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Integrating Public Health and Health Care Strategies to Address the Opioid Epidemic: The Oregon Health Authority's Opioid Initiative

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ABSTRACT

Context: Oregon is experiencing an opioid overdose epidemic, similar to the United States as a whole. To address this crisis, the Oregon Health Authority (OHA) implemented a strategic Opioid Initiative, convening stakeholders and integrating public health and health care system activities across sectors. Recent data indicate progress: from 2015 to 2016, Oregon had the sharpest decline in prescription opioid overdose deaths of any state.

Program: The Opioid Initiative, launched in 2015, focuses on integrating efforts to improve patient care and safety, and population health, by increasing access to nonopioid pain treatment, supporting medication-assisted treatment and naloxone access for people taking opioids, decreasing opioid prescribing, and using data to inform policies and interventions.

Implementation: Four OHA projects highlight the integration: (1) a Medicaid Coordinated Care Organization Performance Improvement Project focused on decreasing risky opioid prescribing; (2) Health Evidence Review Commission guidelines that set coverage standards for opioid and nonopioid back pain treatments for Medicaid recipients; (3) statewide opioid prescribing guidelines; and (4) an opioid data dashboard. Each project involves a partnership between governmental public health, public and private health care systems, and external stakeholders.

Progress: From 2015 to 2017, the number of Oregonians on 90 or more Morphine Equivalent Doses (MEDs) decreased by 37%, from 11.1 per 1000 residents quarterly to 7.0 per 1000 residents quarterly. Prescription opioid overdose deaths decreased 20% from 4.5 per 100 000 in 2015 to 3.6 per 100 000 in 2016. Within the Medicaid population, the percentage of clients on 120 or more MEDs for 30 consecutive days decreased 27%, from 2.3% in December 2015 to 1.6% in September 2017.

Discussion: Oregon's integrated approach to address the opioid crisis spans public health and health care systems, engages key stakeholders, and uses data and evidence to inform policies. The progress to date is promising and may assist other states seeking to identify effective strategies to decrease opioid prescribing, misuse, and overdose.

KEY WORDS: evidence-based medicine, opioid prevention, public health/health care integration

Context

Oregon is experiencing an epidemic of opioid use disorder, and opioid overdose hospitalizations and deaths, similar to the United States as a whole. From 1999 to 2014, drug overdose deaths in the United States tripled; 61% of these deaths in 2014 involved an opioid.[1] In Oregon, opioid-related mortality also tripled, from 2.1 per 100 000 residents in 2000 to

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6.5 per 100 000 residents in 2015. Much of the increase can be attributed to increased opioid prescribing to treat persistent noncancer pain.[2] In 2017, the US Department of Health and Human Services declared opioid overdose a "Nationwide Public Health Emergency" to facilitate a multisector response across health care, public health, and safety agencies.[3]

To address the opioid overdose crisis, in 2015, the Oregon Health Authority (OHA) implemented a strategic Opioid Initiative (Figure 1), convening stakeholders, and integrating public health and health care system activities across sectors. The goal of the Opioid Initiative is to reduce deaths, nonfatal overdoses, and harms to Oregonians from prescription opioids.[4] Recent data released by the Centers for Disease Control and Prevention (CDC) indicate that the initiative is having an impact. From 2015 to 2016, the rate of prescription opioid deaths in Oregon declined 17.0%, from 4.7 per 100 000 population to 3.9 per 100 000 population, the sharpest decline of any state.[5] During this same period, the rate of prescription opioid overdose deaths in the United States increased 10.6%, from 4.7 per 100 000 population to 5.2 per 100 000 population. In this article, we present this initiative's framework, highlight 4 OHA cross-sector projects, and present data on the progress and collective impact of the work.

