



Office of the Inspector General

Commonwealth of Massachusetts

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Program Interventions to Address Substance Use Disorder and Save Public Healthcare Funds

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Executive Summary

In an earlier report, the Office of the Inspector General (“Office”) examined how the Massachusetts Medicaid (“Medicaid”) and the Health Safety Net (“HSN”) programs managed over 800,000 fee-for-service claims for certain prescription drugs, with a focus on drugs that have a high potential for abuse.¹ The Office used data analytics to evaluate utilization patterns; identify ways for the Medicaid and HSN programs to detect fraud, waste, and abuse; and observe what policies and practices the two programs had in place relating to the prescribing and dispensing of these drugs. The report was fueled, in part, by the growing problem of opioid use and abuse. Massachusetts in particular has one of the highest rates of drug overdose deaths in the United States; since 2000, opioid-related deaths have increased in Massachusetts by 350%.²

The Office’s earlier report found that the Office of Medicaid (“MassHealth”), the state entity that runs both the Medicaid and HSN programs, could better use claims data to target fraud, waste, and abuse relating to prescription drugs in both programs. The report noted that using data analytics is an effective way to focus on subsets of MassHealth members or HSN users who may be at risk of addiction. MassHealth could, for example, use data analytics to identify MassHealth members or HSN users who are using a particular drug or drug combination, and then determine whether the treatment is clinically appropriate. The report also noted that data analytics can identify patterns of prescribing and dispensing controlled substances that may indicate fraud or abuse. The Office further found that MassHealth could take additional steps to more effectively manage claims for prescription drugs that have a high potential for abuse. Specifically, the Office recommended that MassHealth focus on how it reviews claims, uses prior authorizations, and monitors and addresses its members’ use of Schedule II drugs.

To follow up on that report, the Office has now examined 12 programs from across the country – public and private health insurers, a worker’s compensation program, a hospital-based program, and a health system – to identify interventions to address substance use disorder³ with the aim of identifying promising practices that MassHealth might replicate. To the extent possible, this examination includes the health outcomes of these practices in an effort to determine what interventions have the potential to prevent substance misuse and abuse in the first instance. Effective prevention would, in turn, reduce the need to treat substance use disorder; reduce the overall healthcare costs for people with substance use disorder; and lessen fraud, waste, and abuse in healthcare spending. This review also examines the available data

¹ Massachusetts Office of the Inspector General, *MassHealth’s Administration of Certain Medicaid and Health Safety Net Schedule II Drug Claims* (Mar. 2016). Available at <http://www.mass.gov/ig/publications/reports-and-recommendations/2016/masshealths-administration-of-certain-medicare-and-health-safety-net-schedule-ii-drug-claims-march-2016.pdf>. The report examined prescriptions for drug treatment agents such as buprenorphine and methadone, painkillers such as morphine and oxycodone, sedatives such as certain benzodiazepines, and stimulants such as amphetamines.

² Massachusetts Department of Public Health, *An Assessment of Opioid-Related Deaths in Massachusetts (2013 – 2014)* (Sept. 2016). Available at <http://www.mass.gov/eohhs/docs/dph/stop-addiction/dph-legislative-report-chapter-55-opioid-overdose-study-9-15-2016.pdf>.

³ Substance use disorder is the term that the Diagnostic and Statistical Manual of Mental Disorders 5 has used since 2013 to describe a range of disorders. The term includes a broad category of addictions (*e.g.*, alcohol, tobacco, cannabis, stimulants, hallucinogens, opioids). Opioid use disorder describes one type of substance use disorder.

regarding the fiscal impacts of these interventions in order to identify effective practices that also could save public healthcare dollars.

The interventions the Office reviewed include alternate treatment for pain, revised prescription policies, creative uses of data analytics, outreach and education to providers and patients, reduction in barriers to treatment for substance use disorder, integration of physical and behavioral health services, and tailoring interventions to specific populations.

Measuring the impact of these interventions is a challenge for a number of reasons. For instance, the majority of the programs the Office examined are implementing more than one intervention at a time. Therefore, it is difficult to attribute an outcome to one particular intervention. In addition, data is limited because of the short length of time that many of these programs have used these interventions. In spite of the difficulty in documenting the impact of specific interventions, some of these programs are seeing positive healthcare and fiscal results. Accordingly, the Office recommends that public and private insurance programs, healthcare providers, hospitals, and health systems consider adopting the interventions described in this report.

