

support to assist with ongoing medical treatment would be candidates for innovative transitional care programs aimed at supporting remission of OUD, avoiding reinfection, and reducing costs.

The unfortunate case of Mr. M. highlights the fact that the current approach to hospitalized patients with OUD and infections is far from optimal. Hospitals will have to be part of any comprehensive plan to address the opioid epidemic. Currently, we are not routinely assessing the severity or treatment needs of the underlying OUD, initiating evidence-based treatments, and supporting risk reduction. Though OUD is a complex medical illness amenable to treatment, stigma and conflict unfortunately continue to influence care, frustrate providers, and marginalize patients.

The Affordable Care Act mandates parity between treatment of substance-use disorders and that of other medical illnesses, and the American Board of Medical Specialties now recognizes addiction medicine as a medical subspecialty. Since there are not enough trained addiction medicine physicians to curb the opioid epidemic, we believe education about evidence-based OUD treatment should be expanded to all members of the care team and integrated into standard hospital care. Education coupled with expanded treatment resources can improve patients' experience, increase adherence to treatment recommendations, and improve health outcomes. It is time to put parity into practice.

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From the Center for Health Services Research (L.F.) and the Center on Drug and Alcohol Research (M.R.L.), University of Kentucky College of Medicine, Lexington.

1. Shrestha NK, Jue J, Hussain ST, et al. Injection drug use and outcomes after surgical intervention for infective endocarditis. *Ann Thorac Surg* 2015;100:875-82.
2. Liebschutz JM, Crooks D, Herman D, et al. Buprenorphine treatment for hospitalized, opioid-dependent patients: a randomized clinical trial. *JAMA Intern Med* 2014;174:1369-76.
3. Ronan MV, Herzig SJ. Hospitalizations related to opioid abuse/dependence and associated serious infections increased sharply, 2002-12. *Health Aff (Millwood)* 2016;35:832-7.
4. Volkow ND, Frieden TR, Hyde PS, Cha SS. Medication-assisted therapies — tackling the opioid-overdose epidemic. *N Engl J Med* 2014;370:2063-6.
5. D'Onofrio G, O'Connor PG, Pantalon MV, et al. Emergency department-initiated buprenorphine/naloxone treatment for opioid dependence: a randomized clinical trial. *JAMA* 2015;313:1636-44.

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From AIDS to Opioids — How to Combat an Epidemic

Arthur R. Williams, M.D., M.B.E., and Adam Bisaga, M.D.

The United States is facing a vast epidemic of opioid-related deaths. More than 2.4 million Americans have a severe opioid-use disorder (OUD) involving dependence on pain medications, heroin, or both, and rates of drug-overdose deaths in this country have outpaced mortality from motor vehicle accidents since 2013. The rising death toll has been rivaled in modern history only by that at the peak of the AIDS epidemic in the early 1990s. Although these epidemics differ in nature, the large-scale, highly coordinated response to AIDS that was eventually mounted may be instructive for combating the opioid epidemic.

In the face of growing alarm in communities nationwide, the

U.S. Senate recently passed the Comprehensive Addiction and Recovery Act (CARA), which takes incremental steps to combat the epidemic. President Barack Obama signed it into law in July, despite the fact that Congress withheld funding. In his 2017 budget proposal, Obama had incorporated \$1.1 billion for expanding access to evidence-based care, including medication-assisted treatment (MAT) using methadone, buprenorphine, or injectable naltrexone. Funding would be targeted to hardest-hit states and those proposing the most promising interventions for getting needed treatment to people with OUD.