Approach

Cross-sector efforts to address the prescription opioid epidemic[6] align with the growing recognition that to improve health and decrease health care expenditures, public health and health care must be integrated.[7] While several promising models of integration have emerged,[8,9] major barriers, such as siloed funding streams and regulations preventing data sharing, hinder coordination of health care system and public health efforts.[10]

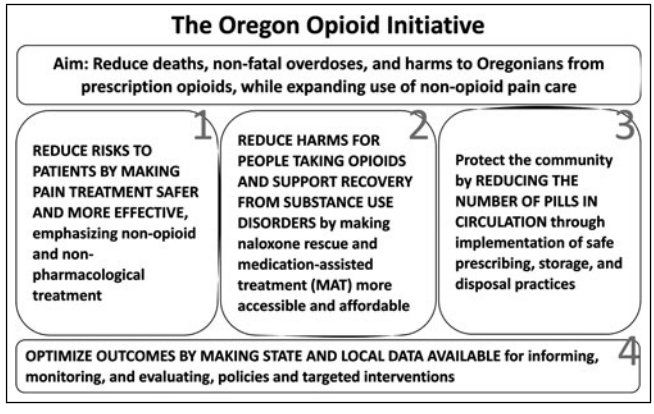

FIGURE 1 The Oregon Opioid Initiative

Opioid prevention strategies are being implemented in various sectors, including clinical settings (eg, opioid prescribing guidelines), health care systems (eg, buprenorphine-waivered clinicians, pain management consultation), and public health agencies (eg, epidemiologic surveillance, media campaigns).[11] To achieve the greatest impact, these strategies require alignment across governmental health departments; health care delivery systems, providers, and payers; policy makers; law enforcement; and other stakeholders.

While the need to align opioid prevention efforts is compelling, integration presents challenges. Funding for opioid prevention work comes from diverse sources, including state Medicaid dollars and federal agency grants (eg, from the CDC, the Substance Abuse and Mental Health Services Administration [SAMHSA], and the Centers for Medicaid & Medicare Services [CMS]). As a state agency, the OHA's work and budget are approved by the Oregon legislature and governor, and recent statutory changes direct aspects of the opioid prevention work. External partners are essential for achieving progress, and these partners respond to their own stakeholders. This made developing an overarching framework to ensure alignment and synergy of activities essential.

The Oregon Opioid Initiative's strategic framework focuses on improving patient care and safety and improving population health in 4 areas: (1) reducing risks to patients by improving access to nonopioid pain treatment; (2) reducing harms to people taking opioids by supporting medication-assisted treatment and naloxone access; (3) protecting the community by reducing the number of pills in circulation through opioid prescribing guidelines, safe storage, and disposal; and (4) optimizing outcomes by using data to inform and evaluate policies. The initiative works to align efforts across public and private sectors, and across the OHA's organizational structure, programmatic activities, and funding streams.

A wide range of statewide policies and activities align with this framework. Examples include updating pain training required by law for Oregon health care providers, legalizing dispensing of naloxone by pharmacists, passing a good Samaritan law that protects persons who call emergency medical services for an overdose from arrest for illegal possession of a controlled substance, automating queries to the Oregon Prescription Drug Monitoring Program (PDMP) by the emergency department information exchange (EDIE), implementing a PDMP prescribing practices review subcommittee to identify health care providers who prescribe high doses of opioids and might benefit from targeted education, and developing opioid prescribing guidelines for emergency departments and dental settings.

The OHA has undertaken 4 major projects that highlight the initiative's integration of public health and health care strategies: (1) a Coordinated Care Organization (CCO) Performance Improvement Project (PIP) focused on decreasing risky opioid prescribing to Medicaid recipients; (2) Health Evidence Review Commission (HERC) guidelines that set coverage standards for opioid and nonopioid back pain treatments for Medicaid recipients; (3) statewide opioid prescribing guidelines to be implemented within health care settings across the state; and (4) a state and local data dashboard to evaluate the impacts of opioid control efforts. Details of these projects and progress to date are presented.

Oregon's Medicaid System Transformation

Oregon began transforming Medicaid's health care delivery system in the late 1980s, with the legislatively mandated "Medicaid Priority Setting Project,"[12] which laid the groundwork for the Oregon Health Plan, Oregon's Medicaid program. In 1994, Oregon's CMS 1115 waiver authorized care to be managed using the Prioritized List of Health Services. In 2012, Oregon further transformed its Medicaid delivery model by implementing CCOs that coordinate an individual's care across physical, behavioral, and oral health. The CCO model aligns with the "triple aim" of improving population health, improving patient care, and decreasing cost.[13] To ensure quality high-value care is prioritized, the OHA's HERC reviews evidence-based medical practice and effectiveness research to update the Medicaid Prioritized List of Health Services that guide Medicaid benefit coverage.