Background

I. The Office of the Inspector General.

Created in 1981, the Office of the Inspector General (“Office”) was the first state inspector general’s office in the country. The Legislature created the Office at the recommendation of the Special Commission on State and County Buildings, a legislative commission that spent two years probing corruption in the construction of public buildings in Massachusetts. The commission’s findings helped shape the Office’s broad statutory mandate, which is the prevention and detection of fraud, waste, and abuse in the expenditure of public funds and the use of public property. In keeping with this mandate, the Office investigates allegations of fraud, waste, and abuse at all levels of government; reviews programs and practices in state and local agencies to identify systemic vulnerabilities and opportunities for improvement; and assists the public and private sectors to help prevent fraud, waste, and abuse in government spending.

The Office has considerable experience reviewing and analyzing healthcare programs, including issues relating to costs, eligibility, documentation, and verification. The Office also has issued a number of analyses, reports, and recommendations regarding the Massachusetts Medicaid (“Medicaid”) program, the Health Safety Net (“HSN”) program, healthcare reform, and other healthcare topics.

In July 2016, the Legislature enacted chapter 133 of the Acts of 2016. Section 152 of that law directed the Office to study and review the Medicaid and HSN programs:

Notwithstanding any general or special law to the contrary, in hospital fiscal year 2017, the office of inspector general may expend a total of \$1,000,000 from the Health Safety Net Trust Fund established in section 66 of chapter 118E of the General Laws for costs associated with maintaining a health safety net audit unit within the office. The unit shall continue to oversee and examine the practices in all hospitals including, but not limited to, the care of the uninsured and the resulting free charges. The unit shall also study and review the Medicaid program under said chapter 118E including, but not limited to, reviewing the program’s eligibility requirements, utilization, claims administration and compliance with federal mandates. The inspector general shall submit a report to the executive office for administration and finance and the house and senate committees on ways and means on the results of the audits and any other completed analyses no later than March 1, 2017.

Pursuant to this legislative mandate, the Office examined 12 programs from across the country – public and private health insurers, a worker’s compensation program, a hospital-based program, and a health system. The purpose of this examination was to identify interventions to address the issues surrounding substance use disorder⁴ that the Medicaid and HSN programs

⁴ Substance use disorder is the term that the Diagnostic and Statistical Manual of Mental Disorders 5 has used since 2013 to describe a range of disorders. The term includes a broad category of addictions (*e.g.*, alcohol, tobacco, cannabis, stimulants, hallucinogens, opioids). Opioid use disorder describes one type of substance use disorder.

might replicate. This examination includes both the fiscal and healthcare utilization outcomes of these practices in an effort to determine which strategies may help to prevent substance misuse and abuse in the first instance. Effective prevention would, in turn, reduce overall healthcare costs for people with substance use disorder; reduce the need for healthcare spending to treat substance use disorder; and lessen fraud, waste, and abuse in prescription drug programs.

II. The Medicaid program.

The federal government created the national Medicaid program in 1965 to provide medical assistance to low-income Americans, particularly children, through a shared state-federal commitment. Today, the national Medicaid program pays for medical care, as well as long-term nursing and other care, for tens of millions of Americans. At the federal level, the Centers for Medicare & Medicaid Services (“CMS”) administers the program. Each state administers its own version of Medicaid in accordance with a CMS-approved state plan. Although the states have considerable flexibility in designing and operating their Medicaid programs, they must comply with applicable federal and state laws and regulations. In Massachusetts, the Executive Office of Health and Human Services includes the Office of Medicaid (“MassHealth”), which oversees the Medicaid program.

III. The Health Safety Net program.

In 1985, the Legislature created the uncompensated care pool (“UCP”) with the goal of “more equitably distributing the burden of financing uncompensated acute hospital services across all acute hospitals”⁵ The purpose of the UCP was to pay for medically necessary services that acute care hospitals and community health centers provided to eligible low-income uninsured and underinsured patients. In addition, the UCP reimbursed hospitals for bad debt for patients from whom the hospitals were unable to collect payment.

In 2006, the Legislature created the Health Safety Net (“HSN”) program, funded by the Health Safety Net Trust Fund, to replace the UCP. The stated purpose of the HSN program was to “maintain a healthcare safety net by reimbursing hospitals and community health centers for a portion of the cost of reimbursable health services provided to low-income, uninsured or underinsured residents of the commonwealth.”⁶ Initially, the Division of Healthcare Finance and Policy managed the HSN program, but in 2012 the Legislature transferred that responsibility to MassHealth.

