounding our results.

Last, a significant amount of the literature argues the potential substitutability or complementarity between alcohol and marijuana.23 Recent articles argued that the substitutability between substances is the mechanism through which traffic safety improves following MML enactment.16,17 We contribute to this discussion by examining the impact of the different marijuana-liberalizing policies on fatal crashes involving a drunk driver (blood alcohol concentration ‡0.08).

METHODS

We obtained traffic fatality data from the Fatality Analysis Reporting System (FARS). The FARS is a census of all fatal motor vehicle crashes that occur on public roads and it includes driver information, crash location, and drug or alcohol presence in drivers. Our outcomes of interest included all fatal traffic crashes by age and gender. Because drug and alcohol use varies over the week, we also considered crashes that occurred on weekend nights and during the day on weekdays. We totaled individual crashes semiannually and aggregated them to the city level. Our sample included all cities with a 2017 population greater than 100 000 that are located in states that had not enacted MMLs or decriminalized marijuana by 2010. Our estimation strategy was to exploit the variation in the reduction of criminal penalties associated with marijuana to examine the impact of marijuana liberalization on fatal crashes. Therefore, we constructed our sample of cities so that all cities in the sample began the period with similar prohibitive laws before cities and states implemented measures to relax these legal constraints. The complete list of cities in our sample is provided in Appendix A (available as a supplement to the online version of this article at http://www.ajph.org).

Because the US marijuana market changed significantly following the 2009 Ogden Memorandum, we limited our analysis to the years 2010 through 2017 (n = 2496 semiannual city-level observations) to focus on the postexpansion relationship between marijuana liberalization and traffic safety to provide more relevant information to policymakers.

City Decriminalization Laws

Marijuana-liberalizing policies, such as decriminalization and MMLs, reduce the legal costs associated with marijuana. Decriminalization of cannabis often occurs within states at the city or county level. To capture the impact of a city decriminalizing marijuana on fatal crashes, we omitted cities that had been previously exposed to state-level decriminalization policies. Table 1 provides the cities and dates of marijuana decriminalization that occurred within our sample period. We obtained statelevel MML enactment dates from Procon.org.

Other Variables

Following previous research,17 we controlled for time-varying local characteristics and changes in state legislation to isolate the effect of marijuana policies on fatal crashes. We included state-level traffic safety laws in the analysis, and these consisted of drivertexting laws, administrative license revocation laws, and per se drugged-driving laws. We obtained law enactment dates from the National Organization for the Reform of Marijuana Laws, Insurance Institute for Highway Safety, Governors Highway Safety Association, and previous literature,25,26 and we verified these dates through Thomson Reuters Westlaw and the National Conference of State Legislatures.

We collected population and demographic characteristics from intercensal estimates ofthe US Census Bureau. We obtained city unemployment rates from the Bureau of Labor Statistics. We included state-level per gallon beer tax rates from the Brewers' Almanac to control for the relative price of alcohol, as it may be a complement to or substitute for cannabis.

Model

To estimate the effect of marijuana decriminalization and medical marijuana legalization on fatal traffic crashes, we exploited the temporal and geographic variation in policy changes at the city and state levels using a difference-in-differences approach. The dependent variable was a count of fatal crashes that occurred in a city aggregated semiannually. We included 6-month periods with zero fatal crashes; these constituted approximately 7% of the city-half-year observations in our sample. Because the outcomes were positively skewed, we estimated a Poisson model (ProQuest: ... denotes formula omited.) (1)

where Fcst is a count offatal crashes in city c in state s in half-year t. We standardized the number of crashes to per capita rates by constraining the coefficient on the natural log of the affected population to 1.27 This technique is common in Poisson-based regressions and we carried it out using the offset option in Stata version 15 (StataCorp LLC, College Station, TX). We also estimated Equation 1 using a negative binomial approach.

Our results are not sensitive to this alternative specification and are available in Appendix B (available as a supplement to the online version of this article at http://www.ajph.org). City fixed effects were represented by ac and controlled for timeinvariant unobservable city characteristics. We included half-year fixed effects (gt) to control for unobservable variables that were constant across cities but varied over time. It is worth noting, the Poisson regression does not require the mean be equal to the variance,28 and the fixed effects Poisson model does not suffer from incidental parameters.29 The vector Xcst included city-level unemployment rates to control for macroeconomic conditions, state-level per gallon beer tax to control for the relative price of alcohol, and state-level traffic laws that could affect traffic safety. Decrim X postcst is equal to 1 if a city decriminalizes marijuana and is equal to zero otherwise. Similarly, MML X postst is equal to 1 ifa state enacts an MML. We did not consider the 6-month period in which MML enactment or decriminalization occurred "treated" in our analysis. We clustered SEs by city.30

RESULTS

We present the estimated impact of marijuana decriminalization and medical marijuana legalization on fatal crashes by age and gender in Table 2. Table 2 provides the Poisson-estimated incidence rate ratios (IRRs) on fatal crashes involving 15- to 24year-old drivers, describes the relationship for crashes involving 25- to 44-year-old drivers, and provides the IRRs for all fatal crashes. The percentage change in fatal crashes is equal to (IRR - 1) •100. An estimate was statistically significant at the 95% confidence level if 1 does not fall within the upper and lower bounds provided in parentheses. To quantify the magnitude of the percentage changes, the pretreated mean of fatal crash rates for each demographic group is provided under the estimated IRRs.

The results in Table 2 indicate that statelevel MMLs were associated with fewer fatal crashes. Cities, on average, experienced a 9% reduction in fatal crashes following the implementation of an MML in their state (IRR = 0.91; 95% confidence interval [CI] = 0.84, 0.98). Although males were involved in more fatal crashes, the results suggested similar decreases in crashes involving male and female drivers. MMLs were also associated with fewer fatal crashes among young drivers (IRR = 0.86; 95% CI = 0.77, 0.97). However, the impact on fatal crashes involving young female drivers was no longer statistically significant.

Unlike the reduction in fatal crashes following MML enactment, there was no evidence of a similar relative decrease in fatal crashes following marijuana decriminalization. In fact, a city experienced a 13% increase in fatal crashes involving young male drivers after a city decriminalized marijuana (IRR = 1.13; 95% CI = 1.01, 1.25). However, the relative increase in fatal crashes following marijuana decriminalization was not statistically significant overall for any other subgroup.

We examined whether the differential effects observed across MMLs and marijuana decriminalization stemmed from differences in alcohol-related crashes. Consistent with state-level studies,17,31 we found that MMLs were associated with fewer alcohol-related crashes. However, the estimated IRRs associated with marijuana decriminalization were not statistically significant for alcohol-related crashes of any demographic group.

Fatal Crashes by Day and Time

Because drivers are more likely to test positive for alcohol or marijuana on weekend nights,22 the effects of marijuana policies on fatal crashes should be most evident this time of the week. Moreover, significant effects of marijuana-related policies on weekday daytime crashes would be evidence of omitted variables confounding our results. Therefore, we estimated the effects of MMLs and marijuana decriminalization on fatal crashes by day and time of the week.

The results are presented in Table 3. For each demographic group, we did not find any evidence that marijuana decriminalization or MMLs affect fatal daytime crashes on weekdays. For weekend nights, however, we found that cities experienced fewer fatal crashes following MML enactment. Conversely, we found that marijuana decriminalization was associated with a relative increase in fatal crashes involving males and young drivers. Decriminalization effects were not statistically significant for female-related crashes of any age group. These results were consistent with the results in Table 2 and suggest MMLs are generally associated with fewer fatal crashes, whereas fatal crashes among young and male drivers increased following marijuana decriminalization.

Marijuana Decriminalization Over Time

To examine the time-varying effects of marijuana decriminalization and ensure that the previous estimated effects on young drivers were not driven by poor comparability between treated and untreated cities before decriminalization, we implemented an event study approach common in policy analysis. The estimated IRRs (and corresponding 95% CIs) on fatal crashes involving young drivers for each period relative to cannabis decriminalization are described in Figure 1. The 12 months before decriminalization are normalized to 1 and each point along the x-axis corresponds to two 6-month periods relative to a city decriminalizing marijuana.

For each subgroup, there were no obvious violations to the parallel trends assumption our difference-in-differences strategy relied on. There were no trends in the predecriminalization IRRs and no point estimate was statistically significant. In the period in which a city decriminalized marijuana, however, there was a temporary increase in fatal crashes involving young male drivers that attenuated to become nonstatistically significant after 6 months of decriminalization. There was no evidence of marijuana decriminalization affecting crashes involving young female drivers and the attenuation was more severe when examining the impact on fatal crashes involving all young drivers.

DISCUSSION

Using a census of fatal traffic crashes aggregated to the city level, we found that cities that are located in states that enacted MMLs experienced fewer fatal crashes following medical marijuana legalization. The relative decline was strongest for 15- to 24-year-old drivers, a demographic group with the highest fatal crash rate among all age cohorts (younger than 80 years) and most likely to operate a vehicle under the influence of alcohol or marijuana.20,21 On average, fatal crashes involving drivers ofthis age group decreased by 14% following MML enactment. Relative to the pretreated average rate offatal crashes, this decrease equates to approximately 2.7 fewer fatal crashes per 100 000 15- to 24-year-old people following state-level medical marijuana legalization. Although our study differs by level of observation and time period, these results are consistent with previous studies.

Second, we found that the impact of marijuana decriminalization on fatal crashes differed from that ofmedical legalization. On average, a city experienced 13% more fatal crashes involving 15- to 24-year-old male drivers following city-level marijuana decriminalization (an average of approximately 3.5 more fatal crashes per 100 000 15- to 24year-old males). However, there was no evidence of changes in fatal crashes among females or older drivers, suggesting that young males responded to marijuana decriminalization differently than did other populations. The increase in fatal crashes involving young drivers was most pronounced immediately after decriminalization before attenuating to nonsignificance in later periods of decriminalization.

The temporary effect on fatal crashes is comparable to the short-term accident reductions following antitexting laws.25 Similarly, although not statistically significant at conventional levels, Washington State experienced a temporary increase in traffic fatalities after legalizing recreational marijuana.32 Most similar to our article, Santaella-Tenorio et al. found an immediate relative decrease in traffic fatality rates among those aged 15 to 24 years after MML enactment that was not evident in later years of legalization.16 Thus, the temporary effects observed here and in related traffic safety literature suggest drivers may initially react to the announcement of city decriminalization laws before reverting back to previous behaviors.

Third, we did not find evidence that either marijuana-related policy affects fatal crashes that occur during the day on weekdays. These null results suggest that our findings are not being confounded by omitted variables. Instead, the effects on fatal crashes are most evident on weekend nights, when drug and alcohol use is highest among drivers.22

Fourth, we found that MMLs and marijuana decriminalization had heterogeneous effects on alcohol-related fatal crashes. Although the relative decrease in alcoholrelated fatal crashes following medical marijuana legalization was consistent with a substitutability between substances, we did not find evidence of a similar effect following marijuana decriminalization. Because MMLs and decriminalization both reduce the nonpecuniary costs associated with marijuana, the effects of each policy should be qualitatively similar ifthe results are attributable to changes in alcohol consumption.

Although we cannot eliminate the possibility that the relationship between alcohol and cannabis may differ across decriminalized and conditionally legal environments, the heterogeneous effects on alcohol-related traffic crashes and fatal crashes overall suggest that changes in consumer travel behavior may be the mechanism driving the differing outcomes. Specifically, MMLs dictate that consumption occur in a private residence. Thus, marijuana consumers in MML states, while facing lower costs to consume marijuana (relative to a prohibitive state), now have lower incentives to travel after consumption. Although previous research argues that a substitution away from alcohol is occurring and improving traffic safety,17 the reduced incentives to travel will also lessen the probability of a crash occurring. It is difficult for researchers to disentangle the mechanisms through which traffic safety is improving.

In a decriminalized environment, however, the legality ofthe drug has not changed. Instead, decriminalization reduces the severity and probability ofpunishment without directly affecting consumer incentives to travel. Although MMLs are associated with fewer fatal crashes, the relative reduction in fatal crashes is not evident after marijuana decriminalization. Rather, we found that marijuana decriminalization was associated with increased fatal crashes involving younger drivers, forwhom driving under the influence of marijuana or alcohol is more common.21

Limitations

The FARS documents all fatal crashes that occur on public roads. However, the data set has limitations. First, fatal crashes constitute a small percentage of total crashes. Therefore, we cannot comment on the relationship between marijuana laws and less severe traffic outcomes. This outcome should be explored in future research.

We also did not examine whether these laws affected marijuana presence in drivers. Although these data are available in the FARS, drug detection does not imply driver impairment. In addition, because testing procedures vary by state and over time, it is not reliable in examining changes in marijuana-related impairment in drivers. We addressed this limitation by focusing on total fatal crashes and total crashes that occurred on weekend nights, when substance use is highest.

A second limitation of our study was that we did not explore the impacts of various aspects of marijuana laws. MMLs differ by qualifying medical conditions, restrictions regarding consumption, and quantities of cannabis a person may possess.3,33 Similarly, marijuana decriminalization is not uniform and can be defined as the de-prioritization of marijuana-related law enforcement or by significantly reducing the penalty associated with marijuana possession. Our analysis relied on the assumption that the relationship between alcohol and cannabis is consistent across legal status. Put differently, we could not rule out changes in alcohol consumption if alcohol is complementary to cannabis in decriminalized marijuana regions but a substitute for cannabis in MML states. However, we only observed alcohol consumption after a fatal crash occurred and cannot directly comment on a possible heterogeneous alcohol-marijuana relationship that differs by the legal status of marijuana.

Third, we used city-level observations because many within-state changes in marijuana policies occur in metropolitan areas, and comparing cities with rural areas could bias the estimates. It is possible that rural areas may be affected differently by changes in marijuana policies than urban areas. We leave this as an avenue for future research.

Public Health Implications

The marijuana market in the United States changed significantly over the past 10 years. As more states continue to implement marijuana-liberalizing polices, understanding the unintended consequences of such policies is becoming increasingly important. Although recent research focuses on the implications of legalized medical and recreational marijuana,32,34 the effects of marijuana decriminalization in states where marijuana use is still prohibited is largely ignored by the literature. Although our findings offewer fatal traffic crashes following MML enactment are consistent with previous studies,16,17,31 we provide evidence that marijuana decriminalization has the opposite effect on fatal crashes involving young male drivers that is most pronounced immediately following decriminalization.

Marijuana decriminalization and MMLs relax the prohibitive market constraints and are associated with greater marijuana use.7,35 Although decriminalization is often argued as a compromise between prohibition and medical marijuana legalization, the 2 marijuana policies do not have similar effects on traffic safety. Thus, from a public health perspective, we must be careful not to assume that the impact of decriminalization will be some intermediate impact between criminalization and medical marijuana legalization or we will miss a critical opportunity to inform policy. Moreover, the heterogeneous effects on traffic safety across marijuana decriminalization and MMLs emphasize a need for caution from generalizing spillover effects from MMLs to recreational use environments. Our findings suggest that reducing the nonpecuniary costs of marijuana through decriminalization without explicitly affecting travel behaviors will have adverse effects on traffic safety. As the United States becomes more permissive toward marijuana, policies should be crafted to discourage travel and limit this effect.

Sidebar

Correspondence should be sent to Amanda C. Cook, Department of Economics, College of Business, Bowling Green State University, Bowling Green, OH 43403 (e-mail: accook@bgsu.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted November 6, 2019.

doi: 10.2105/AJPH.2019.305484

CONTRIBUTORS

A. C. Cook conceptualized the study and developed the estimation strategy. G. Leung collected and formatted the data. R. A. Smith analyzed the data and wrote the original draft of the article. All authors contributed to the interpretation of the results, helped draft the article, and reviewed and approved the final version of the article.

ACKNOWLEDGMENTS

We would like to thankfully acknowledge R. Vincent Pohl and Brandon Norton for their helpful comments and feedback. Additionally, we would like to thank the participants of the 2019 Midwest Economic Association conference, the 2019 American Society for Health Economists conference, and the 2019 Ohio Association of Economists and Political Scientists annual meeting.

CONFLICTS OF INTEREST

None of the authors has a conflict of interest.

HUMAN PARTICIPANT PROTECTION

Institutional review board approval was not needed for this work because it used publicly available, de-identifie data.

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DETAILS

Subject:	Traffic accidents; Prophylaxis; Minority &ethnic groups; Crashes; Demographics; Roads &highways; Human immunodeficiency virus--HIV; Fines &penalties; Diagnosis; Ethnicity; Electronic medical records; Fatalities; Marijuana; Guidelines; Uninsured people; Memoranda; Medical marijuana; Public health; Decriminalization; Health risks; Disease control; Prevention; Electronic health records; Men who have sex with men; Insurance; Cannabis; Automobile safety; Drug legalization; Sexually transmitted diseases--STD; Patients; Indication; Males; Cities; Census of Population; Gender; Consumers; Liberalization; Consumption; Health care facilities; Censuses; Alcohol use; Drug policy; Gays &lesbians; Mens health
Business indexing term:	Subject: Consumers Liberalization Consumption
Location:	United States--US
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	363-369
Publication year:	2020
Publication date:	Mar 2020

Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305484
ProQuest document ID:	2371359338
Document URL:	https://www.proquest.com/scholarly-journals/marijuana-decriminalization-medical-laws-fatal/docview/2371359338/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-04
Database:	Public Health Database

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Shiga Toxin-Producing Escherichia coli (STEC) O157:H7 and Romaine Lettuce: Source Labeling, Prevention, and Business

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ProQuest document link

ABSTRACT (ENGLISH)

From May to November most romaine lettuce shipments in the United States come from California's Central Coast region, whereas from December to April most come from the Yuma, Arizona, region. During 2017-2018, the 3 outbreaks of Shiga toxin-producing Escherichia coli (STEC) O157:H7 in US romaine lettuce all occurred at the tail end of a region's production season. During the fall 2018 outbreak, the US Food and Drug Administration (FDA) recommended that suppliers begin labeling romaine packaging so that consumers can identify the product's harvest region. We used publicly available data to show that labels may not avert many illnesses in future outbreaks but may reduce suppliers' financial losses and reduce food loss. Market data available during both 2018 outbreak investigations showed that there was no romaine production from one of the 2 regions when the first illness onset occurred. That is, at the beginning of an outbreak investigation, market data may allow the FDA to quickly rule out an entire production region as a source of contamination. (Am J Public Health. 2020;110: 322-328. doi:10.2105/AJPH. 2019.305476)

FULL TEXT

Headnote

From May to November most romaine lettuce shipments in the United States come from California's Central Coast region, whereas from December to April most come from the Yuma, Arizona, region. During 2017-2018, the 3 outbreaks of Shiga toxin-producing Escherichia coli (STEC) O157:H7 in US romaine lettuce all occurred at the tail end of a region's production season. During the fall 2018 outbreak, the US Food and Drug Administration (FDA) recommended that suppliers begin labeling romaine packaging so that consumers can identify the product's harvest region.

We used publicly available data to show that labels may not avert many illnesses in future outbreaks but may reduce suppliers' financial losses and reduce food loss.

Market data available during both 2018 outbreak investigations showed that there was no romaine production from one of the 2 regions when the first illness onset occurred. That is, at the beginning of an outbreak investigation, market data may allow the FDA to quickly rule out an entire production region as a source of contamination. (Am J Public Health. 2020;110: 322-328. doi:10.2105/AJPH. 2019.305476)

Health and safety officials in the United States are charged with keeping consumers safe from foodborne pathogens. Most of the estimated 9.4 million foodborne illnesses from known pathogens that occur annually in the United States are sporadic and not associated with an outbreak. Generally in these cases, the food sources are unknown and there is no practical way to determine the cause behind an individual illness. Conversely, outbreaks are cases in which 2 or more people become sick from the same illness from the same food. Commonalities in food consumption among those who fall ill raise the possibility of finding the contaminated food. During the 2009 to 2015 period, there were approximately 800 foodborne illness outbreaks each year in the United States.1 These outbreaks accounted for approximately 15 000 illnesses, 800 hospitalizations, and 20 deaths.

Mitigating the effects of a foodborne illness outbreak is a challenging public health issue. Health and safety officials are expected to find the contaminated food within the supply chain and consumers' homes as soon as possible, which requires that they solve a pair of practical problems: they must recognize that an outbreak is occurring and then must identify the food that is causing the outbreak. Both problems have to be solved before a single illness or death can be averted.

Speed and reliability are critical in preventing illness and death, especially when it comes to fresh produce. However, the information available to the US Food and Drug Administration (FDA) is usually old by the time an outbreak is identified because it takes 2 to 3 weeks from when a person consumes contaminated food to when the Centers for Disease Control and Prevention (CDC) identifies the person's illness as part of a larger outbreak.2 This gap between when illnesses occur and when the FDA starts to gather information makes traceback- identifying the food vector- difficult because consumers have trouble recalling what they ate near the time of their illness onset.3

Often, the tradeoff for speed is reliability. Should officials identify a food as contaminated when epidemiological studies, laboratory results, and traceback are all complete and scientifically defensible? Or should they make recommendations to avoid a food when the information at hand plausibly points to a particular food, knowing that the recommendation may later be proven wrong?

Making a recommendation quickly could prevent some illnesses and deaths. If the recommendation turns out to be wrong, however, no illnesses will be averted and producers and marketing firms that are blameless may incur economic damage, as occurred in 1996 with strawberries or in 2008 with tomatoes.4-6 Between 2009 and 2015, investigators were able to identify the foods that caused outbreaks in only 42% of cases.1 That is, most outbreaks have not yielded enough information for investigators to determine the cause. Even in cases in which the FDA is able to identify the source ofthe outbreak and communicate details to the public, research suggests that not all consumers receive the public health warnings, nor do all of those who receive warnings act on them.7

In the United States, leafy greens are the fifth most commonly consumed vegetable and are commonly consumed raw.8 From 1988 to 2018, the amount of leafy greens consumed per capita quadrupled.9 Also, leafy greens have been identified as a source of foodborne illness outbreaks since 1988-10 In recent years, the number of studies examining how Shiga toxinproducing Escherichia coli (STEC) contaminates leafy greens have dramatically increased.11 17 The growing and intense interest regarding STEC and leafy greens is attributable in part to the disproportionate number ofillnesses and outbreaks associated with leafy greens. After an unprecedentedly large STEC outbreak in 2006 linked to spinach, the leafy greens industry (collectively and without direct federal intervention) established the California and Arizona Leafy Greens Marketing Agreements to implement measures to address safety concerns. Even so, ffom 2007 to 2017, the CDC identified 40 outbreaks of STEC linked to leafy greens (including lettuce and spinach).18

During 2017 and 2018 in the United States and Canada, there were 3 multistate, multinational foodborne illness outbreaks of STEC O157:H7 associated with the consumption of romaine lettuce. These outbreaks, which occurred in fall 2017, spring 2018, and fall 2018, led to a total of 376 illnesses, 158 hospitalizations, and 7 deaths.19 24 In 2 of the 3 outbreaks, the contaminated production region was identified but the FDA and the CDC were unable to definitively trace the contamination back to a specific farm or harvest date. Members of the public were advised not to consume romaine lettuce, and in 2 cases the FDA requested that all romaine lettuce on the market (including in restaurants and other commercial establishments) be withdrawn and discarded.25

During the fall 2018 outbreak, the FDA recommended that suppliers and distributors label lettuce packages with a harvest location (e.g., Yuma, Arizona, or California's Central Coast) and harvest date or indicate whether the lettuce was hydroponically or greenhouse grown. Retailers were directed to use in-store signage when labels were not an option (e.g., for unwrapped whole heads of romaine lettuce).

In a review of historically important outbreaks, Goodman et al. identified "the need for fostering collaborative efforts beyond those of traditional public health" and "enhancing diagnostic and technological tools" to allow better responses "to events when information is insufficient for initiating control 26(p1080) measures. Here we address that need by investigating whether the structured schedule of production of romaine lettuce in the United States can help outbreak investigators identify the source of contaminated lettuce more quickly and whether newly required labeling of production sources and harvest dates can be used to prevent illness and reduce economic loss.

METHODS

We obtained publicly available data on daily US romaine lettuce shipments at international and national ports between 2013 and 2018 from the US Department ofAgriculture's Agricultural Marketing Service Web site.27 Included were all shipments via rail, truck, and air reported by rail carriers as well as federal marketing orders, administrative committees, federal or state inspection services, and shippers.

Using the statistical software R (version 3.5.1),28 we calculated the daily average number of shipments during the 6-year period (2013-2018) for each region and then calculated the 7-day moving average of these 6-year daily averages as the mean of the period spanning 3 days before and 3 days after each date. We estimated a 95% confidence interval surrounding each daily average shipment using the standard deviation observed at that date over the 6 years of data. We placed a lower bound on the confidence interval at zero. For the period 2013-2018, we calculated the 7-day moving average share of shipments of romaine lettuce originating from California's Central Coast; Yuma, Arizona; and other locations that were not implicated in the 3 most recent romaine outbreaks (i.e., other regions ofCalifornia and Arizona as well as Florida and imports from Canada and Mexico).

We obtained information on 26 outbreaks and 644 illnesses associated with romaine lettuce between 1998 and 2017 by formally requesting National Outbreak Reporting System (NORS) data (maintained by the CDC) on foodborne outbreaks since 1998 in which romaine lettuce was the implicated food.18 Information provided in the reports on the 3 outbreaks and 376 illnesses associated with romaine lettuce in 2017-2018 published by the Public Health Agency of Canada (PHAC) and the CDC (and not included in NORS) was appended to the NORS data19-24 (Appendix Table A, available as a supplement to the online version of this article at http://www.ajph.org). We tabulated the total number of outbreaks by type ofpathogen beginning in each month of each yearbetween 1998 and 2018.

For the 3 most recent STEC O157:H7 outbreaks associated with romaine lettuce, we collected information on the dates of onset for the first and last illnesses from the publicly available incident reports provided by the CDC. Information on dates of when the FDA was first notified about the outbreak and when the agency made public health announcements was collected from FDA investigation reports.29 31 We used this information to summarize each event's timeline, including the first illness onset, the outbreak investigation, and the end of each outbreak. We combined this information with the data on daily US romaine lettuce shipments reported by the Agricultural Marketing Service.

RESULTS

US romaine shipments display a consistent seasonal pattern. Combining shipment data with dates of illness onset can allow investigators to rule out major production regions as the source of illness during an outbreak.

Split and Seasonal Shipments

US romaine shipments have been split and seasonal between 2 production regions. During the past 6 years, from about May through November, romaine lettuce originated predominantly from California's Central Coast (Figure 1). During that time, no production occurred in Yuma, Arizona. Production shifted quickly to Yuma, Arizona, each November, with Yuma production predominantly serving the market through March. Another rapid shift back to California's Central Coast occurred each April. Outside of this pair of 1-month-long transition periods, the dominant region made up about 75% ofshipments; the other 25% of shipments came from other areas in the United States, Mexico, or Canada.

Outbreaks Often Precede Transitions

Historically, outbreaks linked to romaine have occurred disproportionately just before the transition from one production region to another. From 1998 to 2018, foodborne illnesses and outbreaks associated with romaine lettuce occurred most frequently during March, April, September, and October (Figure 2), the times of year when romaine production begins to shift from one region to another. STEC illness counts (STEC O157:H7 is included among other strains) peak in April and October.

Ruling Out Production Regions

Shipment and outbreak timeline analysis indicates how market data can be used to identify potential outbreak sources. During the week prior to the day the first reported illness began in the fall 2017 outbreak-November 5,2017-15% of romaine shipments came from Yuma, Arizona, and 58% came from California's Central Coast. By December 21, when PHAC announced that consumers should avoid romaine lettuce,19 no romaine was originating from California's Central Coast, whereas 69% was originating from Yuma, Arizona. Consumer Reports followed PHAC's lead on January 4, 2018, recommending that US consumers avoid romaine.32 By that point, romaine shipments from California's Central Coast had ceased for more than a month.

Ultimately, in the United States, the outbreak sickened 25 individuals, with 9 hospitalizations, 2 cases ofhemolytic uremic syndrome-a condition that affects the blood and blood vessels, resulting in the destruction of blood platelets (cells involved in clotting), a low red blood cell count (anemia), and kidney failure-and 1 death.29 In Canada, the outbreak sickened 42 individuals, with 17 hospitalizations and 1 death.19 The FDA never linked this outbreak directly to romaine lettuce (it was directly linked only to leafy greens).29

An analysis of the timeline of the 2018 outbreaks revealed that nearly no romaine in the market came from

California's Central Coast at the start of the spring 2018 outbreak or from Yuma, Arizona, at the start of the fall 2018 outbreak. The spring 2018 outbreak was the largest outbreak of STEC O157:H7 since August 2006, when fresh spinach from California's Central Coast proved to be the source. Beginning on March 13, 2018, and ending in May, there were 210 reported illnesses across 36 states along with 96 hospitalizations, 27 cases of hemolytic uremic syndrome, and 5 deaths.30 The FDA was first notified by the CDC of 2 clusters of foodborne illness on April 4. In Canada, there were 8 reported illnesses, 1 hospitalization, and no deaths.20 During the week before the date of the first illness onset, no romaine was shipped from California's Central Coast and 71% was shipped from Yuma (Figure 3). During the week prior to the April 13 FDA announcement that consumers should avoid chopped romaine from Yuma, Arizona, 50% of romaine came from California's Central Coast and 26% from Yuma.

The fall 2018 outbreak resulted in fewer illnesses than the spring 2018 outbreak. Between October andDecember 2018, there were 62 reported illnesses across 16 states and the District of Columbia, with 25 hospitalizations and 2 cases of hemolytic uremic syndrome associated with STECO157:H7 in romaine.31 In Canada there were 29 reported illnesses, 10 hospitalizations, and 2 cases of hemolytic uremic week up to the date of the first illness onset-October7,2018- 75% of romaine shipments came from California's Central Coast (Figure 4). No romaine was shipped from Yuma, Arizona, until weeks later.

By the time the FDA made its first public health announcement advising consumers to avoid all romaine lettuce-November 20, 2018-63% of all romaine was shipped from Yuma, Arizona, during the week prior and 17% was shipped from California's Central Coast. Subsequent FDA announcements restricted the warning to avoid lettuce from California's Central Coast on November 26 and from MonBarbara counties on December 13. The last reported illness began onDecember4,2018. Shipments from Yuma, Arizona, dropped immediately after the general romaine warning (November 20) and returned to normal after the region-specific warning (November 26). The FDA and CDC announced that the strain of STEC O157:H7 in the fall 2018 outbreak was similar to that of the 2017 leafy green outbreak and dissimilar to that of the April 2018 outbreak involving Yuma romaine.

DISCUSSION

Our study established or confirmed 3 facts. The first is that recent multistate STEC outbreaks involving romaine lettuce generally occurred at the tail end of the production seasons in each of the 2 main production areas in the United States: California's Central Coast region (primarily Monterey County33) and the region surrounding Yuma, Arizona. The seasonality that we identified in these 3 recent outbreaks fits a 2-decade-long seasonal pattern in romaine outbreaks and has implications both for public health monitoring and outbreak response and for further investigation into the source of STEC outbreaks involving romaine.

We are unable to offer definitive answers as to why this seasonality in romaine outbreaks exists. However, the biophysical and operations management characteristics that affect the likelihood of contamination provide a set of hypotheses to examine. Seasonality in the movement of both domestic and wild animals may affect the level of contamination reaching romaine in the field. E. coli O157:H7 is one of many STEC serogroups that colonize the intestinal tracts of ruminant animals. The organisms are present in manure, and thus domesticated livestock such as cows and wild animals such as deer have the potential to contaminate nearby produce fields or nearby water sources used in produce fields.35

Changes in farm management as production slows down may affect how food safety activities are carried out. Although production shifts from one region to another, many times a single firm operates fields in both regions. Firms have diversified the geography of their production to keep their buyers supplied throughout the year and their machinery and employees productively employed. Many leafy green growers move farm workers, supervisors, trucks and equipment, and even processing facilities back and forth twice a year.36 Preparing for and carrying out this large-scale relocation of personnel and equipment may change how food safety activities are implemented on farms.

In addition, seasonal temperatures may affect both romaine production and bacterial growth. Lettuces such as romaine are very sensitive to heat and cold, as are many bacteria. The temperate climate of California's Central Coast region, which includes the Salinas valley in Monterey County, is amenable to growing delicate lettuces during the summer and fall. Yuma, Arizona, is generally hot and dry, but in the winter and spring temperatures are favorable for lettuce production, and irrigation is available via rights to Colorado River water. In both regions, lettuce production decreases as temperatures approach a threshold. Maximum temperature in the 3 days preceding sampling has been found to be the most important variable in explaining E. coli contamination levels in leafy greens.37

The second fact is that there is a lag between when illnesses in an outbreak begin and when the FDA becomes aware and begins to investigate the cause of the outbreak. The 3 outbreaks we examined were nearly half over by the time the FDA became aware of them: on average, the FDA began its investigation 28 days after the date of the first illness onset, whereas the last illness onset occurred 60 days later. The outbreak investigations lasted an average of 159 days, more than twice as long as the actual outbreaks. Given that the CDC and FDA have not had evidence indicating that an outbreak is over until weeks after the last illness onset and given that romaine outbreaks tend to occur at the end of the production season, it is unlikely that the new harvest region labeling information would avert many illnesses. By the time public health scientists identify an outbreak and outbreak investigators can reliably point to romaine from one of the 2 major domestic production regions, nearly everything produced for the year from the region in question has been sold.

The third fact is that in spite of the lag between the onset of illnesses from contaminated romaine and FDA awareness of those illnesses, publicly available market data can inform outbreak investigations and public health announcements. Publicly available Agricultural Marketing Service data on shipments can provide the FDA with up-to-date information about the origin of romaine lettuce in the market so that the source of the outbreak can be more quickly identified. Using these market data, the FDA may be able to rule out the region with negligible or no production at the time of the first illness onset, facilitate trace-back investigations, maintain public health with announcements to avoid region-specific romaine, and avoid negative economic outcomes for producers in the regions that are not associated with the outbreak.

Specifically, we found that if an outbreak were to begin between May and November, market data could confirm that no romaine was shipped from Yuma, Arizona, and that Yuma could not be the source. Similarly, market data could confirm that an outbreak beginning between December and April could not have originated in the Central Coast because no romaine was shipped from that region at that time.

On the basis of these 3 facts, we conclude that the FDA's new requirement for romaine lettuce packages to carry source and harvest date information may reduce financial losses for romaine lettuce suppliers and reduce food loss but that it is unlikely to substantially change public health outcomes. If regional labels had been in use on romaine in the fall 2018 outbreak, and if market data had informed the FDA's first announcement, it may have mitigated a drop in consumer demand without leading to additional illnesses. Recent outbreaks involving romaine suggest that assessments of the biophysical and operations management characteristics unique to the end of the production season can guide the development of new contamination prevention measures.

CONTRIBUTORS

All of the authors contributed to the development, writing, reviewing, and finalizing of this article.

ACKNOWLEDGMENTS

This work was part of the US Department of Agriculture's Economic Research Service intramural research program. We thank the anonymous reviewers, along with Jean Buzby and Suzanne Thornsbury, for their constructive comments on this article.

Note. The findings and conclusions in this article are those ofthe authors and should not be construed to represent any official US Department of Agriculture or US government determination or policy.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

No protocol approval was needed for this analysis because publicly available data were used.