In 2009, the Oregon legislature created a new state agency, the Oregon Health Authority, encompassing the Medicaid program, public health services, the state psychiatric hospital, and mental health and addiction services.[14] Innovations in the Medicaid health care delivery model, prioritization of evidence-based health services, and colocation of Medicaid and public health services within a single agency uniquely position the OHA to integrate opioid prevention efforts.

Medicaid CCOs' Statewide PIP

As part of the Oregon's 1115 waiver, Oregon's 15 CCOs are required to participate in a statewide PIP, in which CCOs develop community-based interventions with a common goal. In March 2015, the OHA conducted a learning collaborative with the CCOs focused on reducing opioid prescribing and overdose, and in July 2015, the OHA and the CCOs adopted opioid overdose prevention as the statewide PIP. The specific goal of the PIP is to reduce risky dosage levels in patients on long-term opioid therapy (ie, morphine equivalent doses [MEDs] of $\geq$120 and $\geq$90) among enrollees. The CCOs are required to report quarterly to the OHA progress with PIP implementation. PIP metrics (ie, patients on $\geq$120 MEDs) are analyzed by the OHA from Medicaid claims submitted by the CCOs.

To support the CCO PIP, the Public Health Division developed a "toolkit" of potential CCO activities, including improving access to medication-assisted treatment; developing "pain schools" for patients; implementing community prescribing guidelines; convening local opioid summits for health professionals, law enforcement, and community advocates; and delivering patient education campaigns.[15] These interventions are driven by the CCOs' community needs with outcomes measured by CCOs.

Health Evidence Review Commission: Medicaid Back Pain Benefit Coverage

The HERC identified that for Oregon Medicaid patients with back pain, treatment options did not align with evidence and were likely contributing to excessive opioid use. Alternative therapies for back pain were covered only for patients with neurologic deficits based on the Prioritized List of Health Services; because opioids were preferred drugs, most Medicaid recipients could receive opioid prescriptions but not access to nonopioid therapies, such as physical therapy. To address this, the HERC initiated several reviews of the effectiveness of various back pain treatments to ensure Medicaid recipients were getting evidence-based care while decreasing reliance on opioids.

The HERC reviews identified evidence-based nonopioid treatments of back pain that included chiropractic therapy, acupuncture, *viniyoga*, cognitive behavior therapy, and interdisciplinary rehabilitation.[16] Opioids and benzodiazepines were only recommended as second-line therapy and required risk assessment and documentation of functional benefit for ongoing coverage. The HERC implemented a public multidisciplinary task force in 2014-2015 that led to changes in the Medicaid Prioritized List. These changes expanded the availability of evidence-based non-opioid treatments in 2016 and put limits on opioid prescribing for back pain. The guideline eliminated coverage of long-term opioid therapy for persistent back pain in 2018.

Oregon's Opioid Prescribing Guidelines

To align efforts to decrease opioid prescribing across sectors, the OHA Public Health Division convened a task force to develop statewide opioid prescribing guidelines. The goal was to review the "CDC

Guideline for Prescribing Opioids for Chronic Pain,"[17] identify additional areas relevant to Oregon, and make final recommendations. The development and endorsement of Oregon guidelines were intended to optimize care, improve patient safety, and provide a consistent framework for implementation throughout the state.

The task force was cosponsored by the state health officer (focusing on public health policies and data) and the OHA chief medical officer (focusing on Medicaid clinical services). Task force membership included health care professional associations (physicians, dentists, nurses, naturopaths, pharmacists); licensing boards; health care delivery organizations (federally qualified health centers; CCOs; hospitals and health systems; the Portland Veterans Administration; the Indian Health Service); regional coalitions; and subject matter experts from academia. Meetings of the task force were open to the public, with time allotted for public comment.