For ease of reference, this report will refer to individuals who utilize the Medicaid program as “MassHealth members” and those who utilize the HSN program as “HSN users.”

⁵ G.L. c. 6A, § 75 (repealed 1988).

⁶ G.L. c. 118E, § 66.

IV. Opioid use and misuse in the United States.

The opioid epidemic has reached unprecedented levels in the United States. More than 60% of drug overdose deaths in this country involve an opioid.⁷ In 2014, more people died from an overdose than in any other year on record, and in 2015 drug overdose deaths and opioid-involved deaths continued to increase.⁸ The opioid epidemic is linked in part to a liberalization of opioid use in the treatment of pain during the 1990s. In fact, since 1999, the amount of prescription opioids sold in the United States has nearly quadrupled, while the amount of reported pain has remained unchanged.⁹ The general increase in the availability of narcotics is correlated with increased abuse, diversion, and addiction.¹⁰ Yet the evidence base for the efficacy of opioids to treat chronic pain remains limited, with the majority of randomized clinical trials of prescription opioids to treat pain having lasted six weeks or less.¹¹

In addition to the societal cost, the opioid epidemic has an economic impact. Generally speaking, people with a substance use disorder incur higher healthcare costs than people without such a disorder.¹² For example, one study estimated that opioid overdoses are responsible for \$20 billion in emergency room (“ER”) and inpatient care for opioid poisoning.¹³ In addition, overall healthcare costs are higher for people with substance use disorders because of the medical consequences of the illness.¹⁴

In response to the situation, the Centers for Disease Control and Prevention (“CDC”) issued new prescribing guidelines in March 2016 that focus on the use of opioids for chronic pain in primary care settings.¹⁵ These guidelines offer 12 recommendations, including discussing

⁷ Center for Disease Control and Prevention, *Morbidity and Mortality Weekly Report* (Jan. 1, 2016). Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a3.htm>.

⁸ Centers for Disease Control and Prevention, *Drug Overdose Deaths in the United States Hit Record Numbers in 2014*; Centers for Disease Control and Prevention, *Drug Overdose Deaths in the United States Continue to Increase in 2015*. Both available at <http://www.cdc.gov/drugoverdose/epidemic/index.html>.

⁹ Center for Disease Control, National Center for Health Statistics, *Wide-ranging online data for epidemiologic research (WONDER)* (2016). Available at <http://wonder.cdc.gov>. See also Hsien-Yen Chang et al., *Prevalence and Treatment of Pain in EDs in the United States, 2000 to 2010*, 32 *American Journal of Emergency Medicine* 421-31 (May 2014).

¹⁰ Art Van Zee, *The Promotion and Marketing of Oxycontin: Commercial Triumph, Public Health Tragedy*, 99 *American Journal of Public Health* 221-27 (Feb. 2009). “Diversion” refers either to a person who sells his prescription drugs or to a person stealing drugs from the intended recipient and using or selling them.

¹¹ Thomas R. Frieden & Debra Houry, *Reducing the Risks of Relief – The CDC Opioid-Prescribing Guideline*, 374 *New England Journal of Medicine* 1501-04 (Apr. 2016).

¹² Behavioral Health Services: *Substance Abuse Disorders* (n.d.). Available at <https://www.medicaid.gov/medicaid/benefits/bhs/index.html>.

¹³ U.S. Department of Health and Human Services, *The Opioid Epidemic: By the Numbers* (June 2016). Available at <http://www.hhs.gov/sites/default/files/Factsheet-opioids-061516.pdf>.

¹⁴ Robin E. Clark et al., *Substance Abuse and Healthcare Costs Knowledge Asset* (Mar. 2010). Available at http://sapr.org/knowledgeassets/knowledge_detail.cfm?KAID=21.

¹⁵ Deborah Dowell et al., *CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016*, 315 *Journal of the American Medical Association* 1624-45 (Apr. 2016). With primary care specialties prescribing nearly half of all opioids, educating physicians about the risks of prescribing opioids for chronic pain is critical. Benjamin

the benefits and risks of opioid use with patients, limiting opioid dosage, using alternative therapies for chronic pain, using states' prescription drug monitoring programs, and offering medication-assisted treatment for patients with substance use disorders.

