

used more effectively through changes such as FMR reform and banning of SOI discrimination is essential for aligning housing policies with the AHC model's mission to promote health. *AJPH*

D. R. Bailey Miles, MD

Barbara Samuels, JD

Craig E. Pollack, MD, MHS

CONTRIBUTORS

All of the authors contributed equally to this work.

ACKNOWLEDGMENTS

C. Pollack is supported by a grant from the Robert Wood Johnson Foundation.

We thank Caleb Alexander of the Johns Hopkins University Bloomberg School of Public Health, David Grande of the University of Pennsylvania, and Giridhar Mallya and Oktawia Wojcik of the Robert Wood Johnson Foundation for providing comments on earlier versions of this article. We also thank Michelle Wong of the Johns Hopkins Bloomberg School of Public Health for producing the figure.

REFERENCES

1. Ludwig J, Sanbonmatsu L, Gennetian L, et al. Neighborhoods, obesity, and

diabetes—a randomized social experiment. *N Engl J Med*. 2011;365(16):1509–1519.

2. National Low Income Housing Coalition. Housing spotlight. Available at: <http://nlihc.org/article/housing-spotlight-volume-2-issue-2>. Accessed November 19, 2016.

3. US Department of Housing and Urban Development. Affirmatively furthering fair housing: final rule. Available at: <https://www.gpo.gov/fdsys/pkg/FR-2015-07-16/pdf/2015-17032.pdf>. Accessed November 19, 2016.

4. Williams DR, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Rep*. 2001;116(5):404–416.

5. Poverty & Race Research Action Council. Expanding choice: practical strategies for building a successful housing mobility program. Available at: <http://www.prrac.org/projects/expandingchoice.php>. Accessed November 19, 2016.

6. Freeman L, Li Y. Do source of income anti-discrimination laws facilitate access to less disadvantaged neighborhoods? *Housing Stud*. 2014;29(1):88–107.

More States Should Regulate Pain Management Clinics to Promote Public Health

Since 2000, annual US deaths from poisonings associated with prescription opioid pain relievers (OPRs) have steadily increased, with nearly 19 000 in 2014.¹ Addiction to OPRs may also lead to illicit drug use for some persons, resulting in an even greater public health burden.²

As a result, states have implemented a variety of policies intended to minimize harms associated with OPR misuse and diversion. These policies include guidelines for those who prescribe OPRs, limitations on the prescription of Schedule II and III drugs, and implementation of prescription drug monitoring programs (PDMPs), which providers can query to learn about individuals' prescription drug histories.

Although all but one state have implemented a PDMP, thus far only 11 states have enacted specific regulation of pain management clinics. Known as “pill mill” laws, these policies appeared in the mid-2000s in response to

prescribing behaviors that deviated from sound clinical practice—including cash-for-pill exchanges with no medical examination—at some rogue pain management clinics. Pill mill laws impose state oversight on pain clinics, including routine inspections, requirements for those who practice within them, and civil and criminal penalties when violations occur.

The statutory language of pill mill laws, and early analyses of their effects, suggest that these laws can promote public health goals by successfully striking a balance between limiting potentially harmful practices and ensuring that individuals who need OPRs to treat chronic pain are able to access them. Compared with PDMPs, pill mill laws more directly target high-risk prescribers and settings, facilitating accountability and enforcement. Given persistently high rates of OPR-related injury and death, more states should use pill mill laws to complement their PDMPs.

STATE OVERSIGHT OF PAIN MANAGEMENT CLINICS

All state pill mill laws define what constitutes a pain management clinic, with definitions falling into one or more of three categories: (1) providing pain management services with prescription controlled substances; (2) advertising pain management services; and (3) prescribing controlled substances for pain to a majority of patients (Table 1).

Notably, five states (Alabama, Florida, Georgia, Tennessee, and West Virginia), in their definitions of a pain clinic, specify that the clinic treat noncancer pain. Research suggests that patients experiencing cancer-related pain are one group that

may benefit from long-term OPR use. By focusing on regulation of clinics that address noncancer pain, pill mill laws are less likely to interfere with the ability of patients with cancer to receive adequate treatment. With more than an estimated 1.6 million new cancer diagnoses and approximately 560 000 cancer deaths in the United States each year, this is a provision that additional states should consider.³

Requirements for pain clinic ownership are addressed by all state pill mill laws. For example, most states require a pain clinic to be owned by a physician with an unrestricted license to practice in that state (i.e., no current or pending disciplinary action related to medical licensure) and prohibit ownership by anyone who has been convicted of certain crimes, most often a felony or a misdemeanor related to prescription drugs. Five states (Kentucky, Louisiana, Mississippi, Ohio, and West Virginia) require an owner

ABOUT THE AUTHORS

Lainie Rutkow and Jon S. Vernick are with the Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. G. Caleb Alexander is with the Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, and the Division of General Internal Medicine, Johns Hopkins Medicine, Baltimore.