Sidebar

Correspondence should be sent to Gregory M. Astill, PhD, Economic Research Service, 6501 Beacon Dr, Kansas City, MO 64133 (e-mail: gregory.astiH@usda.gov). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted October 25, 2019.
doi: 10.2105/AJPH.2019.305476

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DETAILS

Subject:	Supermarkets; Shiga toxin; Production; Pathogens; Public health; Labels; Markets; Food contamination &poisoning; Investigations; Shipments; Packaging; Labeling; Labelling; E coli; Outbreaks; Lettuce; Confidence intervals; Prevention; Food; Suppliers; Data; Consumers; Illnesses; Epidemics; Toxins; Food contamination; Disease control; Regulatory agencies; Consumption; Escherichia coli
Business indexing term:	Subject: Consumption; Industry: 92312 : Administration of Public Health Programs
Location:	Canada; United States--US; Arizona; California
Taxonomic term:	Escherichia coli
Company / organization:	Name: Food &Drug Administration--FDA; NAICS: 922190
Classification:	92312: Administration of Public Health Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	322-328
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036

Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305476
ProQuest document ID:	2371359228
Document URL:	https://www.proquest.com/scholarly-journals/shiga-toxin-producing-escherichia-coli-stec-o157/docview/2371359228/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Human Papillomavirus Vaccination Schedule: Adherence Among Commercially Insured Adolescents and Young Adults in the United States, 2011-2017

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To determine rates of human papillomavirus (HPV) vaccine adherence to the 2011 and 2016 Advisory Committee for Immunization Practices (ACIP) recommendations in the United States. Methods. We conducted a retrospective cohort study by using the 2011 to 2017 Marketscan data for beneficiaries aged 9 to 26 years who had at least 1 claim for HPV vaccination between January 1, 2011, and January 1, 2017. According to the 2011 ACIP recommendation, adherence is defined as 30 to 90 days between the first and second vaccination and 168 to 212 days between the first and third vaccination. According to the 2016 recommendation, preadolescents are classified as adherent if they had 2 claims of vaccination within 168 to 212 days. We calculated proportions of completion and adherence by recommendation. Results. Among patients classified under the 2011 ACIP recommendation (n = 2164 096), 8.3% completed all 3 doses of the vaccine series. Of those who completed, 69.6% were considered adherent to the recommended schedule. Completion and adherence increased to 9.6% and 70.8%, respectively, among patients who were classified under the 2016 ACIP recommendation. Conclusions. Simpler recommendations lead to better adherence to the HPV vaccination schedule. (Am J Public Health. 2020;1 10:385-390. doi:10.2105/AJPH.2019. 305485)

FULL TEXT

Headnote

Objectives. To determine rates of human papillomavirus (HPV) vaccine adherence to the 2011 and 2016 Advisory Committee for Immunization Practices (ACIP) recommendations in the United States.

Methods. We conducted a retrospective cohort study by using the 2011 to 2017 Marketscan data for beneficiaries aged 9 to 26 years who had at least 1 claim for HPV vaccination between January 1, 2011, and January 1, 2017. According to the 2011 ACIP recommendation, adherence is defined as 30 to 90 days between the first and second vaccination and 168 to 212 days between the first and third vaccination. According to the 2016 recommendation, preadolescents are classified as adherent if they had 2 claims of vaccination within 168 to 212 days. We calculated proportions of completion and adherence by recommendation.

Results. Among patients classified under the 2011 ACIP recommendation (n = 2164 096), 8.3% completed all 3 doses of the vaccine series. Of those who completed, 69.6% were considered adherent to the recommended schedule. Completion and adherence increased to 9.6% and 70.8%, respectively, among patients who were classified under the 2016 ACIP recommendation.

Conclusions. Simpler recommendations lead to better adherence to the HPV vaccination schedule. (Am J Public Health. 2020;1 10:385-390. doi:10.2105/AJPH.2019. 305485)

rom 2008 to 2012, 11.7 per 100 000 persons in the United States were diagnosed annually with human papillomavirus (HPV)-associated cancers, including cervical, oropharyngeal, and anal cancers.1,2 More than 40 mucosal HPV strains infect the anogenital region. These strains include high-risk oncogenic subtypes 16 and 18, which are associated with 70% of all cervical cancer cases, and low-risk types 6 and 11, which are associated with 90% of cases of anogenital warts.1 However, vaccines are now available that can prevent infections from common low-risk and high-risk HPV subtypes.

In 2006, Gardasil, the first quadrivalent vaccine, was introduced and approved by the Food and Drug Administration (FDA) for girls between the ages of 9 and 12 years to protect against HPV types 6, 11, 16, and 18.2 In December 2014, Gardasil-9 (nonavalent) was approved by the FDA and provided additional protections against HPV types 31, 33, 45, 52, and 58.3 When first introduced, the recommended vaccine schedule required the second dose to be received at 60 days following the first dose, and the third dose to be received at 180 days following the first dose.2,4 Adolescents and women aged 13 to 26 years were recommended for catch-up vaccination to provide protection from future HPV infections.2,4 In 2011, this recommendation was extended to include males aged 9 to 21 years to further prevent transmission of HPV, and up to age 26 years for men who have sex with men and immunocompromised individuals.5,6 The most recent recommendation was introduced in late 2016 and recommended a 2-dose vaccine schedule for girls and boys younger than 15 years.7

Since 2006, vaccination coverage rates have been slowly, but steadily, increasing as studies are being conducted to identify and overcome barriers and negative perceptions.8 According to the Centers for Disease Control and Prevention's 2015 Morbidity and Mortality Weekly Report, vaccine uptake for all 3 doses had reached 41.9% for females and 28.1% for males; however, this does not account for whether each dose was received on time according to the recommended vaccine schedule.9 Studies have shown that 1 dose of the vaccine or vaccine doses received greater than 12 months apart only provide short-term protection against HPV subtypes.10-12 Additional studies have shown that the immune response is greater among those who receive at least 1 additional dose 6 months following the first dose.11,12

The primary objective of this study was to assess adherence to the 2011 and 2016 Advisory Committee for Immunization Practices (ACIP) recommended HPV vaccine schedule among commercially insured males and females aged 9 to 26 years within the Marketscan database. In addition, we assessed HPV vaccine series completion among those who completed at least 1 dose of the vaccine.

METHODS

We identified our cohort by using the 2011 to 2017 Marketscan Commercial Claims and Encounters (CCE) database. The Marketscan CCE database includes reimbursed health care claims from private insurers.13 These claims include inpatient admissions, outpatient visits, and pharmaceutical claims from more than 100 private health insurance plans.13

Study Population

Data from January 1, 2010, to December 31, 2017, were available for the current analysis. To allow for a 365-day lookback period to ensure that beneficiaries did not have any previous vaccinations and to allow 12 months of follow-up following the first claim of HPV vaccination, we included females who had their first HPV vaccination claim betweenJanuary 1,2011, andJanuary 1, 2017, and males between December 24, 2011, andJanuary 1, 2017, to be consistent with the recommendation.6 To be eligible for this study, beneficiaries were required to meet the following criteria: (1) 12 months of continuous full coverage in Marketscan insurance plan before the first claim of vaccination, (2) 12 months of continuous full coverage in Marketscan insurance plan following the first claim of vaccination, and (3) aged 9 to 26 years on the first date of vaccination (Figure A, available as a supplement to the online version of this article at http://www.ajph.org). We excluded those who had more than 3 claims ofvaccination, more than 1 claim of vaccination within 30 days, or multiple birth dates within Marketscan from the current analysis.

Identification of Human Papillomavirus Vaccination

We identified HPV vaccination claims by using the Current Procedural Terminology 4th Edition codes (90649 for Gardasil-4 and 90651 for Gardasil-9).14 We linked multiple claims of HPV vaccination and demographic information for each individual by using unique enrollee identification numbers.

Adherence and Completion

We defined adherence as 30 to 90 days between first and second vaccination claim and 168 to 212 days between first and third claim of vaccination, which aligns with 2011 ACIP recommendations from January 2011 to December 16, 2016.6,7 Adherence based on the 2016 revised ACIP recommendation applied only to preadolescent girls and boys (aged 9-14 years) who were recommended to receive 2 doses of the vaccine at a 6-month interval.7 We defined completion as having 3 claims of vaccine administration between 2011 and 2016 for all ages and only 2 claims of vaccination for those younger than 15 years on December 16, 2016, to align with the most recent recommendation. We defined beneficiaries with less than the recommended number of doses as noncompleters. We defined the first procedure date linked to the claim for HPV vaccination as the index date.

Covariates

We calculated patients' age at the index date and classified it into 3 age categories: preadolescents (9-12 years), adolescents (13-17 years), and young adults (18-26 years), consistent with previously published studies.9,15,16 The provider at which they received their first dose of the vaccine was also available within Marketscan, and we categorized this as pediatrician, other pediatric specialties, other primary care providers, obstetrician/gynecologist, and other specialists. We determined urban and rural residence by using the 2010 metropolitan statistical area codes, and we categorized those who did not live in a metropolitan statistical area as rural.17 We categorized geographical regions based on the US census regions (Northeast, North Central, South, West), and we coded beneficiaries with unknown or missing region of residence as "other."

Statistical Analysis

To demonstrate the patterns of HPV vaccination initiation and completion, we conducted descriptive analyses of our sample population and covariates of interest in the overall cohort and stratified by sex. We calculated the proportion of individuals who completed the vaccine, and ofthose identified who were adherent to vaccine schedule, by sex and geographical region of residence. Furthermore, we calculated both unadjusted and fully adjusted risk ratios (RRs) and 95% confidence intervals (CIs) by using Poisson regression models with robust variance estimators for the association between each covariate of interest and vaccine adherence among those who completed the vaccine series. We selected reference categories based on previously published literature.13 We repeated our analyses using the 2016 ACIP recommendation to estimate the impact of the new vaccine recommendations on vaccine uptake and schedule adherence in the United States. We conducted all statistical analyses with SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

Our cohort consisted of 2 186 544 commercially insured beneficiaries between the ages of 9 and 26 years who received the quadrivalent or nonavalent HPV vaccine (Gardasil, Merck &Co Inc, Whitehouse Station, NJ). Among this cohort, approximately 55.5% were female and 44.5% were male. Table 1 presents the age group at the index date, provider who administered their first dose, and rural versus urban residence based on metropolitan statistical area codes among all those who had at least 1 dose of the vaccine and the subgroup who completed the vaccine series. Among those who initiated the vaccine, adolescent girls and boys aged 13 to 17 years accounted for 54.6% of the entire study population, whereas preadolescents aged 9 to 12 years only represented 29.2%. Approximately half of the cohort (53.8%) resided in an urban residence; approximately 44.6% of them received their first dose from a pediatrician, and 32.4% received their first dose from another primary care provider. A greater proportion of those who completed the vaccine series received their first dose from a pediatrician and resided in an urban residence as well.

2011 Advisory Committee Recommendation

Approximately 8.3% of the study cohort that were classified under the 2011 recommendation (n = 2 164 096) completed all 3 doses of the vaccine series (Table 2). Among 179 789 beneficiaries who completed the 3-dose vaccine series, 69.9% (approximately 5.8% of the study cohort) received both the second and the third dose within the recommended intervals. Overall completion rates by sex and geographical region of residence ranged from approximately 5.1% to 12.1% among females and 4.3% to 11.0% among males. The highest completion rate was among those in the Northeast region (12.1% and 11.0% for females and males, respectively; Table 2). Adherence rates among those who completed the series ranged from 63.9% to 73.4% among females and 63.7% to 72.7% among males with the highest adherence rates again among those in the Northeast region of the United States.

Crude RRs are shown for each factor in Table 3. After full adjustment for all other variables of interest, those aged 9 to 12 years were less adherent to the recommended scheduled as compared with those aged 18 to 27 years among both females (RR = 0.95; 95% CI = 0.94, 0.97) and males (RR = 0.92; 95% CI = 0.90, 0.95) who completed the vaccine series (Table 4). There were no additional statistically significant differences among factors associated with HPV vaccination.

2016 Advisory Committee Recommendation

Among beneficiaries who were classified under the latest recommendation (n = 22 448), completion and adherence rates increased to 9.6% and 70.8%, respectively (Table 2). With the new recommendation, completion rates ranged from 8.6% to 20.0% among females and 14.9% to 25.0% among males (Table 2). Adherence rates were higher among females in the Northeast (73.5%) and males in the South (80.7%). There were no statistically significant differences among factors associated with HPV vaccination (Tables 3 and 4).

DISCUSSION

In this study, we observed that among commercially insured females and males who initiated HPV vaccination, approximately 8.3% completed either the 2- or 3-dose series based on the ACIP recommended schedule between 2011 and 2017. Completion was lowest among adults aged 18 to 27 years (16.2%). Among those who completed the vaccine series, 69.6% were classified as adherent to the recommended vaccine schedules. When stratified by recommendation schedule, both completion and adherence rates increased modestly between the 2011 and 2016 ACIP recommendations. These findings suggest that simpler recommendations may lead to better adherence to the recommended HPV vaccination schedule.

Previous studies have been conducted utilizing Marketscan CCE claims from 2008 to 2011 to assess completion of the HPV vaccination among females aged 9 to 26 years.13,18,19 One study reported that 29.4% offemales aged 9 to 26 years had completed all 3 doses, which is significantly higher than the 8.8% of females in our cohort.13 Other studies have also reported higher rates ofcompletion among both males and females.20,21 Another study with a large population of males analyzed the impact of the evolving ACIP recommendations on completion within 12 months and found that less than 12% completed the series within 6 months.22 When we restricted our sample to those who were classified under the 2016 ACIP recommendation, the completion rate (9.6%) was still significantly lower than previously published literature. These findings suggest that although vaccine uptake is relatively high among those who are privately insured, completion is relatively low in this population.

Previous studies have assessed adherence according to the 2008 ACIP recommended schedule: (1) second dose received at 90 days and 60 days after first dose for Gardasil and Cervarix, respectively, and (2) third dose received at 210 days after first dose for both Gardasil and Cervarix.13 Of those, 69.2% were identified as adherent, which is similar to the 69.6% and 70.7% of our overall and female-only cohort, respectively. In another study in which completion was low, 90% of males who completed the series had received doses in accordance with recommended minimum time intervals between doses.22 The adherence rate among those under both ACIP recommendations in our cohort are similar to what has been previously published.

In addition to completion and adherence, we assessed factors that have been shown to be associated with adherence defined by both recommendations, separately. We found that younger age (9-12 years vs 18-26 years) was associated with less adherence in the 2011 ACIP recommendations cohort. There were no additional statistically significant factors associated with adherence in either of the study cohorts. Other studies have found that these factors were associated with adherence. One study reported that rural residence (odds ratio [OR] = 1.23; 95% CI = 1.19, 1.27) and vaccine administration by a family provider (OR = 1.34; 95% CI = 1.29, 1.39), local health department (OR = 1.08; 95% CI = 1.03, 1.13), or K-12 program (OR= 1.77; 95% CI = 1.30, 2.39) were associated with adherence.15

HPV vaccination is mandated in the states of Virginia and Rhode Island and in the District of Columbia.23 A study of commercially insured females aged 9 to 26 years (n = 378 484) who initiated the vaccine between 2009 and 2010 found that those who resided in the Northeast region of the United States (OR= 1.12; 95% CI = 1.08, 1.17) had higher odds of completion.13 Although the completion rate was higher among those who resided in the Northeast region in our cohorts, there was no statistically significant association between the Northeast region and adherence to the recommended schedule. When we excluded state-mandated vaccination areas in a sensitivity analysis, the results were consistent with our main findings. There are many extrinsic factors that can account for the variation in findings such as study population, recommendations, legislation, and follow-up time.

Strengths and Limitations

The current analysis has several strengths and weaknesses. One strength of this study is that we were able to include a large, diverse population of commercially insured individuals, including the addition of a large sample ofmales. We were also able to capture both completion and adherence rates among those aged 11 and 12 years. However, a significant limitation was the inability to capture the uninsured and government-insured population who account for more than half of the vaccinated population through government programs, such as the Vaccines for Children program. We also could not account for any doses received before entering or after leaving a private health plan that was reported within Marketscan. To maintain privacy, Marketscan provided no sociodemographic information. Therefore, we were unable to assess health disparities associated with HPV vaccine completion and adherence, such as racial disparities. We also acknowledge the smaller sample size and lack of follow-up time for those who are now recommended under the 2016 ACIP recommendation, which may underestimate the associations between factors and adherence. Although Marketscan CCE is not fully representative of the US general population and has several limitations, clinical claims can provide a cost-effective alternative to monitoring HPV vaccine uptake, completion, adherence, and outcomes in addition to annual survey reports.

Conclusions

In conclusion, we found that the rates of HPV vaccine adherence modestly increased among commercially insured males and females aged 9 to 26 years with the 2016 ACIP recommendation as compared with the 2011 ACIP recommendation. Overall, simpler recommendations help increase both completion and adherence to the HPV vaccination schedule. These data highlight the need for additional programs that aim to increase vaccine completion and adherence among the commercially insured population. >4jPI-l

Sidebar

ABOUT THE AUTHORS

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Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.
This article was accepted November 9, 2019.
doi: 10.2105/AJPH.2019.305485

CONTRIBUTORS

D. Hubbard designed and conceptualized the study, conducteddata analysis, anddrafted the article. S. Shrestha assisted with study design and provided expertise on human papillomavirus. E.B. Levitan assisted with data analysis and drafting the article. H. Yun assisted with study design and drafting the article. All authors performed critical review of the article.

ACKNOWLEDGMENTS

The authors would like to thank the University of Alabama at Birmingham and Truven Health Analytics.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose at this time.

HUMAN PARTICIPANT PROTECTION

The institutional review board at the University of Alabama at Birmingham approved the study and waived the requirement to obtain informed consent.

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DETAILS

Subject:	Vaccines; Public health; Adolescents; Young adults; Area codes; Human papillomavirus; Pediatrics; Drug dosages; Immunization; Age; Primary care; Girls; Children &youth; Patients; Vaccination; Multiple births; Males; Teenagers; Schedules; Databases; Insurance coverage; FDA approval
Business indexing term:	Subject: Insurance coverage FDA approval
Location:	United States--US
Company / organization:	Name: Food &Drug Administration --FDA; NAICS: 926150
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3

Pages:	385-390
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Asso ciation
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305485
ProQuest document ID:	2371358224
Document URL:	https://www.proquest.com/scholarly-journals/human-papillomavirus-vaccination-schedule/docview/2371358224/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

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10 Essential Public Health Services Under Review

Krisberg, Kim

ProQuest document link

FULL TEXT

Today, the 10 Essential Public Health Services framework-which describes the public health activities that all communities should undertake-is a ubiquitous part of public health practice. But at the time of the list's launch 25 years ago, it was transformative.

In 1994, the Centers for Disease Control and Prevention led a federal working group- spurred in part to differentiate public health from health care during the health reform debates of the early 1990s-to develop a consensus on the fields essential services. Since then, the resulting 10 Essential Public Health Services have become the go-to framework for defining and understanding the role and work of public health. The framework is used across the field, from public health education and accreditation to public health policy, law, and funding. In fact, other nations use it to help build and strengthen their own public health systems as well.

Now, work is under way to make sure the framework is ready to usher public health into the future. The Futures Initiative, a partnership between the Public Health Accreditation Board's Public Health National Center for Innovations and the de Beaumont Foundation, launched in June. The initiative is engaging the public health community in reviewing and revising the essentials framework to ensure it reflects how the field has evolved in 25 years and is ready for the challenges to come.

"It's recognition that anything this important in public health practice should be revisited, reviewed and updated so that it's as reflective of contemporary public health as it can be," Kaye Bender, PhD, RN, president and CEO of the Public Health Accreditation Board, told The Nation's Health.

The 10 essential services-categorized by the 3 core functions of assessment, policy development, and assurance, as identified in the 1988 Institute of Medicine report "The Future of Public Health"-are monitor health; diagnose and investigate; inform, educate and empower; mobilize community partnerships; develop policies; enforce laws; link to and provide care; ensure a competent workforce; evaluate; and research.

Over the years, the essentials framework has served as the foundation of other public health improvement initiatives, including the National Public Health Performance Standards Program, which was initially created to translate the essentials.

-Kim Krisberg

Read the full article in The Nation's Health at http://thenationshealth.aphapublications.org/content/49/10/1.1

DETAILS

Subject:	Public health; Health care; Accreditation; Health services; Initiatives
Company / organization:	Name: Institute of Medicine; NAICS: 541714; Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	263
Publication year:	2020
Publication date:	Mar 2020
Section:	News From The NATION'S HEALTH

Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News
ProQuest document ID:	2371355601
Document URL:	https://www.proquest.com/scholarly-journals/10-essential-public-health-services-under-review/docview/2371355601/se-2?accountid=211160
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Last updated:	2023-03-01
Database:	Public Health Database

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Health Behaviors and Outcomes Associated With Personal and Family History of Criminal Justice System Involvement, New York City, 2017

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ABSTRACT (ENGLISH)

Objectives. To quantify the association between personal and family history of criminal justice system (CJS) involvement (PHJI and FHJI, respectively), health outcomes, and health-related behaviors. Methods. We examined 2017 New York City Community Health Survey data (n = 10 005) with multivariable logistic regression.We defined PHJI as ever incarcerated or under probation or parole. FHJIwas CJS involvement of spouse or partner, child, sibling, or parent. Results. We found that 8.9% reported only FHJI, 5.4% only PHJI, and 2.9% both FHJI and PHJI (mean age = 45.4 years). Compared with no CJS involvement, individuals with only FHJI were more likely to report fair or poor health, hypertension, diabetes, obesity, depression, heavy drinking, and binge drinking. Respondents with only PHJI reported more fair or poor health, asthma, depression, heavy drinking, and binge drinking. Those with both FHJI and PHJI were more likely to report asthma, depression, heavy drinking, and binge drinking. Conclusions. New York City adults with personal or family CJS involvement, or both, were more likely to report adverse health outcomes and behaviors. Public Health Implications. Measuring CJS involvement in public health monitoring systems can help to identify important health needs, guiding the provision of health care and resource allocation. (Am J Public Health. 2020;110:378-384. doi:10.2105/AJPH.2019. 305415)

FULL TEXT

Headnote

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Methods. We examined 2017 New York City Community Health Survey data (n = 10 005) with multivariable logistic regression. We defined PHJI as ever incarcerated or under probation orparole. FHJI was CJSinvolvement of spouse orpartner, child, sibling, or parent.

Results. We found that 8.9% reported only FHJI, 5.4% only PHJI, and 2.9% both FHJI and PHJI (mean age = 45.4 years). Compared with no CJS involvement, individuals with only FHJI were more likely to report fair or poor health, hypertension, diabetes, obesity, depression, heavy drinking, and binge drinking. Respondents with only PHJI reported more fair or poor health, asthma, depression, heavy drinking, and binge drinking. Those with both FHJI and PHJI were more likely to report asthma, depression, heavy drinking, and binge drinking.

Conclusions. New York City adults with personal or family CJS involvement, or both, were more likely to report adverse health outcomes and behaviors.

Public Health Implications. Measuring CJS involvement in public health monitoring systems can help to identify important health needs, guiding the provision of health care and resource allocation. (Am J Public Health. 2020;110:378-384. doi:10.2105/AJPH.2019. 305415)

Involvement in the criminal justice system (CJS) can take many different forms, including incarceration in jail or prison, or probation or parole supervision in the community. Having a close family member with one of these experiences also constitutes a form of involvement in the CJS. In 2016, 6.6 million individuals were under the supervision of adult correctional systems in the United States, including nearly 2.2 million held in jail or prison and approximately 4.5 million people on probation or parole.1,2 In New York City in 2017, there were approximately 50 000 jail discharges,3 19 000 people on parole,4 and more than 19 000 people on probation.5 Family members and communities are also indirectly touched by the CJS. At least half of adults incarcerated in US federal and state prisons are parents.6 In 2015, there were an estimated 33 000 children in New York City who had a parent with a history of incarceration (Bureau of Epidemiology Services, e-mail communication, May 8, 2017).

In the United States, CJS involvement has a disproportionate impact on Black and Latino individuals, a population already experiencing higher prevalence of chronic health conditions, higher rates of morbidity and mortality across myriad adverse health outcomes, and persistent disparities in quality of and access to health care as compared with White individuals.7 Recent research suggests that CJS involvement has a role in these differences. A nascent but growing body of literature documents the association between a history of jail or prison incarceration and a range of adverse health outcomes, including mental illness,8 alcohol and substance use, cardiovascular disease, hypertension,12,13 diabetes,12,13 hepatitis C,12 HIV,14,15 and premature mortality.16 More recent research on adverse health outcomes among partners and children of incarcerated people17-19 suggests that indirect CJS involvement may have consequences on the health of family members. While these studies draw attention to the relationship between CJS involvement and health, most have relied on small sample sizes and have focused on measuring either the health of individuals or that of their family members.

To our knowledge, there are no populationlevel studies that have explored both direct and indirect CJS involvement and its association with health outcomes and behaviors. To further our understanding of the role of different types of

CJS involvement on health, we examined the association between a history of personal or family member CJS involvement and health behaviors and outcomes among New York City adults.

METHODS

In this study, we utilized data from the 2017 New York City Community Health Survey (CHS), a cross-sectional, computer-assisted landline and cellular telephone survey of noninstitutionalized New York City residents aged 18 years and older (n = 10 005). Conducted annually by the New York City Department of Health and Mental Hygiene since 2002, the CHS collects sociodemographic data as well as information on physical and mental health, lifestyle factors, and health care access. A stratified random sampling method is employed with respondents sampled according to United Hospital Fund neighborhood designation. Interviews were conducted in English, Spanish, Russian, and Chinese; in 2017, 85.6% of people who were contacted and eligible participated in the survey.

We weighted 2017 CHS data to represent the New York City adult residential population (n = 6 573 000; adjusted mean age = 45.4 years) by adjusting for the probability of selection, gender, race/ethnicity, age, number of adults in the household, presence ofchildren in the household, marital status, and educational attainment level according to the American Community Survey 2016.

We used 2 CHS questions to define our exposure of interest, self-reported CJS involvement. We assessed personal history of CJS involvement (PHJI) by asking "Have you ever in your life spent any amount of time in a juvenile or adult correctional facility, jail, prison, or detention center, or under probation or parole supervision?" We assessed family history of CJS involvement (FHJI) by asking "Has an immediate family member such as a spouse or partner, child, sibling, or parent ever spent any amount of time in a juvenile or adult correctional facility, jail, prison, or detention center or under probation or parole supervision?" We derived a 4-level variable with mutually exclusive CJS involvement categories as follows: (1) no CJS involvement, (2) only family history of CJS involvement (only FHJI), (3) only personal history of CJS involvement (only PHJI), and (4) both family history and personal history of CJS involvement (both FHJI andPHJI; Figure 1).

For all analyses, we excluded the 160 individuals who did not respond to both ofthe CJS involvement questions; this includes 22 respondents who answered only 1 CJS involvement question and were missing the other. A sensitivity analysis that included those 22 respondents and compared any CJS involvement with none did not change our findings (data not shown).

We explored a number of health behaviors and outcomes. We based general health status on self-rating of health from excellent to poor, and dichotomized as fair or poor versus good, very good, or excellent. Respondents were asked if they had ever been told by a doctor, nurse, or other health professional that they had (1) hypertension; (2) diabetes, excluding during pregnancy; or (3) asthma. We used self-reported height and weight to calculate body mass index; respondents with a body mass index of30 or higher were categorized as having obesity. Current depression in the past 2 weeks was based on the 8-item Patient Health Questionnaire score of 10 or higher (range = 0- 24).22 We defined heavy drinking as having a daily average of more than 2 drinks for men and more than 1 drink for women. We defined binge drinking as having 5 or more drinks for men and 4 or more drinks for women on a single occasion in the last 30 days.

We calculated age-adjusted prevalence estimates of sociodemographic characteristics and health behaviors and outcomes for each CJS involvement category (PROC DESCRIPT23); we used CONTRAST23 statements to perform 2-tailed tests of significance (a = 0.05). Multivariable logistic regression models evaluated the association between CJS involvement and selected health behaviors and outcomes (PROC RLOGIST and PRED_EFF23 for pairwise comparisons). As most outcomes were relatively common (prevalence >10%), we used the ADJRR23 statement to obtain model-adjusted risk ratios (RRs) and 95% confidence intervals (CIs); this approach computes the ratio of predicted marginal proportions for logistic regression models.

We conducted all principal analyses by using the 4-level CJS exposure variable, which compared outcomes between individuals with no CJS involvement versus only FHJI versus only PHJI versus both FHJI and PHJI (Figure 1). To assess the relative importance ofPHJI and FHJI, we conducted sensitivity analyses by using 2 alterative models with different definitions of CJS involvement: (1) using a 2-level CJS involvement variable to assess the impact of any CJS involvement: no CJS involvement versus any CJS involvement (FHJI or PHJI, orboth FHJI and PHJI) and (2) using a 3-level CJS involvement variable to assess the impact ofany personal versus only family history of CJS involvement: no CJS involvement versus only FHJI versus any PHJI (Figure 1).

We included age as a covariate in every multivariable model; we considered additional covariates (1) ifthey were not plausibly within the causal pathway between history of CJS involvement and adverse health behaviors and outcomes to avoid eliminating any indirect effect, through the potential mediator, of our exposure of interest on the outcome; (2) if they did not have a high degree of missingness; (3) if they had a bivariate association of a P level of less than .10 with CJS involvement; and (4) if removing them from an adjusted model caused a change of greater than 15% in the coefficient for the primary CJS involvement variable of interest (4-level variable). To determine whether the strength of the association differed by gender (male, female) or by race/ ethnicity (Black, Latino, White/Asian/ Pacific Islander/Other), we tested 2-way interaction terms (a = .1). We made no adjustments for multiple comparison testing. A power calculation performed at the time of study design concluded that we would have at least 80% power to find a minimum 5% difference in outcome risk using a 2-tailed test (a = .05). We conducted all analyses with SAS-callable SUDAAN software (Research Triangle Institute, Research Triangle Park, NC) to account for the complex survey design.

RESULTS

Among respondents, 17.2% reported any CJS involvement (weighted n = 1 117 000); 8.9% reported only FHJI (weighted n = 574 000), 5.4% only PHJI (weighted n = 352 000), and 2.9% both FHJI and PHJI (weighted n = 191 000; Table 1). When we used age-adjusted prevalence estimates, respondents with only FHJI were more likely than were those with no CJS involvement to be female, to be Black, to be US-born, to not be married or partnered, and to be living at 200% or higher of the federal poverty level (according to 2017 Department of Health and Human Services guidelines: https://aspe.hhs.gov/poverty-guidelines), and were less likely to have graduated college. Respondents with only PHJI were more likely than were those with no CJS involvement to be male, to be Black or Latino, to be US-born, to not be married or partnered, and to have less than a high-school education. Relative to people with no CJS involvement, people who reported both FHJI and PHJI were more likely to be male, to be Black, to be US-born, to not be married or partnered, to not own their home, and to have completed some college but not to have graduated from college.

As compared with people who reported no CJS involvement, the age-adjusted prevalence of all health behaviors and outcomes was significantly greater among respondents with only FHJI (Table 1). Respondents with only PHJI were more likely to report fair or poor health, obesity, asthma, current depression, heavy drinking, and binge drinking than were those with no CJS involvement. Those with both FHJI and PHJI were more likely to report hypertension, obesity, asthma, current depression, heavy drinking, and binge drinking compared with those with no CJS involvement. The results from the multivariable model with the 4-level CJS involvement variable, adjusted for age, US nativity, and education level are presented in Figure 2. Compared with those with no CJS involvement, individuals with only FHJI were more likely to report fair or poor health (RR = 1.3; 95% CI = 1.2, 1.6), hypertension (RR = 1.3; 95% CI = 1.1, 1.4), diabetes (RR = 1.3; 95% CI = 1.1, 1.7), obesity (RR = 1.2; 95% CI = 1.0, 1.4), current depression (RR = 1.9; 95% CI = 1.4, 2.4), heavy drinking (RR = 1.8; 95% CI = 1.2, 2.6), and binge drinking (RR= 1.4; 95% CI = 1.1, 1.7). Respondents with only PHJI were more likely to report fair or poor health (RR = 1.2; 95% CI = 1.0, 1.5), asthma (RR = 1.6; 95% CI = 1.2, 2.0), current depression (RR= 1.5; 95% CI = 1.0, 2.1), heavy drinking (RR = 2.9; 95% CI = 1.9, 4.5), and binge drinking (RR = 2.3; 95% CI = 1.9, 2.8) than were those with no CJS involvement. Those with both FHJI and PHJI were more likely to report asthma (RR = 1.5; 95% CI = 1.1, 2.0), current depression (RR = 2.0; 95% CI = 1.3, 3.0), heavy drinking (RR = 3.0; 95% CI = 1.8, 4.9), and binge drinking (RR= 1.9; 95% CI = 1.4, 2.5) than were those with no CJS involvement.

Testing for effect measure modification did not signal a significant difference in the association between CJS involvement and health outcomes by gender or by race/ ethnicity. In analyses stratified by gender (Appendix, Table A, available as a supplement to the online version of this article at http://www.ajph.org), in general, point estimates for adverse health behaviors and outcomes tended to be higher among women than men, even if differences were not statistically significant. Women with only FHJI were more likely to report adverse general health, chronic disease, mental health, and heavy and binge drinking, whereas men with only FHJI were more likely to report diabetes. Female respondents with only PHJI were more likely to report fair or poor health and current depression, whereas men with only PHJI were more likely to report heavy drinking. Among the group with both FHJI and PHJI, men were more likely to report asthma. We also observed numerous differences across race/ethnicity categories (Appendix, Table B). With the exception of heavy and binge drinking, few significant health findings emerged among Blacks and Latinos across nearly all CJS involvement categories. White, Asian/Pacific Islander, and other race/ ethnicity respondents with only FHJI were more likely to report diabetes, and those with only PHJI were more likely to report asthma; we observed elevated risk of reporting current depression and heavy and binge drinking across all CJS involvement categories.

We also observed the association of CJS involvement with adverse health behaviors and outcomes in sensitivity analyses that used different definitions of CJS involvement. When we used a 2-level variable, people with any CJS involvement (FHJI or PHJI, or both FHJI and PHJI) were more likely to report fair or poor health, hypertension, asthma, current depression, heavy drinking, and binge drinking (Appendix, Table C) relative to people with no CJS involvement. With the 3-level CJS involvement variable, findings for the only FHJI group were identical to the only FHJI group in the 4-level variable. Those with any PHJI were more likely to report fair or poor health, asthma, current depression, heavy drinking, and binge drinking (Appendix, Table D) as compared with those without CJS involvement.

DISCUSSION

Nearly 1 in 6 adults in New York City, an estimated 1.1 million people, reported personal or family involvement in the CJS. We found this population more likely to report a number of adverse health behaviors and outcomes relative to those who have no CJS involvement history. People experiencing only FHJI had greater risk for self-report of virtually all health behaviors and conditions. However, the most striking and persistent were for mental health and both heavy and binge drinking, also observed among people with only PHJI as well as among those with both FHJI and PHJI. Furthermore, we found greater risk of reporting fair or poor health among people with only PHJI as well as higher self-report of asthma among those with only PHJI and among those with both FHJI and PHJI. These findings were robust to sensitivity analyses that used different definitions of CJS involvement. To our knowledge, this study is the first to examine self-report of health outcomes among individuals with personal, close family member, or with both personal and family member CJS experience.

To date, most research on the relationship between CJS involvement and health has focused on individuals with PHJI, generally concluding that they experience poorer health relative to people without PHJI.8 16 Our findings of increased self-report of adverse health conditions among people with only PHJI living in their home communities are similar to past research conducted among people who are incarcerated. However, by contrast with most studies on people with PHJI, we examined a range of physical and mental health conditions and risky drinking behaviors, and therefore illustrated the breadth of outcomes associated with CJS involvement.

The increased prevalence ofadverse health behaviors and outcomes we observed among people with only FHJI is consistent with national population-level research in which women with currently incarcerated family members exhibited greater odds of obesity, cardiovascular disease (heart attack or stroke), fair or poor health,18 and poor mental health (major depression and life dissatisfaction).24 Past studies have also observed increased odds of chronic diseases and mental health conditions19 and of adverse health behaviors17 in young adults having experienced parental incarceration in childhood. To our knowledge, this research is the first to examine PHJI and FHJI in the same population, allowing us not only to separately assess the association of each with health but also to assess them together. Our findings suggest that indirect CJS involvement may be as strongly associated with poor health as direct CJS involvement.

The findings about the health of people who have experienced both FHJI and PHJI are an intriguing feature of this study. Contrary to our expectation that joint experience of indirect and direct CJS involvement would be associated with increased adverse health risks, the magnitude of difference was only greatest for current depression among people with both FHJI and PHJI; this may be attributable, at least in part, to the smaller number of individuals with both FHJI and PHJI.