Funding is critically important and long overdue — but will be insufficient without structural

changes, revised regulations, and improved services to help connect marginalized populations with programs and providers that use modern, science-based approaches to treat OUD as a chronic medical condition. Despite the existence of pharmacologic and behavioral treatments based on a generation of research, most treatment programs do not offer evidence-based care and have minimal physician involvement.^{1,2} The substance-abuse treatment system (programs accredited by the Substance Abuse and Mental Health Services Administration) has thus far struggled to implement practices based on science. Too often, treatment centers operate under outdated institutional ideologies favoring abstinence-only approach-

es that are modeled on mid-20th-century alcoholism treatment involving traditional counseling.² But since opioids pose a risk of injection-related infectious disease and a higher risk than alcohol of death due to overdose, a different approach to evaluating therapeutic risk–benefit ratios is warranted. The evidence indicates that maintenance therapy with methadone or buprenorphine, without arbitrary restrictions on length of care, results in the greatest likelihood of retention in treatment and the greatest reduction in mortality.

Our substance-abuse treatment system is thus ill prepared to address the opioid epidemic, and overdose deaths have increased every year for the past two decades. Office-based treatment of OUD with buprenorphine or injectable naltrexone has also been slow to materialize. In 40% of U.S. counties there is currently no physician authorized to prescribe buprenorphine, and the majority of authorized providers actually treat few or no patients.³ Integration of substance-abuse treatment into primary care settings holds promise but may not increase access for marginalized populations that are disconnected from care. So instead, every year thousands of patients receive medical treatment to relieve opioid withdrawal only during brief detoxification admissions, lose their tolerance to opioids, and are discharged with referrals to medication-free residential or outpatient care.¹ Of these patients, 70 to 90% quickly relapse and face a high risk of overdose death.⁴

The response to the AIDS epidemic may help to inform an effective approach to the opioid epidemic. Once the country was

mobilized against AIDS, intensive efforts were devoted to training and supporting clinicians, many of whom were new to the treatment of viral infections in immunocompromised patients. Treatment guidelines were promulgated through newly formed AIDS Education and Training Centers. Funding was provided to connect patients with capable providers of wrap-around social services supported by grants from the Ryan White HIV/AIDS Program. Similarly, social workers, nurse care managers, and outreach workers could be deployed strategically to help marginalized populations with OUD obtain substance-abuse treatment in primary care settings, and funding incentives authorized by the Affordable Care Act (ACA), such as health homes and accountable care organizations, could help cover the costs.

Since most medical school and residency programs offer limited training in addiction pathophysiology and treatment, too few physicians are trained to treat OUD, especially outside major metropolitan areas — a substantial barrier to care. Just as regulations were loosened to allow the Food and Drug Administration (FDA) to fast-track antiretroviral drug development for HIV beginning in the late 1980s, a possible solution here would be regulatory change permitting enlargement of the network of professionals authorized to deliver treatment and broadened access to MAT through such avenues as specialized community pharmacies, telemedicine, and hub-and-spoke systems of care.

Canada has embraced an effective model, offering greatly expanded access to methadone through directly observed daily

dosing in local pharmacies.¹ This model could be adapted to include buprenorphine and even injectable naltrexone. New regulation could increase treatment access for patients who need to be seen daily, especially in less densely populated communities.

Another avenue is providing MAT in community programs through telemedicine, remotely connecting patients with physicians who can prescribe MAT and ensuring adequate reimbursement for tele-visits. Vermont offers a robust version of a hub-and-spoke model whereby central, specialized substance-abuse treatment programs stabilize patients using MAT before referring them to local “spokes” such as community health centers or private practitioners. Revising the federal substance-abuse confidentiality regulations, which hinder the sharing of patient information related to substance-abuse treatment, could facilitate the provision of high-quality care across sites.

Even with improved access, MAT’s cost would remain a substantial barrier for many patients, since those with insurance often face burdensome prior-authorization requirements. In 1987, after the FDA approved zidovudine, the first HIV–AIDS medication, Congress approved \$30 million in emergency funding to states to pay for HIV medications — laying the groundwork for what became the AIDS Drug Assistance Program (ADAP), which was authorized by the Ryan White Comprehensive AIDS Resources Emergency Act in 1990. ADAPs now exist in every U.S. state and territory, and states determine their own eligibility criteria within federally set parameters.