In May 2016, the task force adopted the CDC guideline[17] as the foundation for opioid prescribing for Oregon. Several Oregon-specific recommendations were added,[18] including documenting the justification for high-dose opioids prescriptions or coprescribing benzodiazepines; treating "legacy" patients compassionately (eg, not discharging patients who are opioid dependent); using Oregon's PDMP and the Oregon Medical Board's Material Risk Notice on opioid prescribing; and performing urine drug testing. Also included were guidelines for prescribing opioids to patients using cannabis, since Oregon has both medical and legalized retail cannabis sales. The guidelines encouraged clinicians to discuss and document their patients' cannabis use; assess for contraindications to concurrent use; and focus on improving functional status, quality of life, and ensuring patient safety.

To support guideline implementation across public and private health systems and clinical care settings, the OHA convened a workgroup of subject matter experts, including staff from public health, Medicaid, and HERC; health care providers and systems; and community partners. To focus these efforts, the OHA identified regions with high rates of opioid overdose mortality and hospitalizations and high rates of opioid prescribing.

The implementation workgroup developed a toolkit for clinical practice settings. The toolkit includes a Web-based clinical self-assessment (adapted from Washington's Six Building Blocks of Opioid Prescribing[19]); an enhanced MED calculator; electronic health record integration guidance; online pain training through the Oregon Pain Management Commission; access to the University of Washington Tele-Pain program, for interdisciplinary support in managing challenging patients with persistent pain; and guidance for measure specifications for health care organizations to report metrics on opioid prescribing and persistent pain management.

Identifying local medical leaders in the high-burden regions is key to widespread adoption of the prescribing guidelines. Interdisciplinary Pain Management Improvement Teams provide technical assistance to health care organizations using academic detailing and practice facilitation methods. Regional Prescription Drug Overdose (PDO) prevention coordinators support partnerships and data-driven strategies across public health, health care, tribal health, substance use treatment, law enforcement, and social service agencies. PDO coordinators convene provider pain guidance groups and interdisciplinary action teams, use local data to measure impacts, and create fact sheets and trend reports. The OHA funded the Oregon Coalition for Responsible Use of Medications, a statewide community-based organization, to convene regional and state opioid summits where communities share best practices, coordinate efforts, and develop regional action plans.

Opioid Data Dashboard

Accurate, timely, and accessible data on opioid use and adverse health effects are essential to targeting and evaluating the effectiveness of activities. The Public Health Division's Web-based interactive dashboard presents state- and county-level data on opioid prescribing, overdose hospitalizations, deaths, and potential unintended consequences (eg, heroin overdose) and tracks emerging threats (eg, fentanyl).[20]

Dashboard data come from several sources: (1) Oregon's PDMP; (2) hospital discharge data; (3) death certificates; (4) medical examiner investigations; and (5) Emergency Medical Services data systems. While the hospitalization and mortality data are available annually, the Oregon PDMP data are updated quarterly. By law, Oregon pharmacies submit data every 72 hours on Schedule II-IV controlled substances (eg, opioids, benzodiazepines) dispensed in the state. While 49 of 50 states have a PDMP,[21] Oregon's PDMP is unusual in that it is managed by the state public health agency, facilitating the use of data for evaluating progress on opioid prevention activities.

Progress

Since the fall of 2015, when the OHA launched its Opioid Initiative, opioid prescribing and prescription opioid deaths have decreased. From 2015 to 2017, the rate of Oregonians on 90 or more MEDs decreased