Notwithstanding the absence of statistical significance of the interaction terms, the analyses stratified by gender and by race/ ethnicity suggest that there may be differences in the health of subpopulations that have experienced CJS involvement. In particular, RR point estimates for women were generally larger in magnitude across all CJS involvement categories as compared with those of their male counterparts. Given the predominance ofwomen among respondents with only FHJI (67.2%), this finding may be in part related to the consistently higher RRs for self-reported adverse health behaviors and outcomes observed among the only-FHJI group in the principal analysis. Our analyses make evident the CJS exposure women may experience and suggest that either direct, indirect, or both direct and indirect CJS experience may contribute to physical and mental health risks, consistent with past studies that generally considered one or the other type of exposure.12,25

That involvement in the CJS could have an impact on health is expected. Alexander characterizes the penal system in the United States as a racialized system of social control, perpetuating the repression and criminalization of Black communities first imposed through slavery, later by way of Jim Crow laws, and most recently as unprecedented rates ofincarceration in service ofthe War on Drugs.26,27 As such, CJS involvement may be a marker of discrimination and other important social determinants of health. Mass incarceration has contributed to deepening structural inequalities in Black and Latino communities, introducing barriers to securing housing, employment, and education.28 In New York City, housing authorities may consider the circumstances regarding a person's conviction history as a basis to exclude them from public housing for several years, for example. While our findings focus specifically on the influence of CJS involvement on health, it is imperative that the role of other social determinants of health closely related to CJS involvement also continue to be priority areas of public health research and action.

Strengths and Limitations

A major strength of this study was the use of 2017 CHS data, which included information on PHJI and FHJI as well as a number of sociodemographic characteristics and health outcomes, with few missing data. This provided the opportunity to examine the association of direct and indirect experience ofCJS involvement with health outcomes in a large weighted sample that is representative of the adult New York City population; availability of an additional year of data in 2018 will allow for a more robust exploration of the relationships between CJS involvement and health. Lastly, our findings are generalizable to New York City and possibly to other large, racially and ethnically diverse urban centers in the United States.

Study limitations included the wording of CHS questions, each of which made reference to different types of CJS involvement (incarceration, probation, and parole) as well as different types of incarceration (jail and prison), which likely incurred heterogeneity in our exposure of interest. In addition, important information about exposure dose, such as timing, frequency, and length of incarceration, was not included in CHS data. All information obtained via the CHS is self-reported, potentially incurring underreporting of information perceived as stigmatizing, such as CJS involvement and risky drinking behaviors. However, past research largely supports the reliability and validity of self-reported CJS involvement29 and health outcomes measured in the CHS.30

People with PHJI may have been underrepresented in our analyses because of high rates of residential instability31 and homelessness,32 which can be barriers to their inclusion in survey efforts, but also because of the CHS's exclusion of people in institutional settings, such as halfway houses and shelters. This may have resulted in an underestimation of the association of poor health with PHJI.

The cross-sectional nature of the data restricted our ability to assess the temporal relationship of CJS involvement and sociodemographic characteristics with health outcomes and to characterize this relationship as causal. Furthermore, young men may have limited access to health care systems, as a result of lack of insurance coverage and infrequent care seeking. If they only see a doctor because they are admitted into jail or prison, the observed increase in adverse health reporting among PHJI could be partially explained by positive improvements in health care access as a result ofmore timely diagnosis ofpreviously undetected conditions.

Finally, our analytic models did not include numerous household- and neighborhood-level stressors, such as domestic violence and community disinvestment, found in previous research to be closely related with CJS involvement; these were not measured in the CHS.33 Still, our findings, including the associations with indirect involvement in the CJS, warrant increased investment in research, policy, and programming related to CJS involvement and health. Without this attention, public health may be overlooking a significant contributor to poor health in of some of our most highly burdened communities.

Public Health Implications

Our novel findings on the magnitude and breadth ofthe association ofCJS involvement with the health of individuals and families evidence the importance ofCJS involvement as a social determinant of health and a public health concern. While we are cautious about causal inference given our cross-sectional data, we believe that health departments could respond by incorporating measures of CJS involvement into routine population health monitoring to identify groups at greatest risk. The often complex health burden that people with a history of CJS involvement and their families face warrants community-based health care and social service resources that can adequately address their well-being. /4JPI-I

Sidebar

Correspondence should be sent to María Baquero, PhD, MPH, NYC Department of Health and Mental Hygiene, 42-09 28th St, Long Island City, NY 11101 (e-mail: mbaquero@health.nyc.gov). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted October 1, 2019.

doi: 10.2105/AJPH.2019.305415

CONTRIBUTORS

M. Baquero contributed to the study design and analytic plan development, data analyses, and interpretation of data, and led the writing of the article. K. Zweig and S.B. Meropol contributed to the study design and analytic plan development, data analyses, and interpretation of data, and assisted in writing the article. S. Y. Angell contributed to the study design, interpretation of data, and editing of the article. All authors approved the final submitted article.

ACKNOWLEDGMENTS

The authors wish to thank the Survey and Data Analysis Unit, Bureau of Epidemiology Services, NYC DOHMH; Shadi Chamany, MD, MPH; and Ashwin Vasan, MD, PhD, for their support.

CONFLICTS OF INTEREST

The authors report no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

The research protocol was deemed exempt by the NYC DOHMH institutional review board.

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DETAILS

Subject:	Health care access; Judicial system; Diabetes; Mortality; Resource allocation; Health surveys; Hypertension; Families &family life; Prisons; Correctional institutions; Health behavior; Drinking behavior; Crime; Diabetes mellitus; Public health; Mental depression; Imprisonment; Probation; Womens health; Asthma; Cities; Body mass index; Criminal justice; Ethnicity; Age; Adults; Genetics; Sociodemographics; Respondents; Obesity; Binge drinking; Supervision; Health care; Parole &probation
Business indexing term:	Subject: Supervision; Industry: 92214 : Correctional Institutions 92215 : Parole Offices and Probation Offices
Location:	United States--US; New York City New York
Classification:	92214: Correctional Institutions; 92215: Parole Offices and Probation Offices
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	378-384
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences

ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305415
ProQuest document ID:	2371355425
Document URL:	https://www.proquest.com/scholarly-journals/health-behaviors-outcomes-associated-with/docview/2371355425/se-2? accountid=211160
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Last updated:	2023-03-01
Database:	Public Health Database

HIV Outbreak Control With Effective Access to Care and Harm Reduction in North Carolina, 2017-2018

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ABSTRACT (ENGLISH)

Objectives. To assess and control a potential outbreak of HIV among people who inject drugs in Western North Carolina. Methods. Disease intervention specialists offered testing for hepatitis B and hepatitis C, harm reduction materials, and linkage to care to 7 linked people recently diagnosed with HIV who also injected drugs. Contacts were offered the same services and HIV testing. HIV genotype analysis was used to characterize HIV spread. We assessed testing and care outcomes by using state surveillance information. Results. Disease intervention specialists contacted 6 of 7 linked group members and received information on 177 contacts;among 96 prioritized contacts, 42 of 96 (44%) were exposed to or diagnosed with hepatitis C, 4 of 96 (4%) had hepatitis B, and 14 of 96 (15%) had HIV (2 newly diagnosed during the investigation). HIV genotype analysis suggested recent transmission to linked group members and 1 contact. Eleven of 14 with HIV were virally suppressed following the outbreak response. Conclusions. North Carolina identified and rapidly responded to an HIV outbreak among people reporting injecting drugs. Effective HIV care, the availability of syringe exchange services, and the rapid response likely contributed to controlling this outbreak. (Am J Public Health. 2020;110:394-400. doi:10.2105/AJPH.2019.305490)

FULL TEXT

Headnote

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Among people diagnosed with HIV in the United States in 2017, 9.4% of the transmission was attributed to injection drug use1; in North Carolina it was 4%.2 These figures have remained stable for the past 5 years. However, poor health outcomes associated with injection drug use, including death from overdose, have increased dramatically both nationally3 and in North Carolina.4 While these outcomes may be attributable to the use of increasingly dangerous drugs such as fentanyl, it is also possible that an increase in overall injections of drugs is a contributor; if so, an increase in HIV transmission related to injection drug use could also be expected.

This scenario was observed in 2014, when a severe outbreak of HIV and HCV infections was detected among people who inject drugs in Scott County, Indiana.5 Following that outbreak, the Centers for Disease Control and Prevention conducted an analysis to identify counties vulnerable to a similar outbreak.6 Many of the identified high-risk counties were in the rural and low-income Appalachian regions of the United States, including North Carolina's Appalachian region. Like other states, North Carolina tracks reports of injection drug use among people newly diagnosed with HIV, particularly in counties identified by Centers for Disease Control and Prevention and the North Carolina Division of Public Health (NC DPH) as at high risk for an outbreak.

Concurrent with these efforts, work by harm-reduction advocates in North Carolina resulted in the successful passage of legislation legalizing syringe exchange organizations in 2016. Although syringe exchange services had been operating in North Carolina before 2016 (C.R. C., oral communication, December 10, 2018), because of this legalization and publicity around poor health outcomes attributed to injection drug use, funding and subsequently the number of consumers served by syringe exchange services increased between 2016 and 2018.7 In 2018, syringe exchange services were serving 34 of the 100 counties in North Carolina.

Also concurrent with these efforts, North Carolina has improved access to care for HIV. Each county in North Carolina has a local health department that offers free testing and treatment of sexually transmitted infections. More than 95% of people newly diagnosed with HIV in North Carolina each year are interviewed to ensure partner notification, collect information about people living with HIV and their transmission risk, and ensure linkage to care (V. M., North Carolina Division of Public Health Field Services Unit, e-mail communication, January 10, 2019). In 2018, 91% of people newly diagnosed with HIV were linked to care within 6 months.8

In early 2018, a review of cases in western North Carolina identified an increase in new HIV diagnoses among people who inject drugs in that region, from 2 cases in 2016 to 10 in 2017. Upon further investigation, NC DPH identified a group of 7 epidemiologically linked people (i.e., people naming each other as sexual or needlesharing partners) who reported injection drug use, among whom 5 were diagnosed with HIV between 2017 and early 2018 from 3 neighboring counties. To investigate this increase, the NC DPH mounted a public health response. The response included molecular surveillance for HIV and phylodynamic analysis of HIV genetic sequences; these techniques were novel to HIV outbreak response in North Carolina. We hypothesized that use of heroin or other opioids by injection would be more prevalent in this group than among other groups of people with HIV and their contacts, and that we would find more than 5 new cases of HIV resulting from transmission between people injecting drugs.

METHODS

The investigation covered an area centered on 3 counties in the western region of North Carolina. During the outbreak response, disease investigation specialists attempted to interview all people living with HIV identified in the original group of 7 (referred to as the outbreak group) to collect demographic, clinical, sexual exposure, and drug use information. Disease investigation specialist intervention with members of this group not in care for HIV also included attempts to make care appointments and confirm that appointments were attended. Disease investigation specialists also attempted to interview contacts referred by the outbreak group; this investigation was focused on injection drug use partners. People were identified as epidemiologically linked to the group if referred by an outbreak group member or their contacts during the investigation conducted during March through October 2018. Contacts included primary sex and needle-sharing contacts (named by someone in the original group), secondary contacts (named by a primary contact), and tertiary contacts (named by a secondary contact). Attempts were made to locate and offer testing to all contacts.

Positive laboratory test results for confirmed HIV8; acute or chronic hepatitis B (HBV), confirmed9,10; and acute or chronic, confirmed or probable HCV11,12 were reported to NC DPH; patients were also tested for syphilis, but there were no positive results. All data collected, including laboratory results, clinical and risk data, and contact investigation results were captured in North Carolina's electronic disease surveillance system. We constructed network diagrams based on partnership information at the beginning and monthly following the investigation by using UCINET (version 6.682) and Netdraw (version 2.168; Analytic Technologies, Lexington, KY).

HIV nucleotide sequences were reported by reference laboratories each month.13 Molecular clusters were identified as previously described13 as identification of 2 or more persons with reverse transcriptase and protease sequences with TN-93 pairwise genetic distances of 1.5% or less. Outbreak-linked clusters were confirmed and further interrogated using phylogenetic trees. We conducted phylodynamic analyses as previously described14 in BEAST version 2.4.815 using the GTR + g model of nucleotide substitution, a Bayesian Skyline coalescent prior, and a relaxed log-normal molecular clock to evaluate transmission timing and the effective reproductive number (Re) within a single cluster at the center of the outbreak investigation. This evaluation of transmission timing allowed us to estimate the years over which the outbreak transmissions occurred.

We assessed the number of contacts located, interviewed, and newly diagnosed with HIV, HBV, or HCV. A person was considered newly diagnosed with HIV if the laboratory results indicated confirmed HIV infection and no record of earlier diagnosis could be identified, and previously diagnosed if a record of diagnosis before the outbreak period existed in North Carolina surveillance records. We counted the number of new diagnoses of HIV in genetic clusters containing outbreak group members and the number and proportion of people with HIV linked to care and virally suppressed (< 200 virus copies per mL). We also summarized the drugs reported to be used by injection in this network. We used network links (both social and genetic) to understand whether new HIV cases were linked to the outbreak group and could be considered as spread of the outbreak. We used indicators of linkage to care (Medicaid HIV appointment date, HIV Medication Assistance Program drug dispense, CAREWare appointment date, CD4 test result date, HIV viral load result date) and viral load information to determine public health success in decreasing exposure to HIV in the outbreak network.

RESULTS

In March of 2018, disease investigators attempted to contact the 7 original linked group members. Figure 1a shows the social network links known at the beginning of the investigation, including the linked people newly diagnosed with HIV and reporting injection drug use. Six of the 7 were successfully contacted, and investigators were informed of 177 primary, secondary, and tertiary injection drug use network contacts. Among this group, 96 people were reported to be linked to the original group by sharing needles (needlesharing contacts); 28 of these were also linked by sexual partnerships (sex contacts). This group of 96 was prioritized for interview, and these interviews were attempted by the 2 disease investigation specialist staffbased in the region and 2 staff temporarily posted to the region. Of these referred contacts, 22 of 96 (23%) were impossible to locate or out of state and 2 were deceased; the remaining 72 (75%) were contacted. The final contact index was 10 contacts interviewed per original case patient. Figure 1b shows the network generated at the close of the investigation, in October 2018. This network shows a highly linked component of people reporting injection drug use; this group was linked by few connections to networks of other people diagnosed with HIV in the region.

Among the total group investigated (n = 103; 7 members of the original group and 96 contacts), 41 (40%) were women and 62 (60%) were men (0 transgender). Ages ranged from 20 to 63 years, and the majority were middle-aged (median = 36 years; interquartile range = 30-44 years). The majority reported being non-Hispanic White (96%), 2 reported being Asian, and 2 reported being White and Hispanic.

Disease and Care Outcomes

Sixty-five of the 96 contacts were tested for HIV and HBV infection and either past or present HCV infection during the investigation, and test results for an additional 29 were found in surveillance data. Of the total 96, HCV exposure was identified in 42 (44%; 20 with HCV antibody test results with or without HCV RNA testing for current viremia during the investigation, 22 with HCV detected from surveillance records), current HBV infection was identified in 4 (4%; 2 diagnosed during the investigation), and current HIV infection was identified in 14 (15%; the original linked group of 7, 5 identified from surveillance records and diagnosed before 2017, and 2 diagnosed during the investigation). Nine ofthe 14 people with HIV had confirmed HCV coinfection including 6 of the original group. Figure 2 shows testing outcomes.

Nine people newly or previously diagnosed with HIV participated in a full case interview as part of this investigation and provided information on the drugs being used. They reported injecting methamphetamines (named by 6 people; 66%), heroin (n = 1; 11%), narcotics or other nonheroin opioids (n = 2; 22%), and cocaine (n = 1; 11%). In comparison, among the 43 people newly diagnosed with HIV in 2017 and reporting injection drug use who were not linked to this investigation, the injecting use of heroin (n = 12; 28%) was most frequently reported, followed by methamphetamines (n = 11; 26%), cocaine (n = 9; 21%), narcotics or other opioids (n = 4; 9%), and crack (n = 4; 9%).

Genetic clusters were identified from 12 243 people living with HIV in North Carolina with available viral sequences, including all the people identified in the network as investigation cases. Five of the outbreak group and 1 person newly diagnosed with HIV were linked in a primary genetic cluster containing a total of 14 individuals diagnosed between 2011 and 2018 (Figure A); within this genetic cluster, 6 people linked in the investigation reported injection drug use. Phylodynamic analyses identified the primary genetic distance cluster as a single phylogenetic cluster, where the 6 people reporting injection drug use comprised a distinct subcluster. Based on this phylodynamic analysis, 5 of these 6 transmissions were estimated to have originated after 2016, suggesting a recent outbreak. The phylogenetic cluster showed 2 or more transmissions per year and an Re of 1.6 (95% highest probability density interval = 0.5, 2.9; Figure A). No cases linked to the cluster containing 5 of the 7 investigation cases have been identified between the investigation and the writing of this article, although people have been newly diagnosed with HIV in the region and linked to other genetic clusters.

All people testing positive during the investigation were referred to providers of care and treatment of HIV, HCV, and HBV by trained linkage counselors. Before the commencement of the investigation, 7 of 7 people in the original linked group had been linked to care for HIV at the time of their diagnosis. Three of the 7 had records of viral suppression within the 12 months before the investigation; the remaining 4 were assumed to be not virally suppressed. Although information on use ofthe syringe exchange was not collected from all investigation participants, some did report use of the exchange, including 2 people living with HIV.

Care and viral suppression dynamics for the outbreak group and the 2 people newly diagnosed are shown in Figure

3. At 6 and 12 months following the identification of the outbreak, we reviewed care outcomes following the investigation. In October 2018 (6 months), all of the 7 outbreak group members and the 2 newly diagnosed people had accessed care for HIV and 8 ofthese 9 people were virally suppressed. As ofMarch 2019 (12 months), 5 of 7 people in the original group and both people newly diagnosed during the investigation remained virally suppressed; 1 of the original 7 was deceased in March 2019, and 1 did not have care records during the 12 months between February 2018 and February 2019 and is considered to be out of care. The 7 remaining people living with HIV linked to the outbreak (diagnosed with HIV before 2017 and not genetically linked to the outbreak cluster) had accessed HIV care at least once since diagnosis; 6 of 7 were in care as of March 2019 and 4 of 6 were virally suppressed.

Programmatic Interventions

NC DPH created communication and training programs to support local health care services. Group conference calls and other communication efforts were made for a group that included local health department staff from the 27 counties in the western region of North Carolina, syringe service providers, and community-based HIV organization staff. NC DPH staff worked to increase awareness among local health department staffofthe availability ofhepatitis A and HBV vaccine. Training in rapid test technology for HIV was provided to syringe service providers and local health department staff. A small number of contacts contacted during the investigation reported use of local syringe services; syringe service information was provided to those not already aware of the service, in addition to other harm-reduction information and harm-reduction kits containing materials for hygiene and wound care. Longer-term collaboration with syringe service providers has resulted in several collaborative testing events where state HCV linkage counselors and outreach workers worked with syringe service staff to host the event and provide phlebotomy and linkage services.

DISCUSSION

This public health investigation identified a cluster ofrecent HIV transmissions among a group of people reporting injection drug use with a wide contact network, suggesting the potential for a large outbreak. Our hypotheses were not supported (neither heroin nor other opioids were the most frequently injected drug; we found only 2 new cases), suggesting that this outbreak is different from previously reported outbreaks of HIV among people injecting drugs.5,16 Our early and rapid response and community support ensured that people both newly and previously diagnosed with HIV were engaged with medical care. Although this community was rural and low-income, with the support of state personnel, staff of community-based organizations, and community providers, most people living with HIV linked to the outbreak achieved and maintained viral suppression.

High completeness of sequence data in the outbreak region allowed the supplementation of contact tracing network information with molecular data. Sequencing results indicated no additional linked cases, suggesting that the allocation of additional investigation and linkage to care resources to the region may have prevented further transmission. This finding is encouraging because the primary cluster showed an effective reproductive number of 1.6 in phylodynamic analyses and may have continued to expand in the absence of intervention.

We observed several differences between this outbreak and larger outbreaks among people who inject drugs, including the Scott County outbreak.5,16 First, North Carolina's outbreak was recognized early in development because of excellent disease investigation work and capture of partner data in our surveillance system, regular data review, and good communication with local colleagues. Second, this community was supported by syringe exchange services. Finally, this outbreak occurred in an area with access to health care for HIV. Access to health care in this area includes several HIV care practices within the affected counties with capacity to take on new patients and a strong commitment to working as an integrated network, the availability of Ryan White-funded medical care, the HIV medication assistance program, and support from state and local linkage counselors. Rapid access to care and treatment of HIV with subsequent viral suppression decreases the potential risk to the larger community. Overall, 68% of people known to be living with HIV in North Carolina were retained in care in 2018; among people diagnosed in the past 5 years, this rate was 73%.

While only a small number of new HIV cases were identified, a higher proportion of people involved in the network had evidence ofHBV orHCV exposure or infection. This created an opportunity to perform integrated testing and linkage to care, and therefore serve this community more effectively at both the public health and provider levels. A final benefit of this integrated outbreak response was the ability to communicate about this kind of outbreak (bloodborne and characterized by multiple infections) to providers in the region.

This analysis was subject to certain limitations. Following our normal practice, the extensive interview performed with people diagnosed with disease was not performed with contacts; therefore, information on the use of specific drugs such as methamphetamine, and protective behaviors, including use of a syringe exchange, was not available from this group. This limits our ability to draw conclusions about the use ofsyringe exchange services in preventing the spread ofdisease. It is important to recognize that some people living with HIV and contacts did report using the syringe exchange, which is likely to have decreased the risk ofHIV transmission. Given that injection drug use is a stigmatized behavior, participants may have been reluctant to refer contacts to our disease investigators, and, therefore, the outbreak network may be larger than shown here; however, the high contact index suggests effective relationship building between disease investigation specialists and the affected community. Finally, the people not located for testing may have HIV, HCV, or HBV, and the true prevalence in the group may be higher than we were able to detect.

Public Health Implications

We found a relatively high prevalence of HIV in this group (15%) but limited spread of HIV linked to this outbreak. Our findings were in agreement with findings of high HCV test positivity, but not in agreement with findings of low HIV prevalence (0%- 3%) in a small number of studies among nonurban people reporting injection drug use17-21 and a national estimate of HIV prevalence among people reporting ever having injected drugs (2%).22 In fact, our finding was more similar to studies of cities, where HIV prevalence among people injecting drugs in the past year is higher (9%).23 This may reflect the high proportion of testing in the outbreak group and their contacts; the quoted nonurban studies include self-report data and may be underreporting true HIV prevalence. Alternatively, the higher HIV prevalence may reflect contained outbreaks of more than 1 genotype. Despite the higher prevalence, we found limited spread of the outbreak genotype, suggesting 2 possibilities: either that some injectionassociated exposure, possibly very frequent injection as suggested by the Scott County outbreak, may be required for widespread HIV transmission in injection drug users, or that access to HIV care and viral suppression, even if incomplete, may have protected North Carolina against several potential outbreaks.

Effective linkage to care and treatment of HIV likely halted the spread of HIV in this setting. In general, because of fewer providers, longer travel distances, and increased stigma, accessing HIV care is more difficult in rural areas.24 To support people with HIV, in North Carolina, state health department staff are assigned to ensure that an initial care appointment is scheduled for people newly diagnosed with HIV (disease investigation specialist) and to ensure that a first appointment was attended (linkage counselor). As a result ofthis investment and the commitment of local HIV care providers, rapid linkage to care and viral suppression was achieved for most even in this rural setting. Effective collaboration between government agencies and local providers, including syringe service providers, can support rural communities to decrease the risk for disease transmission via injection drug use.

Only 3 of 9 people with HIV interviewed during the investigation reported injection use of heroin or opioids; reported use of methamphetamines by injecting was more frequent, and the 3 reporting injecting heroin or opioids also reported injecting methamphetamine. Although fentanyl was an important component of the outbreak that occurred in Massachusetts,16 it does not appear to have been central in this outbreak. Our investigation suggests that a true outbreak was created in a setting where heroin or other opioids were not the most frequently used drug. Therefore, injection patterns unique to these drugs may not be the only driver of this kind of outbreak, and it is important to consider this kind of outbreak in settings of injection of nonopioid drugs.

Conclusions

Based on regular surveillance review incorporating social and genetic network analysis, North Carolina identified an outbreak of HIV and responded; a small number of additional cases were detected. The intensive response linked people living with HIV to medical care and other services, provided education, and strengthened the testing resources available in the area. Ongoing work to link people newly diagnosed with HIV to medical care and monitor surveillance for potential outbreaks can avert outbreaks ofHIV among people who inject drugs. ÂfPU

Sidebar

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This article was accepted December 4, 2019.

doi: 10.2105/AJPH.2019.305490

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

CONTRIBUTORS

AH authors worked together to conceptualize and design the analysis. V. Mobley, M. Hudgins, and C. A. Crowley performed data collection. C.R. Caputo andJ.M. Clymore provided data on programmatic interventions. A. B. Cope performed social network analysis, A. M. Dennis and R. M. Billock performed genetic network analysis, and E. Samoff and N.D. Adams performed epidemiological analysis. E. Samoff authored the first draft of the article, and all authors reviewed the article and revised the content.

ACKNOWLEDGMENTS

This work was supported by National Institute ofAllergy and Infectious Diseases, National Institutes ofHealth, through grant award K08AI112432 (A. M. D.) and 5T32AI070114-12 (R.M.B.).

The work of North Carolina disease intervention specialists, in particular Constance Jones, Annie Earle, Vicky Hunt, Ethan Wallenius-Caldwell, Stephanie Sherard, Preston Joyner, and Jason Hall, as well as the colleagues that supported them, is gratefully acknowledged as central to this effective outbreak response.We also acknowledge the collaborative effort among the disease intervention specialists, linkage counselors, HIV care community, and local health department staffwho continue to support people living with HIV in Western North Carolina. We are grateful for the help ofour Epidemic Intelligence Service officer Carolyn Herzig in the immediate response to the outbreak and colleagues in the North Carolina Division ofPublic Health Preparedness Branch for supporting our effort.

Note. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

CONFLICTS OF INTEREST

The authors have no conflicts to disclose.

HUMAN PARTICIPANT PROTECTION

This article describes an outbreak response, for which institutional review board approval is not needed.

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DETAILS

Subject:	Hepatitis B; Public health; Hepatitis C; Surveillance; Human immunodeficiency virus--HIV; Outbreaks; Drugs; Genotypes; Intervention; Specialists; Low income groups; Ultrasonic testing; Drug use; Hepatitis; Access control; Disease control; Harm reduction; Laboratories; Investigations; Interviews; Health care access
Business indexing term:	Industry: 92312 : Administration of Public Health Programs
Location:	United States--US; North Carolina
Company / organization:	Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120
Classification:	92312: Administration of Public Health Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	394-400
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305490
ProQuest document ID:	2371355370
Document URL:	https://www.proquest.com/scholarly-journals/hiv-outbreak-control-with-effective-access-care/docview/23713553 70/se-2?accountid=211160

Social Bots Likely Pose an Undue Influence to Cannabis Policy

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ProQuest document link

ABSTRACT (ENGLISH)

As with alcohol and tobacco, cannabis is not an ordinary commodity: about one in 10 users will become dependent on it, and it can cause harm to users, especially those who are young (https://bit.ly/2XUMi57). However, cannabis use also poses new challenges. Unlike the situation with the alcohol and tobacco laws that are in effect today, states are writing laws regulating cannabis use as the scientific evidence of its health effects develops and with few examples of what is or is not effective in other states and countries. The scientific community is beginning to understand associations between use of cannabis and certain health outcomes in some populations, but there remain many other outcomes plausibly associated with cannabis use in which it is not yet clear whether cannabis is helpful or harmful. In addition, much of the evidence is limited by the profound caveat that it is based on cannabis that is far less potent than the products on the shelves of dispensaries today.

There is an urgent need for public health to be nimble in how we surveil and respond to the constantly evolving cannabis landscape, and we will need to innovate if we are going to meet this challenge. As people's lifestyles outgrow traditional data collection methods, researchers are increasingly looking to understand how individuals' rich digital footprints can answer public health questions.1 Large segments of society publicly document their daily lives on social media, and others share their more intimate moments online. Although these online data cannot replace standard research methods, they can and should be used to provide rapid insights into new trends. The article by Allem et al. in this issue of AJPH is a prime example of a small but growing literature that harnesses these digital data to better understand the shifting landscape around cannabis use and legalization.

FULL TEXT

As with alcohol and tobacco, cannabis is not an ordinary commodity: about one in 10 users will become dependent on it, and it can cause harm to users, especially those who are young (https://bit.ly/2XUMi57). However, cannabis use also poses new challenges. Unlike the situation with the alcohol and tobacco laws that are in effect today, states are writing laws regulating cannabis use as the scientific evidence of its health effects develops and with few examples of what is or is not effective in other states and countries. The scientific community is beginning to understand associations between use of cannabis and certain health outcomes in some populations, but there remain many other outcomes plausibly associated with cannabis use in which it is not yet clear whether cannabis is helpful or harmful. In addition, much of the evidence is limited by the profound caveat that it is based on cannabis that is far less potent than the products on the shelves of dispensaries today.

There is an urgent need for public health to be nimble in how we surveil and respond to the constantly evolving cannabis landscape, and we will need to innovate if we are going to meet this challenge. As people's lifestyles outgrow traditional data collection methods, researchers are increasingly looking to understand how individuals' rich digital footprints can answer public health questions.1 Large segments of society publicly document their daily lives on social media, and others share their more intimate moments online. Although these online data cannot replace standard research methods, they can and should be used to provide rapid insights into new trends. The article by Allem et al. in this issue of AJPH is a prime example of a small but growing literature that harnesses these digital data to better understand the shifting landscape around cannabis use and legalization.

SOCIAL BOTS: AN EMERGENT THREAT

The Allem et al. article is also one ofthe first to raise a warning flag about an emergent threat to a public health approach to cannabis policy: social bots. In lay terms, social bots are online algorithms designed to impersonate humans as they autonomously interact with real users on social media platforms and spread what is often low-credibility information.2,3 The authors found that social bots had a strong presence on Twitter; they contributed roughly one in seven tweets (14.5%, or 8874 tweets) in the authors' sample of cannabis-related tweets. This is not surprising given the significant financial rewards that await those who are successful in building large forprofit cannabis companies and the dramatic rise in the use of social media for financial and political gains.4

Social bots by design exploit human psychology to amplify the spread of strategic messages by identifying users with the highest susceptibility to those messages, tailoring messages to appeal specifically to them, and referencing influential users to garner credibility.3 They often act as "super spreaders" or "twitter bombs," that is, online accounts that spam high volumes of content in short bursts.3 The net result of this type of coordinated bombardment is to create an illusion that specific ideas or beliefs are more popular than they really are.2

The potential threats that social bots pose for a public health approach to cannabis policy are twofold: they can increase the spread of misinformation,3,5 and they can make cannabis use and support for legalization appear more common.2 Both of these consequences are likely to result in policies that favor private industry and more lenient regulations.

At this stage of cannabis legalization, the consequences of these types of targeted misinformation campaigns may be substantial, because people who believe that cannabis is not harmful tend to have higher levels of support for legalizing nonmedical cannabis.6 Although the authors did not attempt to assess the credibility of the information spread by the social bots in their study, the examples they cited from e-cigarettes showed that social bots spread low-credibility health claims consistent with common industry arguments. In the case of cannabis, this type of misinformation could be dangerous given that previous research has established that cannabisrelated content on social media platforms is already overwhelmingly positive.7

IMPLICATIONS FOR POLICY

Painting an accurate picture of the effects of cannabis use on public health requires balancing evidence ofbenefits and harms and appreciating the limitations of what is and is not yet known. In the face of this complexity, it is likely that bots are actively tipping these scales toward the positive, preserving little of the nuance present in the scientific literature. The likely outcomes are online conversations about cannabis that incorporate only part ofits story and conversations that shape levels and perceptions of policy support, with consequences for public health.

History teaches us that regulating atypical commodities such as cannabis is an important means of controlling disease and injury rates, and regulations are most likely to safeguard the public's health when they are informed by scientific evidence. We are in a pivotal moment in time when the laws that states are writing to govern the manufacture and sale of cannabis will likely influence population health for decades to come. Unfortunately, another emerging similarity between alcohol and cannabis is that policy decisions appear to be driven by profits rather than science. The ideal public health outcome for cannabis policy would be highquality research guiding the types of regulations most appropriate for cannabis in each state. This process needs and deserves to run its course free from undue financial influences, including such manifestations as social bots. In a time when the complexity of scientific evidence is being lost in public and policy discourse, social bots act as a finger on the scales.

Taking a step back, the issues raised with social bots are a symptom of a larger problem, which is that digital spaces have evolved well past the capacity of public health surveillance and regulation. The new cannabis market is testing boundaries as it comes of age in the digital era. According to Allem et al., content spread by social bots appeared to function in a manner similar to uncredited advertisements: it promoted the health and medical benefits ofcannabis, the cannabis industry, and cannabidiol and other specific products more often than tweets generated by real users, raising the question of who is looking out for the public good in this space.

Although regulatory action on this issue is complicated by the unique status of cannabis as illegal at the federal level and legal in certain states, at a minimum the Federal Trade Commission should be monitoring violations of disclosures in advertising in these online spaces, and Twitter needs to monitor and take action against violations ofthe platform's ban on advertising specific cannabis brands or products. Without these types of protections, online spaces may be vulnerable to social bots spreading partial information or misinformation driven by interests in profits rather than the public's health.

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Sidebar

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This editorial was accepted December 16, 2019.
doi: 10.2105/AJPH.2019.305539

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

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DETAILS

Subject:	Cannabis; User behavior; Credibility; Verbal communication; Marijuana; Research methodology; Public health; Alcohol; False information; Data collection; Digital data; Internet; Alcoholism; Harnesses; Research methods; Scientific community; Social media; Digital media; Social networks; Software agents
Business indexing term:	Subject: Social networks
Company / organization:	Name: Pew Research Center; NAICS: 541720; Name: University of North Carolina; NAICS: 611310; Name: Federal Trade Commission--FTC; NAICS: 926150

Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	264-265
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305539
ProQuest document ID:	2371355353
Document URL:	https://www.proquest.com/scholarly-journals/social-bots-likely-pose-undue-influence-cannabis/docview/2371355353/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-07
Database:	Public Health Database

Document 31 of 45

Healthy Cities Projects in Taiwan

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ABSTRACT (ENGLISH)

The Healthy Cities project, proposed by the World Health Organization (WHO) in 1986, has become a prevailing model of a setting-based approach for health promotion and a paragon for "Health in All Policies." More than 1000 cities have conducted Healthy Cities-related programs around the world.1 According to WHO, a Healthy Cities project aims to promote comprehensive policies and plans for the health of a city and to reduce inequality in health among groups to achieve the goal of "Health for All."1 Following this international movement, Taiwan adopted the concept of Healthy Cities projects in 2002. As the main program team, we highlight the development and challenges of the Healthy Cities initiatives in Taiwan in this article.

FULL TEXT

The Healthy Cities project, proposed by the World Health Organization (WHO) in 1986, has become a prevailing model of a setting-based approach for health promotion and a paragon for "Health in All Policies." More than 1000 cities have conducted Healthy Cities-related programs around the world.1 According to WHO, a Healthy Cities project aims to promote comprehensive policies and plans for the health of a city and to reduce inequality in health among groups to achieve the goal of "Health for All."1 Following this international movement, Taiwan adopted the concept of Healthy Cities projects in 2002. As the main program team, we highlight the development and challenges of the Healthy Cities initiatives in Taiwan in this article.

DEVELOPMENT OF HEALTHY CITIES PROJECTS IN TAIWAN

Tainan City was selected as the first demonstration city in Taiwan for a Healthy Cities project because of its suitable population size with strong and supportive communities. The project was launched in July 2003 when an interdisciplinary team comprising 16 scholars of public health, nursing, urban planning, architecture, transportation, sports science, and geomatics from National Cheng Kung University received a 3-year sponsorship (2003-2005) from the Bureau of Health Promotion of Taiwan. The Tainan Healthy Cities project hereby followed the WHO three-phase and 20step protocol to develop a Healthy Cities initiative.

With the guidance from two renowned "fathers of Healthy Cities," Leonard Duhl and Trevor Hancock, the Tainan Healthy Cities project has accomplished at least five achievements2: (1) making a multilevel framework for running a steering committee, a research group, and three working taskforces; (2) constructing 82 suitable Healthy Cities indicators and 21 demonstration programs; (3) building an effective mechanism for intersectoral collaboration and community participation; (4) setting up Healthy City awards to encourage nonhealth sectors to participate in the Healthy Cities project; and (5) establishing an alliance to help other cities to promote Healthy Cities projects in Taiwan. This successful experience has attracted many other cities and counties to follow the Tainan example to promote Healthy Cities projects since 2006.