The opioid epidemic has struck Massachusetts particularly hard, resulting in one of the highest rates of drug overdose deaths in the nation.¹⁶ Since 2000, opioid-related deaths have increased in Massachusetts by 350%.¹⁷ In fact, in 2014, the state had a death rate from unintentional opioid overdoses of 18.6 individuals per 100,000 people, compared to a rate of 5.3 per 100,000 in 2000.¹⁸ In addition, opioid-related deaths are higher among those who have obtained opioid prescriptions from multiple pharmacies and those who have obtained prescription opioids in combination with certain other prescription medications.¹⁹

MassHealth reports that in 2006 it spent approximately \$93 million on substance use disorder treatment; in 2016, it spent \$193 million, more than doubling its spending over ten years. This included spending on inpatient and outpatient treatment, detoxification, and emergency services, among other forms of treatment.

In March 2016, Massachusetts passed a law with a number of provisions to address these issues, including placing limits on opioid prescriptions, mandating use of the state's drug monitoring programs, mandating that public schools verbally screen students for substance use, and improving training guidelines for medical professionals who can prescribe opioids.²⁰

Levy et al., *Trends in Opioid Analgesic – Prescribing Rates by Specialty, US, 2007 – 2012*, 49 *American Journal of Preventive Medicine* 409-13 (Apr. 2015).

¹⁶ Massachusetts Department of Public Health, *An Assessment of Opioid-Related Deaths in Massachusetts (2013 – 2014)* (Sept. 2016). Available at <http://www.mass.gov/eohhs/docs/dph/stop-addiction/dph-legislative-report-chapter-55-opioid-overdose-study-9-15-2016.pdf>.

¹⁷ *Id.*

¹⁸ Massachusetts Department of Public Health, *Data Brief: Fatal Opioid-Related Overdoses Among Massachusetts Residents* (Aug. 2015). Available at <http://www.mass.gov/eohhs/docs/dph/quality/drugcontrol/county-level-pmp/data-brief-aug-2015-overdose-county.pdf>.

¹⁹ Massachusetts Department of Public Health, *An Assessment of Opioid-Related Deaths in Massachusetts (2013 – 2014)* (Sept. 2016). Available at <http://www.mass.gov/eohhs/docs/dph/stop-addiction/dph-legislative-report-chapter-55-opioid-overdose-study-9-15-2016.pdf>.

²⁰ 2016 Mass. Acts 52.

Interventions to Address Substance Use Disorders

Across the country, many insurance and healthcare programs are implementing a wide range of interventions to address the challenges of opioid use and misuse. Massachusetts has recently taken several steps to start addressing these issues. For example, Massachusetts has a new law that, among other things, limits first-time opioid prescriptions for adults to seven days. Moreover, it has launched a campaign to reduce the stigma of addiction and treatment and is promoting a good Samaritan law to ensure that people who call for emergency assistance will not be charged with possession of a controlled substance.²¹ It also is working to improve prescription monitoring and expanded prescription drug training for prescribers. In the long-term, Massachusetts will expand medication-based treatment for opioid use disorder; consider gender when developing prevention programs; develop post-incarceration treatment plans; and continue to use and share data between agencies to improve analysis, tracking, and planning.²² A special commission studying whether to establish a pain management access program in Massachusetts concluded that there is merit in developing a pilot program to facilitate access to pain management specialists.²³

For its part, MassHealth has developed a statewide database of available treatment services, accessible by telephone and internet. It has also expanded mobile emergency service programs, ensured that naltrexone²⁴ is included as a pharmacy benefit within all of its plans, and reviewed requiring prior authorization for substance use disorder treatment.²⁵ It also created a new position, Manager of Substance Use Disorder Treatment, and the person in that role is responsible for overseeing the delivery of treatment services to MassHealth members.

In an earlier report, the Office examined how the Medicaid and HSN programs managed over 800,000 fee-for-service claims for certain prescription drugs, with a focus on those drugs that have a high potential for abuse.²⁶ The Office used data analytics to evaluate utilization patterns; to identify ways for MassHealth to detect fraud, waste, and abuse; and to observe what policies and practices the Medicaid and HSN programs had in place relating to the prescribing and dispensing of these drugs. That report found that MassHealth could better use claims data to identify fraud, waste, and abuse relating to prescription drugs in both the Medicaid and HSN

²¹ See G.L. c. 94C, § 34A.

²² Governor's Working Group on Opioids, *Update 2016* (Sept. 2016). Available at <http://www.mass.gov/eohhs/docs/dph/stop-addiction/opioid-working-group-update-september-2016.pdf>.

²³ Special Commission to Examine the Feasibility of Establishing a Pain Management Access Program, *Preliminary Report* (Nov. 2016).

²⁴ Naltrexone is used to treat opioid use disorder.