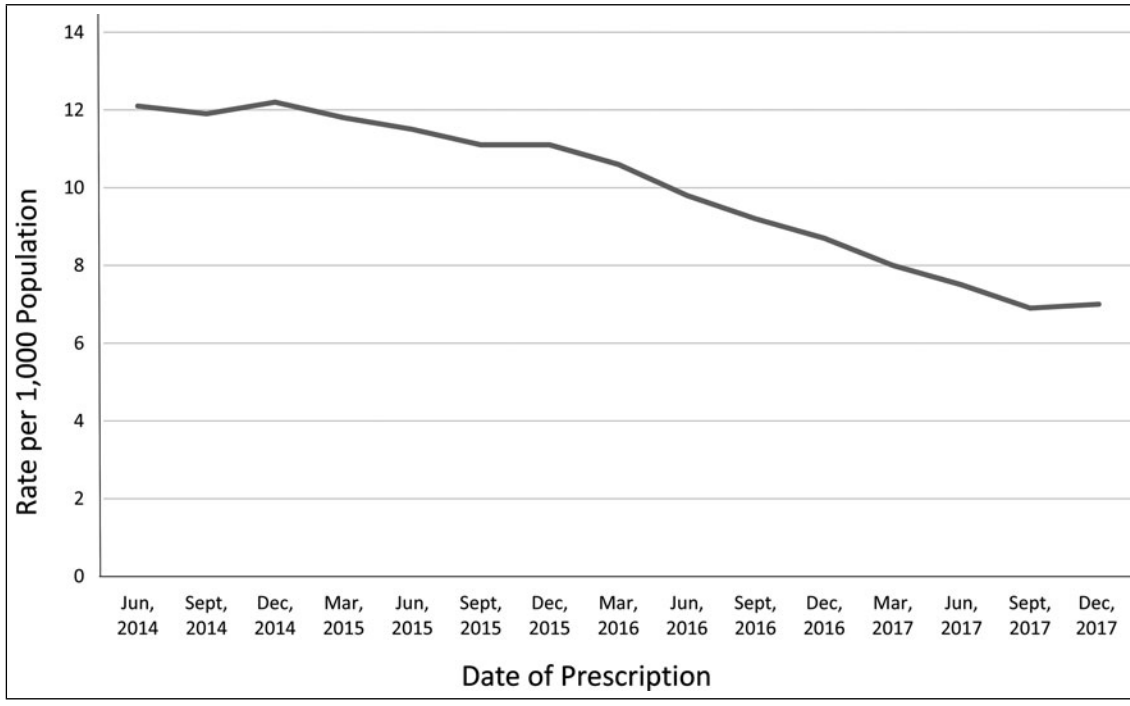

FIGURE 2 Opioid Prescribing in Oregon: Residents on 90 or More Morphine Equivalent Doses, 2014-2017 (Rate per 1000 Population)

by 37%, from 11.1 patients per 1000 residents quarterly to 7.0 per 1000 residents quarterly (Figure 2). Prescription opioid overdose deaths, which started to decrease in 2009 when methadone for pain treatment was removed from the Medicaid preferred drug list, declined from 4.5 per 100 000 (180 deaths) in 2015 to 3.6 per 100 000 (149 deaths) in 2016 (Figure 3) [*Note:* These deaths include unintentional and undetermined manner and exclude suicides.] Oregon data do not show an increase in heroin overdose deaths, a potential consequence of decreased access to prescription opioids (Figure 3).

Within the Medicaid population, the percentage of clients on 120 or more MEDs for 30 consecutive days decreased 27%, from 2.3% in December 2015 to 1.6% in September 2017 (Figure 4).