At the core of the movement, the Taiwan Alliance for Healthy Cities was established in 2008, and, since then, the Alliance has taken the responsibility and given great impetus to promote Healthy Cities projects in Taiwan. The details and achievements of the Alliance were published in related articles.3,4 Assistance was provided to 12 cities or counties and 13 districts or townships in Taiwan to join the international organization, which is affiliated with the WHO Western-Pacific office called Alliance for Healthy Cities. With substantial results, these cities and counties earned many more Alliance for Healthy Cities awards compared with other countries.

EMERGING TASKS

Because of a rapid growth of the older population, Taiwan became an aged society (those aged 65 years and older ‡14%) in 2018 and will soon turn into a superaged society (those aged 65 years and older ‡20%) in 2026. Thus, how to keep older adults healthy and active in later life has become an emerging issue in Taiwan. As a consequence, the Taiwan Alliance for Healthy Cities thereby started taking a new role of helping cities and counties to adopt another WHO framework of Age-Friendly City (AFC), as the advanced stage of Taiwan Alliance for Healthy Cities projects. Hence, following the international trend and the WHO guidebook, Chiayi City was selected as the first demonstration city in Taiwan for promoting AFC programs during 2010 to 2011. The Alliance not only delivered the experiences of Healthy Cities projects but also promoted the concepts of Health in All Policies in related AFC issues. Thus, the Healthy Cities movement has hereafter entered into a new phase that incorporated Healthy Cities approaches to deal with the complicated issues of agefriendly cities in Taiwan. By 2013, all 22 cities and counties had consequently received funding from the Health Promotion Administration to promote AFC programs.

CHALLENGES FOR HEALTHY CITIES PROJECTS

It was not effortless to build a healthy andlivable city, norwas it the responsibility of any single sector of a city. Among Healthy Cities approaches, we found that the most challenging tasks included (1) setting up suitable indicators for evaluation and continuously collecting related data, (2) establishing a consonant intersectoral collaboration, and (3) maintaining partnerships between different organizations and experts. For example, compared with cities with previous Healthy Cities experience, those without Healthy Cities experience before but initiating AFC projects directly often faced difficulties and barriers with regard to integrating nonhealth sectors into the projects. This was because building an effective intersectoral collaboration, such as utilizing the government-academia-community framework, indeed needed a great amount of time in practice. Those cities and counties really need to engage in a series of capacity-building activities to establish the platform and mechanism for intersectoral collaboration before implementing advanced AFC programs.

The eight domains5 covered by the AFC programs were more complicated than those in the Healthy Cities issues and often neglected by city governments. These eight domains, however, should not be treated separately in the real world of older adults' daily lives but needed a collective approach and intersectoral collaborations to build related public policies across agencies. Thus, we suggest future Healthy Cities and AFC projects should provide more training courses for capacity building and flexible mechanisms for establishing effective intersectoral collaborations to change the traditional working pattern of bureaucracy in government systems.

FUTURE DIRECTIONS

In 2015, the United Nations announced 17 sustainable development goals (SDGs) and 169 targets. In the following year, the ninth Global Conference on Health Promotion held in Shanghai, China, with the theme of "Health Promotion in the SDGs" emphasized that cities and communities were critical settings for promoting health, and the Healthy Cities approach could contribute at least six SDG goals.6 Echoed widely by public health societies, nearly all Healthy Cities and AFC conferences in 2018 put SDGs as the main theme of their meetings.

In Taiwan, the National Council for Sustainable Development thus reorganized its current function groups in 2017 and efficiently established related targets and indicators to the specific United Nations SDGs, in which more than half (65.1%) of the targets were included (Table 1). This action led to a good opportunity for Healthy Cities projects to continuously be implemented in Taiwan, upgrading the system from city level to national level.

In addition, the Shanghai Declaration on promoting health in the 2030 Agenda for Sustainable Development has identified three important pillars: good governance, healthy cities, and health literacy.6 According to the definition of United Nations, good governance has eight essential characteristics: participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive, and follows the rule of law. Thus, how to stabilize the so-called "good governance" and develop a methodology for evaluating governmental performance are important issues in future research because many Healthy Cities projects have been affected by frequent mayoral replacements in many countries.

CONCLUSIONS

Most Healthy Cities projects in Taiwan were conducted at the local-government level. However, when faced with the complexity of city issues, there is a need to establish a vision and long-term goals at the national level to guide local governments' plans, because the Healthy Cities movement is a strong value-based commitment to improve health.7 To achieve the goals of SDGs, it needs not only the efforts of the central government but also the active involvement oflocal governments. In all, in the unique Healthy Cities plans, we have experienced that Healthy Cities projects can serve as a practical and effective approach to establish Health in all Policies and help achieve the SDGs in the future.

Susan C. Hu, PhD
Nuan-Ching Huang, PhD

CONTRIBUTORS

Both authors contributed to the conceptualization of the article, article writing, and discussions of its substance. N. C. Huang wrote the draft. S. C. Hu revised the article and added important intellectual content.

ACKNOWLEDGMENTS
We would like to give our sincere thanks to Stella Yu, PhD, for her invitation and English edits. We also express our appreciation to Health Promotion Administration, Ministry of Health and Welfare in Taiwan, and all members in Taiwan Alliance for Healthy Cities.

CONFLICTS OF INTEREST

Both authors have no conflicts of interest.

Sidebar

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Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.
This editorial was accepted December 2, 2019.
doi: 10.2105/AJPH.2019.305509

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DETAILS

Subject:	Health promotion; Collaboration; Cities; Older people; Health education; Health care; Public health; Policies; Health care policy; Sustainable development
Business indexing term:	Subject: Sustainable development
Location:	Taiwan

Company / organization:	Name: World Health Organization; NAICS: 923120; Name: United Nations--UN; NAICS: 928120; Name: National Cheng Kung University; NAICS: 611310
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	299-301
Publication year:	2020
Publication date:	Mar 2020
Section:	PERSPECTIVES
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305509
ProQuest document ID:	2371355321
Document URL:	https://www.proquest.com/scholarly-journals/healthy-cities-projects-taiwan/docview/2371355321/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

Document 32 of 45

Road Safety Risks of Cannabis Use: Sales Need to Fund Research

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ProQuest document link

FULL TEXT

State cannabis policies started to become liberalized in the United States in 1996, when Californians voted to allow medical cannabis use under very liberal regulation. Medical cannabis programs have since spread to 34 states and the District of Columbia, and 11 states and the District of Columbia have legalized adult cannabis use for all purposes. Only a handful of states have retained criminal penalties for personal possession and use of cannabis.1

A major public health concern is that these policy changes may increase the number of motor vehicle crashes involving cannabis-impaired drivers.1 In the United States the most relevant national data come from the Fatal Accident Reporting System, but it has large amounts of missing data and there are state differences in toxicological testing and definitions of cannabis-impaired drivers.2 There are also major challenges in deciding whether drivers involved in fatal accidents were cannabis impaired because cannabis metabolites can be detected hours and days after last use and do not necessarily indicate impaired driving.3

Cook et al. (p. 363) have avoided these problems by assessing the effects of medical cannabis laws and cannabis decriminalization laws on fatal motor vehicle crashes in a sample of US cities with populations of 100 000 or more. Half of the cities are in states that had or had not passed medical cannabis laws and half of the cities had or had not decriminalized personal possession and use of cannabis. They tested the hypothesis that decriminalization and medicalization would have different effects on motor vehicle deaths, specifically that after decriminalization cannabis users would be more likely to drive while cannabis impaired, thereby increasing fatal motor vehicle deaths, whereas states with medical cannabis programs that require cannabis use to take place in the home would keep users off the road and thereby reduce motor vehicle deaths.

Cook et al. used Poisson regression and a difference-indifferences approach to test these hypotheses. Their analysis controlled for the effects of differences between cities in unemployment, beer taxes, and road safety polices that may have reduced road deaths (e.g., bans on texting, sanctions for driving offenses). They also tested the robustness of their findings by using a different statistical model specification. Commendably, they have shared their analytical code and data to allow independent reanalyses.

They found a 13% decrease in road deaths after medical cannabis programs were introduced but a similar sized increase in road deaths after cannabis decriminalization. They argue that these results support their hypotheses because these opposite effects were most marked in younger male adults (who are the most likely to use cannabis and be involved in accidents) and in crashes on weekends (when cannabis use is more likely to occur).

We are cautious about accepting their interpretation for the following reasons. First, medical cannabis laws are intended to increase access to cannabis only for adults with illnesses, but we know that they also increase cannabis use among young adults because of leakage to the illicit market.4 One would expect this to increase rather than decrease cannabis use before driving. Second, we are unaware of any evidence that those who access medical cannabis use cannabis only at home and do not drive afterward. We think it more plausible that in states with liberal medical cannabis policies, young adults substitute cannabis for alcohol before driving, thereby reducing the risks of car crashes because cannabis produces less driving impairment than does alcohol. Some studies of the effects on cannabis liberalization have found small, short-lived increases in motor vehicle deaths after the introduction of recreational dispensaries (e.g., Lane and Hall5).

The increase in motor vehicle death rates after decriminalization is also puzzling. The authors' explanation assumes that cannabis users pay attention to criminal penalties for use when criminal penalties did not deter them from using cannabis before decriminalization.

All studies of the effects of cannabis policy changes on car crashes (our own included) require cautious interpretation for a number of reasons.

First, as the authors ofa similar study, we are very aware of the limitations of state mortality data and the information used to code state- and city-level cannabis policies. There are major state differences in resources devoted to enforcing criminal penalties for cannabis use and marked differences between states in the liberality of their medical cannabis programs and the extent to which they permit retail cannabis dispensaries to operate. The statistical analyses of state-level mortality data also have a limited capacity to control for the effects of other variables that can affect cannabis use and car crash deaths.1

Second, these studies examined fatalities for the good reason that they are more dependably identified in state data systems than are injuries. They cannot assess the possibility that an increased cannabis use may increase the number ofnonfatal accidents (e.g., if more drivers are impaired by cannabis but fewer of the accidents are fatal because they occur at a slower speed). There are data from a New Zealand birth cohort, for example, indicating that cannabis users are likely to be involved in more nonfatal motor crashes than are their nonusing peers.6 An increase in motor vehicle injuries would be much less serious from a public health perspective than would an increase in motor vehicle deaths, but it could still have substantial economic impacts via increased hospitalizations and disability and the costs of motor vehicle repairs.

Third, the findings of the Cook et al. study are consistent with studies showing that cannabis legalization has had minimal short-term effects on motor vehicle deaths. The limited effects to date, however, may not predict what will happen if federal cannabis prohibition in the United States is repealed. Federal prohibition has placed major constraints on cannabis commercialization that have restricted cannabis supply.1 Local government restrictions on the location of retail cannabis outlets also mean that legalization has so far also had a limited impact on the illicit cannabis market. Removal of these constraints would allow the full commercialization of cannabis markets, lowering prices, increasing potency, expanding access, and permitting widespread promotion of cannabis use in the mass media.1

Fourth, other state cannabis policy changes could conceivably increase the rates of car crashes. For example, allowing the sale ofcannabis-based beverages in bars could increase the combined use of alcohol and cannabis before driving. Allowing the consumption of cannabis in vaping lounges could increase the number of persons who drive after using cannabis.

To better understand the public safety risks of cannabis use, we need large representative cohorts of cannabis users among whom to study associations between cannabis use, driving while impaired, and car crashes, fatal and nonfatal. The impact ofcannabis legalization on road safety is an important public health issue for states that have legalized cannabis. They should hypothecate a percentage of tax revenue from legal cannabis sales to fund research to inform governments about how to effectively enforce laws against driving while cannabis impaired and how best to deter cannabis users from putting the safety of others at risk by driving while intoxicated.

Wayne Hall, PhD
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Sidebar

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This editorial was accepted December 14, 2019.
doi: 10.2105/AJPH.2019.305529

CONTRIBUTORS

The authors contributed equally to this editorial.

CONFLICTS OF INTEREST

We have no conflicts of interest to disclose.

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DETAILS

Subject:	Cannabis; Public health; Traffic safety; Crashes; Safety; Motor vehicles; Metabolites; Driving ability; Marijuana; Fatalities; Drivers; Missing data; Crime; Drug abuse; Mortality; Drunk driving; Decriminalization; Medical marijuana; Traffic accidents &safety; Accidents; Sales
Location:	St Lucia; Australia; New Zealand; Queensland Australia; United States--US; Washington DC
Company / organization:	Name: Congress; NAICS: 921120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	265-266
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington

Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305529
ProQuest document ID:	2371355319
Document URL:	https://www.proquest.com/scholarly-journals/road-safety-risks-cannabis-use-sales-need-fund/docview/2371355319/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

Document 33 of 45

Correlations of HIV Preexposure Prophylaxis Indications and Uptake, Chicago, Illinois, 2015–2018

Pyra, Maria, PhD, MPH [1] ; Rusie, Laura K, ScM [1] ; Baker, Kristin Keglovitz, PA-C, AAHIVS [1] ; Baker, Andie, AM [1] ; Ridgway, Jessica, MD, MS [2] ; Schneider, John, MD, MPH [1] Howard Brown Health, Chicago, IL [2] Chicago Center for HIV Elimination, University of Chicago, Chicago

ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To examine gaps in identification of preexposure prophylaxis (PrEP) candidates, uptake, and use of PrEP by populations most likely to seroconvert. Methods. At a federally qualified health center in Chicago, Illinois, we used electronic medical records, prescription data, and our best approximation of Centers for Disease Control and Prevention PrEP guidelines to determine how many patients were indicated for PrEP relative to HIV diagnoses (indication:HIV), how many were on PrEP relative to indications (PrEP:indication), and how many were on PrEP relative to HIV diagnoses (PrEP:HIV). We compared these ratios across age, gender and orientation, race/ethnicity, and insurance. Results. Overall, there were 32 indications per incident diagnosis and 16 patients on PrEP per incident diagnosis. In adjusted models, Whites had higher indication:HIV and PrEP:HIV ratios compared with Blacks, men who have sex with men had higher indication: HIV and PrEP:HIV ratios compared with transwomen but lower PrEP:indication ratios, and uninsured patients had higher indication:HIV but lower PrEP:indication and PrEP:HIV ratios compared with those with insurance. Conclusions. PrEP use, relative to HIV diagnoses, differs by important patient characteristics. While improved guidelines will address some of the disparity, better approaches for determining PrEP candidates and more normalized patient-provider communication are needed to ensure better PrEP access to all individuals at high risk for HIV. (Am J Public Health. 2020;110:370-377. doi:10.2105/AJPH.2019.305469)

FULL TEXT

Headnote

Objectives. To examine gaps in identification of preexposure prophylaxis (PrEP) candidates, uptake, and use of PrEP by populations most likely to seroconvert.

Methods. At a federally qualified health center in Chicago, Illinois, we used electronic medical records, prescription data, and our best approximation of Centers for Disease Control and Prevention PrEP guidelines to determine how many patients were indicated for PrEP relative to HIV diagnoses (indication:HIV), how many were on PrEP relative to indications (PrEP:indication), and how many were on PrEP relative to HIV diagnoses (PrEP:HIV). We compared these ratios across age, gender and orientation, race/ethnicity, and insurance.

Results. Overall, there were 32 indications per incident diagnosis and 16 patients on PrEP per incident diagnosis. In adjusted models, Whites had higher indication:HIV and PrEP:HIV ratios compared with Blacks, men who have sex with men had higher indication:HIV and PrEP:HIV ratios compared with transwomen but lower PrEP:indication ratios, and uninsured patients had higher indication:HIV but lower PrEP:indication and PrEP:HIV ratios compared with those with insurance.

Conclusions. PrEP use, relative to HIV diagnoses, differs by important patient characteristics. While improved guidelines will address some of the disparity, better approaches for determining PrEP candidates and more normalized patient-provider communication are needed to ensure better PrEP access to all individuals at high risk for HIV. (Am J Public Health. 2020;1 10:370-377. doi:1 0.2105/AJPH.2019.305469)

HIV preexposure prophylaxis (PrEP) as a daily pill was approved for use by the US Food and Drug Administration in 2012.1 The US Centers for Disease Control and Prevention (CDC) created guidelines for providers in 2013, with the latest update in 2017.2 These guidelines include suggested questions regarding potential sources of HIV risk and recommend taking routine sexual histories for all patients, and also include a table of summary guidances. However, there are concerns that these guidelines are not well aligned with the actual probability of acquiring HIV3,4 and may be restricting PrEP use for some key populations.5,6 Of note, although the report reviews the evidence regarding transwomen and PrEP and concludes that all people with a sexual risk for HIV should have access to PrEP, none of the indication categories specifically include transgender individuals.

PrEP access has increased rapidly but unequally in the United States7; according to CDC data through 2016, there were more than 20 000 White male PrEP users, but fewer than 5000 Black male PrEP users and slightly more than 1000 female PrEP users nationally, with no estimates for transgender individuals.7 There is evidence of racial/ethnic disparities,8,9 and uptake seems to be highest among men who have sex with men (MSM), with some groups feeling that PrEP is not for them.10,11 PrEP:HIV ratios (also known as PrEP-to-need ratios), while having no absolute meaning, have been used to understand trends in PrEP use; by presenting the number of PrEP users compared with the number of HIV incident infections, these ratios help identify areas that have relatively lower PrEP use.12

We aimed to apply PrEP:HIV ratios to various demographic patient characteristics to better understand gaps in PrEP use for all patients, with a particular focus on cis-MSM and transgender women, 2 key populations at increased risk for HIV. We also extended the PrEP:HIV ratio by examining 2 component ratios linked to the CDC guidelines-identification ofPrEP candidates (indication:HIV) and uptake ofPrEP relative to those indicated (PrEP:indication).

METHODS

Using electronic medical records (EMRs, Centricity Practice Solution 12) from an urban, federally qualified health center in Chicago, Illinois, with a focus on sexual and gender minority health, we included data from all adult (aged 18-70 years) non- HIV-infected patients with a clinic visit between January 2015 and August 2018. For patients with multiple visits, we used the most recent visit (or the most recent before seroconversion) to assess PrEP indications and use; we used all visits to assess HIV seroconversion.We defined PrEP use as having a PrEP supply (using prescription date and number of refills) within 30 days of the visit. PrEP prescriptions were limited to tenofovir and emtricitabine for an HIV-negative patient, with no additional antiretroviral therapy (thereby excluding postexposure prophylaxis use); we reviewed cases with concurrent hepatitis B diagnoses to ascertain the indication.

We based PrEP indications on CDC guidelines as closely as possible.2 We took the documented indications from structured EMR fields and these included bacterial sexually transmitted infection (STI; syphilis, gonorrhea, or chlamydia) diagnoses, reported condomless anal or vaginal sex, any HIV-infected partner, multiple partners, reported sex exchange or commercial sex, and reported needle sharing. These questions referred to the previous 12 months, by contrast with CDC guidelines, which pertain to the previous 6 months. We also applied the indications to all patients regardless ofgender, orientation, or injection drug use, rather than separately as by CDC guidelines, as it was unclear how to classify our sizeable transgender population; orientation was selfreported, as was gender, with a defined algorithm to reassign inconsistencies. Finally, for those patients with a local zip code (i.e., within the city), we included HIV prevalence data, as high prevalence is listed in the CDC summary guidance.13

Overall and subsequently for each subgroup, we calculated 3 ratios. We defined PrEP:HIV as the number ofpatients on PrEP divided by the number of incident HIV diagnoses12; patients who seroconvert could be included in both the numerator and denominator; there is no ideal PrEP:HIV value, but comparing PrEP:HIV across groups can identify gaps in PrEP use. We defined the indication:HIV ratio as the number ofpatients with a documented PrEP indication divided by the number of incident HIV diagnoses; this is a measure of PrEP identification relative to new HIV cases. We defined the PrEP:indication ratio as the number ofpatients on PrEP divided by the number of patients with a documented indication; this serves as an approximation of uptake, though it is not a true proportion as many patients are on PrEP without a documented indication. As we were not able to perfectly replicate the CDC indications, we used several sensitivity analyses including removing chlamydia as an indicator for cisgender heterosexuals, using HIV prevalence of 2% or more as an indication, or using indications reported over the previous 2 years.

Furthermore, we were interested in whether indications may be documented differently by visit type, and included a sensitivity analysis stratifying by clinic visit type (i.e., primary care or walk-in sexual and reproductive health visit). To determine whether indications were frequently documented in the notes rather than structured EMR fields (and therefore not extractable), we reviewed the notes for a random subset of patients with no PrEP indication, stratified by actual PrEP use.

To test whether PrEP:HIV ratios varied significantly, we used logistic regression to model the outcomes ofbeing on PrEP or ever acquiring HIV. These odds ratios can be interpreted as the PrEP:HIV ratio of one group relative to PrEP:HIV ratio of the reference group. We controlled for all the other patient characteristics (age, race/ethnicity, insurance status, gender, orientation, and visit type). Similarly, we tested differences in indication:HIV ratios by using indicated for PrEP or ever acquiring HIV as the outcomes. For the PrEP:indication ratio, we present only the relative ratios without a statistical test, as many patients would be in both of the outcome groups. We also ran the models among MSM and transwomen separately. We conducted all analyses in SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS

Data were available for 45 906 unique patients, three quarters ofwhom had local zip codes with HIV prevalence data (Table 1). Patients were young, with more than half aged 18 to 34 years; 49% were non-Hispanic White, 21% were non-Hispanic Black, and 18% were Latino/a. A third used private insurance, 16% used public aid, and 51% were self-pay or uninsured. Most patients identified as cismen (61%), with 7% transwomen. Among the subset with a local zip code, the median HIV prevalence was 1.5%. Over the study period, 456 patients acquired HIV, with 389 among MSM and 43 among transwomen.

PrEP:HIV Ratios

The overall PrEP:HIV ratio was 15.8- there were 15.8 patients on PrEP for each incident diagnosis over the 4-year study period (Table 2). The observed PrEP:HIV ratio was highest for Whites (25.9) and lowest for Blacks (7.9); by insurance status, it was highest for those with private insurance (27.1) and lowest for those with Medicaid (9.3). Among key populations, White MSM had the highest PrEP:HIV ratio (26.3), and Black transwomen had the lowest (4.6). After adjustment, the PrEP:HIV ratio among Blacks was one third that ofWhite patients (adjusted odds ratio [AOR] = 0.31; 95% confidence interval [CI] = 0.24, 0.41; Table 3); among Latino/a patients, it was roughly two thirds (AOR = 0.63; 95% CI = 0.48, 0.83). Compared with those with private insurance, the PrEP:HIV ratio for patients with any other insurance was between 22% and 39%. The PrEP:HIV ratio among transwomen was 54% that of MSM (AOR = 0.54; 95% CI = 0.38, 0.79), after we adjusted for other patient characteristics. There was no significant association between age and PrEP:HIV ratios.

Indication:HIV and PrEP:Indication Ratios

To better understand the disparities in the PrEP:HIV ratios, we examined both the indication:HIV and PrEP:indication ratios (Table 2). Overall, the indication:HIV ratio was 32.4, meaning there were 32 patients with a documented PrEP indication for each incident diagnosis, and the PrEP:indication ratio was 0.49, meaning that for every 100 patients with an indication, 49 patients were on PrEP. White patients had both the highest indication:HIV and PrEP:indication ratios, while Blacks had the lowest for both. In the adjusted models, the indication:HIV ratio of Black patients was only one third that of White patients (AOR= 0.31; 95% CI = 0.24,0.40; Table 3); Latino/a patients also had a significantly lower indication:HIV ratio (AOR = 0.45; 95% CI = 0.35, 0.58). By insurance status, uninsured patients had the highest indication:HIV ratio (57.6) but the lowest PrEP:indication ratio (0.18). In the adjusted models, uninsured patients had an indication:HIV ratio that was more than twice that of privately insured patients (AOR = 2.53; 95% CI = 2.00, 3.21), but PrEP:indication was only 13% of private insurance uptake; patients with Medicaid and Medicare, however, had significantly lower indication:HIV ratios compared with those with private insurance (Table 3). Finally, compared with MSM, transwomen had a very low indication:HIV ratio (7.2 vs 23.3) but a higher PrEP:indication ratio (1.38 vs 0.69). Indeed, the PrEP:indication ratio for transwomen was twice that ofMSM, but in adjusted models, the indication:HIV ratio was only 50% that of MSM (Table 4).

Men Who Have Sex With Men and Transwomen

We examined PrEP:HIV and indication: HIV ratios among MSM and transwomen separately (Table 4). Age was not a significant predictor in any model, though direction of the odds ratios differed between MSM and transwomen. Black race was associated with lower ratios in all models, with the most extreme difference among transwomen for PrEP:HIV; Latino/a MSM, but not transwomen, had significantly lower PrEP:HIV and indication:HIV ratios. Finally, the decreased PrEP:HIV ratio for all other patients compared with those privately insured remained, though the size of the association was larger for transwomen. All patterns were the same when we compared indication:HIV ratios between MSM and transwomen; however, as seen in the larger analysis, uninsured MSM actually had a higher indication:HIV ratio compared with MSM with private insurance.

Indications and Sensitivity Analyses

Among those on PrEP, the most common documented indication (29%) was a bacterial STI diagnosis; half of these were rectal STIs. The next most common was having multiple partners (12%). However, most patients on PrEP (61%) did not have a documented indication that could be extracted. In a chart review of patients with no documented indication by EMR, 6 out of 48 patients not using PrEP did have notes suggesting an indication and 28 out of 38 patients using PrEP had notes suggesting an indication. This suggests that for most but not all patients on PrEP, providers were aware of a PrEP indication.

We conducted a number of sensitivity analyses (Tables A and B, available as supplements to the online version of this article at http://www.ajph.org). When we included a zip code HIV prevalence of 2% or higher as an indication, only 40% of patients on PrEP lacked a documented indication. While indication:HIV ratios were now higher and PrEP:indication ratios lower, the patterns ofdisparities remained the same. For instance, the indication:HIV ratio was still the highest for Whites (80.8) and lowest for Blacks (26.6); the indication:HIV ratio was 13.3 for transwomen compared with 32.9 for MSM, which was somewhat less disparate. We also tested indications documented over the previous 2 years, as a provider may remember information about a patient without updating that patient's chart each visit. We found no difference in the results.

Finally, we reported separately patients who had a walk-in visit for sexual and reproductive care and those who had a primary care appointment, potentially with a provider they had seen multiple times (Tables A and B). While the indication:HIV ratios were similar, 23.3 and 33.9 for primary care and walk-ins, respectively, there was a large discrepancy in PrEP:indication-1.63 for primary care compared with only 0.09 for walk-ins, leading to a much higher PrEP:HIV ratio among primary care visits. Among primary care patients, the differences in PrEP:HIV ratios by insurance status, race/ethnicity (54.7 for White vs 17.8 for Black), and between MSM (44.6) and transwomen (14) remained. Among the smaller set of walk-in patients, the difference in PrEP:HIV between MSM (2.9) and transwomen (2.3) was attenuated, while differences by race/ethnicity remained (5.1 for White vs 1.2 for Black).

DISCUSSION

Among patients at an urban federally qualified health center with a sexual health focus, we found that PrEP:HIV ratios differed by insurance status, race/ethnicity, and gender and orientation. Specifically, patients with private insurance, White patients, and MSM were more likely to be on PrEP, relative to HIV diagnoses. By looking at indication:HIV and PrEP:indication ratios separately, we were able to better understand the source of these disparities. For instance, differences in PrEP:HIV ratios by insurance status appeared to be driven by differences in uptake; differences by race/ethnicity and gender and orientation seem to be driven more by identification (Table 3). Previous work on PrEP:HIV ratios reported a national value of 1.812; our overall PrEP:HIV ratio was much higher, given that the data came from sexual health clinics focused on HIV prevention. There is no ideal target PrEP:HIV ratio. High need ratios may reflect, in some populations, HIV prevention success, such that the denominator of incident infections is smaller12; it may also signify uptake among those with little HIV risk. Regardless, we do not propose a cap or limit to need ratios.14 Patients may seek out PrEP without divulging all of their potential risks, and there are secondary benefits to PrEP use, including normalizing to PrEP (at the community level) and continued contact with the health care system (at the individual level).15-17

This work supports and extends previous research suggesting that the current CDC guidelines regarding PrEP are insufficient.3,9 In particular, our data showed that current guidelines under-identify transwomen and poorly identify ciswomen who could benefit from PrEP; there were also large racial/ ethnic gaps in indication:HIV ratios. Identification relies to a great degree on provider-patient communication around intimate behaviors, some of which can be stigmatizing, as well as overcoming issues of medical mistrust.18-21 It has been suggested that normalizing sexual health and PrEP education, as a part of all clinical encounters, may help improve identification.5,15 Of note, while we found that need ratios were much higher among primary care patients, the gaps between White versus Black and MSM versus transgender patients remained, suggesting care with an established provider may not necessarily improve communication; additional research concerning communication, particularly with vulnerable and stigmatized populations, is needed.

Others have suggested that PrEP indicators with only individual behaviors, rather than markers of social and network risk, will increase racial/ethnic differences in identification and, subsequently, use.3,5,22,23 We attempted to account for this, by including zip code-level HIV prevalence as an indicator. However, race/ ethnicity and gender and orientation disparities remained. This suggests that home neighborhood HIV prevalence may not capture the relevant data about HIV risk.

Elegant arguments have been made against using risk assessments to determine PrEP candidacy.26 Even after we controlled for the presence of a documented indication, disparities in need by race/ethnicity, gender and orientation, and insurance remained; it appears that PrEP access is limited for patients with fewer resources and more stigma. We therefore need an approach that not only identifies those most likely to benefit from PrEP but also works against inherent biases in the system.27 And, importantly, we need to improve access in a way that does not further stigmatize those who need 11,15 it most.

Finally, we should not ignore disparities in uptake. Insurance status was clearly associated with PrEP:indication ratios and many patients face financial barriers not only for PrEP prescriptions but also for the associated testing and follow up.28 31

There are limitations to this study. PrEP indications were underreported, as clinicians may have knowledge about their patients that was not documented or was documented in ways that were not extractable from the EMR, as we assessed in the chart review. In addition, patients may have received STI diagnoses at other clinics. Therefore, we were not able to perfectly replicate the CDC guidelines. However, the PrEP:HIV ratios are independent of documented indications. We did not exclude patients who may be medically ineligible for PrEP, though we expect this number to be small. Different populations access care at our clinics for different reasons; for instance, many transgenderpatients come for hormone therapy, while many cisgender patients come for STI or HIV testing. We included chlamydia as an indicator for ciswomen, though it is not included in the CDC guidelines on PrEP, which may explain why the identification ratios for ciswomen were so high, although results were only slightly lower in the sensitivity analysis that removed chlamydia. Finally, indication:HIV and PrEP:indication ratios were based on a simplified framework that patients must first be identified (or self-identify) for PrEP and then decide whether they can or want to start PrEP; while the process in reality is more nuanced, we believe it is a useful approach to understanding disparities in PrEP use.

There were also many strengths to this work. We were able to examine PrEP:HIV ratios by insurance status, race/ethnicity, and age; we also had a large enough population to provide important data on MSM and transgender patients. Furthermore, by having access to EMR data, we were able to disaggregate differences in need ratios attributable to identification versus uptake and thus deepen our understanding of PrEP uptake.

In conclusion, we found important differences in PrEP:HIV by race/ethnicity, gender and orientation, and insurance, driven by both identification of PrEP candidates according to CDC guidelines and uptake. Indication:HIV ratios differed by race/ethnicity, gender and orientation, and insurance, suggesting that current PrEP guidelines do not ameliorate these disparities. Of particular note, specific indications are lacking for transgender individuals. Furthermore, we suggest that better patient- provider communication about sexual health in a nonstigmatizing context can improve PrEP access for those most in need, while structural changes to remove financial and other barriers are also needed. ÂfPU

Sidebar

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This article was accepted October 22, 2019.

doi: 10.2105/AJPH.2019.305469

CONTRIBUTORS

M. Pyra, L. K. Rusie, and J. Schneider designed the analysis. L. K. Rusie prepared the data. M. Pyra analyzed the data and drafted the article. All authors contributed to the writing.

ACKNOWLEDGMENTS

Funding for this study came from grant R01MH112406.

We thank the patients and staff who made this work possible, especially Daniel Mendez, preexposure prophylaxis manager at Howard Brown Health, as well as Phil Schumm, at the University ofChicago, for his statistical advice.

CONFLICTS OF INTEREST

J. Ridgway reports receiving grant funding from Gilead Sciences.

HUMAN PARTICIPANT PROTECTION

The protocol was reviewed and considered exempt by the Howard Brown Health institutional review board.

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DETAILS

Subject:	Medical records; Prophylaxis; Minority &ethnic groups; Public health; Guidelines; Chlamydia; Disease control; Gender; Human immunodeficiency virus--HIV; Transgender persons; Diagnosis; Ethnicity; Prevention; Electronic medical records; Electronic health records; Men who have sex with men; Patients; Hispanic Americans; Insurance; Uninsured people; Sexually transmitted diseases--STD; Indication; Health risks; Health care facilities; Approximation; Disease prevention; Ratios; Gays &lesbians; Mens health
Business indexing term:	Subject: Ratios; Industry: 92312 : Administration of Public Hea lth Programs
Location:	Chicago Illinois; United States--US; Illinois
Company / organization:	Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120
Classification:	92312: Administration of Public Health Programs
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3

Pages:	370-377
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305469
ProQuest document ID:	2371355260
Document URL:	https://www.proquest.com/scholarly-journals/correlations-hiv-preexposure-prophylaxis/docview/2371355260/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

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Exposure to Malaria-Control Insecticides and Child Neurodevelopment

Anonymous

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FULL TEXT

Malaria is endemic in South Africa, and indoor residual spraying with DDT (dichlorodiphenyltrichloroethane) and pyrethroid pesticides is prevalent. This measure is useful against malaria but increases human exposure to insecticides. In the Venda Health Examination of Mothers, Babies, and Their Environment birth cohort, by contrast to other reports, prenatal exposure to DDT did not affect infant neurodevelopment in the first 2 years of life. However, metabolites of pyrethroid insecticides were negatively associated with socialemotional development, language, and expressive communication in the first 2 years of life and showed sex-specific differences.

Citation. Eskenazi B, An S, Rauch SA, et al. Prenatal exposure to DDT and pyrethroids for malaria control and child neurodevelopment: the VHEMBE cohort, South Africa. Environ Health Perspect. 2018;126(4):047004.