Correspondence should be sent to Lainie Rutkow, JD, PhD, MPH, 624 N Broadway, Baltimore, MD 21205 (e-mail: lrutkow@jhu.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the “Reprints” link.

This article was accepted November 5, 2016.
doi: 10.2105/AJPH.2016.303568

TABLE 1—Characteristics of State Laws for Pain Management Clinics

State (Initial Implementation Date): Cite	Pain Clinic Definition	Pain Clinic Ownership	State Oversight, Inspection, and Registration	Dispensing Limitations
Alabama (2013): Ala Code §34-24-600 et seq.	Provides pain management services with prescription controlled substances to treat noncancer chronic pain	Physician with unrestricted Alabama license, or public or private entity registered with state Owner cannot have been convicted of a felony or misdemeanor related to prescription drugs	Board of Medical Examiners; annual registration required	
Florida (2011): Fla Stat Ann §458.3265	Advertises pain management services or majority of patients are prescribed opioids or specified controlled substances for noncancer pain	Physician with unrestricted Florida license who practices at pain clinic and has not been convicted of a felony related to drug diversion	Department of Health; annual inspection as a condition of registration	Only a physician licensed in Florida may dispense medication at a pain clinic
Georgia (2013): Ga Code Ann §43-34-280	Advertises pain treatment or majority of patients are prescribed Schedule II or III controlled substances for noncancer pain	Physician with unrestricted license in Georgia who has not been convicted of a felony	Composite Medical Board; biennial license renewal	If controlled substances are dispensed, pain clinic must be registered with State Board of Pharmacy
Kentucky (2012): Ky Rev Stat Ann §218A.175	Advertises pain treatment or majority of patients are prescribed controlled substances for pain and primary practice area is pain treatment	Physician with unrestricted Kentucky license who practices at pain clinic at least 50% of clinic's hours Owner must meet additional pain management certification requirements	Board of Medical Licensure; Cabinet for Health and Family Services; annual registration required	
Louisiana (2005): La Rev Stat Ann §40:2198.11 et seq.	Engages primarily in pain treatment by prescribing narcotics	Physician with an unrestricted Louisiana license who is certified in pain management and has not been convicted of a crime related to narcotics	Department of Health and Hospitals; annual investigation for license renewal	
Mississippi (2011): 30-017-2640 Miss Code R §1.15	Provides pain management services with a majority of patients prescribed or dispensed opioids or other specified controlled substances for more than 180 d/y	Physician with unrestricted Mississippi license who has not been convicted of a crime related to illegal distribution of controlled substances Owner must meet additional pain management certification requirements	State Board of Medical Licensure; annual certification renewal	
Ohio (2011): Ohio Rev Code Ann §4731.054	Treats majority of patients for chronic pain with controlled substances and meets certain other criteria	Supervises activities of all individuals who provide chronic pain treatment at clinic Owner must meet additional pain management certification requirements	State Medical Board; annual verification of licensure	
Tennessee (2012): Tenn Code Ann §63-1-301 et seq.	Provides noncancer pain treatment to a majority of patients for at least 90 d/y or advertises pain management services	Cannot have been convicted of a felony or misdemeanor related to distribution of prescription drugs	Board of Health; Board of Medical Examiners; biennial certificate renewal	No dispensing of controlled substances at pain clinic with limited exceptions for short-term supply of Schedule IV or V controlled substances