²⁵ Special Commission to Examine the Feasibility of Establishing a Pain Management Access Program, *Preliminary Report* (Nov. 2016).

²⁶ Massachusetts Office of the Inspector General, *MassHealth's Administration of Certain Medicaid and Health Safety Net Schedule II Drug Claims* (Mar. 2016). Available at <http://www.mass.gov/ig/publications/reports-and-recommendations/2016/masshealths-administration-of-certain-medicaid-and-health-safety-net-schedule-ii-drug-claims-march-2016.pdf>. The report examined prescriptions for drug treatment agents such as buprenorphine and methadone, painkillers such as morphine and oxycodone, sedatives such as certain benzodiazepines, and stimulants such as amphetamines.

programs. In particular, the report found that using data analytics is an effective way to focus on subsets of MassHealth members or HSN users who are, for example, at high risk for substance use disorder. Once data analytics have identified those members or users, MassHealth can then determine whether the patient's current treatment is clinically appropriate. Data analytics can also identify patterns of prescribing and dispensing controlled substances that may indicate fraud or abuse. The Office further concluded that MassHealth could take additional steps to more effectively manage claims for prescription drugs that have a high potential for abuse and recommended that MassHealth focus on how it reviews claims, uses prior authorizations, and monitors and addresses its members' use of certain prescription drugs.

To follow up on that report, the Office reviewed strategies that 12 programs across the country are implementing to address opioid prescription misuse and abuse. The programs included a mix of public and private health insurers, workers' compensation insurers, and hospital- and community-based programs. The goal of this review was to identify strategies that MassHealth could implement to improve MassHealth members' and HSN users' health outcomes by preventing opioid-prescription misuse and by treating it effectively when it arises. In addition to improving health outcomes, more effective prevention and treatment can improve how public entities use their limited funding by decreasing inappropriate prescribing, reducing fraud resulting from prescription misuse and diversion, and lowering healthcare costs (because, for example, healthier individuals need fewer healthcare services).

Virtually all of the 12 programs the Office reviewed implemented more than one intervention to address opioid use and misuse; these interventions fall within seven general categories:

- Alternative treatment for pain;
- Revised prescription policies;
- Creative uses of data analytics;
- Outreach and education to patients and providers;
- Removal of barriers to treatment;
- Integration of physical and behavioral health services, including increased substance use disorder screening by primary care physicians; and
- Focused treatment for specific populations.

The Office will not refer to these programs by name because the purpose of this review is to highlight the interventions themselves rather than any particular program. As illustrated in the chart below, the majority of the programs are using multiple interventions:

Program	Interventions Utilized
A	Alternative treatment for pain Revised prescription policies Outreach and education to patients and providers
B	Revised prescription policies Creative uses of data analytics Outreach and education to patients and providers Removal of barriers to treatment Integration of physical and behavioral health services
C	Alternative treatment for pain Creative uses of data analytics Outreach and education to patients and providers Integration of physical and behavioral health services
D	Creative uses of data analytics
E	Alternative treatment for pain Revised prescription policies Creative uses of data analytics Outreach and education to patients and providers
F	Alternative treatment for pain Revised prescription policies Outreach and education to patients and providers
G	Alternative treatment for pain Revised prescription policies Creative uses of data analytics Outreach and education to patients and providers Integration of physical and behavioral health services Focused treatment for specific populations
H	Outreach and education to patients and providers Integration of physical and behavioral health services
I	Integration of physical and behavioral health services Focused treatment for specific populations
J	Outreach and education to patients and providers Integration of physical and behavioral health services Focused treatment for specific populations
K	Creative uses of data analytics Outreach and education to patients and providers
L	Integration of physical and behavioral health services Focused treatment for specific populations

These approaches are described below.

I. Alternative pain treatment.

One theme across several programs was the importance of providing alternative pain therapy. By managing pain with alternative therapies, patients may never have to use opioids or may use them for a shorter period of time, thus reducing the risks of addiction. Further, more states are restricting access to opioid prescriptions. Without adequate pain therapy, simply restricting access to opioids may lead to patients turning to illegal opioids or alcohol to address their pain. Alternate pain treatments include chiropractic services, physical therapy, cognitive behavioral therapy (“CBT”),²⁷ acupuncture, osteopathic manipulative treatment,²⁸ injections, surgery, and non-opioid pain-modulating drugs (*e.g.*, Lyrica, Cymbalta).