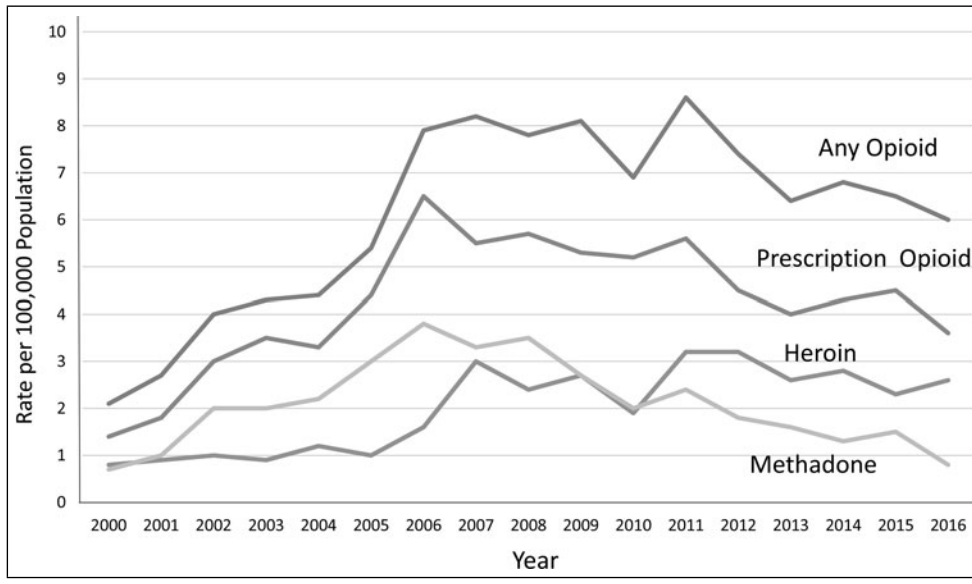

FIGURE 3 Oregon Drug Overdose Deaths by Drug Class, 2000-2016 (Rate per 100 000 Population)

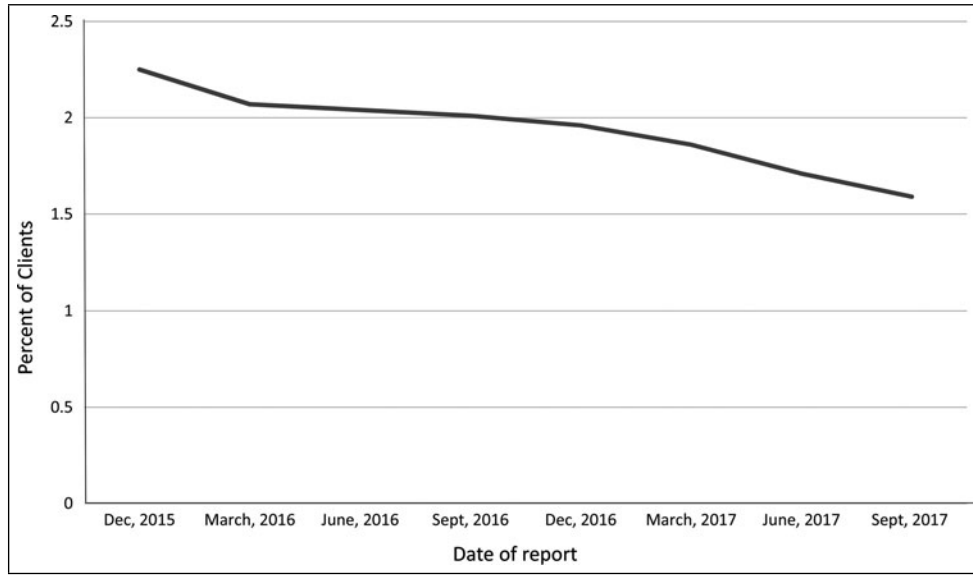

FIGURE 4 Percentage of Oregon Medicaid Clients on 120 or More Morphine Equivalent Doses for 30 Consecutive Days, December 2015-September 2017

Discussion

The contribution of prescription opioids to the sharp rise in overdose deaths in the United States began in the late 1990s[22] and is primarily an iatrogenic problem, driven by an increase in opioid prescribing for persistent pain.[23] The drivers of this increase are complex, including factors within the health care system (eg, adoption of the pain scale as the fifth vital sign, aligning physician incentive payments with patient satisfaction, pharmaceutical industry marketing) and public expectations for pain treatment. The multidimensional nature of the opioid epidemic necessitates a broad range of strategies to have an impact.

Oregon's cross-sector alignment of health care and public health interventions to address overprescribing refocuses pain management on maintaining or improving function, rather than eliminating pain,[24] and serves to balance the societal interest of decreasing opioid overdoses with individual patient interests of receiving evidence-based pain management.[25] Statewide opioid prescribing guidelines are being implemented across all health systems; Medicaid has focused on improving the quality of care by increasing access to nonopioid back pain therapies, limiting opioid prescriptions, and monitoring progress. Currently available evidence is used to develop and implement a variety of strategies, while the evidence base must be expanded by evaluating benefits and identifying unintended harms.