Continued

TABLE 1—Continued

State (Initial Implementation Date): Cite	Pain Clinic Definition	Pain Clinic Ownership	State Oversight, Inspection, and Registration	Dispensing Limitations
Texas (2010): Tex Occ Code Ann §168.001 et seq.	Provides majority of patients with monthly prescriptions for opioids or other specified controlled substances	Physician with unrestricted Texas license who has not been convicted of a felony or misdemeanor related to distribution of prescription drugs	Medical Board; biennial certificate renewal	
West Virginia (2012): WVa Code Ann §16-5H et seq.	Prescribes or dispenses opioids or other controlled substances to majority of patients for noncancer pain and meets certain other criteria	Physician with unrestricted West Virginia license who practices at pain clinic and has not been convicted of a felony related to diverted drugs Owner must meet additional pain management certification requirements	Department of Health and Human Services; annual licensure renewal	Only physician or pharmacist licensed in West Virginia may dispense medications at clinic Controlled substances must be dispensed for a 72-h or less supply
Wisconsin (2016): Wis Stat §50.60 et seq.	Presents itself as providing pain medicine services with prescriptions issued for specified medications or majority of providers devote majority of practice to pain medicine	Must not have been convicted of a felony or a misdemeanor related to prescription drugs	Department of Health Services; triennial certificate renewal	No dispensing of specified medications unless clinic is also a licensed pharmacy or treatment relates to worker's compensation

to have additional pain management credentials—beyond an unrestricted medical license—such as completion of an accredited pain management fellowship or board certification in a specialty of relevance to pain management. Requiring extra training in pain management can provide physicians—particularly those operating a pain clinic—the knowledge and experience to better balance pain relief with reducing the risk of OPR misuse.

All states with pain clinic laws require these clinics to engage in a registration or certification process with the state. Regulatory oversight for this process, including regular inspections, rests with the state department of health, medical licensure board, or a combination of these two agencies. Regular inspections ensure that clinics adhere to the pill mill law. In addition to any other penalties, requiring that a clinic register allows the state, in the event of a serious violation, to

at least temporarily rescind the clinic's right to operate until the violation is remedied, without awaiting further law enforcement processes.

Pain clinics may be subject to more general state laws that place limitations on prescribing and dispensing of controlled substances in any context. In addition, five states (Florida, Georgia, Tennessee, West Virginia, and Wisconsin) explicitly impose limitations on the dispensing of certain prescription drugs within pain clinics themselves. These limitations may specify who may dispense prescription medications at the clinic (e.g., only licensed physicians) or restrict the amount of prescription medications that may be dispensed at the clinic (e.g., 3-day supply). Before the enactment of pill mill laws, some clinics—notoriously in Florida and elsewhere—allowed patrons to receive hundreds of opioid pills at the clinic itself with little or no effort to confirm

medical necessity or to limit misuse. These restrictions should likewise not substantially affect the ability of legitimate OPR users to access needed medication.

AVAILABLE EVIDENCE OF EFFECTIVENESS

Although these laws are relatively new, a growing evidence base suggests that pill mill laws work to reduce overdose deaths.⁴ In the mid-2000s, Florida was viewed as the epicenter of the prescription drug misuse epidemic and, as a result, its pill mill law has received the most evaluative attention. Johnson et al. found that Florida's pill mill law—implemented in conjunction with its PDMP in 2011—has been associated with a decrease in the prescribing of drugs often favored by pain clinics and a decrease in overdose deaths attributed to certain prescription drugs.⁵ Specifically,

the death rate in Florida from prescription drug overdoses declined 23% while prescriptions for oxycodone fell 24%. Heroin deaths increased slightly in Florida in 2012, but the decline in OPR deaths was approximately 10-fold greater than this increase.⁵

Other work observed that the largest decreases in OPR prescribing and use were among prescribers and patients with the highest baseline levels, respectively.⁶ In addition, Kennedy-Hendricks et al. found that enforcement activity accompanying Florida's pill mill law, including regional strike forces, was critical to reductions in deaths.⁷

FUTURE OPPORTUNITIES

Prescription drug monitoring programs have received

significantly more attention than pill mill laws from researchers and the media, yet pill mill laws—opposed by some interest groups and simply not introduced in many states—fill an important gap with their unique targeting of high-risk prescribing environments while minimizing impact on legitimate users. They should be viewed as one key public health component of a comprehensive policy approach to limit prescription drug misuse and diversion.

It is too soon to know which pill mill law features are most effective, so additional research on implementation and associated outcomes—informed by perceptions and experiences of providers, patients, and policy-makers before and after implementation of their state's pill mill law—should be pursued.

Other potential effects of these laws should also be examined, including their impact on availability of pain control specialists, the degree of pain control reported by patients, and changes in illicit drug use.