DETAILS

Subject:	Malaria; Insecticides; Vector-borne diseases; Pesticides
Business indexing term:	Industry: 32532 : Pesticide and Other Agricultural Chemical Manufacturing
Location:	South Africa
Classification:	32532: Pesticide and Other Agricultural Chemical Manufacturing
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	262
Publication year:	2020
Publication date:	Mar 2020
Section:	Global News
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News

ProQuest document ID:	2371355240
Document URL:	https://www.proquest.com/scholarly-journals/exposure-malaria-control-insecticides-child/docview/2371355240/se-2?accountid=211160
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Last updated:	2023-03-01
Database:	Public Health Database

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Transferring Racial/Ethnic Marketing Strategies From Tobacco to Food Corporations: Philip Morris and Kraft General Foods

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ABSTRACT (ENGLISH)

Objectives. To investigate the transfer of marketing knowledge and infrastructure for targeting racial/ethnic minorities from the tobacco to the food and beverage industry in the United States. Methods. We analyzed internal industry documents between April 2018 and April 2019 from the University of California San Francisco Truth Tobacco Industry Documents Library, triangulated with other sources. Results. In the 1980s, Philip Morris Companies purchased General Foods and Kraft Foods and created Kraft General Foods. Through centralized marketing initiatives, Philip Morris Companies directly transferred expertise, personnel, and resources from its tobacco to its food subsidiaries, creating a racial/ethnic minority-targeted food and beverage marketing program modeled on its successful cigarette program. When Philip Morris Companies sold Kraft General Foods in 2007, Kraft General Foods had a "fully integrated" minority marketing program that combined target marketing with racial/ ethnic events promotion, racial/ethnic media outreach, and corporate donations to racial/ethnic leadership groups, making it a food industry leader. Conclusions. The tobacco industry directly transferred racial/ethnic minority marketing knowledge and infrastructure to food and beverage companies. Given the substantial growth of food and beverage corporations, their targeting of vulnerable populations, and obesity-related disparities, public policy and community action is needed to address corporate target marketing. (Am J Public Health. 2020;110:329-336. doi:10.2105/AJPH.2019.305482)

FULL TEXT

Headnote

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The rise in obesity rates has slowed in the US general population in 1999-2010, yet rates have continued to rise in certain populations.1,2 Non-Hispanic Black and Mexican American women are at the greatest risk for obesity and related cardiometabolic disease.1,3 Nutrition profiles are poorer among racial/ethnic minorities than Whites.4 Per-capita sugar-sweetened beverage consumption is highest among Black and Hispanic youths.5 A greater understanding of the drivers of obesity among underserved racial/ ethnic groups is needed to address well-documented health disparities.6

Minority-concentrated neighborhoods have high exposure to food marketing,7 9 including greater saturation of processed food and beverage advertising.10,11 Blacks and Hispanics, particularly as children, are disproportionately exposed to television, print, and digital advertisements of hyper-palatable processed foods and beverages.11-14 In the United States, food marketers spent $333 million on Black-targeted television and $787 million on Spanish language-targeted television in 2017 alone.15

Before the 1960s, US-based food and beverage company marketing campaigns largely ignored racial/ethnic minority groups because they were not considered viable market segments16 and for fear of alienating White majority consumers.17 By contrast, US tobacco corporations have a long history of marketing directly to racial/ethnic minority groups with culturally tailored brands.18 20 Cigarette marketing and promotional campaigns19,21-27 were combined with nonmarketing strategies, including public relations campaigns and targeted donations to influential advocacy groups, to expand tobacco use among specific racial/ethnic groups.28-30

The largest US tobacco company, Philip Morris, was one of the first advertisers in racial/ethnic minority media.31 It developed positive corporate relationships with Black, Hispanic, and Asian stakeholders through partnerships with racial/ethnic minority media outlets,25 financial sponsorship of racial/ethnic minority festivals and musical events,31 and corporate contributions to racial/ethnic minority leadership.18,28 30 By the mid-1980s, 60% of the advertising in Black newspapers was sponsored by tobacco companies,25,31 and a 2002 study found that Philip Morris gave financial and other resources to "virtually every African American leadership organization. "28(p7)

Food industry practices have been compared with those ofthe tobacco industry,32,33 and our previous study found that popular brands of sugar-sweetened beverages targeting children were owned and developed by major tobacco corporations.34 We analyzed previously secret internal tobacco industry documents to find that, in the 1980s, Philip Morris acquired General Foods and Kraft, merging them into the largest food and beverage corporation in the world at the time.34 In this study, we examined the racial/ ethnic target marketing techniques of these tobacco-owned beverage and food corporations beginning in the 1980s. We found that tobacco executives directly transferred marketing expertise, personnel, and resources from their cigarette to their food and beverage enterprises. They combined target marketing with racial/ethnic minority events promotion, minority media outreach, and corporate donations to racial/ethnic minority leadership groups, launching a food industry leader.

METHODS

We searched publicly available tobacco industry documents in the University of California San Francisco Truth Tobacco Industry Documents Library between February 2017 and August 2018, beginning with broad search terms (e.g., "ethnic," "Black," "Hispanic," "Asian," "Philip Morris") and narrowing with Boolean operators (e.g., "General Foods" and "Kraft"). These searches yielded more than 40 000 documents for analysis. Using snowball sampling techniques, we pursued key personnel, organizations, events, dates, and products that emerged from initial searches in subsequent searches or by viewing the documents by consecutive order by reference (Bates) numbers. We reviewed topically relevant documents in detail. To promote rigor, we triangulated with other sources, including materials gathered from business and trade databases (EBSCOhost, HighBeam Research), and Google and PubMed using similar search terms.

We used standard qualitative methods for documents analysis.35 K. H. N. reviewed documents for relevance, prepared analytic memos to summarize, and organized the documents chronologically and thematically. We constructed a timeline to identify key events and dates, and types of marketing and promotional activities, and to build an understanding of how these activities were related to one another historically and conceptually. We all reviewed analytic memos to refine and focus research questions and to identify and interpret emergent themes. We repeated the iterative search process until we reached saturation of both keywords and documents. We analyzed approximately 5000 documents pertaining to the relationships between Philip Morris, General Foods, and Kraft, and racial and ethnic groups-79 that were most relevant.35

RESULTS

Before acquisition by the Philip Morris Corporation (PMC), General Foods (GF) and Kraft, like most other food and beverage corporations (except for Coca-Cola and PepsiCo36) relied on a single, undifferentiated mass-marketing approach. GF viewed targeting consumer segments "largely as an inconvenience."37(p1) A GF spokesperson argued that "market segmentation diverts funds and involves twice as much research and effort to launch as a national campaign. "38(p32) Upon PMC purchase in 1985, GF ranked 15th among the top 25 corporations in Hispanic advertising.38 GF confined its corporate giving and sponsorship to a few established national minority institutions.39-41 Kraft did some advertising in the racial/ethnic minority media,42,43 event sponsorships,44-46 and racial/ethnic minority community engagement.47,48 It ranked 12th in advertising to Hispanics among food and consumer products corporations38 and did not have an racial/ethnic minority marketing department.36

Minority Marketing at Generai Foods Under Philip Morris

In 1985, PMC, the parent corporation that owned Philip Morris USA (henceforth PM Tobacco) and Miller Brewing (a beer company), bought GF for $5.7 billion. PMC assured GF stockholders and executives opposed to the takeover that GF would continue its current operations without interference.49 Yet, 1 year after PMC acquisition, GF's annual report emphasized the role ofmarketing: "There's a new attitude at General Foods, one that not only tolerates, but actively encourages innovation throughout the marketing organization."50(p12) It emphasized the growing racial/ethnic minority consumer market segment and the need to go "beyond the traditional mass marketing conventions."50(p12) A 1986 GF market research study on its sugar-sweetened beverage, Tang, concluded that Hispanic households had disproportionately high consumption and favorable market characteristics, such as large family size, young age distribution, poor education, product display responsiveness, and a preference for branded products and "sweeter products, [Hispanics] have less concern about salt, sugar or calorie levels. "51(p20) The report recommended "Spanish ads, street fairs and cultural events." 51(p22)

Two years later, in 1987, PMC replaced GF's chief executive officer (CEO) and most corporate staff with tobacco executives.52 54 PMC's chief financial officer explained that "General Foods was not as aggressive as others in the food business. We felt we could re55(p6) energize the company.

Disappointment with GF's slow earnings growth led to PMC's 1987 "Corporate Synergy Project." PMC set up committees to identify shared activities across tobacco, alcohol, and food subsidiaries to increase sales,56 consolidate media purchases, and increase advertising budgets.57,58 Direct database marketing (consumer data-driven marketing communications) was viewed as the "single area that provides the best opportunity for synergy" because it "will lead to more effective targeted marketing efforts for each individual operating company."59(p10) GF's new approach used grocery scanners to collect consumer data, including demographics, lifestyle characteristics, and purchasing patterns37,60 on 199 million people.61,62 This approach allowed GF to identify consumer segments based on race/ethnicity.63,64

One synergy committee noted that corporate "sponsorship represents an important area for operating units [food, beer, and tobacco] to work together."65(p3) A detailed report proposed testing Miller and GF cross-promotions to "strengthen ethnic sponsorship programs through joint cooperation and involvement."66(p23) Hispanic events (e.g., festivals, soccer games) promoting Tang, Miller beer, and Marlboro cigarettes were considered but ultimately abandoned because of concerns about "real and projected negative consumer reaction."67,68(p1) However, PMC's tobacco and alcohol subsidiaries would still share strategies with GF "as creative vehicles to solve marketing opportunities (i.e. target marketing)."69(p1) PM Tobacco directed its racial/ethnic minority events consulting firm to share cigarette-marketing intelligence with GF, including the Black women-aimed "Jump Sister Jump" event,70 and promotional strategies aimed at Asians.71

Synergy efforts also coordinated racial/ ethnic minority media resources68 by combining GF and Miller's Hispanic broadcast buying,72 in addition to helping GF secure advertising discounts in JET, Ebony, and Black Enterprise magazines.73 Strategic relationships with minority-serving organizations had been built by PM Tobacco's staff who introduced GF executives to Black church groups.74-76

Building Kraft General Food's Minority Marketing Program

In 1988, PMC bought Kraft and then merged it with GF to create Kraft General Foods (KGF), then the world's largest food company ($20 billion in revenues) with the largest total marketing budget (more than $8 billion).77,78 Mike Miles, the CEO of KGF, who would later become PM Tobacco's CEO,79 wanted to "seek out synergies and opportunities ... to maximize the benefits of combination."80 A corporate restructuring of PMC integrated tobacco, alcohol, and food subsidiaries81 to leverage resources, activities, skills, and personnel.82 The CEO of PMC told Fortune magazine that the goal was "persuading [the subsidiaries] to ask each other for advice. I want everybody to work together. "79(p4,5)

In 1989, marketing and brand management were centralized at the PMC corporate level.83-85 This led to creation of KGF's minority marketing program, which combined target marketing with racial/ethnic minority media outreach, events sponsorship, and partnerships with racial/ethnic minority leadership groups.

Target Marketing

In 1989, PM Tobacco's brand manager responsible for the Black market86 noted that "Most brands marketed by Philip Morris Companies are available within predominantly ethnic minority markets, with some brands registering high per capita consumption (Kool-Aid, Kraft BBQ sauce, Miracle Whip, Dry package dinners, Menthol cigarettes)."87(p1) PMC formed a corporate service group "to encourage and expedite effective marketing efforts across operating companies in key ethnic markets [and to] maximize corporate affairs, merchandising and key account synergy."87(p1) The group was to coordinate market research, develop marketing plans, and test new products for specific minority markets.88,89

KGF's Five-Year Plan established KoolAid's key leverage area and strategic focus in "kids and ethnic marketing."50(p48) In 1989, KGF began to work with advertising agencies specializing in the Black and Hispanic markets.90 One firm's market research suggested that "Most Blacks want something sweet with their meals," and that "Blacks generally prefer to buy Kool-Aid in its unsweetened form and add lots of sugar themselves."91(p4) The 1989 "Our Kind of Smile" Kool-Aid target marketing campaign92,93 had the tagline, "How do you like your Kool-Aid?"90,94-96 A prominent advertisement showed a Black mother holding an empty pitcher toward 2 smiling children with the captions, "Alright, who drank all the Kool-Aid?" and "Don't worry, it's only 1/4 theprice ofsoda. So make another pitcher and keep them smiling!"97

Outreach to Racial/Ethnic Minority Media

By 1989, KGF had been integrated into PM Tobacco's contracts with Black and Hispanic television, print, and other media.82,98 This gave KGF access and deep discounts because of PM Tobacco's "clout."68(p2),85(p1),98(p1) Later that year, PMC Corporate Affairs took over all tobacco, alcohol, and food racial/ethnic minority media activities.99 Following an analysis,100 the CEO of PMC noted that "Philip Morris [Tobacco] has a long history ofadvertising its products through ethnic-owned media. We were among the first major corporations to do so," and reminded all subsidiaries of "the continuing marketing opportunities that these media [outlets] provide. "101(p1) Before the PMC acquisition, GF's contracting with racial/ethnic minority media was for "affirmative action," but in 1989 KGF was positioned to assume "a more performance/sales return orientation."102(p1) In 1990, KGF pledged $7 million to Hispanic and $2 million to Black media.103(p101,104,105 In a speech to the National Hispanic Publishers Association, a KGF executive announced a new contract, saying, "As citizens, we at Kraft General Foods recognize the need for a free, informative Hispanic press. As marketers, we also value the large and attractive audience your publications reach."103(p10)

Corporate Sponsorship of Minority Events and Leadership Groups

In 1989, PMC consolidated all corporatesponsored events into a single calendar of more than 600 political, sports, trade, and community events, noting that "The scope of activity is truly impressive and it represents significant opportunity for synergistic cooperation among the operating companies." 106(p1),107 A Minority Business Development office was assigned the task of coordinating events across PMC's tobacco, alcohol, and food subsidiaries,108,109 including coordinating corporate sponsorships of Black, Hispanic, and Asian leadership groups such as the National Association for the Advancement of Colored People.110 112

Minority Business Development office goals for racial/ethnic minority sponsorships were "building business opportunities, creating awareness of brands, and establishing a 'goodwill' presence within the Black/ Caribbean and Hispanic communities."113(p1) Establishing a presence in minority neighborhoods through sponsored events was to overlay the national brand image.113 Table A (available as a supplement to the online version of this article at http://www.ajph.org) illustrates the nature and scope of racial/ ethnic minority events sponsored by KGF, listing 219 events between 1989 and 1999, many cosponsored with PMC's tobacco and alcohol subsidiaries. Marketing opportunities at events included signage, product sampling and test kitchens, entertainment, retail tie-ins, hospitality suites for local leaders, and advertising in racial/ethnic minority media.

The "Kraft Foods 'Fully Integrated'" Minority Marketing Program

By 1996, KGF, now called Kraft Foods (KF), was 1 of the top 5 manufacturers using direct marketing (coupons, direct mail, retail promotion) and increasingly directed these materials toward Black and Hispanic households.114 KF maintained a database of millions of Black consumers and another of Hispanic-dominant stores serving 1 million households.114,115 KF executives noted that "Increased ethnic marketing is very important to the growth of the Kool-Aid and Tang brands because African-American and Hispanic consumers already represent 30-35% of today's consumption on these businesses. "93(p35) In 1998, KF launched its first Hispanic-targeted Kool-Aid flavor, Mandarina Tangerine, with bilingual packaging and targeted advertising on Spanish-language networks. A senior brand manager noted, "This is the first time we've taken such a broad and complete approach to developing and marketing a product to the Hispanic market." He added that developing specialty products for minority consumers was not usually the purview oflarge packaged food corporations, and that "we see this as a real opportunity to capitalize on the growth in the segment over the next 10-to-20 years. "116(p30) Between 1999 and 2003, KF's racial/ethnic minority advertising budget was projected to increase 7.7% anually.117

KF referred to its minority marketing program as "fully integrated" because it combined target marketing with racial/ethnic minority media outreach and the sponsorship of racial/ethnic minority events and organizations, as well as "relationship building" through public relations.118 Marketing and promotional activities before and after sponsored racial/ethnic minority events built brand visibility, sales volumes, and a positive corporate image in minority communities.118 Figure A (available as a supplement to the online version of this article at http://www.ajph.org), taken from a 1999 KF report, illustrates the "fully integrated" marketing approach (upper pane) and how KF applied the approach in a specific target marketing campaign, the "Black Family Reunion" (lower pane), a national festival to "celebrate family history, culture, traditions, and strengths."119(p23) KF partnered with the National Council of Negro Women and the Chicago Defender, a Black newspaper, to sponsor the event. Participants received product samples, coupons, and recipes for Kraft brand products, including BBQ sauce and Kool-Aid. The event was promoted in the Black magazine Ebony, on Black Entertainment Television, and in retail stores. Black community leaders attended and gave speeches120 to crowds ranging from 2000 to more than 1 million (Table A, year 1999).

In 2004, following major US tobacco litigation, PMC changed its name to the Altria Group to deemphasize its tobacco business.121 In 2007, Altria spun off KF to increase the company's value to shareholders. In 2012, KF broke into 2 companies: Kraft Foods and Mondelez International. In 2019, Kraft Foods was owned by Kraft-Heinz.

DISCUSSION

In the mid-1980s, PMC acquired 2 existing firms to build the largest food and beverage corporation in the world: KGF. PMC directly transferred racial/ethnic minority marketing knowledge and infrastructure, developed in the tobacco business over decades, to its food and beverage subsidiary. PMC replaced high-level food executives with tobacco executives shortly after KGF's founding and formed top-down management committees to instill racial/ethnic minority marketing approaches proven successful for cigarette marketing. Under a "corporate synergy program," executives shared and coordinated information and resources to enhance racial/ethnic minority marketing across all ofPMC's tobacco, alcohol, and food subsidiaries. Eventually, all racial/ethnic minority media advertising contracts across these subsidiaries was centralized under PMC Corporate Affairs.

PMC owned KGF until 2007. Beginning in 1985, PMC transformed the food and beverage corporation from a broad mass marketer into a firm targeting racial/ethnic minority market segments by using culturally tailored communications and product lines. Its "fully integrated" marketing program combined racial/ethnic minority media outreach, direct marketing, events sponsorships, and relationship building through sponsorships of racial/ethnic minority leadership groups. Although these marketing strategies were not entirely new to the food and beverage industry, their combination into an integrated marketing program made KGF an industry leader. Although we did not study how KGF's minority marketing program influenced the food and beverage industry as a whole, studies show that the smaller firms within an industry observe and model themselves on the larger ones, and KGF was largest at the time.122,123

Most research on the role of food and beverage marketing in today's rising epidemics of obesity-related diseases focuses on the content of advertisements.9,124 There is limited research on the less overt promotional activities, including corporatesponsored events, public relations, and corporate giving through corporate social responsibility programs. Our results underscore the importance of such activities for the inner workings of a major transnational food corporation's marketing approach. In 2016, global spending on corporate sponsorships alone by Coca-Cola, PepsiCo, andDrPepper Snapple was $675 to $690 million,125 suggesting sponsorships' prominent role in the marketing approach of major corporations. Further research should explore how culturally tailored marketing, especially when integrated with less-overt activities, affects brand awareness and consumption of processed foods and beverages.126

Our findings cast doubt on the intent behind corporate social responsibility programs, including sponsorship and philanthropic efforts launched by food corporations, to address obesity.32 Tobacco corporations use corporate social responsibility as part of a broader constituency-building strategy to influence policymakers and fight tobacco controls.127 Similar tactics are being used by food and beverage corporations to fight public health regulations by co-opting communities most affected by the obesity epidemic. The public face for opposition to a New YorkCitysoda tax in 2013, for example, was led by prominent minority organizations, including the National Association for the Advancement of Colored People, in coordination with the industry's lobbying group, the American Beverage Association.128

The period described in this article coincided with a significant increase in obesity in the US population. The National Health and Nutrition Examination Survey shows that from 1980 to 2000, obesity prevalence among all American adults rose from 15.0% to 23.2% (1980-1994) and to 30.9% by 2000.129 The rise in obesity was even more pronounced among Blacks and Mexican Americans who started with higher prevalence in the late 1970s (31.6% among Blacks and 26.6% among Mexican Americans vs 15.4% among Whites), and rapidly grew to 53.9% among Blacks and 42.3% among Mexican Americans versus 30.2% among Whites by 2003 to 2004.129

The sharp obesity change during the 1980s correlated with a markedly higher energy intake,129 which also coincided with significant structural transformations in the food industry-specifically, the growth of USbased food conglomerates with concentrated power over the global food supply.130 In addition to PMC's acquisition of KGF, its tobacco rival, RJ Reynolds Tobacco, merged with Nabisco Brands to form RJR Nabisco in 1985.131 By 1998, Kraft and RJR Nabisco were the first and ninth largest US food and beverage corporations, with a combined $40 million in annual sales.130

Findings suggest the need for public health research focused on the ties between different unhealthy commodities industries, the leading risk factors for noncommunicable diseases globally.132 Previous studies found similar global patterning between tobacco, alcohol, and processed food and beverage consumption, suggesting a common set of determinants.132,133 The similarities between the food and tobacco industries have been described by researchers who demonstrate the use of the "tobacco industry playbook" by food corporations.32,33 This study shows that one reason for these similarities is the direct transfer of marketing strategies and infrastructure under cross-industry corporate mergers.

Limitations

The limitations of internal industry documents research have been previously discussed.35 The study's primary data source was the Truth Tobacco Industry Documents Library, an archive containing more than 14 million documents. In any historical-archival study, researchers can never comprehend past events exactly as they occurred because the record is inevitably incomplete. We mitigated against this limitation by triangulating Truth Tobacco Industry Documents Library documents with other primary and secondary sources to counterbalance the limited nature of the archive and contextualize findings.

Public Health Implications

The convergence of tobacco with other industries, through industry mergers and alliances, has important public health implications. For example, Altria's $12.8 billion investment in 2016 in Juul e-cigarettes has given Juul access to Altria's tobacco expertise, technology, and infrastructure for selling and promoting e-cigarettes to youths and fighting against local legislation and Food and Drug Administration regulation.134 Our findings point to the need for cross-cutting research. Future analyses of the food and beverage industry would benefit from an historical perspective on the tobacco industry including the tactics it has used to promote products that undermine public health135,136 and their significance for broader corporate strategies of diversification and investments into nontobacco industries.

The persistence of corporate target marketing practices in low-income, racial/ethnic minority communities12,124 and the link between marketing environments and disproportionate obesity prevalence among African Americans and Hispanics9,137 underscore the need for public policy and community action. Target marketing of vulnerable populations, already susceptible because of lifelong social and environmental stressors, may compound effects from harmful products prompting advocates to deem such practices as a social injustice requiring broader root-cause interventions. Industry document research can foster increased awareness of corporate political activities, including corporate social responsibility, helping policymakers and advocates decipher the actions offood and beverage corporations. It can also inform counter-industry media campaigns that raise public awareness by exposing manipulative tactics in ways similar to the "Truth" campaign's role in drawing public attention to the tobacco industry,141 as well as community-centered approaches to address food marketing and obesity.142 Â1PU

Sidebar

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This article was accepted November 5, 2019.

doi: 10.2105/AJPH.2019.305482

CONTRIBUTORS

K. H. Nguyen had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. All authors certify that they contributed substantially to the study concept and design ofthe analysis. K. H. Nguyen and C. N. Palmer collected and interpreted the data. K. H. Nguyen drafted the article with revisions provided from all authors. All authors certify that they approved the final version.

ACKNOWLEDGMENTS

This work was funded by the Laura and John Arnold Foundation, the CrossFit Foundation, and the National Cancer Institute-CA.

We appreciate the advice given by Claire Brindis, DrPH, and Cristin Kearns, DDS, MBA, on the article draft. We thank Pal Shah, MS, for her copyediting assistance.

Note. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the article.

CONFLICTS OF INTEREST

The authors report no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

No human participants were involved in this research; therefore, institutional review board approval was not required.

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DETAILS

Subject:	Subsidiaries; Community action; Public policy; Public health; Beverage industry; Minority &ethnic groups; Tobacco; Leadership; Food processing industry; Infrastructure; Smoking; Knowledge management; Food industry; Companies; Marketing; Cigarette industry; Obesity; Ethnic factors; Ethnic groups; Tobacco industry; Minority groups
Business indexing term:	Subject: Leadership Marketing; Corporation: Philip Morris International Philip Morris USA
Location:	San Francisco California; United States--US; California
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	329-336
Publication year:	2020
Publication date:	Mar 2020
Section:	HISTORY
Publisher:	American Public Health Association
Place of publication:	Washington

Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305482z
ProQuest document ID:	2371355228
Document URL:	https://www.proquest.com/scholarly-journals/transferring-racial-ethnic-marketing-strategies/docview/2371355228/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

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ABSTRACT (ENGLISH)

Gerding et al. (p. 288) describe the initiative Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles (UNCOVER) in Environmental Health. This is a timely effort that addresses needs shared by many countries. The persisting lack of awareness of the environmental health (EH) profession, including its benefits and contributions to public health, is a phenomenon known to many in the public health community. The initiative proposes, among other things, a repository of success stories. Indeed, the EH community may have failed to communicate in this regard in the past.

Success stories could strengthen the field of EH and reduce the risks of delays and workforce reductions. Success stories and related trainings-with a particular focus on "low-hanging fruits"- could assist the UNCOVER initiative in a crucial domain- namely, the adoption of an international, global (or "planetary") perspective. An expanded perspective also could make EH more attractive for the future workforce. The current initiative maintains a US focus, yet EH needs and challenges have no borders. In fact, EH strategies and policies in the countries with the biggest success stories in EH foster both opportunities for global solutions and prime challenges in EH-namely, an ever-increasing global environmental inequity.1 This dichotomy is not addressed in the initiative.

FULL TEXT

See also the AJPH Environmental Health Workforce &Regulation section, pp. 284-298.

Gerding et al. (p. 288) describe the initiative Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles (UNCOVER) in Environmental Health. This is a timely effort that addresses needs shared by many countries. The persisting lack of awareness of the environmental health (EH) profession, including its benefits and contributions to public health, is a phenomenon known to many in the public health community. The initiative proposes, among other things, a repository of success stories. Indeed, the EH community may have failed to communicate in this regard in the past.

Success stories could strengthen the field of EH and reduce the risks of delays and workforce reductions. Success stories and related trainings-with a particular focus on "low-hanging fruits"- could assist the UNCOVER initiative in a crucial domain- namely, the adoption of an international, global (or "planetary") perspective. An expanded perspective also could make EH more attractive for the future workforce. The current initiative maintains a US focus, yet EH needs and challenges have no borders. In fact, EH strategies and policies in the countries with the biggest success stories in EH foster both opportunities for global solutions and prime challenges in EH-namely, an ever-increasing global environmental inequity.1 This dichotomy is not addressed in the initiative.

The "wealthy North" has glamorous EH success stories to tell. Such stories have created a major risk (also addressed in UNCOVER) that governments reduce the EH workforce, believing that "there is no need for EH anymore." Northern successes have also contributed to an unacceptable global divide in environmental health-in part caused by the countries with the best EH records. Let me take the example of ambient air pollution, which has the largest environmental health burden,2 with enormous potential for success stories.3 Throughout "the North," air quality is the best it has been in centuries.4 The associated improvements in public health are among the biggest and most cost-effective successes of science-based environmental policymaking. However, many lower-income countries in Asia, Africa, and South America not only suffer from much higher levels of air pollution but also have seen their air quality deteriorate over the last decades.4

Instead of globalizing and scaling up EH expertise, including related technologies, policy experience, monitoring techniques, and clean air management expertise, the Western world has outsourced pollution to lower-income countries where they produce the goods that guarantee the Western lifestyle.5 The lack of environmental policies in lower-income countries makes production (and, thus, pollution) there much cheaper than in the "clean West." Moreover, wealthy countries are often the cause of dirty businesses elsewhere.

Let me offer just three examples. First, EH strategies in the global North consist of tightening emissions standards for trucks and cars (e.g., requiring particle filters). As a result, heavily polluting second-hand vehicles -and their associated health effects-are exported to the global East and South. Second, a major EH success is a law requiring very low sulfur content in diesel fuel. However, more than 120 countries still neglect this low-hanging policy fruit. For example, globalized Swiss commodity traders with a high market share in Africa integrate the heterogeneity in sulfur regulations into their business model.6 They blend more than 40 qualities of diesel. The dirtiest possible is sold to Africa and has a sulfur content up to 630 times higher than that legally allowed in Switzerland. This dirty fuel contributes to extremely high levels of sooty air, with all its related health problems and its effects on climate change. Third, a car maker from Germany- again, a country with an excellent EH record-negotiated with a country in the Middle East to sell trucks without particle filters, knowing that they would cause cancer and other health problems and contribute to climate change for decades.

The world is full ofglobalized EH scandals that amplify both the global inequity in environmental quality and the need for a well-trained EH workforce that collaborates globally. Such a workforce initiative may also help the World Health Organization overcome one of its biggest challenges, namely that governments largely ignore the proposed science-based air quality standards.7 A globalized UNCOVER initiative may strengthen the EH profession and foster EH trainings and capacity building. This is needed to tackle EH inequity not only within our communities and across regions but also on a global scale. >4jPH

ACKNOWLEDGMENTS
The English editing of Amena Briet is acknowledged.

CONFLICTS OF INTEREST
There are no conflicts of interest.

Sidebar

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This editorial was accepted December 15, 2019.
doi: 10.2105/AJPH.2019.305537

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DETAILS

Subject:	Climate change; Health problems; Diesel fuels; Success; Sulfur; Cancer; Air pollution; Environmental health; Outdoor air quality; Motor trucks; Environmental policy; Trucks; Sulfur content; Public health; Workforce; Automobile industry; Training
Business indexing term:	Subject: Workforce
Location:	Middle East; Africa; Asia; Switzerland; United States--US; Germany; South America
Company / organization:	Name: World Health Organization; NAICS: 923120; Name: Public Eye; NAICS: 813910
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3

Pages:	295-296
Publication year:	2020
Publication date:	Mar 2020
Section:	ENVIRONMENTAL HEALTH WORKFORCE &REGULATION
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Commentary
DOI:	https://doi.org/10.2105/AJPH.2019.305537
ProQuest document ID:	2371355208
Document URL:	https://www.p roquest.com/scholarly-journals/nino-künzli-comments/docview/2371355208/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-11
Database:	Public Health Database

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Climate Change Jeopardizes the Future of the Asia-Pacific Region

Anonymous

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FULL TEXT

Binns and Low emphasize that the Asia-Pacific region is especially vulnerable to the consequences of unmitigated climate change. Island nations such as the Maldives face the possibility of disappearing, owing to rising sea levels, and have sought the aid of larger countries to address this issue. The public health implications of climate change, widely discussed in the past 50 years, include threats to food supplies, setbacks in controlling vector-borne diseases, droughts, and increased inequity, as wealthier nations have better adaptability to climate change's consequences. The negligence of large economies that have ignored the United Nations' call to action jeopardizes the future of smaller nations in the AsiaPacific region.
Citation. Binns C, Low WY. Time to get on with it: climate change needs public health action now. Asian Pac J Public Health. 2019;31(7):581-583

DETAILS

Subject:	Climate change; Public health; Sea level; Greenhouse effect
Location:	Maldives; Asia; Asia-Pacific region
Company / organization:	Name: United Nations--UN; NAICS: 928120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	262
Publication year:	2020
Publication date:	Mar 2020
Section:	Global News
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News

ProQuest document ID:	2371348257
Document URL:	https://www.proquest.com/scholarly-journals/climate-change-jeopardizes-future-asia-pacific/docview/2371348257/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Reproductive Injustice at the US Border

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ABSTRACT (ENGLISH)

The detention of immigrants inside US borders is not a new phenomenon. However, a dramatic shift has occurred in both the number and treatment of immigrants in detention. We examine recent changes in immigration policies that have systematized the mistreatment of children and pregnant immigrants, including a ban on abortion for unaccompanied minors in immigration detention, the neglect and mistreatment of pregnant immigrants in detention, and the separation and prolonged detention of parents and children in unsafe facilities. We employ the reproductive justice framework to demonstrate how these policies violate all 3 primary values of reproductive justice: the right to have children, the right not to have children, and the right to parent children in safe and secure environments.We argue that, when analyzed through the lens of reproductivejustice, these policies can be seen as manifestations of a single targeted strategy to control the reproductive autonomy of migrants as a tool of immigration enforcement. We conclude with a call to action to the public health community. (Am J Public Health. 2020;110:339-344. doi: 10.2105/AJPH.2019.305466)

FULL TEXT

Headnote

The detention of immigrants inside US borders is not a new phenomenon. However, a dramatic shift has occurred in both the number and treatment of immigrants in detention.

We examine recent changes in immigration policies that have systematized the mistreatment of children and pregnant immigrants, including a ban on abortion for unaccompanied minors in immigration detention, the neglect and mistreatment of pregnant immigrants in detention, and the separation and prolonged detention of parents and children in unsafe facilities.

We employ the reproductive justice framework to demonstrate how these policies violate all 3 primary values of reproductive justice: the right to have children, the right not to have children, and the right to parent children in safe and secure environments.We argue that, when analyzed through the lens of reproductivejustice, these policies can

be seen as manifestations of a single targeted strategy to control the reproductive autonomy of migrants as a tool of immigration enforcement. We conclude with a call to action to the public health community. (Am J Public Health. 2020;110:339-344. doi: 10.2105/AJPH.2019.305466)

The past 2 years have been an especially harrowing time for migrants seeking to enter the United States and those held in immigration detention facilities. The detention and mistreatment of undocumented immigrants inside US borders is not a new phenomenon.1 Under the current administration, however, a dramatic shift has occurred in the number of immigrants in detention as well as in how the government treats vulnerable immigrants, particularly children and those who are pregnant. The reproductive justice framework, with its holistic focus on the autonomy and reproductive agency of marginalized communities, provides a compelling lens through which to examine the treatment of pregnant and parenting migrants.2

In this article, we focus this reproductive justice lens on 3 recent policies that target pregnant people and immigrant families: the ban on abortion for unaccompanied minors in immigration detention, the neglect and mistreatment of pregnant immigrants in detention who seek to continue their pregnancies, and the separation and prolonged detention of parents and children in unsafe facilities. Upon first impression, these policies may appear unrelated or contradictory. The ban on abortion that promotes pregnancy and childbirth for unaccompanied minors may seem at odds with the failure to provide appropriate prenatal care to pregnant immigrants who wish to continue their pregnancies. The family separation policy may appear to be a separate but unrelated travesty. We employ the reproductive justice framework to examine these policies as manifestations of a single oppressive strategy of reproductive control. When so viewed, the common purpose animating these policies and practices becomes clear: the current administration is wielding control over reproductive agency as a cudgel to punish migrants and deter future immigration.

Legal scholars,3,4 sociologists,5 and activists6 have applied the reproductive justice framework in their research and advocacy around migrant health. This substantial body of literature has engaged with the intersection of immigration status and reproductive justice for decades. While the field of public health has begun to recognize the relevance and value of reproductive justice,7 it has not yet fully embraced the framework in the context of the current crisis at the border. We build on the important work of reproductive justice scholars and activists as we seek to broaden the application of this framework to immigrant rights within the field of public health.

In the first section, we introduce the policy context of US immigration enforcement and the theoretical framework of reproductive justice. In the second section, we examine how the Trump administration has treated pregnant minors seeking abortions while in immigration detention. In the third section, we analyze the administration's treatment ofpregnant immigrants in detention who seek to continue their pregnancies. In the fourth section, we discuss the family separation policy and other Trump administration policies that affect immigrant families. In the fifth section, we reflect on the role of the public health community in promoting reproductive justice and issue a call to action for public health scholars, researchers, and professionals.

POLICY CONTEXT: US IMMIGRATION ENFORCEMENT

Immigration enforcement in the United States is distributed across several different agencies. Customs and Border Protection (CBP) and Immigration and Customs Enforcement (ICE) are housed within the Department of Homeland Security. Adults and children who are detained by immigration enforcement are held in CBP facilities. Adults are then transferred to ICE facilities, while responsibility for "unaccompanied alien children" (i.e., minors apprehended at the border without an adult family member) is vested in the Office of Refugee Resettlement (ORR), an agency within the Department of Health and Human Services.

On April 6, 2018, then- Attorney General Jeff Sessions issued a warning to immigrants hoping to enter the United States: "To those who wish to challenge the Trump Administration's commitment to public safety, national security, and the rule of law, I warn you: illegally entering this country will not be rewarded, but will instead be met with the full prosecutorial powers of the Department of Justice."8 This announcement-a statement of the administration's "zerotolerance" policy-signaled a major change in US immigration policy. Under the zero-tolerance policy, US attorneys in the Southwest were directed to prosecute all undocumented immigrants apprehended inside US borders. This included some groups who were previously excluded from mandatory detention, such as pregnant people and family units.

Until the implementation of zero tolerance, families were generally released from immigration custody to remain in compliance with the Flores Settlement Agreement (Flores). Flores, a 1997 immigration settlement, set out the procedures for the care, custody, and release of immigrant children held in federal custody, including a requirement that children not be held in Department of Homeland Security facilities for more than 20 days.9 Under previous administrations, children were occasionally separated from their parents, but this was not the norm. By contrast, zero tolerance required that all adults apprehended at the border, including those who entered the country with their children, be detained and prosecuted. Adults were detained in facilities in which the children, under Flores, could not be housed. Because their parents were incarcerated, children were reclassified as "unaccompanied" and became wards of ORR.10 In August 2019, the government promulgated a new regulation to revoke the Flores Settlement Agreement, reverse Flores's protections for children, and allow the federal government to hold children with their parents for an indefinite period oftime. As of the time of writing, the government is barred by court order from implementing the new regulation and terminating the Flores Settlement.11 In January 2019, DHS implemented the Migrant Protection Protocols (MPP)-also known as the "Remain in Mexico" policy-which requires asylum-seeking migrants to await their asylum hearings in Mexican border towns. More than 340 cases of kidnapping, rape, and torture of asylum seekers in MPP have been reported.12

REPRODUCTIVE JUSTICE FRAMEWORK

The reproductive justice movement and its accompanying theoretical framework were created in the 1990s by Black women advocates in response to the largely White and middleclass leadership of the prochoice movement, which "could not defend the needs of women of color and other marginalized women and trans people."13 The framework of abortion as a personal choice centers the experiences of people who have the resources to choose among options that are unavailable to more marginalized people. Moreover, isolating abortion from other issues of social justice fails to recognize the environments in which people make reproductive decisions. The founders of the reproductive justice framework created SisterSong, a national, multiethnic movement, "to uplift the needs of the most marginalized women, families, and communities."13 This framework is therefore particularly appropriate to scrutinize the treatment of migrants detained at the nation's southern border.