Oregon's Opioid Initiative required significant effort to align agency activities and convene external partners. Obtaining buy-in of both internal and external stakeholders, and clearly defining roles and responsibilities, is challenging but critical. The state health officer was designated the overall agency lead on opioids and the primary spokesperson on opioid-related data and activities. The OHA convened an internal opioids policy and communications steering committee to set direction for the agency. To ensure alignment across the OHA, we identified agency leads for specific content areas related to opioids and convened a monthly coordinating committee with key participants. The OHA staff from the Public Health Division and Medicaid programs jointly presented to physician groups, legislative committees, Medicaid medical directors' and metrics' committees, external stakeholder meetings, and at national conferences. We worked to align grant objectives and timelines from various funding streams (eg, CDC, SAMHSA, and CMS grants) by including content experts from across the agency on grant-specific advisory groups. Finally, the OHA served as a neutral convener of public and private stakeholders by implementing several time-limited task forces focused on developing plans, policies, and activities to address the opioid crisis.

While many factors beyond the OHA Opioid Initiative have likely contributed, the decrease in opioid prescribing and deaths in Oregon suggests that the initiative efforts to align activities are having an impact. To ensure continued progress, Oregon is expanding its activities. Medicaid coverage of nonopioid therapy options for back pain is being fully implemented, and patients are being tapered off long-term opioid therapy. The statewide PIP has been extended into 2018 and now focuses on

Implications for Policy & Practice

- Combatting the opioid epidemic requires a variety of strategies that must be implemented across public health and health care sectors.
- Integrating these efforts across public health departments, Medicaid programs, and health care systems is essential for decreasing opioid prescribing and opioid-associated harms (eg, deaths).
- Implementing evidence-based pain management, including offering a variety of nonopioid treatments, is key to decreasing opioid prescribing.
- Engaging external stakeholders is essential to developing and implementing strategies across sectors.

reducing the number of patients on 50 or more MEDs, in alignment with prescribing guidelines. Funding through the SAMHSA State Targeted Response to the Opioid Crisis grant expands access to medication-assisted treatment throughout Oregon, particularly in hard-hit rural areas. The OHA is implementing a statewide public education campaign focused on pain management and decreasing patient expectations of opioids to treat persistent pain.

The OHA's approach to opioid prevention encompasses 3 components of cross-agency integration of health and social services: (1) a coordinating mechanism or responsible entity; (2) quality measurement and data tools to track progress and outcomes; and (3) aligning payment and financing methods.[26] To effectively address major public health threats, such as opioid overdose, combining resources and expertise of public health and health care, and involving stakeholders across public and private sectors, is paramount to address the issue efficiently and effectively and transcend silos.