In some states, pill mill bills have been introduced but not enacted, despite the continued challenges that pill mills pose. Some states may not, at least currently, have as many pill mills as others and legislators may be concerned about the costs of oversight. In these states and elsewhere, providers can play a role in educating policymakers about the value of these laws and their potential to avert a pill mill crisis before it begins. *AJPH*

Lainie Rutkow, JD, PhD, MPH
Jon S. Vernick, JD, MPH
G. Caleb Alexander, MD, MS

Lessons From a 2016 Large-Scale Contamination of Cereals With *Salmonella altona* in Israel

A national food safety crisis, caused by a large-scale contamination of popular cereal brands with *Salmonella altona*, occurred in Israel during the summer of 2016. Previous major food safety events in Israel had led to significant changes in public awareness and perception, as well as in food safety regulations.^{1,2} Here, we discuss lessons learned and future influence on national food safety policy and legislation.

THE EVENT

On July 28, 2016, in response to queries from the press, the Israeli branch of a large multinational consumer goods

manufacturer disclosed that a month before, it had halted one of its main food assembly lines from production of several popular cereal brands because of *Salmonella* contamination (Figure 1).³ One day earlier, this company had been asked by journalists about the shortage of those popular breakfast cereal brands in many retail stores around the country. The message delivered to the public at this stage was that of zero risk to consumers from contaminated products because, allegedly, none of the contaminated products' batches were shipped outside the factory for marketing.

Following the delayed announcement by the manufacturer, on July 28, 2016, the Israel

CONTRIBUTORS

All authors made substantial contributions to conceptualization or design of the article. L. Rutkow drafted the article, and J. S. Vernick and G. C. Alexander provided critical revision. All authors gave approval for the final version of the article and are accountable for all aspects of the work.

ACKNOWLEDGMENTS

G. C. Alexander is chair of the Food and Drug Administration's Peripheral and Central Nervous System Advisory Committee; serves as a paid consultant to PainNavigator, a mobile startup to improve patients' pain management; serves as a paid consultant to IMS Health; and serves on an IMS Health scientific advisory board. This arrangement has been reviewed and approved by Johns Hopkins University in accordance with its conflict of interest policies.

REFERENCES

1. National Institute on Drug Abuse. Overdose death rates. 2015. Available at: <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed September 10, 2016.
2. Lanckenau SE, Teti M, Silva K, et al. Initiation into prescription opioid misuse

amongst young injection drug users. *Int J Drug Policy*. 2012;23(1):37–44.

3. American Cancer Society. Cancer facts and figures, 2016. Available at: <http://www.cancer.org/acs/groups/content/@research/documents/document/acspc-047079.pdf>. Accessed September 10, 2016.
4. Haegerich TM, Paulozzi LJ, Manns BJ, et al. What we know, and don't know, about the impact of state policy and systems-level interventions on prescription drug overdose. *Drug Alcohol Depend*. 2014;145:34–47.
5. Johnson H, Paulozzi L, Porucznik C, et al. Decline in drug overdose deaths after state policy changes—Florida, 2010–2012. *MMWR Morb Mortal Wkly Rep*. 2014;63(26):569–574.
6. Rutkow L, Chang HY, Daubresse M, et al. Effect of Florida's prescription drug monitoring program and pill mill laws on opioid prescribing and use. *JAMA Intern Med*. 2015;175(10):1642–1649.
7. Kennedy-Hendricks A, Richey M, McGinty EE, et al. Opioid overdose deaths and Florida's crackdown on pill mills. *Am J Public Health*. 2016;106(2):291–297.

unfortunate reality on August 4, 2016, when the company announced that contaminated cereals had been eventually marketed. This revelation was possible only after the Ministry of Health ordered the manufacturer to publish the batch numbers of contaminated products, and, shortly after that, consumers reported to have those products at their homes.

The Event's Aftermath

Apparently, more than 150 000 potentially

Association of Public Health Physicians of the Israel Medical Association issued a public health warning to consumers and regulatory authorities concerning the realistic risk that potentially contaminated food products did arrive to the market after all. This warning became an

ABOUT THE AUTHORS

All of the authors are with the Israel Association of Public Health Physicians, Israel Medical Association, Ramat Gan, Israel. Eran Kopel is also with the Department of Epidemiology and Preventive Medicine, School of Public Health, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel. Nadav Davidovitch is also with the Department of Health Systems Management, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel. Hagai Levine is also with the Hebrew University-Hadassah Braun School of Public Health and Community Medicine, Jerusalem, Israel.

Correspondence should be sent to Eran Kopel, Department of Epidemiology and Preventive Medicine, School of Public Health, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel (e-mail: eran.kopel@gmx.com). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

This editorial was accepted November 6, 2016.
doi: 10.2105/AJPH.2016.303567