Reproductive justice shifts the focus from civil rights to human rights and the goal from choice to justice; it is "the application of the concept of intersectionality to reproductive politics in order to achieve human rights. "2(p79) Reproductive justice centers those who are most marginalized and recognizes that, while everyone has the same human rights, not everyone is oppressed in the same way. It employs an intersectional approach to shed light on the ways in which social identities, such as race, gender identity, sexual orientation, and immigration status, interact to create distinct and often marginalized experiences.2,14

Three core values ground reproductive justice: (1) the right not to have a child, (2) the right to have a child, and (3) the right to parent children in safe and healthy environments. These values are "based on the human right to make personal decisions about one's life, and the obligation of government and society to ensure that the conditions are suitable for implementing one's decisions."13 Reproductive justice is rooted in a conception of reproductive agency, equality, and dignity and, therefore, in addition to access to abortion, it encompasses access to comprehensive sex education, contraceptives, prenatal and postnatal care, and interventions to address infant and maternal morbidity and mortality.2,13,14

The reproductive justice framework guides our analysis of the treatment ofwomen, children, and families entering the United States.

UNDOCUMENTED MINORS SEEKING ABORTION

The first core value of the reproductive justice framework is the right not to have children. In the United States, minors, like adults, have a constitutionally protected right to terminate a pregnancy before fetal viability.15 This right has been applied to undocumented minors as well as to minors who are citizens.16 In the majority of states, minors are required to secure parental consent or notification before obtaining an abortion or are required to invoke state judicial bypass procedures to obtain court approval in lieu of parental consent.17 Judicial bypass procedures are a constitutional requirement; they ensure that a minor's right to abortion is not dependent on the consent or notification of a parent or guardian.15 For unaccompanied immigrant minors, judicial bypass procedures provide a legal avenue to make abortion decisions in the absence of a parent or guardian's agreement. Despite these constitutional protections, the US government has repeatedly taken steps to prevent undocumented minors from accessing abortion care, and has violated this tenet of reproductive justice.

ORR is responsible for providing "family planning services, including pregnancy tests and comprehensive information about and access to medical reproductive health services and emergency contraception," to all undocumented minors in its custody.18 Under previous administrations, undocumented minors in ORR custody experienced difficulties in accessing reproductive services.19 However, access barriers intensified significantly under the current administration when E. Scott Lloyd, as ORR director, implemented extraordinary measures to prevent undocumented minors from receiving abortion care.

In 2017, ORR instituted an "across-the-board ban" on abortion access for minors in its custody. It applied this policy even where minors had secured funding and transportation for the procedure and had met all applicable state requirements for obtaining an abortion, including judicial bypass.16 Staff at detention facilities were told that they "should not be supporting abortion pre or postrelease; only pregnancy services and life-affirming options counseling,"20(p13) and not to take "any action that facilitates" abortion without the express approval of the agency's director.16^13-1 In accordance with this policy, ORR has undertaken several actions to restrict the ability of the minors in its custody to obtain abortion care.

In a series of widely publicized cases, ORR refused to allow minors in its care to obtain abortions. These adolescents, identified by the pseudonyms Jane Doe, Jane Poe, Jane Roe, and Jane Moe, were only able to undergo abortions after securing court orders through emergency litigation. In one of these cases, the government attempted to compel a minorwho had become pregnant as a result of rape to carry her pregnancy to term. In a memorandum documenting his denial of this abortion request, then-director Lloyd stated that ORR "provides refuge 'to all the minors in our care including their unborn children,'" and permitting this abortion would be asking ORR "to participate in killing a human being in our care . . . we ought to choose [to] protect life rather than destroy it."16(p15) Detention facilities were also directed to take pregnant adolescents who were seeking abortions to religiously affiliated crisis pregnancy centers for antiabortion counseling, where staff prayed for them and performed medically unnecessary sonograms.20 Crisis pregnancy centers have been roundly criticized by medical and public health professionals for their harmful and deceptive practices.21

The ban on abortions for minors in ORR custody is the subject of an ongoing class-action lawsuit on behalf of "all pregnant, unaccompanied immigrant minor children . . . who are or will be in the legal custody ofthe federal government,"16(p16) and is not currently in effect.

The government has employed and defended the abortion ban as a tool of immigration enforcement, using it both to punish migrants and to deter future immigration. Specifically, the government has argued that the ban is necessary to discourage "abortion tourism" and that minors under ORR care can avoid the ban by "voluntarily departing" the United States and returning to their home countries.16 The extraordinary and invasive actions taken by the government in an effort to block pregnant unaccompanied minors' access to abortion have repeatedly intruded on the rights of this vulnerable group. To be forced to carry an unwanted pregnancy to term, however, is not only a contravention of a constitutionally protected right but also a profound transgression of these adolescents' humanity and a violation of a fundamental tenet of reproductive justice.

TREATMENT OF PREGNANT MIGRANTS

The second core value of reproductive justice is the right to have children, which is accorded the same importance as the right not to have children. The extreme measures taken by the Trump administration to preclude pregnant minors from obtaining abortions evince a strong bias in favor of pregnancy continuation and childbirth. However, people in immigration detention who seek to continue their pregnancies have been subject to myriad dangerous practices that have placed their pregnancies at risk and interfered with their intention to carry their pregnancies to term. Inhumane conditions, inadequate access to medical care, and unsafe practices in detention have resulted in stillbirths, miscarriages, and significant maternal health complications for pregnant migrants apprehended at the border.22

Immigration detention is not a healthy environment for anyone, but for a pregnant person it can present unique and significant risks to maternal and fetal health. Until recently, it was ICE policy to release pregnant undocumented immigrants who were apprehended unless they were subject to mandatory detention or if "extraordinary circumstances" warranted their continued detention. This changed in December 2017, when ICE instituted a policy of detention for all "removable aliens" with release determined on a "caseby-case" basis, to comply with a new presidential executive order.23 At least 2701 pregnant people were held in ICE custody between December 2017 and March 2019; more recent data on the number ofpregnant people in detention are not publicly available, which is itself a troubling indicator of how little is known about what happens within ICE facilities.22 A bill introduced by Senator Patty Murray (D-Washington) would require ICE and CBP to issue quarterly reports on the detention ofpregnant migrants. Currently there are no such public reporting requirements on these agencies.24

ICE guidelines stipulate that pregnant detainees "shall have access to prenatal and specialized care, and comprehensive counseling inclusive of, but not limited to: nutrition, exercise, complications of pregnancy, prenatal vitamins, labor and delivery, postpartum care, lactation, family planning, abortion services and parental skills education. "25(p324) In response to media inquiries about the treatment of pregnant detainees, former Department of Homeland Security Secretary Kirstjen Nielsen stated that they "are not only given adequate care in facilities, but it is much better care than when they are living in the shadows."26 Recent reports contradict Nielsen's claims and have documented a disturbing pattern of neglect and mistreatment ofpregnant undocumented immigrants at immigration detention centers. At least 28 people miscarried in ICE custody between 2017 and 2018; the number of miscarriages in CBP custody is unknown, as is the number of live births in the custody of these agencies.22

Many of the miscarriages in immigration detention may be attributable to mistreatment while in custody, and the stories of these migrants' experiences are often unequivocally inhumane. Pregnant migrants have been exposed to unnecessary x-rays, denied medical treatment- including during severe uterine bleeding-and had their ankles and bellies shackled.27 Routine shackling, a practice that has historically been used on pregnant women in prisons and jails, is no longer considered acceptable in many states and in federal correctional facilities. Shackling can cause serious medical harms and is opposed by the American Public Health Association (APHA)28 and the American College of Obstetricians and Gynecologists29; it is also officially proscribed by ICE and CBP guidelines. Despite these prohibitions, shackling has continued in federal immigration detention, purportedly to protect public safety.30 One report released in 2018 detailed the experiences of 3 pregnant asylum seekers who were detained, forced to wait weeks for medical care, and shackled around their hands, legs, and bellies. All 3 experienced miscarriages. Reporting suggests they did not receive adequate medical care or counseling afterward.27

Other nationally reported stories of mistreatment include the experiences of an adolescent who had an emergency cesarean section in Mexico before crossing into the United States, and who was detained in an overcrowded US Border Patrol facility with her extremely premature baby. Neither the mother nor the baby received any medical attention.31 In another case, a woman went into preterm labor and delivered a stillborn baby while being processed for release from ICE custody. According to the agency, "a stillbirth is not considered an in-custody death" for investigative and reporting purposes.32 What would have happened to her baby had it been born alive is also murky; there appears to be no publicly available guidance in ICE or CBP detention standards that indicate where or how a baby born in custody should be held, but reports indicate that ORR is adding shelters to house newborn infants.33

By shackling pregnant immigrants, failing to provide postnatal care for an adolescent mother in detention, and refusing to formally recognize an immigrant mother's loss of a desired child as a death, the administration demonstrates its disregard for the value of vulnerable, nonWhite lives. The mistreatment of pregnant immigrants, like the denial of abortions to pregnant minors, highlights the ways in which the Trump administration seeks to subjugate the bodies of marginalized populations and control their reproductive lives.

TREATMENT OF CHILDREN AND FAMILIES

The third core value of reproductive justice is the right to parent one's children in safe and secure communities. The zerotolerance family separation policy, substandard medical care for children in detention, and indefinite detention ofparents and children are clear violations of this right. These targeted antifamily policies constitute an assault on the family unit and the right to raise safe and healthy children.

One of the clearest examples of the Trump administration's antifamily policies came to light in summer 2018 when news reports revealed that Department of Homeland Security officials had begun separating children apprehended at the US-Mexico border from their families. The separations were a direct result of the administration's zerotolerance policy and continued until June 26, 2018, when a federal judge officially ordered that the separations be stopped and the separated children be identified. ORR identified approximately 2800 separated children in its custody, and nearly all have been reunified with their parents or resituated according to their parents' wishes. However, the number of children separated before this date, and what happened to them, is still not known. In addition, thousands ofchildren may have been separated from their parents between July 2017 and May 2018, before the policy was officially announced,10 and 700 children were separated from their parents after the announced end of the zero-tolerance policy in June 20 1 8.34 The government has indicated that it will take up to 24 months to identify these children and that there may be thousands of separations that have not been tracked.10 Many of the "unaccompanied" minors in ORR's care, as well as those who are currently being detained in adult CBP facilities, were apprehended with nonparent relatives such as aunts, uncles, or grandparents. Immigration enforcement agencies could sharply reduce the number of children in immigration detention by releasing children with their nonparent family members, but it is the Trump administration's policy to separate these nonnuclear family units in the interest of reducing the risk of human trafficking.35 Despite this stated reason for separating families, the administration has not released data to support its claim that this is a legitimate concern. Much has been written elsewhere about the inhumane treatment of unaccompanied minors and minors who have been separated from their families36,37 and ofthe families sent to wait in Mexican border towns under MPP,12 as well as of the trauma experienced by separated children,38 so we refrain from repeating that important work here. Rather, we emphasize that reproductive justice entails a right to parent children in safe and secure environments.This right is not upheld by separating children from their parents, nor by indefinitely detaining them together in accordance with the regulation attempting to revoke Flores, nor by the dangerous living conditions for those awaiting hearings in Mexico under MPP.

The administration has blamed immigrant parents for the harms that befall their children while in federal custody. Addressing the family separation policy, Sessions stated in May 2018 that, "[i]fyou don't want your child to be separated, then don't bring them across the border illegally. It's not our fault that somebody does that."39 This position shifts the blame for the harmful effects of the administration's policies onto the families themselves, it suggests that parents have acted negligently or capriciously in traveling with their children to this country, and it fails to consider the reasons these families may have left their home countries and come to the United States with their children. Moreover, such statements and the zero-tolerance policy reflect a lack of respect for the parental bonds of migrants and those seeking asylum for their families and attempting to provide a better future for their children.

CONCLUSION

Reproductive justice calls on each of us to interrogate the power structures that subordinate women and dehumanize families of color. In this article, we have examined the ways in which US immigration enforcement systematically oppresses marginalized populations seeking entry into the United States. It should be noted that these policies are situated within a broader American social and historical context in which the bodies and reproductive agency of Black and Brown people have been controlled, ranging from the horrors of the slave trade to the violence of the 20th century eugenics movement, and continuing through the modern-day ban on the use offederal funds to provide abortion to low-income pregnant people2 and the recent restrictions on Title X funding. The policies and practices we examine here serve a similar purpose to these other systemic injustices. They constitute a transparent effort to control the reproductive lives of vulnerable migrants to further an antiimmigrant agenda.

The reproductive justice framework is not simply a tool for identifying oppressive systems and structures, however. It also calls for praxis, in which oppressed groups and their allies "change their economic, social, and political realities through social justice actions based on theoretical reflections," including activism and advocacy.13(p287) This praxis is inherently intersectional, accounting for the structural violence that threatens individuals and groups on the basis of multiple dimensions of identity. Recognition of this violence is the first step, but praxis requires taking action to reform systems that perpetuate harm, especially when they further disadvantage vulnerable people.

The specialized knowledge and skills of the public health community make it a natural ally for the realization of reproductive justice at the border through praxis; in 2015, the APHA released a policy that called advancing reproductive justice an important public health strategy.7 Theorists of public health ethics have also long argued that public health is social justice. Ruth Faden and Madison Powers write that "the foundational moral justification for the social institution of public health is social justice. "40(p80) They contend that "the twin moral impulses that animate public health [are] to improve human well-being by improving health and to do so in particular by focusing on the needs of those who are the most disadvantaged. "40(p82) This idea is fundamentally aligned with the human rights grounding of reproductive justice. It acknowledges the moral work of public health and its commitment to protecting the most vulnerable people, regardless of their race, gender, or immigration status.

The US government's actions at the southern border threaten the physical and mental health of multiple generations of migrants seeking better lives for themselves and for their families.36 Failure to act in the face of these injustices signals an acceptance of the structures that are, at this very moment, destroying lives and tearing families apart. It is incumbent upon all ofus who work in public health to reject these unjust policies and practices in the strongest terms and commit to the ideals, vision, and practice of reproductive justice. We urge our public health colleagues to redouble their research into the effects of these policies and practices on children and families, to submit written comments during the notice-and-comment periods for new government rules, to contribute their expertise to the legal briefs that challenge these policies, and to support Senator Murray's bill limiting the detention and shackling of pregnant immigrants.

In a powerful piece on reproductive justice as intersectional feminist activism, Loretta Ross quotes scholar Ellen MesserDavidow, saying that "In times such as these, there are no innocent bystanders. If you're a bystander, you're not innocent. "14(p306) In the face ofthe reproductive injustice at the border, public health must not, cannot, be a bystander. ĂJPU

Sidebar

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This article was accepted October 17, 2019.

doi: 10.2105/AJPH.2019.305466

CONTRIBUTORS

All authors contributed to the conceptualization, drafting, and critical revision of the article.

ACKNOWLEDGMENTS

We would like to thank the following individuals for their helpful comments on earlier drafts of this essay: Zackary Berger, Joel Ramirez, Lainie Rutkow, Jon Vernick, and Lauren Zahn.

Note. This article employs the reproductive justice framework to analyze various policies and practices offederal government agencies and their impact on the lives of people in immigration detention. The reproductive justice framework holds that not all pregnant people, or people who can become pregnant, are women. In this article, we use the term " women" to reflect the language of the relevant policies and when referring to specific people. However, we wish to explicitly recognize and affirm the lived experiences oftransgender and nonbinary people who are affected by these policies.

CONFLICTS OF INTEREST

The authors have no conflicts ofinterest to declare.

HUMAN PARTICIPANT PROTECTION

No human participants were involved in this work.

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DETAILS

Subject:	Parents &parenting; Womens health; Pregnancy; Public health; Immigrants; Immigration policy; Families &family life; Children; Autonomy; Values; Policies; Migrants; Bans; Immigration; Parents; National security; Oppression; Enforcement; Detention; Justice; Zero tolerance; Abortion; Human rights; Reproductive rights; Noncitizens
Location:	United States--US
Company / organization:	Name: Department of Homeland Security; NAICS: 922120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	339-344
Publication year:	2020
Publication date:	Mar 2020
Section:	LAW &ETHICS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036

Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305466
ProQuest document ID:	2371347337
Document URL:	https://www.proquest.com/scholarly-journals/reproductive-injustice-at-us-border/docview/2371347337/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

Document 39 of 45

Targeted Food Marketing to Black and Hispanic Consumers: The Tobacco Playbook

Harris, Jennifer L[1] [1] Rudd Center for Food Policy &Obesity, University of Connecticut, Hartford

ProQuest document link

ABSTRACT (ENGLISH)

Many US food companies have identified Black and Hispanic consumers as a significant business growth opportunity.1 In 20 17, these companies spent more than $1 billion to advertise on Spanish language-targeted and Black-targeted television, more than 80'⅛ promoting fast food, sugar-sweetened beverages, candy, and unhealthy snack brands. Black children and adolescents saw approximately twice as many television food advertisements compared with their White peers, and these disparities have increased. Unhealthy food marketing and access to unhealthy food are also greater in low-income communities of color.2,3 Furthermore, these same unhealthy food brands often target advertising and sponsorships to "multicultural" youths through celebrity endorsements, music and sporting event sponsorships, scholarships, and other corporate social responsibility initiatives.

Targeted marketing is not problematic on its own.3,5 Marketing to racial ethnic minority consumers recognizes the importance of populations previously excluded by most traditional marketers. By signaling that a brand values Black and Hispanic consumers and that its products are for "someone like me," targeted marketing is highly effective. This marketing also often provides much-needed resources to local communities and targeted media properties. However, this onslaught of unhealthy food marketing represents an overwhelming obstacle to successful public health efforts to address the epidemic of diet-related disease, including obesity, diabetes, and heart disease, disproportionately affecting communities of color.

As Nguyen et al. (p. 329) clearly show in this issue of' AJPH, targeting food marketing to racial/ethnic minority consumers represents a deliberate strategy designed to foster goodwill in their communities. This strategy borrows heavily from the tobacco marketing playbook and raises ethical and public health concerns.

FULL TEXT

Many US food companies have identified Black and Hispanic consumers as a significant business growth opportunity.1 In 20 17, these companies spent more than $1 billion to advertise on Spanish language-targeted and Black-targeted television, more than 80'⅛ promoting fast food, sugar-sweetened beverages, candy, and unhealthy snack brands. Black children and adolescents saw approximately twice as many television food advertisements compared with their White peers, and these disparities have increased. Unhealthy food marketing and access to unhealthy food are also greater in low-income communities of color.2,3 Furthermore, these same unhealthy food brands often target advertising and sponsorships to "multicultural" youths through celebrity endorsements, music and sporting event sponsorships, scholarships, and other corporate social responsibility initiatives.1,4

Targeted marketing is not problematic on its own.3,5 Marketing to racial ethnic minority consumers recognizes the importance of populations previously excluded by most traditional marketers. By signaling that a brand values Black andHispanic consumers and that its products are for "someone like me," targeted marketing is highly effective. This marketing also often provides much-needed resources to local communities and targeted media properties.

However, this onslaught of unhealthy food marketing represents an overwhelming obstacle to successful public health efforts to address the epidemic of diet-related disease, including obesity, diabetes, and heart disease, disproportionately affecting communities of color.2

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THE TOBACCO PLAYBOOK

By analyzing industry documents publicly available through the University of California San Francisco Truth Tobacco Industry Documents Library, Nguyen et al. raised the curtain on the motivations and methods for targeted food marketing strategies. They describe how Philip Morris Corporation transferred its expertise in "ethnic" marketing of cigarettes (aimed at Black and Hispanic consumers) to create a fully integrated ethnic marketing program at Kraft General Foods (KGF), following acquisition of the two companies. KGF identified a subset of products that disproportionately appealed to Black and Hispanic consumers, including sugarsweetened beverages (Kool-Aid and Tang) and dry package dinners (e.g., macaroni and cheese), and created a "fully integrated" ethnic marketing prognam around these brands.

Industry documents describing corporate marketing strategies are proprietary and rarely available for public scrutiny. Therefore, this analysis provides a rare and enlightening depiction of the purpose for KGF's ethnic marketing strategy. The documents describe marketing promotions designed to increase profitability through increased brand visibility and sales from Black and Hispanic consumers, as well as reduced costs through synergies between the company's operating units (food, beer, and tobacco) engaged in ethnic marketing.

The documents also describe the importance of ethnic marketing to create a positive corporate image (i.e., "goodwill") within Black and Hispanic communities. Notably, this recognition of benefits from ethnic marketing was not evident before the Philip Morris Corporation merger, with General Foods describing its purchase of ethnic media as "affirmative action" and targeting individual consumer segments as an "inconvenience." The process that KGF used to select brands for ethnic marketing is also illuminating, including its use of data to identify consumer segments with already high per-capita consumption of the product and market research perpetuating negative stereotypes. For example, General Foods proposed targeting Tang to Hispanic households because of their disproportionate consumption, poor education, responsiveness to product displays, and "less concern about salt, sugar or calorie levels."

The analysis also describes the full range of techniques incorporated into KGF's integrated ethnic marketing program. Ethnic marketing consisted of advertising in Hispanic and Black media, with public pledges to support ethnic-targeted media (traditionally less attractive to advertisers). Ethnic event marketing sponsorships incorporated partnerships with target organizations, on-site merchandising, media support, comarketing in retail locations, and public relations. Nguyen et al. document more than 200 KGFsponsored ethnic events from 1989 to 1999, including communitybased cultural events, sporting events, and conferences. Events also included partnerships with Black and Hispanic leadership organizations, including the National Association for the Advancement of Colored People, National Council of La Raza, and League of United Latin American Citizens.

IMPLICATIONS FOR PUBLIC HEALTH

The ethnic marketing strategies described by Nguyen et al. refer to just one food company and describe marketing that occurred from 1984 to 2004. However, major food companies, including PepsiCo, Mars, and Domino's Pizza, continue to use these same strategies to target Black and Hispanic consumers.2 Targeted food marketing continues to create goodwill in these communities, while almost exclusively promoting harmful products detrimental to the health of the community members they claim to support.

As public health advocates engage with food companies to address childhood obesity, food insecurity, and other public health challenges, they should keep in mind some key learnings from this analysis of industry documents. First, corporate social responsibility initiatives by food companies represent an attempt to purchase goodwill for their brands; brands whose consumption would actually benefit the community do not need to purchase this support. Rather, sponsored initiatives in underresourced communities (including playgrounds, scholarships, and cultural events) almost exclusively promote brands that otherwise may not be welcomed, including tobacco 40 years ago and sugar-sweetened beverages and fast food today.2,3

The resources that tobacco, and now food, companies invest in Black and Hispanic communities and leadership organizations also represent a strategy to enlist these organizations to oppose public health initiatives intended to address the issues that their products have created. As Nguyen et al. note, tobacco companies used corporate social responsibility to enlist minority allies to fight tobacco regulations, whereas today beverage companies fund minority organizations who have coordinated with the American Beverage Association to fight soda taxes.

Finally, corporate profit motives determine the brands that companies choose to target to Black and Hispanic consumers. Where public health experts see populations with overconsumption of sugar, fat, sodium, and calories, food companies see a targeting opportunity for sugarsweetened beverages, chips, and fast-food brands. Where public health sees a need to increase plain water and healthy food consumption, food companies see a poor return on investment in marketing these healthier products. Targeted marketing thus perpetuates stereotypes about what certain populations will eat, which leads to a vicious cycle of marketing that exacerbates health disparities.

In summary, Nguyen et al. describe how food companies have borrowed from the tobacco playbook to develop integrated ethnic marketing programs targeted to Black and Hispanic consumers. Public health advocates can also borrow from successful anti-tobacco public health initiatives to address unhealthy food marketing targeted to communities of color.3-6 First, they must recognize that food companies cannot voluntarily reduce marketing of highly profitable but unhealthy products because of their obligations to shareholders; public policies such as sugar-sweetened beverage taxes and community-level regulation of unhealthy food marketing are necessary. Advocates also should focus on unhealthy food marketing as a social justice issue and support grassroots action in communities that experience its most negative effects. Publication of industry documents, such as those analyzed in Nguyen et al., will help increase understanding of questionable industry motives. Information from the successful "truth" antitobacco campaign strategy could be used to support countermarketing campaigns to highlight the injustice of targeted marketing to Black and Hispanic communities for products that contribute to long-term negative effects on their health.6 Â1PU

Jennifer L. Harris, PhD, MBA

Sidebar

Correspendence should be sent to Jennnifer L. Harris PhD, MBA, UConn Center for Food Policy &Obesity, One Constitution Plaza, Suite 600, Hartford, CT 06103 (e-mail: jennifer.harris@uconn.odu). Reprints can bo. ordorod at http://www.aiph.org by clicking the "Reprints" link.

This editorial was accepted December 9, 2019.

doi: 10.2105/AJPH.2019.305518

CONFLICTS OF INTEREST

The author has no conflicts of interest to disclose.

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DETAILS

Subject:	Multiculturalism &pluralism; Food consumption; Food; Minority &ethnic groups; Tobacco; Advertising; Social responsibility; Marketing; Low income areas; Consumers; Obesity; Scholarships &fellowships; Minority groups; Beverages; Diabetes; Black youth; Cardiovascular diseases; Fast food; Diabetes mellitus; Local communities; Spanish language; Public health; Television; Coronary artery disease; Epidemics; Heart diseases; Confectionery; Values; Peers; Children; Adolescents; Disease; Diet; Target markets; Market strategy; Black people
Business indexing term:	Subject: Target markets Social responsibility Marketing Market strategy
Location:	San Francisco California; United States--US; New York; California
Company / organization:	Name: PepsiCo Inc; NAICS: 312111; Name: Dominos Pizza Inc; NAICS: 533110, 722513; Name: National Council of La Raza; NAICS: 813910; Name: League of United Latin American Citizens; NAICS: 813410; Name: University of Connecticut; NAICS: 611310; Name: American Beverage Association; NAICS: 813910
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	271-272

Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305518
ProQuest document ID:	2371347313
Document URL:	https://www.proquest.com/scholarly-journals/targeted-food-marketing-black-hispanic-consumers/docview/2371347313/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-09-27
Database:	Public Health Database

Document 40 of 45

Maternal Education Decreases Childhood Mortality in Myanmar

Anonymous

ProQuest document link

FULL TEXT

Maternal education improves childhood mortality outcomes. Results from Myanmar's 2015-2016 Demographic Health Survey showed that mothers with only a primary education had a 17% reduction in odds of infant mortality and a 23% reduction in odds of mortality among children younger than 5 years compared to mothers with no education. Mothers with only a secondary education had a 33% reduction in odds of infant mortality and a 40% reduction in odds of mortality among children younger than 5 years. Mothers with higher education had a 50% reduction in odds of infant mortality and a 62% reduction of odds of mortality among children younger than 5 years. Childhood mortality outcomes improve if maternal education increases.
Citation. Soe K, Holland P, Mateus C. Association between maternal education and childhood mortalities in Myanmar. Asian Pac J Public Health. 2019; Epub ahead of print.

DETAILS

Subject:	Child mortality; Parent educational background; Children; Childhood; Infant mortality
Location:	Myanmar (Burma)
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	262
Publication year:	2020
Publication date:	Mar 2020
Section:	Global News
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	News
ProQuest document ID:	2371344300
Document URL:	https://www.proquest.com/scholarly-journals/maternal-education-decreases-childhood-mortality/docview/2371344300/se-2?accountid=211160

Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

Document 41 of 45

Denials of Judicial Bypass Petitions for Abortion in Texas Before and After the 2016 Bypass Process Change: 2001-2018

Stevenson, Amanda Jean, PhD [1] ; Coleman-Minahan, Kate, RN, PhD, FNP-BC [2] ; Hays, Susan, JD [3] [1] Department of Sociology, University of Colorado Boulder [2] College of Nursing, University of Colorado Anschutz Medical Campus, Aurora [3] Law Office of Susan Hays, PC, Austin

ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To estimate the percentage of Texas judicial bypass petitions for abortion denied annually from 2001 to 2018, and to assess whether that fraction changed after the state's 2016 bypass process change. Methods. Because official statistics on Texas judicial bypass case counts and outcomes are only available for 2016 and later, we systematically reviewed monthly internal reports from Jane's Due Process (JDP), an organization providing legal representation to pregnant minors seeking bypass from 2001 to 2018. We report numbers and percentages of JDP cases denied for 2001 to 2018 and numbers and percentages of all cases denied from official Texas statistics for 2016 to 2018 (all available years). Results. At least 1 denial occurred in 11 out of 15 years observed before the bypass law changed in Texas (percentages = 0%-6.2%). After Texas made its bypass process more restrictive, the percentage denied increased (from 2.8% in 2015 to 10.3% in 2016 among JDP cases). Conclusions. We found the greatest percentages of judicial bypass for abortion petitions denied after the policy was implemented and after the bypass process changed. Judicial bypass for abortion may expose pregnant minors to judicial veto of their abortion decision. (Am J Public Health. 2020;110:351-353. doi:10.2105/AJPH.2019.305491)

FULL TEXT

Headnote

Objectives. To estimate the percentage of Texas judicial bypass petitions for abortion denied annually from 2001 to 2018, and to assess whether that fraction changed after the state's 2016 bypass process change.

Methods. Because official statistics on Texas judicial bypass case counts and outcomes are only available for 2016 and later, we systematically reviewed monthly internal reports from Jane's Due Process (JDP), an organization providing legal representation to pregnant minors seeking bypass from 2001 to 2018. We report numbers and percentages of JDP cases denied for 2001 to 2018 and numbers and percentages of all cases denied from official Texas statistics for 2016 to 2018 (all available years).

Results. At least 1 denial occurred in 11 out of 15 years observed before the bypass law changed in Texas (percentages = 0%-6.2%). After Texas made its bypass process more restrictive, the percentage denied increased (from 2.8% in 2015 to 10.3% in 2016 among JDP cases).

Conclusions. We found the greatest percentages of judicial bypass for abortion petitions denied after the policy was implemented and after the bypass process changed. Judicial bypass for abortion may expose pregnant minors to judicial veto of their abortion decision. (Am J Public Health. 2020;110:351-353. doi:10.2105/AJPH.2019.305491)

Parental involvement laws in 37 states require that minors notify or secure consent from 1 or both parents before receiving abortion care.1 While the US Supreme Court has held that no one, including a parent, may veto another person's abortion decision, states may have parental involvement laws if they provide anonymous and expeditious judicial bypass processes for minors to show (1) they are sufficiently mature and well-informed to make the decision in consultation with their physician or (2) the abortion would be in their best interest.2 States' criteria andprocesses for bypass vary,2 and-while we know of no systematic study of bypass policies across states-bypass in Texas appears to have gone from relatively accessible to relatively inaccessible. National data are not available on the proportion of young people accessing abortion who use judicial bypass, but recently published state-level fractions of all abortions among minors occurring after bypass range from 2%3 to 23%.4

Scholars have found parental involvement laws may reduce abortion rates and delay abortion care.5 7 The judicial bypass process itself has been found to delay care4 and cause emotional trauma.8,9 How often judges deny judicial bypasses for abortion and whether this fraction is sensitive to state bypass policy changes is unknown.

This analysis focuses on denials of judicial bypass in Texas, which has enforced a parental involvement law since 2000. From 2000 to 2015, Texas required that minors seeking bypass demonstrate by a preponderance of the evidence that (1) they were mature and well-informed, (2) that notifying a parent would not be in their best interest, or (3) that notifying a parent may lead to physical, sexual, or emotional abuse. Texas law had a 2-business-day deadline between filing and ruling, unrestricted filing venue, strict confidentiality of bypass proceedings including allowing pseudonymous filing, and deemed petitions granted in absence of ruling.

In 2016, Texas enacted HB3994, requiring that petitioners demonstrate grounds 1 or 2 by a new standard of clear and convincing evidence, removing ground 3, extending the deadline to 5 business days, deeming cases missing the deadline denied, requiring petitions be filed in minors' home counties for counties with a population greater than 10 000, and weakening confidentiality by requiring name, address, and date of birth at filing.10

We had 2 aims: first, to estimate the percentage of Texas judicial bypass for abortion petitions denied annually from 2001 to 2018, and second, to assess whether the percentage denied changed when the bypass process changed in 2016.

To achieve these aims, academic researchers collaborated with Jane's Due Process (JDP), a legal referral service founded in 2001 to serve pregnant Texas minors and train attorneys and court staff. JDP is the only nongovernmental organization providing representation to pregnant young people seeking judicial bypass in Texas. A few counties appoint representation, often appointing JDP-trained attorneys.

METHODS

We estimated the percentage of bypass petitions denied in Texas annually based on 2 sources of data: (1) JDP records and (2) Texas Office of Court Administration annual reports of all bypass cases filed. We use JDP records because they are the only source of denial data before 2016.

For 2001 to 2018, we estimated annual percentages of petitions denied among JDP cases based on annual counts of denials (numerators) and counts of cases referred to an attorney (denominators). To construct and verify these counts, one author (S. H.) reviewed JDP monthly records of cases referred to an attorney and their outcomes. She confirmed counts of cases referred to an attorney by cross-referencing with public JDP annual reports and State of Texas case payment records. She confirmed annual denials among JDP cases by comparing with JDP attorney records and Texas appellate court records. JDP monthly reports were available for the whole period except August 1, 2003, to January 31, 2004. We calculated percentage denied for 2003 and 2004 for periods with complete reports.

For 2016 to 2018, we also calculated annual percentages ofpetitions denied based on denials (numerator) and bypass cases filed (denominator) from Texas Office of Court Administration annual reports, which, by law, include all Texas bypass cases.11

To test whether the percentage denied rose after HB3994, we fit generalized linear models for the rate of denials amongJDP cases from 2001 to 2018 with an indicator equal to 1 in years 2016 to 2018 using negative binomial and Poisson link functions.

We also compared percentage denied and case volume among JDP cases and all cases for 2016 to 2018.

RESULTS

Figure 1 displays annual percentages and numbers of denials for JDP and all cases separately. From 2001 to 2003, shortly after the Texas parental involvement law was enacted, 4.6% to 6.2% of JDP cases were denied annually. We observed a lower percentage of denials (0%-2.8%) from 2004 to 2015.

In 2016, the first year under HB3994, the percentage denied rose more than threefold to 10.3% amongJDP cases and 13.2% among all cases. In the second and third years under the new bypass law, the percentage fell to 3.1% to 4.1% amongJDP cases and 5.1% to 5.9% among all cases. The rate ofJDP denials from 2001 to 2018 was 3.3 times greater after HB3994 (95% confidence interval = 1.16, 9.52; P <.01), based on a negative binomial model. Results were not sensitive to assumed distribution.

In 2016 to 2018, we found that the volume of JDP cases referred to an attorney was between 89% and 98% ofall cases. The percentage denied amongJDP cases followed the pattern of all cases denied, although at a 20% to 40% lower rate.

DISCUSSION

We describe the percentage of Texas bypasses denied annually from 2001 to 2018, documenting that denials occur. After HB3994, denials increased roughly threefold.

After a spike to the highest level observed in our data in the first year of HB3994, the percentage denied declined. Although the 2016 increase in burden of proof to clear and convincing might explain some of our findings and lead to a stable increase in denials, we saw that elevated denials followed a decline in denials both after the 2000 implementation and after 2016. This pattern indicates that the initial spike may not be attributable to the cases' merits and deserves further investigation.

Importantly, both percentage denied and case volume among JDP cases and all cases follow similar trajectories from 2016 to 2018, andJDP cases made up the majority of all cases in all available years, indicating that JDP percentage denied is a useful reflection of trends in bypass denials statewide. JDP cases' lower denial rate may result from use ofa broader denominator. However, rarely are JDP cases referred not filed and JDP referral attorneys are typically better trained in bypass representation than are appointed attorneys. Relying onJDP records limits generalizability because we cannot test whether JDP cases differ from all cases before 2016, but using JDP records allowed us to observe the percentage denied for years before 2016 and after 2016 with consistent methodology.

PUBLIC HEALTH IMPLICATIONS

The judicial bypass process is intended to insulate young people from anyone's veto of their abortion decision. We document that parental involvement requirements for abortion allow judges to veto adolescents' access to in-state abortion. Given that abortion risks increase later in pregnancy and inability to obtain a wanted abortion is associated with mental and physical health consequences,12 abortion denials that either delay or prevent access to abortion threaten public health. ÂfPU

Sidebar

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This article was accepted November 16, 2019.

doi: 10.2105/AJPH.2019.305491

CONTRIBUTORS

A.J. Stevenson conceptualized the study, assisted in verifying data accuracy, analyzed the aggregate data, and drafted the article. K. Coleman-Minahan contributed to study design, data interpretation, and the writing of the article. S. Hays was responsible for data acquisition and verifying data accuracy and contributed to study design and the writing of the article.