The creation of ADAP-like pro-

grams or vouchers (covering MAT medications and the overdose-reversal agent naloxone), perhaps as a new mechanism under the Substance Abuse Prevention and Treatment Block Grant program or Medicaid demonstration waivers, could provide access for many people with OUD, even in states that haven't expanded Medicaid under the ACA. Although the mental health parity law of 2008 requires most managed-Medicaid and private insurance plans that cover substance-abuse treatment to do so at the same level as other medical care, violations abound.⁵ Despite the requirement that substance-abuse treatment be considered an essential health benefit, and despite the fact that the National Institute on Drug Abuse deems MAT the first-line treatment for OUD, the Centers for Medicare and Medicaid Services has not yet made methadone or buprenorphine maintenance treatment for OUD a mandated benefit.

Finally, another innovation of the response to AIDS was the creation of the Office of AIDS

Research within the National Institutes of Health (NIH) to coordinate HIV–AIDS research efforts across institutes and programs. Such an office overseeing a national strategy for addressing the opioid epidemic could be developed and housed within the NIH or an appropriate division of the Department of Health and Human Services; it could emphasize that OUD is a chronic medical disorder, as Surgeon General Vivek Murthy has insisted, that should be managed according to standards analogous to those for other chronic disorders.

The scope of reform needed to respond appropriately to this epidemic is daunting. The response to AIDS, however, established a precedent for expanding access to lifesaving medications and supporting clinicians in implementing evidence-based treatment in marginalized populations. Current federal and state efforts have largely fallen short in addressing the opioid epidemic, as witnessed by ever-increasing mortality. We believe that federal funding should

be used to promote new and effective models that provide patients with evidence-based treatment rather than supporting outdated treatment programs that are unwilling or unable to evolve.

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From the Division on Substance Abuse, Columbia University Department of Psychiatry, New York State Psychiatric Institute, New York.

1. Nosyk B, Anglin MD, Brissette S, et al. A call for evidence-based medical treatment of opioid dependence in the United States and Canada. *Health Aff (Millwood)* 2013;32:1462-9.
2. Buck JA. The looming expansion and transformation of public substance abuse treatment under the Affordable Care Act. *Health Aff (Millwood)* 2011;30:1402-10.
3. Sigmon SC. The untapped potential of office-based buprenorphine treatment. *JAMA Psychiatry* 2015;72:395-6.
4. Bentzley BS, Barth KS, Back SE, Book SW. Discontinuation of buprenorphine maintenance therapy: perspectives and outcomes. *J Subst Abuse Treat* 2015;52:48-57.
5. Wen H, Cummings JR, Hockenberry JM, Gaydos LM, Druss BG. State parity laws and access to treatment for substance use disorder in the United States: implications for federal parity legislation. *JAMA Psychiatry* 2013;70:1355-62.

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Accelerating Innovation in Health IT

Robert S. Rudin, Ph.D., David W. Bates, M.D., and Calum MacRae, M.B., Ch.B., Ph.D.

Even as information technology (IT) transforms many industries, the pace of innovation in health IT continues to lag. Electronic health records (EHRs) receive few accolades from providers and have been cited as a major source of professional dissatisfaction among physicians.¹ Despite a proliferation of patient-facing health apps, few have been shown to produce health improvements and many are barely used. The

most common IT tools connecting patients to providers are patient portals that so far do little more than provide basic secure messaging and present unexplained clinical data. Though many startups and research programs exist and venture capital investment has been growing, health IT success stories remain rare.

A plan to accelerate innovation should begin with a diagnosis of the problem. Some ob-

servers blame perverse financial incentives in health care that reward volume rather than quality and efficiency, regulations that restrict the flow of information ostensibly to protect patient privacy, and technical integration challenges. Another factor has been the multiple demands of “meaningful use,” which have delayed innovation in many areas of health IT. Though these issues are important, we believe there is