References

1. Rudd RA, Seth P, David F, Scholl L. Increases in drug and opioid-involved overdose deaths—United States, 2010-2015. *MMWR Morb Mortal Wkly Rep*. 2016;65:1445-1452.
2. Guy GP, Zhang K, Bohm MK, et al. Vital signs: Changes in opioid prescribing in the United States, 2006-2015. *MMWR Morb Mortal Wkly Rep*. 2017;66:697-704.
3. Gostin LO, Hodge JG Jr, Noe SA. Reframing the opioid epidemic as a national emergency. *JAMA*. 2017;318(16):1539-1540.
4. Oregon Health Authority. Opioid overdose and misuse. http://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/SUBSTANCEUSE/OPIOIDS/Pages/providers.aspx. Accessed June 1, 2018.
5. Seth P, Scholl L, Rudd RA, Bacon S. Overdose deaths involving opioids, cocaine and psychostimulants—United States, 2015-2016. *Morb Mortal Wkly Rep*. 2018;67:349-358.
6. Schuchat A, Houry D, Guy GP. New data on opioid use and prescribing in the United States. *JAMA*. 2017;318(5):425-426.
7. Institute of Medicine. *Primary Care and Public Health: Exploring Integration to Improve Population Health*. Washington, DC: The National Academies Press; 2012. https://www.nap.edu/read/13381/chapter/1. Accessed June 1, 2018.
8. Taylor E, Bailit M, Dyer MB, Hacker K. *Integrating Public Health and Health Care: Getting Beyond the Theory*. Princeton, NJ: Robert Wood Johnson Foundation; 2016. http://www.statenetwork.org/wp-content/uploads/2016/03/SHVS-Bailit-Public-Health-Integration-March-2016.pdf. Accessed June 1, 2018.
9. Montero JT, Moffatt SG, Jarris PE. *Opportunities to Improve Population Health by Integrating Governmental Public Health and Health Care Delivery: Lessons From the ASTHO Million Hearts Quality Improvement Learning Collaborative*. Discussion Paper. Washington, DC: Institute of Medicine; 2105. https://nam.edu/wp-content/uploads/2015/06/MillionHeartsCollaboration1.pdf. Accessed June 1, 2018.
10. McGinnis JM. Can public health and medicine partner in the public interest? *Health Aff*. 2006;25(4):1044-1052.
11. Kolodny A, Frieden TR. Ten steps the federal government should take now to reverse the opioid addiction epidemic. *JAMA*. 2017;318(16):1537-1538.
12. DiPrete B, Coffman D. A brief history of health services prioritization in Oregon. http://www.oregon.gov/oha/HPA/CSI-HERC/Documents/Brief-History-Health-Services-Prioritization-Oregon.pdf. Published March 2007. Accessed June 1, 2018.
13. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff*. 2008;27(3):759-769.
14. Oregon Revised Statute 413.032. https://www.oregonlaws.org/ors/413.032. Accessed June 1, 2018.
15. Oregon Health Authority. Reducing opioid overdose, misuse and dependency: a guide for CCOs. http://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/SUBSTANCEUSE/OPIOIDS/Documents/reducing-opioid-overdose-cco-guide.pdf. Published 2015. Updated 2018. Accessed June 1, 2018.
16. Oregon Health Authority. Health Evidence Review Commission: prioritized list, guidelines, interventions & services for non-coverage. http://www.oregon.gov/OHA/HPA/CSI-HERC/Pages/Searchable-List.aspx?7687=%7B%22filter%22%3A%22back+pain%22%7D. Accessed June 1, 2018.
17. Dowell D, Haegerich TM, Chou R. CDC guideline for prescribing opioids for chronic pain—United States, 2016. *MMWR Recomm Rep*. 2016;65(No. RR-1):1-49.
18. Oregon Health Authority, Public Health Division. Oregon opioid prescribing guidelines: recommendations for the safe use of opioid medications. http://public.health.oregon.gov/PreventionWellness/SubstanceUse/Opioids/Documents/taskforce/oregon-opioid-prescribing-guidelines.pdf. Published 2016. Accessed June 1, 2018.
19. Washington State. Team based opioid management. http://www.improvingopioidcare.org. Accessed June 1, 2018.
20. Oregon Health Authority. Opioid overdose data dashboard. http://www.oregon.gov/oha/PH/PREVENTIONWELLNESS/SUBSTANCEUSE/OPIOIDS/Pages/data.aspx. Accessed June 1, 2018.
21. National Alliance for Model State Drug Laws. Prescription drug monitoring programs. http://www.namsdl.org/library/E7BB6611-B0D8-0D42-A64ADA9C483BEE28/. Accessed June 1, 2018.
22. Okie S. A flood of opioids, a rising tide of deaths. *N Engl J Med*. 2010;363:1981-1985.
23. Bohnert ASB, Balenstein M, Bair MJ, et al. Association between opioid prescribing patterns and opioid overdose-related deaths. *JAMA*. 2011;305(13):1315-1321.
24. Schneiderhan J, Clauw D, Schwenk TL. Primary care of patients with chronic pain. *JAMA*. 2017;317(23):2367-2368.
25. National Academies of Sciences, Engineering, and Medicine. *Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks for Prescription Opioid Use*. Washington, DC: The National Academies Press; 2017.
26. McGinnis T, Crawford M, Somers SA. A state policy framework for integrating health and social services. *Commonw Fund Issue Brief*. 2014;14:1-9. https://www.chcs.org/resource/state-policy-framework-integrating-health-social-services/. Accessed June 1, 2018.