ACKNOWLEDGMENTS

An anonymous foundation and the Texas Policy Evaluation Project at the University of Texas at Austin funded the study. We acknowledge administrative support from The Eunice Kennedy Shriver National Institute of Child Health and Human Development University of Colorado Population Center (grant P2C HD066613) and University of Texas Population Research Center, (grant P2C HD042849).

We thank Emily Obront for collaboration on the broader project of which this is a part, and Jane's Due Process and Lina Palomares for administrative support.

Note. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

This is a component ofa larger study that was approved by the University ofTexas at Austin Institutional Review Board. This part was found to not be human participants research because the academic researchers accessed no protected data.

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DETAILS

Subject:	Statistics; Abortion; Public health; Pregnancy; Minors; Attorneys; Generalized linear models; Confidentiality; Statistical methods; Federal court decisions; State laws; Judges &magistrates; Annual reports; Vetoes; Systematic review
Business indexing term:	Subject: Annual reports; Industry: 54111 : Offices of Lawyers
Location:	Texas; United States--US
Classification:	54111: Offices of Lawyers
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	351-353
Publication year:	2020
Publication date:	Mar 2020
Section:	POLICY
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sci ences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305491
ProQuest document ID:	2371343113
Document URL:	https://www.proquest.com/scholarly-journals/denials-judicial-bypass-petitions-abortion-texas/docview/2371343113/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-10

The Future of the Environmental Health Profession

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ProQuest document link

ABSTRACT (ENGLISH)

Environmental health (EH) is a fundamental component of a comprehensive public health system, so the role of EH professionals is critical to the health and safety of the communities they serve. New and evolving challenges are stressing the EH profession. The rapid development of information technology renders many former practices obsolete, with few reliable funding sources available to stay up-to-date in a constantly changing landscape. A reduced and increasingly aging workforce may not have the necessary training and strategic skills to tackle these complex and evolving challenges.

To identify and address these ongoing deficiencies, the Centers for Disease Control and Prevention, the National Environmental Health Association, and Baylor University established the initiative Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health (UNCOVER EH).4 This initiative surveyed state, tribal, local, and territorial public health departments using a Web-based assessment and held two in-person workshops to gather data on the perceived priority problems and needs.

Gerding et al., in "Identifying Needs for Advancing the Profession and Workforce in Environmental Health" (p. 288) in this issue of AJPH, present feedback from focus groups conducted in August 2018. These focus groups examined the problems and needs affecting EH professionals and identified 29 problem statements. The problem statements were organized by preidentified themes for examination, including effective leadership, workforce development, equipment and technology, information systems and data, garnering support, and partnerships and collaboration.

The authors discuss the problem statements identified across these six themes in their article. I discuss some perspectives that illuminate how these problem areas are affecting the delivery of EH services at the state and local levels.

FULL TEXT

Environmental health (EH) is a fundamental component of a comprehensive public health system, so the role of EH professionals is critical to the health and safety of the communities they serve.1,2 New and evolving challenges are stressing the EH profession. The rapid development of information technology renders many former practices obsolete, with few reliable funding sources available to stay up-to-date in a constantly changing landscape. A reduced and increasingly aging workforce may not have the necessary training and strategic skills to tackle these complex and evolving challenges.3

To identify and address these ongoing deficiencies, the Centers for Disease Control and Prevention, the National

Environmental Health Association, and Baylor University established the initiative Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health (UNCOVER EH).4 This initiative surveyed state, tribal, local, and territorial public health departments using a Web-based assessment and held two in-person workshops to gather data on the perceived priority problems and needs.4

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EFFECTIVE LEADERSHIP

Gerding et al. state that leadership training opportunities are resource intensive and rare, with formal mentoring or coaching opportunities seldom implemented. Over time, federal funding for leadership academies has been reduced, ifit is available at all. With a tremendous number of baby boomers in leadership roles, the expectation is that most current leaders will retire at around the same time, leaving a vacuum in these positions and an insufficiently trained workforce to assume these roles. Often, leadership roles are filled with internally promoted candidates who meet only the minimum qualifications for the position based on factors other than professional acuity, such as seniority.

A CAPABLE, SUSTAINED WORKFORCE

Focus group respondents suggest that there is no common definition or identity for EH, and they find it difficult to adequately define their profession, given a lack of consistent and universal educational and credentialing requirements. Both the definition of national-level professional qualifications and the creation of data showcasing the impact environmental health practice has on the health of communities are needed to recruit prospective EH professionals and to retain current staff. The EH workforce has been drastically reduced, and entry-level salaries are often not substantial enough to attract the most qualified candidates. Credentialing requirements are not uniform across states; in states where credentialing is not required, EH professionals can lose touch with advancements in the field because of the lack of continuing education. Furthermore, the profession not having a definition may be contributing to diminished clarity and consistency in the academic preparation of these professionals.

EQUIPMENT AND TECHNOLOGY

Despite the complexity and sophistication of EH inspections and investigations, sufficiently advanced technologies are not uniformly available, and the resources necessary to replace aging or obsolete equipment are inconsistent among health departments. Some states still use pen and paperto complete inspection reports, and other equipment and technology is not prioritized thanks to consistent budget shortfalls. Even within a state, the availability of equipment may be uneven, as rural counties receive less funding from county-specific sources. Additional funding may be seen only after an outbreak or other event draws attention to the adverse EH impacts on the community.

INFORMATION AND DATA SYSTEMS

Although information and data management systems are normally available in health departments nationwide, EH professionals find decision-making and communication hampered by inconsistent and inaccessible data collection and analysis tools, which are not consistently adapted or understood. Health departments are not using a consistent means to collect data at the local level. States do not always have access to data that can be searched, compiled, or aggregated to identify priority EH issues within a community. Data provide the evidence that is needed to identify the issue clearly, drive funding to address the issue, and evaluate the effectiveness of EH interventions. Although it is largely understood that EH interventions provide considerable economic value, few data exist to be used in evaluations of the effectiveness of these interventions or their delivery.

SUPPORT FOR THE PROFESSION

Focus group attendees said that a lack of awareness and understanding of the importance of EH programs across key constituencies has led to diminished support and underrepresentation in health department accreditation processes. But, currently, there is a national push to bolster EH requirements in public health accreditation board health department accreditation criteria. In addition, there has been recent attention to public health preparedness and disaster response, with better integration in the Public Health Emergency Preparedness Cooperative Agreement and more emphasis on EH in the Pandemic and All-Hazards Preparedness and Advancing Innovation Act of 2019.

PARTNERSHIPS AND COLLABORATION

It is necessary to build multisector partnerships to address issues of growing complexity, reaching for health equity across broad populations. Cross-state and cross-jurisdictional partnerships between agencies are common. For instance, Emergency Management Assistance Compacts are necessary for sharing resources across state lines during times of crisis. However, although collaborations for disaster response are common, there are limited partnerships to support the day-to-day activities of EH professionals. Focus group respondents suggested that a broadening of these partnerships is needed to address emerging issues. Unfortunately, in most departments, travel budgets to establish these partnerships are often the first to be cut, with in-state travel rare and out-of-state travel often unheard of.

IMPLICATIONS

The limitations of the study presented by Gerding et al. are clear: the concerns of the relatively small sample of EH professionals in the focus groups may not accurately represent the broad concerns of the EH workforce. However, they are consistent with EH workforce problems identified in previous studies. Moreover, although these problems may change over time, the authors suggest that these data can be distilled to a common set of key issues.

First, there is a need to use available data and evidence to promote and demonstrate the worthwhile nature of the EH profession, which will aid in developing a robust future workforce, building necessary partnerships, and gaining sustainable support and resources to deliver vital programs. Second, EH professionals strongly push for uniformity in data collection so that their efforts can be used to effectively and efficiently inform intervention practices. Third, as the EH workforce ages, leadership training opportunities must be made consistently available and accessible to bolster and support a new generation of EH professionals. And fourth, professional qualifications must be standardized to better create a clear definition of the profession and its responsibilities.

UNCOVER EH reveals the major challenges facing the EH profession and the effect these challenges can have on the vital role EH professionals play in protecting the nation's health. Developing innovative solutions across the identified problem statements must be a priority to ensure the future efficacy of the EH profession. ÂJPU

Lisa C. McCormick, DrPH

CONFLICTS OF INTEREST

The author has no conflicts of interest to declare.

Sidebar

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This editorial was accepted November 18, 2019.

doi: 10.2105/AJPH.2019.305500

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DETAILS

Subject:	Collaboration; Leadership; Funding; Accreditation; Environmental health; Professionals; Emergency preparedness; Health care; Focus groups; Medical personnel; Public health; Data collection; Departments; Roles; Information technology; Aging; Evolution; Safety; Disease control; Information systems; Profession; Prevention; Equipment; Technology; Partnerships; Workshops; System effectiveness; Qualifications; Limited partnerships; Workforce; Baby boomers; Training
Business indexing term:	Subject: Qualifications Limited partnerships Leadership Workforce Professionals
Company / organization:	Name: Baylor University; NAICS: 611310; Name: Centers for Disease Control &Prevention--CDC; NAICS: 923120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	297-298
Publication year:	2020
Publication date:	Mar 2020
Section:	ENVIRONMENTAL HEALTH WORKFORCE &REGULATION
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305500

ProQuest document ID:	2371343042
Document URL:	https://www.proquest.com/scholarly-journals/future-environmental-health-profession/docview/2371343042/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-07-07
Database:	Public Health Database

Document 43 of 45

Cannabis Surveillance With Twitter Data: Emerging Topics and Social Bots

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ProQuest document link

ABSTRACT (ENGLISH)

Objectives. To use publicly accessible data from people who post to Twitter to rapidly capture and describe the public's recent experiences with cannabis. Methods. We obtained Twitter posts containing cannabis-related terms from May 1, 2018, to December 31, 2018. We used methods to distinguish between posts from social bots and nonbots. We used text classifiers to identify topics in posts (n = 60 861). Results. Prevalent topics of posts included using cannabis with mentions of cannabis initiation, processed cannabis products, and health and medical with posts suggesting that cannabis could help with cancer, sleep, pain, anxiety, depression, trauma, and posttraumatic stress disorder. Polysubstance use was a common topic with mentions of cocaine, heroin, ecstasy, LSD, meth, mushrooms, and Xanax along with cannabis. Social bots regularly made health claims about cannabis. Conclusions. Findings suggest that processed cannabis products, unsubstantiated health claims about cannabis products, and the co-use of cannabis with legal and illicit substances warrant considerations by public health researchers in the future. (Am J Public Health. 2020;110:357-362. doi:10.2105/AJPH.2019.305461)

FULL TEXT

Headnote

Objectives. To use publicly accessible data from people who post to Twitter to rapidly capture and describe the public's recent experiences with cannabis.

Methods. We obtained Twitter posts containing cannabis-related terms from May 1, 2018, to December 31, 2018. We used methods to distinguish between posts from social bots and nonbots. We used text classifiers to identify topics in posts (n = 60 861).

Results. Prevalent topics of posts included using cannabis with mentions of cannabis initiation, processed cannabis products, and health and medical with posts suggesting that cannabis could help with cancer, sleep, pain, anxiety, depression, trauma, and posttraumatic stress disorder. Polysubstance use was a common topic with mentions of

cocaine, heroin, ecstasy, LSD, meth, mushrooms, and Xanax along with cannabis. Social bots regularly made health claims about cannabis.

Conclusions. Findings suggest that processed cannabis products, unsubstantiated health claims about cannabis products, and the co-use of cannabis with legal and illicit substances warrant considerations by public health researchers in the future. (Am J Public Health. 2020;110:357-362. doi:10.2105/AJPH.2019.305461)

The legalization of cannabis through state-level medical cannabis and adult (21 years and older) recreational use laws has lowered prices and increased the availability of cannabis products in the United States.1 Currently, a total of 33 states and the District ofColombia have legalized medical cannabis, and 11 states and the District of Colombia have legalized cannabis for adult recreational use.2 The 2018 National Survey on Drug Use and Health found that past-month cannabis use was highest among adults aged 18 to 25 years (22.1%), compared with adolescents aged 12 to 17 years (6.7%) and adults aged 26 years and older (8.6%).3 Acute health outcomes associated with cannabis use include impaired short-term memory, impaired attention, impaired coordination, and sleep problems,3 and repeated cannabis use is associated with potential for cannabis dependence, increased risk of other drug and alcohol use disorders, and increased risk of schizophrenia among individuals with genetic vulnerability.3 There is also substantial evidence of a link between cannabis use and increased risk of motor vehicle crashes.4 Around 1 in 10 cannabis users will become dependent; however, for individuals who begin using cannabis as adolescents, 1 in 6 will become dependent.4 Several longitudinal studies have suggested that heavy cannabis use during adolescence may lead to lower cognitive functioning and IQ during adulthood.5,6

Publicly accessible data from people who post to social media platforms, such as Twitter, can be used to rapidly capture and describe the context of cannabis use.7,8 Twitter is used by 22% of US adults (24% of men, 21% of women, 21% of Whites, 24% of African Americans, and 25% of Hispanics) with 42% of users on the platform daily.9 Twitter is also used by 32% of adolescents (aged 13-17 years) in the United States.10 Previous analyses of cannabis-related posts to Twitter, drawn from brief time periods and relatively small amounts of data, have provided the initial information on what the public organically discusses, including the desire to use cannabis, mentions of perceived health benefits, legalization efforts, and frequency of use.11 Krauss et al. analyzed a sample of posts to Twitter from 1 month in 2014 and found that tweets commonly mentioned cannabis and alcohol co-use.12 However, cultural trends in the United States, the cannabis consumer marketplace, and state cannabis policies are rapidly changing. The context and experiences associated with cannabis use rapidly change as well, making it important to provide recent information on cannabis. The goal of this study was to identify and describe cannabis-related topics of conversation on Twitter to inform the public health community.

METHODS

We obtained Twitter (https://twitter. com) posts containing the following cannabis-related terms: "blunt," "bong," "budder," "cannabis," "cbd," "ganja," "hash," "hemp," "indica," "kush," "marihuana," "marijuana," "reefer," "sativa," "thc," and "weed," from May 1, 2018, to December 31, 2018. These terms were informed by previous research and topic matter experts.11 14 There was a total of n = 53 177 048 posts containing these terms during this time. Similar to previous research,15'16 we removed all retweets (n = 34 095 967) and sampled out a subset of the remaining tweets (n = 19 081 081) to conduct analyses. We accomplished this by grouping tweets by the week in which they were posted (this allowed us to maintain temporal characteristics of the tweets when sampling). We then sampled proportionally from each cannabis-related term by week.17 From this, we sampled out 102 701 tweets from 75 751 unique accounts.

Next, we filtered out non-English tweets and tweets that contained key terms but did not refer to cannabis-as in the case of Emily Blunt (actress), James Blunt (singer), and hash browns (food), among others. Then, we filtered out social bots, or automated Twitter accounts designed to produce content and engage with legitimate human accounts on Twitter.18 Social bots may bias the data limiting our ability to reliably describe the public's recent experience with cannabis.19 To distinguish between nonbots and social bots, we used Botometer.20 This program analyzes the characteristics of a Twitter account and gives it a score based on how likely the account is to be a social bot. This method of social bot detection is considered state of the art and has been employed in previous studies focused on social bots and public health.21-23 Through these procedures, we arrived at n = 60 861 tweets from 47 760 nonbotsandn = 8874 tweets from 2871 social bots. To protect privacy, no tweets were reported verbatim in this report.

To prepare tweets for data analysis we performed a number of transformations, including the following:

1. Basic normalization. This encompasses lowercasing all tweets and removing extra spaces, punctuation, and special characters such as brackets.
2. Stop word removal. Words such as "a" and "the" are heavily represented in the English language, adding to the syntax but rarely adding to the meaning of a sentence. As such, we removed these words.
3. Normalizing Twitter account mentions. On Twitter, @account_name is used to tag accounts and pages in a post. The name of each account tagged has little importance to our study, but we wanted to maintain information on the number of accounts tagged. Therefore, all @account_name occurrences in the tweets were replaced by @person-a common token for all accounts.
4. Lemmatization. Words such as "walked" and "walk" can be conflated in our analysis, so we broke down words into their basic form by removing inflections and variants.
5. Nonprintable character removal. Unicode characters in tweets are often used for emoticons or as symbols from other languages. Because we are interested in tweets in English, we can remove these symbols without much loss in the meaning of the sentence.
6. Removal of hashtags and URLs. Hashtags are useful for filtering out tweets that relate to a group (e.g., #weed) but are not necessary to analyze when dividing a group into further topics. As such, we discarded hashtags. URLs embedded in the tweet were usually links to images (which on Twitter are shown as embedded images) and external links to other Web sites. Because we cannot obtain much information about a Web site from its URL, we discarded it.

To find topics within our tweets, we generated one-grams and bigrams from each tweet. For example, the sentence "A quick brown fox jumps" contains the one-grams "a," "quick," "brown," "fox," and "jumps." It contains the bigrams "a quick," "quick brown," "brown fox," and "fox jumps." By generating frequency counts of the most common one-grams and bigrams, we obtained an initial idea for the common topics discussed. From this assessment, we arrived at consensus on 10 commonly occurring topics:

1. Person tagging (@person),
2. Using cannabis (mentions of smoking cannabis, passing a blunt),
3. Health and medical (mentions of the perceived benefits of use of cannabis to relieve health problems such as cancer, anxiety, and pain),
4. Legality (mentions of cannabis laws and legalizing cannabis),
5. Buy/sell (mentions of the purchase and delivery of cannabis),
6. Processed product usage (mentions of consuming edibles, wax, dab),
7. CBD and hemp use (mentions of using CBD oil, hemp oil, CBD-infused products),
8. Appeal or abuse liability (mentions of needing, wanting, or craving cannabis),
9. Polysubstance use (mentions of other substances including alcohol, painkillers, and psychedelics), and
10.Cannabis industry (mentions of cannabisrelated stocks, markets, and peripheral industries).

Although not prominent topics, but consistent with our previous research,15 we looked for words and phrases that suggested underage use (mentions of cannabis use at school) and impairment (mentions of cannabis use at the workplace or driving under the influence).

We classified each tweet to 1 or more topics based on the presence of at least 1 topic-related pattern. A pattern could be a one-gram, a bigram, or any group of words that must occur in the normalized tweets in a given order. We accomplished this by using a rule-based classification script written in Python with which we examined each tweet for the presence of a specified set of patterns representing a topic. Because there was topic overlap, we report the percentage of overlap between each topic by utilizing a confusion matrix as a visualization tool. Each cell in the matrix represents the intersection of 2 topics. The value of the cell represents the percentage ofthe total corpus that belongs to both topics. For example, a hypothetical post such as "Hey @person share your edibles" would be classified under "person tagging" and "processed product usage." The number of posts containing both would be found at the intersection of the matrix for these 2 topics.

RESULTS

The total coverage of the 12 topics constituted 58.14% of all tweets in the corpus from nonbots (Table 1). The remaining 41.86% of tweets were too varied to be classified into a single topic with meaningful coverage (i.e., coverage of each subsequent topic would be less than 1% of total tweets). The most prevalent topic in this corpus was person tagging at 33.60% followed by using cannabis at 11.89%. Among using cannabis, 2.61% of posts were indicative of cannabis initiation including phrases such as "first time." Health and medical was the next most prevalent topic at 5.61%. Among health and medical, cannabis was suggested to help with cancer, plantar fasciitis, Crohn's disease, sleep, pain, anxiety, depression, trauma, and posttraumatic stress disorder, among others. Legality was the next most prevalent topic at 5.50%, followed by buy/sell at 5.01%, processed product usage at 3.71%, CBD and hemp use at 2.73%, and appeal or abuse liability at 2.65%. Polysubstance use was a common topic at 2.47%. Among polysubstance use, beer, wine, vodka, tequila, cocaine, heroin, ecstasy, LSD, meth, mushrooms, and Xanax were mentioned along with cannabis. Cannabis industry comprised 1.33% ofposts. Impairment and underage use were uncommon topics at 0.47% and 0.35%, respectively.

The total coverage of the same 12 topics constituted 55.60% of all tweets in the corpus from social bots. Comparing the 2 corpuses, some topics have similar prevalence while other topics stand out with differences. For example, the largest difference in prevalence in topics between corpuses was found in person tagging (nonbots at 33.60% vs social bots at 11.09%), followed by using cannabis (nonbots at 11.89% vs social bots 3.88%) and health and medical (nonbots at 5.61% vs social bots at 10.13% Table 2).

DISCUSSION

This study is one of the largest Twitter studies to date focused on cannabis-related conversations, describing more than 60 000 unique posts from more than 40 000 unique accounts. We identified a number of important, novel topics of conversation ranging from cannabis initiation to health claims about cannabis' ability to relieve an array ofailments, including cancer, depression, and trauma. Posts discussed edibles, hemp, legalization, buying products, and cannabis' appeal or abuse liability, among other topics. We found that Twitter users often discussed polysubstance use, with beer, wine, vodka, tequila, cocaine, heroin, ecstasy, LSD, meth, mushrooms, and Xanax mentioned along with cannabis. This is also the first study to date, to our knowledge, to distinguish cannabis-related topics of conversations by social bots and nonbots on Twitter. When we compared posts from nonbots with posts from social bots, we found that some topics comprised similar proportions while other topics stood out with differences. For example, posts indicating that cannabis could allay health concerns represented a larger proportion of posts by social bots compared with nonbots. Unsubstantiated health claims perpetuated by social bots may have offline consequences, such as leaving Twitter users with the impression that cannabis use can allay health problems such as cancer.

In line with previous research,15,16 person tagging was a predominant theme in the current study of cannabis-related posts to Twitter. The act of person tagging is indicative of a distinct communicative practice in which Twitter users communicate their attitudes and experiences with cannabis. Posts classified under person tagging consistently used @Person to involve others in conversations about cannabis. These online messages may have an impact on cannabis use. For example, Cabrera-Nguyen et al. found that current cannabis use was significantly associated with higher levels of exposure to procannabis content on Twitter among young adults.24 Roditis et al. demonstrated that adolescents who reported seeing messages about the benefits of cannabis use on social media were more likely to report cannabis use than adolescents reporting not seeing such messages.25 In the context of this previous research, the current study's findings should be important to the public health community, as repeated exposure to procannabis messaging and cannabis use by others can influence the social norms of those exposed to the content and lead to imitation of the behaviors.26

Using cannabis, including initiation of use, was a prevalent topic in the current study. Cannabis-related posts to

Twitter can also be leveraged for intervention efforts to curb initiation.27 Interventions could be designed to engage with Twitter users posting about their first-time experience with cannabis. Such interventions could inform participants experimenting with cannabis about the health consequences of use in hopes to prevent dependence. Processed product usage and CBD and hemp use were also common topics in the current study, and similar to previous research. For example, analysis of edible-related posts to Twitter demonstrated that cannabis edibles were generally positively perceived among Twitter users despite some posts suggesting that edibles were unreliable (e.g., variability in effect intensity and duration).7 Cavazos-Rehg et al. analyzed a sample of edible-related posts to Twitter from 1 month in 2015 and found that most posts normalized or encouraged edibles use and described the intense or long-lasting effects following use.8

A content analysis of tweets about highpotency cannabis demonstrated that posts often mentioned the physiological and psychological effects from use, and that the most common physiological effects were passing out and respiratory effects, such as coughing.28 Despite positive perceptions of cannabis concentrates, the amount of tetrahydrocannabinol (THC), the cannabinoid responsible for intoxication found in some cannabis concentrates and extracts, can range from 50% to more than 80%,29 while highpotency cannabis plants have THC levels around 20% to 25%.4,30 While not lethal, overdoses are common when one is using cannabis concentrates and extracts,31 and high amounts of THC may produce acute psychotic symptoms (e.g., hallucinations, delusions, and anxiety) in some users.32 Interventions could be designed to monitor Twitter in hopes of identifying high-risk cannabis users. Messages could be designed to inform Twitter users about the risks of high-potency cannabis products in hopes of reducing overdoses and dependence.

Analyses of cannabis-related posts to Twitter from 1 month in 2014 identified a number of themes including a desire to use cannabis, mentions of health benefits, legalization efforts, and frequency of use.11 Appeal or abuse liability, health and medical, and legality were common topics in the current study suggesting continuity of cannabisrelated discussions on Twitter over the past few years. Since 2014, several additional states have voted to legalize medical cannabis2 and have also voted to legalize recreational adult use of cannabis.2 Among adults living in a state with legalized recreational cannabis, more than half (54.8%) reported seeing cannabis advertising during the past month, regardless of individual cannabis use.33 As states continue to legalize access to cannabis products, cannabis-related discussions about product appeal, health claims, and legalization may continue to be popular topics on Twitter. Local and state public health agencies can use Twitter to disseminate evidence-based information about cannabis use.

Krauss et al. analyzed a sample of posts to Twitter from 1 month in 2014 and found that tweets commonly mentioned polysubstance use (i.e., cannabis and alcohol).12 Our study corroborates the findings from this initial study, and extends them by demonstrating that Twitter users reported cannabis use along with other substances, including heroin, ecstasy, LSD, cocaine, and prescription drugs. There is moderate evidence that cannabis use is likely to increase the risk of developing a substance abuse disorder for other substances, including alcohol, tobacco, and other illicit drugs, with some studies indicating that the risk of developing substance use disorders is higher among younger cannabis users.4

In contrast to previous Twitter studies focused on substance (i.e., nicotine) use,15 the current study found few posts indicative of underage use of cannabis. Thompson et al. assessed cannabis-related content posted to Twitter by adolescents, finding that a majority of the tweets reflected a positive attitude toward cannabis, and 42.9% indicated personal use.34 Adolescents' posts also suggested that their parents were supportive of their cannabis use.34

In this study, we found that posts from social bots comprised smaller proportions of person tagging, but almost double the proportion of posts pertaining to health and medical compared with nonbots. Social bots have previously been found to spread unsubstantiated health claims on Twitter. For example, in 2017, Allem et al. found that social bots were more than 2 times as likely to make claims about the effectiveness of electronic cigarettes in smoking cessation compared with nonbots.23 In 2018, Martinez et al. found similar results, suggesting that the majority of the Twitter data they collected pertaining to electronic cigarettes originated from social bots and often touted the use of electronic cigarettes in cessation.22 Most recently, Broniatowski et al. reported that social bots were responsible for disseminating antivaccine messages in the United States.21 Taken all together, social bots, with their ability to infiltrate online discussions and rapidly spread unsubstantiated health claims on Twitter, may pose a public health concern. Future research should determine if exposure to such claims is associated with offline attitudes and behaviors.

According to a recent review of medical use of cannabis published in the Journal of American Medical Association, only a few cannabinoids have high-quality evidence to support their use and are approved for medical use by the US Food and Drug Administration.35 In brief, these include the use of cannabis to help with chemotherapy-induced nausea and vomiting, for appetite stimulation in conditions that cause weight loss (e.g., AIDS), and for the management of 2 forms of pediatric epilepsy.35 Given the amount of health claims identified in the current study, these findings may serve as an early warning to those who run or own social media platforms. Tech companies, like Twitter, have shown concern over unsubstantiated health claims appearing on their platforms. Cannabis may be an emerging area for unsubstantiated health claims on Twitter, requiring the company to regulate content internally or face external regulations from state or federal agencies.

Limitations

This study focused on posts to Twitter, and findings may not extend to other social media platforms. The posts in this study were collected from an 8-month period and may not extend to other time periods. Data collection relied on Twitter's Streaming Application Programming Interface, which prevented collection of posts from private accounts. Findings may not generalize to all Twitter users or to the US population. Not all tweets were covered by the established categories, and topics of conversation were not segmented by geographic location, preventing this study from determining the impact of different state cannabis policies on the public's experience with cannabis. In some instances, one-grams and bigrams used to define topics may have multiple meanings that were ignored in the current study. For example, the phrase "first time" in cannabis-related posts may not always indicate initiation but rather may describe an established cannabis user in a novel situation or context. Similarly, it is unclear that the word "school" always identified underage use, as college students or other educational professionals may be adult cannabis users.

Public Health Implications

Use of cannabis as well as initiation, health-related claims about cannabis products, and polysubstance use were common contexts associated with Twitter posts about cannabis. These results suggest that highpotency cannabis products, unsubstantiated health claims about cannabis products, and the co-use of cannabis with legal and illicit substances warrant considerations by public health researchers in the future. Twitter may be a platform to engage with those experimenting with cannabis as well as established cannabis users to inform them ofthe potential for cannabis dependence and additional health consequences of use. This study also highlights the ability of Twitter data to help researchers understand the public's recent experiences with cannabis. >4jPI-I

Sidebar

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This article was accepted October 16, 2019.

doi: 10.2105/AJPH.2019.305461

CONTRIBUTORS

J. Allem received funding for the study. All authors designed the concept of the study and analyzed the data. J. Allem and P. Escobedo drafted the first version of the article. L. Dharmapuri provided critical revisions of the article for important intellectual content. All authors approved the final version of the article.

ACKNOWLEDGMENTS

This project was partially supported by funds provided by The Regents of the University of California, Research Grants Program Office, Tobacco-Related Diseases Research Program, grant 28KT-0003.

Note. The opinions, findings, and conclusions herein are those of the authors and do not necessarily represent those of The Regents of the University of California or any of its programs.

CONFLICTS OF INTEREST

The authors report no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

All analyses relied on public, anonymized data; adhered to the terms and conditions, terms of use, and privacy policies ofTwitter; and were performed under institutional review board approval from the University of Southern California.

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DETAILS

Subject:	Research; Cannabis; Hemp; Public health; Drug abuse; Surveillance; Narcotics; Cancer; Trauma; Posttraumatic stress disorder; Post-traumatic stress disorder; Anxiety; Marijuana; Mushrooms; MDMA; Heroin; Mental health; Cocaine; Sleep; Medical marijuana; Alcohol; Pain; Adults; Teenagers; Social networks; Software agents
Business indexing term:	Subject: Social networks
Location:	United States--US
Publication title:	American Journal of Public Health; Washington

Volume:	110
Issue:	3
Pages:	357-362
Publication year:	2020
Publication date:	Mar 2020
Section:	OPEN-THEMED RESEARCH
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305461
ProQuest document ID:	2371342988
Document URL:	https://www.proquest.com/scholarly-journals/cannabis-surveillance-with-twitter-data-emerging/docview/2371342988/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-07
Database:	Public Health Database

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Historical and Contemporary Reproductive Injustices at the Border and Beyond

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FULL TEXT

The article by Messing et al. in this issue of AJPH (p. 339) highlights the importance of a reproductive justice framework for examining the policies and practices of the current administration in their treatment of detainees in the US immigration system. The authors thoroughly document and explain how current immigration detention policies violate the tenets of' reproductive justice, with a focus on the treatment of pregnant and parenting migrants in detention.

We extend their argument to (1) highlight how current detention policies connect with longstanding narratives and policies that dehumanize immigrants-particularly immigrants ofcolor, (2) discuss how the resulting reproductive injustices and impact on public health extend beyond the detainees, and (3) amplify the call to action of public health professionals.

Detained women are part of broader immigrant communities rather than solely individuals experiencing these injustices. Loretta Ross, a leader in developing the reproductive justice framework wrote:

The ability of any woman to determine her own reproductive destiny is directly linked to the conditions in her community and these conditions are not just a matter of individual choice and access. For example, a woman cannot make an individual decision about her body if she is part of a community whose human rights as a group are violated.1(p600)

Violations of reproductive justice for women in detention cannot be separated from violations that occur for immigrant women and women ofcolor elsewhere in the United States.

The specific policies described by Messing et al. are part of the system of policies and practices that treat immigrants ofcolor as "other" and strip them of human rights. Anthropologist Leo Chavez explains, "Once [dehumanization] is accomplished, it is easier to lack empathy for those objects and to pass policies and laws to govern their behavior. "2(p6) Dehumanization enables policymakers to view immigrants as less deserving of the same protections and rights as the dominant White society. As an example, Chavez argues that as part of'the process of constructing Latinos as undesirable and a growing threat to the United States, Latinas' fertility has historically been cast as "out of control" relative to non-Latina White women's fertility; these views serve as the foundation for anti-immigrant and anti-Latino discourse and policies.

These processes have historical roots and-similar to the Department of Health and Human Services role in detaining minors in the present day- public health institutions have played a role in racialization processes. Historian Natalia Molina documented how Mexican immigrants in the early 2oth century were viewed as racially inferior to White Americans.' Before the institution of an official border patrol agency in the United States, public health agencies processed incoming migrant laborers from Mexico and subjected them to dehumanizing treatment fe.gc, intrusive physical examinations, harmful baths) because they were unfairly viewed as carrying disease.3 This view and treatment of Mexicans was incorporated into the Bracero program-a contract labor program between 1942 and 1964 that brought millions of' Mexican men to fill short-term agricultural labor contracts- and remnants of this perspective are present today.

Importantly, US policy in the 20th century focused on importing labor from Mexico for taxing and arduous jobs such as building railroads or sustaining the growing agricultural system. There was little regard for the humanity of these (mostly male) laborers and their possible desires to have a family and raise them in a healthy environment. The implication being that immigrants are welcome to come build this country butnotto build a life and family in the society they are helping to create.

Historical sterilization policies and practices carried out by health institutions also reflect this desire to limit childbearing by immigrants and communities of color. For example, between 1919 and 1952, at the height of California's involuntary sterilization prognam, Latina women were sterilized at a rate that was 59",, higher than non-

Latina women for being feebleminded or insane.1 The laws that allowed nonconsensual sterilization in California were in place between 1909 and 1979 and resulted in the sterilization of more than 20 000 individuals.

The racist and dehumanizing logic of these unjust historical policies is still present today. Alongside current detention policies, many conservatives use the harmful rhetoric of "anchor babies" and Stephen Miller-the US president's top immigration policy advisor-has promoted fringe ideas of replacement theory (e.g., fear that White Americans will be replaced by growing immigrant populations).

Dehumanization of immigrants of color is central to the reproductive injustices experienced by detained women. Additionally, many undocumented immigrants living in the current US sociopolitical climate similarly do not fully have the right to have children, to not have children, and to parent children in a safe and healthy environment. Recent research shows that current immigration policies and practices negatively affect birthweight' and are associated with a preference to delay childbearing.6 Undocumented immigrants have limited access to health care to ensure a healthy pregnancy or prevent or terminate an undesired pregnancy. Finally, the climate of fear created by the current sociopolitical environment-one in which a parent can suddenly be detained through immigration raids and immigrant policing-is not a safe and healthy environment to raise a family.7

The impacts of these policies and practices are long term. Detained women and other immigrants experiencing these reproductive injustices will live with the trauma their entire lives. Moreover, there will likely be lifelong health consequences for children who were deprived ofpreand postnatal health care while their mother was detained, children who were raised in a detention center or a community targeted by immigration enforcement operations, or children who were separated from loved ones because of family separation policies or deportation.

CALL TO ACTION

Public health professionals must play a central role in working toward reproductive justice. First, public health professionals must recognize that immigration issues and public health are intertwined. Immigration policies (e.g., raids, detention) affect public health, and public health policies (e.g., immigration-related barriers to Medicaid) affect immigrant communities. Furthermore, the violations of reproductive justice highlighted by Messing et al. occurred under the purview of public health officials at the Department of Health and Human Services. Second, recognizing their role as change agents, public health professionals need to engage in reflexive praxis, a key characteristic of equity-centered social change movements that emphasizes collective dialogue, reflection, and action. For example, public health institutions need to create space for dialogues about policies, practices, and ideologies regarding immigrant rights, family unity, and reproductive autonomy. This dialogue might identify institutional and individual strategies to raise concerns when reproductive injustices emerge, rather than following orders that violate tenets of reproductive justice.

Extending beyond immigration detention, such dialogue might highlight subtle ways that public health institutions erode reproductive autonomy for immigrants and communities of color. Finally, this reflection should mobilize public health professionals to elect politicians and pass legislation that support reproductive justice. Public health professionals need to speak out to bring a public health lens to issues of immigration policies and reproductive justice. This activism should be in true partnership with immigrant rights and reproductive justice movement leaders. Together, we must heed the call of Messing et al. to not be a bystander to reproductive injustices. ÂjPU

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Sidebar

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doi: 10.2105/AJPH.2019.305517

CONTRIBUTORS
The authors contributed equally to this editorial.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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DETAILS

Subject:	Violations; Womens health; Public health; Family roles; Change agents; Immigrants; Childrens health; Praxis; Medical personnel; Trauma; Immigration policy; Families &family life; Correctional facilities; Children; Social change; Deportation; Policies; Immigration; Health care; Detention; Social interactions; Human rights; Border patrol; Manual workers; Noncitizens; Sociopolitical factors; Fertility; Hispanic Americans
Business indexing term:	Subject: Manual workers
Location:	Israel; Mexico; United States--US; California; Ann Arbor Michigan; Palo Alto California
Company / organization:	Name: University of Michigan; NAICS: 611310; Name: Department of Health &Human Services; NAICS: 923120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	273-274
Publication year:	2020
Publication date:	Mar 2020
Section:	EDITORIALS

Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Editorial
DOI:	https://doi.org/10.2105/AJPH.2019.305517
ProQuest document ID:	2371087796
Document URL:	https://www.proquest.com/scholarly-journals/historical-contemporary-reproductive-injustices/docview/2371087796/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-03-01
Database:	Public Health Database

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Endangering the Health of All: Destroying a Half Century of Health Leadership Along With America's Environment

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ProQuest document link

ABSTRACT (ENGLISH)

We are saddened to witness the recent erosion of US international leadership in environmental health. Yale University's environmental performance index rates countries across a range of environmental health programs. In

2018, the United States ranked 27th out of 180 countries (https: // bit.ly/36ip7F0). Controlling for the strong relationship between wealth and environmental programs, the United States now ranks last compared with its affluent peers in Western Europe, Asia/Pacific, and Canada. While the United States ranks high in those areas addressed from the 1970s-for example, air quality, water, and sanitation-it ranks poorly with regard to climate change and other new challenges.

FULL TEXT

We are saddened to witness the recent erosion of US international leadership in environmental health. Yale University's environmental performance index rates countries across a range of environmental health programs. In 2018, the United States ranked 27th out of 180 countries (https: // bit.ly/36ip7F0). Controlling for the strong relationship between wealth and environmental programs, the United States now ranks last compared with its affluent peers in Western Europe, Asia/Pacific, and Canada. While the United States ranks high in those areas addressed from the 1970s-for example, air quality, water, and sanitation-it ranks poorly with regard to climate change and other new challenges.

A 50-YEAR RECORD

The 1969 National Environmental Policy Act (NEPA), signed on January 1, 1970, signaled Americans that the nation was creating an environmental ethic. NEPA required an environmental impact statement for significant federal government projects and for projects that required federal licenses, permits, and funding. NEPA has served as a model for more than 100 countries and perhaps is the most emulated US law. Also during the 1970s and early 1980s, the US government passed other major laws that established the United States as the international champion of environmental health.

Both Democrats and Republicans pressed forward with an ambitious agenda in the face of visibly deteriorating environmental quality and landmark disasters such as the 1969 fire on the Cuyahoga River.1 3 Various federal laws established the Environmental Protection Agency (EPA) as the centerpiece of environmental protection, but there were other key players. The Department of Energy, Department of Defense, and Department of Transportation, as well as the Occupational Safety and Health Administration and other federal departments and agencies, developed environmental agendas and received budgets to respond to environmental health challenges.

Congress demanded a governance process grounded in research to support rules and regulations and embedded science into the enabling laws for the EPA and other agencies, such as the Clean Air Act (CAA). In some instances, it required robust external scientific advisory processes to ensure the quality of science underlying environmental regulations, as with the CAA and the Clean Air Scientific Advisory Committee (CASAC). EPA and other agencies built strong research programs to support their actions, and consequently each state did not need its own large science staff.

America's improvements to the environment in the past 50 years have afforded health for humans and other species and are admired globally. During the period from 1976 to 1980, the first systematic monitoring of blood lead levels found that 88% of US children aged one to five years had blood lead levels of 10 micrograms per deciliter or higher. By 2007 to 2010, that percentage was down to 0.8%. Generations of children have thereby received the gift of higher intelligence and less nerve damage. Lung function in children has improved, especially in the most air-polluted areas, because of airprotection laws. Rivers that were cesspools and toxic sinks have become swimmable, increasingly fishable, and usable for nearby walking and biking trails. Dozens of pesticides in many products and mixtures found to be seriously toxic across species have been phased out or have had usage amounts dramatically reduced. Virtually all of these improvements grew out of wellbalanced and rigorous scientific assessments, though often the ensuing environmental regulations were opposed by economic interests that marshalled powerful political allies. Over time, these actions have made air, water, and food safer and healthier.

We do not assert that the process of leadership by the national government on the environment was smooth over the last half century. Much of the environmental legislation has been challenged legally and politically as too expensive, as leading tounfunded mandates, and as taking power from states. Senior EPA staff found that budget allocations were not well matched to risk-related priorities.4,5 However, the federal government responded to new challenges, such as lead paint and leaded gasoline, asbestos, and environmental justice, and provided leadership in calling for the Intergovernmental Panel on Climate Change, the United Nations' climate change science research, to be separated from the United Nations' political processes. On balance, the governance process worked and moved forward a progressive national agenda that has had international implications.

THE ONGOING ROLL BACK

Recent actions affecting the pathways by which science is incorporated into EPA's regulations have reversed more than four decades of congressional and agency actions. Changing selection processes have led to a replacement on advisory committees of academic scientists with industry consultants.6 In a recent irrational twist, an academic scientist who receives funding from EPA through a competitive peer-reviewed process, therefore presumably among the most knowledgeable on the subject, is precluded from providing advice to EPA because of an alleged conflict of interest. Yet, the door has been opened for industry scientists to participate without concern for conflict ofinterest. Two congressionally mandated committees-the CASAC, which provides specific recommendations concerning the standards for major outdoor pollutants such as ozone and particulate matter, and the EPA Science Advisory Board (SAB), which is chartered to provide broad input on EPA scientific issues-have been egregiously affected. The usual internal processes for selecting CASAC members have been changed, and much of the key epidemiological evidence is being excluded. As mandated by Congress in the 1977 CAA Amendments, CASAC has seven members, one of whom must be from a state agency. However, for the first time, CASAC has three of its seven members from state agencies with all three reporting to Republican governors. In addition, the panel's pollutant-specific experts have long been brought in to supplement the charter members. The additional scientists brought on for the airborne particulate matter review were dismissed.

SAB's input has also been severely restricted. For example, it was not consulted on one of the most significant proposed actions ofthe current EPA leadership: requiring public release of the raw data from any study used as the basis for regulation, the so-called Transparency Rule, which we believe makes it more difficult to change air and water rules because epidemiological data are protected by confidentiality agreements and therefore can no longer be used. After receiving public input that stressed the Health Insurance Portability and Accountability Act (HIPAA) issues, the SAB was asked for advice to fix the HIPAA issue, in essence treating SAB as technicians to fix a faulty monitoring instrument rather than to give advice on the scientific implications. Particularly worrisome was that the SAB members were told at the last minute to send in individual comments rather than develop a consensus report that would be more representative of the opinion of the scientific community.

IMPORTANT STEPS

It has taken a short time to weaken and in some cases tear down the international leadership position the United States has long held. Environmental and ecosystem health are at risk; continued attention is needed to the "legacy" issues, and we are ill-equipped to deal with the new challenges related to climate change, emerging infectious diseases, food security, and cascading and cumulative environmental health risks. The US public health community needs to deeply engage with the political process as individuals and to act as a strong professional voice in a vigorous effort to re-establish itself as a force guiding actions to curb environmental threats. It needs to engage the public broadly, particularly youths who face the future risks ofthese threats. We need to collectively work with progressive states and local governments to promote the programs that the federal government has backed away from and work with far-sighted businesses and nongovernment organizations to push for stronger, not weaker, environmental management. We also need to continue to be central players at the international level by writing, joining committees, and engaging with international colleagues and audiences on building science.7 Tragically, without action, environmental quality could go backward, and we need to slow the acceleration of climateimpacted outcomes and reverse the painful pace of environmental degradation. With future administrations, there may be support for restoring what this administration has damaged. We need to be ready for that opportunity. ÂfPU

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The first author originated the idea, and he contacted the other authors. Each author contributed substantively to multiple drafts of the article.

ACKNOWLEDGMENTS

We would like to thank Alfredo Morabia and Stuart Shapiro for their constructive suggestions.

CONFLICTS OF INTEREST

The authors declare no conflicts ofinterest.

Sidebar

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This editorial was accepted December 16, 2019.
doi: 10.2105/AJPH.2019.305533

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DETAILS

Subject:	Asbestos; Science; Technicians; Leadership; Politics; Gasoline; Infectious diseases; Intergovernmental Panel on Climate Change; Air pollution; Climate change; Food security; Health care industry; Environmental justice; Budgets; Occupational safety; Lead content; Environmental protection; Health insurance; Health risks; Scientists; Transportation; Environmental equity; Federal government; Environmental regulations; Environmental changes; Environmental health; Outdoor air quality; Energy policy; Environmental policy; Environmental quality; Federal agencies; Allocations; Health Insurance Portability &Accountability Act 1996-US; Public health
Business indexing term:	Subject: Health Insurance Portability &Accountability Act 1996-US Health insurance
Location:	United States--US; New York

Company / organization:	Name: Environmental Protection Agency--EPA; NAICS: 924110; Name: United Nations--UN; NAICS: 928120; Name: Congress; NAICS: 921120
Publication title:	American Journal of Public Health; Washington
Volume:	110
Issue:	3
Pages:	284-285
Publication year:	2020
Publication date:	Mar 2020
Section:	ENVIRONMENTAL HEALTH WORKFORCE &REGULATION
Publisher:	American Public Health Association
Place of publication:	Washington
Country of publication:	United States, Washington
Publication subject:	Public Health And Safety, Medical Sciences
ISSN:	00900036
Source type:	Scholarly Journal
Language of publication:	English
Document type:	Journal Article
DOI:	https://doi.org/10.2105/AJPH.2019.305533
ProQuest document ID:	2371087509
Document URL:	https://www.proquest.com/scholarly-journals/endangering-health-all-de stroying-half-century/docview/2371087509/se-2?accountid=211160
Copyright:	Copyright American Public Health Association Mar 2020
Last updated:	2023-08-31
Database:	Public Health Database

Bibliography

Citation style: APA 6th - Annotated with Abstracts - American Psychological Association, 6th Edition

Socal, Mariana P, MD, PhD,M.S., M.P.P., & Anderson, G. F., PhD. (2020). Older americans' preferences between lower drug prices and prescription drug plan choice, 2019. American Journal of Public Health, 110(3), 354-356. doi:https://doi.org/10.2105/AJPH.2019.305483

Objectives. To assess older Americans' willingness to trade offthe possibility of choosing or changing their prescription drug plan for lower drug spending. Methods. We used data from the Kaiser Family Foundation Health Tracking Poll on prescription drugs carried out in February 2019. This nationwide telephone survey oversampled participants aged 65 years and older who, when weighted, were representative of the US older adult population. Results. Older adults were strongly in favor of the government negotiating drug prices in Medicare Part D (82% support); 60% of older adults would trade offthe possibility of choosing or switching their drug plan in favor of lower drug prices. All groups preferred lower spending over plan choice, but this preference was stronger among individuals who were in poorer health, had lower education and income, and found it very difficult to afford the drugs they needed. Conclusions. The results suggest that Medicare beneficiaries could support policies that limit plan choice, as long as drug prices actually decrease. (Am J Public Health. 2020; 110:354-356. doi:10.2105/AJPH.2019.305483)

McLeod, K. E., M.P.H., Butler, A., M.A., Young, Jesse T,PhD., M.P.H., Southalan, Louise, LLB,M.Int Comm Dev, M.Sc, Borschmann, Rohan, PhD,D.ClinPsych, P.G.-Dip, Sturup-Toft, S., . . . Kinner, S. A., PhD. (2020). Global prison health care governance and health equity: A critical lack of evidence. American Journal of Public Health, 110(3), 303-308. doi:https://doi.org/10.2105/AJPH.2019.305465

The large and growing population of people who experience incarceration makes prison health an essential component of public health and a critical setting for reducing health inequities. People who experience incarceration have a high burden of physical and mental health care needs and have poor health outcomes. Addressing these health disparities requires effective governance and accountability for prison health care services, including delivery of quality care in custody and effective integration with community health services. Despite the importance of prison health care governance, little is known about how prison health services are structured and funded or the methods and processes by which they are held accountable. A number of national and subnational jurisdictions have moved prison health care services under their ministry of health, in alignment with recommendations by the World Health Organization and the United Nations Office on Drugs and Crime. However, there is a critical lack of evidence on current governance models and an urgent need for evaluation and research, particularly in low- and middle-income countries. Here we discuss why understanding and implementing effective prison health governance models is a critical component of addressing health inequities at the global level. (Am J Public Health. 2020;110:303-308. doi:10.2105/ AJPH.2019.305465)

Szreter, S. (2020). The capacity to surprise: On the importance of history for public health policy. American Journal of Public Health, 110(3), 337-338. doi:https://doi.org/10.2105/AJPH.2019.305507

History rarely repeats itself in any exact sense, but the research of professional historians can offer much to contemporary public health and other policy practitioners.1 History provides a rather longer time frame and a wider context for understanding the causes of a current problem, and these can both be crucial to its satisfactory resolution. History is alive to the importance of context, the precise sequence of events, and differences of perceptions and power that generate conflicts and misunderstandings. Historians locate the present within a dynamic flow of structures, relationships, and attitudes that have a momentum that needs to be researched and acknowledged.2 Well-intended, methodologically rigorous, and supposedly theoretically sound public health or development policy interventions applied in ignorance of these historicist factors are often doomed to fail or generate unfortunate unintended consequences when implemented.Furthermore, although they may fail to consult relevant studies by professional historians, all policy interventions do make implicit background assumptions about historical change. Typically, the assumption is made either that history is irrelevant (because history is somehow stuck in the past) or that history is a familiar, easily knowable linear trajectory, termed the demographic, the health, the epidemiological, or the epidemiologic transition. Studying professional history can emancipate policy practitioners from these misleadingly simplistic assumptions.Historical research has the capacity to spring very significant surprises. It can transform the imaginative resources available to policymakers, forcing both a reconsideration of the validity of current approaches and a reassessment of the feasibility of radical alternatives.The Institute for Public Policy Research prize-winning essay that Hilary Cooper, Ben Szreter, and I wrote exemplifies this. The commonplace assumption today that universal welfare systems are a product only of the mid-twentieth century, established after "modernization," when Western liberal democracies became rich enough to support this "luxury," is entirely wrong. The causation goes in the other direction. In England, the epicenter of modern economic growth circa 1780 to 1850, the population had, uniquely, already enjoyed universal social security and health care for two centuries. These policies endowed its "modern" economic growth with voluntary labor mobility, hence more prosperity than any other country.

Riverboats and aedes aegypti expansion. (2020). American Journal of Public Health, 110(3), 262. Retrieved from https://www.proquest.com/scholarly-journals/riverboats-aedes-aegypti-expansion/docview/2371373806/se-2?accountid=211160

Gugushvili, A. (2020). A population health perspective on the trump administration, brexit, and right-wing populism in europe. American Journal of Public Health, 110(3), 274-276. doi:https://doi.org/10.2105/AJPH.2019.305535

Recent electoral outcomes in many Western welfare democracies show a rise in voting for populist political options. Arguably, the two most impactful cases of this kind are the election of Donald Trump in the United States and the results of the referendum conducted in 2016 in the United Kingdom to leave the European Union, popularly known as "Brexit." Public health scholars and health professionals are already identifying ongoing and projected consequences of these electoral outcomes in terms of the effects on health care services and on the broader social determinants of health. After a steady decline in the level of the uninsured population in the United States, the recent data suggest that the number of uninsured people might be rising again, while in the United Kingdom, even the most positive Brexit scenarios are projected to lead to an overall negative effect on the National Health Service.That there are consequences of electoral outcomes for health via policy changes is not surprising. Perhaps a more fundamental question is that of whether a population's health has played a role in the electoral shifts described. Economic insecurity, cultural backlash, and identity politics have been proposed as the most important explanations, but a number of recent studies have also shown an association between the worsening health of population across counties in the United States and the voting outcomes in the most recent presidential election. Yet, until now, there has been virtually no analogous research on population health as a contributor to the Brexit referendum outcome or to the rise of radical right parties across European societies.In a new study, Koltai et al. (p. 401) tested a hypothesis that the increase in the number of "deaths of despair," including deaths attributable to drug use, alcohol, or suicide, was associated with the higher share of votes for the leave campaign during the Brexit referendum. A greater number of "deaths of despair" is assumed to be a good indicator of worsening social and economic conditions. The analysis conducted of data for 345 local authorities in England and Wales indeed suggests that the increase in "deaths of despair" from 2005-2007 to 2014-2016 was significantly associated with the higher share of votes for Brexit. The findings of Koltai et al., complementing evidence from the United States, suggest that population health and the electoral shifts toward populism are directly linked or at least share common explanatory factors.

Koltai, J., PhD., Varchetta, F. M., M.Sc, McKee, Martin,M.D., D.Sc, & Stuckler, D., PhD. (2020). Deaths of despair and brexit votes: Cross-local authority statistical analysis in england and wales. American Journal of Public Health, 110(3), 401-406. doi:https://doi.org/10.2105/AJPH.2019.305488

Objectives. To test the hypothesis that deaths of despair, a marker of social suffering, were associated with greatersupport for Brexit in the United Kingdom's 2016 European Union referendum. Methods. We used cross-local authority regression models of Brexit vote shares on changes in suicide and drug-related death rates before (2005-2007) and after the recession (2014-2016), adjusting for sociodemographic factors.The population comprised 345 local authorities in England and Wales. Results. Mortality rates were associated with voting patterns. An increase of 10 drug-related deaths per 100 000 was associated with a 15.25-percentage-point increase in Brexit votes (95%

confidence interval CI] = 10.27,20.24), while an increase of 10 suicides per 100 000 was associated with a 9.97-percentage-point increase in vote shares for Brexit (95% CI = 6.25, 13.70). These results were substantially attenuated after we adjusted for education, and reduced to nonsignificance for drug mortality (b = 2.18; 95% CI = -0.21,4.57) and suicide (b = 0.94;95% CI= -0.32, 2.21) upon inclusion of other sociodemographic factors. Conclusions. Worsening mortality correlated with Brexit votes. These phenomena appear to share similar antecedents. A rise in such deaths may point to deeper social problems that could have political consequences. (Am J Public Health. 2020;110:401-406. doi:10.2105/AJPH.2019.305488)

Dockery, D. W., & Pope,Arden, I.,II. (2020). The threat to air pollution health studies behind the environmental protection agency's cloak of science transparency. American Journal of Public Health, 110(3), 286-287. doi:https://doi.org/10.2105/AJPH.2019.305531

This year marks the 50th anniversary of the first Earth Day (April 22), the Clean Air Act of 1970, and the creation of the Environmental Protection Agency (EPA). Over those five decades, we have seen remarkable improvements in air quality across the United States and significant improvements in public health. Indeed the Office of Management and Budget reports that regulation of fine particle (PM2.5) air pollution is the most cost effective of all federal regulations.1 This success in controlling air pollution should be celebrated as a public health triumph. Thus, the EPA's proposal to restrict the use of key scientific evidence regarding the health effects of air pollution under the guise of "scientific transparency" is disturbing.2The EPA's "Strengthening Transparency in Regulatory Science" rule is the ratification of efforts by special interests over more than two decades to undermine the science underpinning air pollution regulations. Twenty-five years ago, we published with our colleagues results of two prospective cohort studies, the Harvard Six Cities Study3 and the American Cancer Society Study,4 reporting that mortality risk increased linearly with long-term exposure to PM2.5 air pollution. Observed PM2.5-mortality associations were remarkably robust, especially for cardiopulmonary mortality. Furthermore, associations were much larger than expected based on previous short-term associations observed in daily time series studies.

Gonzalez, S. M., & Fullilove, R. E. (2020). Building up housing to break down health disparities. American Journal of Public Health, 110(3), 301-302. doi:https://doi.org/10.2105/AJPH.2019.305521

When the foreclosure crisis struck the United States in 2007 to 2008, millions ofhomeowners lost their homes, greatly limiting economic opportunity and wealth-building potential.1 Subsequently, a new calamity arose: the affordable housing crisis. As the availability of affordable apartments declined by more than 50%, the search for affordable housing led many middle- and upper-income individuals to migrate to lowincome communities where rents were more reasonable. This trend, gentrification, placed low-income communities at further risk for residential displacement.2 With stagnant wages and diminished housing affordability, many could no longer meet costly rent requirements and were faced with a sobering and precarious reality- homelessness.

Siegler, A. J. (2020). Preexposure prophylaxis indication criteria underidentify black and latinx persons and require revision. American Journal of Public Health, 110(3), 267-268. doi:https://doi.org/10.2105/AJPH.2019.305514

HIV preexposure prophylaxis (PrEP) provides more than 99% protection against HIV transmission when taken as indicated. Side effects of PrEP are low, but costs of the medication and related clinical care are high. Efforts to end the HIV epidemic hinge on PrEP, with both mathematical models and real-world data suggesting that bringing PrEP to scale among groups with high HIV incidence will substantially affect the HIV epidemic.1 The US Centers for Disease Control and Prevention (CDC) provides guidance for PrEP indication to assist clinicians in determining who should be provided PrEP.

Hirsch PhD, J.,A., Zhao, Y., M.S., Bilal, Usama, MD,PhD., M.P.H., Neckerman, K. M., PhD., & Michael, Yvonne L,ScD., S.M. (2020). Health and health-related resources in newly designated federally qualified opportunity zones: United states, 2012-2016. American Journal of Public Health, 110(3), 407-415. doi:https://doi.org/10.2105/AJPH.2019.305489

Objectives. To characterize health and health-related resources in the new qualified opportunity zones (QOZs) relative to tracts not selected or not eligible for this federal investment incentive. Methods. We used tract-level data from the 498 largest cities in the contiguous United States (n = 24 409), categorized using designations from the Department of Treasury. We compiled data on population characteristics, health-related resources, and health from the American Community Survey, the National Establishment Time Series, the National Land Cover Dataset, and the US Small-Area Life Expectancy Estimates Project and the 500 Cities projects. We calculated means and SDs for ineligible, eligible (but not designated), and designated QOZ tracts. Results. In general, designated QOZ tracts had lower access to health care facilities, physical activity resources, and healthy food. They had a higher prevalence of unhealthy behaviors and worse health outcomes across most measures. Conclusions. By benchmarking conditions, we facilitate tracking and assessment of QOZ impacts.Public Health Implications. QOZ could spur unprecedented neighborhood change with substantial influence on health resources and outcomes. Public health collaboration and strategic local governance of QOZ will be crucial for yielding health benefits for existing residents. (Am J Public Health. 2020;110:407-415. doi:10.2105/AJPH.2019.305489)

Pomeranz, J. L. (2020). Anticipating and defeating preemption across public health. American Journal of Public Health, 110(3), 268-270. doi:https://doi.org/10.2105/AJPH.2019.305528

Preemption occurs when a higher level of government withdraws or limits the authority of a lower level of government to enact policy. State legislatures have enacted preemptive legislation to limit local government's ability to enact public health protections across policy domains.1 Preemption is thus a barrier to public health policymaking and undermines community self-determination and local democracy.The only context in which public health stakeholders have regularly defeated and repealed preemptive legislation is tobacco control. Yet, the threat of preemption in tobacco control -as in all of public health-is far from over. To support public health practitioners in anticipating preemption across policy domains, Crosbie and Schmidt (p. 345) explored tobacco industry tactics that further state preemption and identified successful responses by the tobacco control community. Examining methods for public health stakeholders to counter preemption is critical to the field. I provide an example of the nuanced nature of tobacco industry tactics identified by Crosbie and Schmidt, integrate their framework for responding to preemption with previous research, and encourage the public health community to adopt additional strategies to counter and repeal preemption.

Wendel, Monica L,Drph, M.A. (2020). Equity for whom? the example of qualified opportunity zones. American Journal of Public Health, 110(3), 280-281. doi:https://doi.org/10.2105/AJPH.2019.305532

Madigan, Dana,D.C., M.P.H., Forst, Linda,M.D., M.P.H., & Friedman, L. S., PhD. (2020). Comparison of state hospital visits with housing and urban development estimates of homeless: Illinois, 2011-2018. American Journal of Public Health, 110(3), 391-393. doi:https://doi.org/10.2105/AJPH.2019.305492)

Objectives. To assess the value of hospital records in augmenting information on homelessness counts at a state level. Methods. We used data from the Illinois Hospital Discharge Database (2011-2018) to identify outpatients and inpatients identified as affected by homelessness. We used probabilistic linkage methodology to estimate unique individuals rather than visits and compared them with US Department of Housing and Urban Development annual estimates of homelessness based on point-in-time counts. Results. Department of Housing and Urban Development point-in-time estimates indicate a substantial decline of approximately 24% in homelessness in Illinois;however, estimates of unique individuals visiting the hospital with a code for homelessness more than doubled in this same period. Conclusions. Other data sources, such as hospital records, are increasingly able to identify and report information related to homelessness. Using these additional data sources may help to augment the Department of Housing and Urban Development point-in-time estimates to provide more accurate estimates of homelessness that are used to direct resources and assess policy and support services for those affected by homelessness. (Am J Public Health. 2020;110:391-393. doi:10.2105/AJPH.2019.305492)

Dasgupta, Nabarun,M.P.H., PhD. (2020). The case for product-specific surveillance. American Journal of Public Health, 110(3), 261. doi:https://doi.org/10.2105/AJPH.2019.305542

Barna, M. (2020). New code serves as ethical guidance for public health. American Journal of Public Health, 110(3), 263. doi:https://doi.org/10.2105/AJPH.2019.305534

Crosbie, E., PhD., & Schmidt, Laura A, PhD,M.S.W., M.P.H. (2020). Preemption in tobacco control: A framework for other areas of public health. American Journal of Public Health, 110(3), 345-350. doi:https://doi.org/10.2105/AJPH.2019.305473

Preemption-when a higher level of government limits the authority of a lower level to enact new policies- has been devastating to tobacco control. We developed a preemption framework based on this experience for anticipating and responding to the possibility of preemption in other public health areas. We analyzed peer-reviewed literature, reports, and government documents pertaining to tobacco control preemption. We triangulated data and thematically analyzed them. Since the 1980s, tobacco companies have attempted to secure state preemption through front groups, lobbying key policymakers, inserting preemption into other legislation, and issuing legal threats and challenges. The tobacco control community responded by creating awareness of preemption through media advocacy, educating policymakers, mobilizing national collaborations, and expanding networks with the legal community. Ten of the 25 state smoke-free preemption laws have been fully repealed. Repeal, however, took an average of 11 years. State preemption has been detrimental to tobacco control by dividing the health community, weakening local authority, chilling public education and debate, and slowing local policy diffusion. Health scholars, advocates, and policymakers should use the framework to anticipate and prevent industry use of preemption in other public health areas. (AmJPublicHealth. 2020;110: 345-350. doi:10.2105/AJPH.2019. 305473)

Jimba, M., Ong, K. I. C., & Sieber, N. L. (2020). Beyond a good head and a good heart for prison health. American Journal of Public Health, 110(3), 282-283. doi:https://doi.org/10.2105/AJPH.2019.305530

Cranston, K. (2020). Molecular HIV surveillance: Balancing outbreak detection and control and the rights of persons living with HIV. American Journal of Public Health, 110(3), 276-278. doi:https://doi.org/10.2105/AJPH.2019.305540

The sharp reduction in new diagnoses of HIV among people who inject drugs (PWID) since the height of the HIV/AIDS epidemic is one of the great achievements of national and international HIV prevention efforts. But these gains are threatened by the current opioid use epidemic affecting a new generation of opioid users as well as by the growth of injected methamphetamine and cocaine use. Following evidence oflarge outbreaks of HIV infection among PWID in Indiana and Massachusetts,1,2 Samoff et al. (p. 394) describe the detection of and response to an emergent cluster of HIV infection among PWID in western North Carolina and the successful deployment of molecular HIV surveillance, disease intervention specialist outreach, and new syringe services programming to contain this outbreak.The national Ending the HIV Epidemic (EHE) initiative's fourth pillar, Respond, frames the use of modern epidemiological methods to detect outbreaks in their early stages and to prompt rapid and focused delivery of care and prevention services. Samoff et al. present an excellent example of how a jurisdiction's epidemiological systems and processes and expanded field response and preventive services worked together to address an emergent outbreak of HIV in a vulnerable community.

Majowicz, S. E. (2020). Using market availability data to support foodborne disease outbreak investigations. American Journal of Public Health, 110(3), 278-280. doi:https://doi.org/10.2105/AJPH.2019.305536

Leafy greens, including romaine lettuce, are frequently the cause of foodborne disease outbreaks. Indeed, as the current outbreaks of Escherichia coli O157: H7 in the United States and Canada attributable to romaine lettuce highlight,1 3 mitigating the infectious disease risks associated with these foods continues to challenge growers, producers, and public health. In this issue of AJPH, Astill et al. (p. 322) present a new approach to assessing potential sources of romaine lettuce during outbreak investigations, a tool we can consider for our public health practice toolbox.In their analysis, Astill et al. examined data on daily US romaine lettuce shipments via rail, truck, and air at international and national ports, by growing region, as a measure of the availability of product for consumption. By linking these data to timelines for US Food and Drug Administration (FDA) investigations of three outbreaks from E coli O157:H7 in romaine lettuce that occurred in 2017 to 2018 (Figures 3 and 4, pp. 325-326), they conclude that market data can help to rule out an entire production region because romaine was not being shipped from that region when the first outbreak case had their onset of illness. In addition, they illustrate that the three outbreaks occurred at the tail end of the relevant region's growing season, at a time when romaine lettuce production shifted to the other major US growing region (i.e., from California's Central Coast to Yuma, AZ, orvice versa). Finally, Astill et al. discuss the implications of their findings for minimizing the financial losses of romaine lettuce producers and note that labeling with region of origin seems unlikely to substantially avoid illness.

Koh, Howard K,M.D., M.P.H., Bantham, Amy,M.S., M.P.P., Geller, Alan C,R.N., M.P.H., Rukavina, M. A., M.B.A., Emmons, K. M., PhD., Yatsko, P., M.A., & Restuccia, R., M.P.A. (2020). Anchor institutions: Best practices to address social needs and social determinants of health. American Journal of Public Health, 110(3), 309-316. doi:https://doi.org/10.2105/AJPH.2019.305472

"Anchor Institutions"-universities, hospitals, and other large, place-based organizations- invest in their communities as a way of doing business. Anchor "meds" (anchor institutions dedicated to health) that address social needs and social determinants of health have generated considerable community-based activity over the past several decades. Yet to date, virtually no research has analyzed their current status or effect on community health. To assess the current state and potential best practices of anchor meds, we conducted a search of the literature, a review of Web sites and related public documents of all declared anchor meds in the country, and interviews with 14 keyinformants. We identified potential best practices in adopting, operationalizing, and implementing an anchor mission and using specific social determinants of health strategies, noting early outcomes and lessons learned. Future dedicated research can bring heightened attention to this emerging force for community health. (Am J Public Health. 2020;110: 309-316. doi:10.2105/AJPH. 2019.305472)

30 years Ago/41 years ago. (2020). American Journal of Public Health, 110(3), 261. Retrieved from https://www.proquest.com/scholarly-journals/30-years-ago-41/docview/2371367230/se-2?accountid=211160

Albertson, Elaine Michelle,M.P.H., M.S., Scannell, Christopher,M.D., PhD., Ashtari, N., B.A., & Barnert, Elizabeth, MD,M.P.H., M.S. (2020). Eliminating gaps in medicaid coverage during reentry after incarceration. American Journal of Public Health, 110(3), 317-321. doi:https://doi.org/10.2105/AJPH.2019.305400

This commentary explores the health and social challenges associated with gaps in Medicaid health insurance coverage for adults and youths exiting the US criminal justice system, and highlights some potential solutions. Because a high proportion of recently incarcerated people come from low-income backgrounds and experience a high burden of disease, the Medicaid program plays an important role in ensuring access to care for this population. However, the Medicaid Inmate Exclusion Policy, or "inmate exclusion," leads to Medicaid being terminated or suspended upon incarceration, often resulting in gaps in Medicaid coverage at release. These coverage gaps interact with individual-level and population-level factors to influence key health and social outcomes associated with recidivism. Ensuring Medicaid coverage upon release is an important, feasible component of structural change to alleviate health inequities and reduce recidivism. High-yield opportunities to ensure continuous coverage exist at the time of Medicaid suspension or termination and during incarceration prior to release. (Am J Public Health. 2020;110:317-321. doi:10.2105/ AJPH.2019.305400)

Gerding, Justin A,D.H.A., M.P.H., Brooks, Bryan W,PhD., M.S., Landeen, E., B.A., Whitehead, Sandra,PhD., M.P.A., Kelly, K. R., B.S., Allen, A., B.S., . . . Sarisky, J., M.P.H. (2020). Identifying needs for advancing the profession and workforce in environmental health. American Journal of Public Health, 110(3), 288-294. doi:https://doi.org/10.2105/AJPH.2019.305441

An ever-changing landscape for environmental health (EH) requires in-depth assessment and analysis of the current challenges and emerging issues faced by EH professionals. The Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health initiative addressed this need. After receiving responses from more than 1700 practitioners, during an in-person workshop, focus groups identified and described priority problems and supplied context on addressing the significant challenges facing EH professionals with state health agencies and local health departments. The focus groups developed specific problem statements detailing the EH profession and workforce's prevailing challenges and needs according to 6 themes, including effective leadership, workforce development, equipment and technology, information systems and data, garnering support, and partnerships and collaboration. We describe the identified priority problems and needs and provide recommendations for ensuring a strong and robust EH profession and workforce ready to address tomorrow's challenges. (Am J Public Health. 2020;110:288-294. doi:10.2105/ AJPH.2019.305441)

Cook, A. C., PhD., Leung, G., M.A., & Smith, R. A., PhD. (2020). Marijuana decriminalization, medical marijuana laws, and fatal traffic crashes in US cities, 2010-2017. American Journal of Public Health, 110(3), 363-369. doi:https://doi.org/10.2105/AJPH.2019.305484

Objectives. To examine gaps in identification of preexposure prophylaxis (PrEP) candidates, uptake, and use of PrEP by populations most likely to seroconvert. Methods. At a federally qualified health center in Chicago, Illinois, we used electronic medical records, prescription data, and our best approximation of Centers for Disease Control and Prevention PrEP guidelines to determine how many patients were indicated for PrEP relative to HIV diagnoses (indication:HIV), how many were on PrEP relative to indications (PrEP:indication), and how many were on PrEP relative to HIV diagnoses (PrEP:HIV). We compared these ratios across age, gender and orientation, race/ethnicity, and insurance. Results. Overall, there were 32 indications per incident diagnosis and 16 patients on PrEP per incident diagnosis. In adjusted models, Whites had higher indication:HIV and PrEP:HIV ratios compared with Blacks, men who have sex with men had higher indication: HIV and PrEP:HIV ratios compared with transwomen but lower PrEP:indication ratios, and uninsured patients had higher indication:HIV but lower PrEP:indication and PrEP:HIV ratios compared with those with insurance. Conclusions. PrEP use, relative to HIV diagnoses, differs by important patient characteristics. While improved guidelines will address some of the disparity, better approaches for determining PrEP candidates and more normalized patient-provider communication are needed to ensure better PrEP access to all individuals at high risk for HIV. (Am J Public Health. 2020;110:370-377. doi:10.2105/AJPH.2019.305469)

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From May to November most romaine lettuce shipments in the United States come from California's Central Coast region, whereas from December to April most come from the Yuma, Arizona, region. During 2017-2018, the 3 outbreaks of Shiga toxin-producing Escherichia coli (STEC) O157:H7 in US romaine lettuce all occurred at the tail end of a region's production season. During the fall 2018 outbreak, the US Food and Drug Administration (FDA) recommended that suppliers begin labeling romaine packaging so that consumers can identify the product's harvest region. We used publicly available data to show that labels may not avert many illnesses in future outbreaks but may reduce suppliers' financial losses and reduce food loss. Market data available during both 2018 outbreak investigations showed that there was no romaine production from one of the 2 regions when the first illness onset occurred. That is, at the beginning of an outbreak investigation, market data may allow the FDA to quickly rule out an entire production region as a source of contamination. (Am J Public Health. 2020;110: 322-328. doi:10.2105/AJPH. 2019.305476)

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