For example, Program G has developed an extensive alternative pain management program and is willing to pay for alternative treatments even if there is not yet strong evidence in support of their efficacy. Program G recognized that it needs to replace opioids with some type of alternative and was willing to explore various options to see what best meets patients’ needs. This program initially focused on CBT and offers CBT programs at several locations, as well as through telehealth where the program does not offer it in person.²⁹ Program G also developed a chronic-pain clinic for patients, which includes weekly meetings both in person and through telehealth. The chronic-pain clinic provides eight sessions in which patients learn about the benefit of physical therapy, acupuncture, yoga, mindfulness, adequate sleep, and nutrition. This program also offers yoga classes both on site and online. Program G has also trained more than two dozen of its physicians in an abbreviated form of acupuncture.³⁰ The evidence around this intervention is still emerging, but both providers and patients have had positive feedback about how the alternate pain treatments have improved patients’ pain levels and decreased opioid prescriptions.

Several of the insurers in this review, including Programs A, C, and F, are now reimbursing providers for alternative treatments for chronic pain. Indeed, Program F requires patients with chronic pain to try alternative therapies before opioids.

Programs C, F, and G reported that they have found that managing patients’ expectations regarding their pain levels is also a key issue. These programs indicated that it is important that some patients with chronic pain recognize that although their pain may never disappear completely, their insurer, provider, or hospital is committed to help find treatments that will get their pain to a manageable level. In conjunction with managing patients’ expectations, Program

²⁷ CBT is goal-oriented psychotherapy that approaches problem-solving using a hands-on approach, which has a small but statistically significant effect on pain and disability.

²⁸ Osteopathic manipulative treatments involve an osteopathic physician diagnosing and treating physical pain by manipulating a person’s bones and muscles.

²⁹ Telehealth is the use of electronic information and telecommunications technologies to support long-distance clinical healthcare.

³⁰ A physician places small needles in one or both of the patient’s ears. It takes the physician approximately five minutes to place the needles in specific points on the ear that are believed to relieve pain. The needles remain in place for several days until they fall out. This intervention takes less time and space than traditional acupuncture and physicians can learn how to administer it in a half-day class.

C is also explicitly focusing on attaining the highest level of patient functionality rather than completely eliminating pain.

Thus, a number of the programs in this review are creating ways for patients to obtain alternate treatments for chronic pain. This approach acknowledges that patients are seeking opioid prescriptions for a specific reason – to alleviate pain – and endeavors to treat that pain differently.

II. Revising prescribing policies.

A. Changing prescription limits.

To address opioid prescription misuse and abuse, several programs have changed their prescribing policies. Programs E and F, for example, revised their policies to track the CDC’s March 2016 prescribing guidelines, which advise caution when increasing a person’s prescribed dose above 50 mg morphine milligram equivalents (“MME”) per day and recommend avoiding any doses greater than 90 mg MME per day.³¹ Another change among the programs under review was setting prescribing limits with regard to either the number of doses prescribed per day (Program E) or of the number of days’ supply that a healthcare provider can prescribe at once (Program B).

Program F also implemented a prior authorization requirement for any opioid dose exceeding 30 mg MME per day, up to a maximum allowed dose of 300 mg MME.³² Program B initially limited prescriptions for opioids to a fifteen-day supply but subsequently reduced it to a seven-day supply. After that, patients are able to obtain one refill for an additional seven days, but any refills beyond that require prior authorization. In addition, when seeking prior authorization, Program B’s providers must attest that they have entered into a treatment agreement with their patients that explains the risks of opioid treatment.³³

Finally, patients in Program F with certain conditions no longer qualify for treatment with opioid medications without first obtaining a second opinion supporting the use of opioids. This program has anecdotally heard that some providers are pleased with the variety of options now available and appreciate being able to tell patients that they must try alternative therapies before they can obtain opioids. However, not all providers have embraced the new policy because working to connect patients to alternative pain therapies takes more time than writing a prescription.

³¹ The dose of an opioid can be measured in morphine milligram equivalents (“MME”), which is also sometimes referred to as the morphine equivalent dose (“MED”).

³² The prior authorization requirement does not apply to certain types of patients, including cancer patients; patients in end-of-life care, nursing homes, or inpatient care; and patients with HIV/AIDS.

³³ This requirement does not include oncologists.

B. Switching from brand-name to generic prescriptions.

Although Program E has not banned providers from prescribing brand-name opioids, it is using provider engagement and education to encourage providers to prescribe generic-equivalent opioids. Brand-name drugs have a much higher “street” value than generic drugs. By reducing the availability of brand-name opioids, Program E believes that fewer prescription opioids will be diverted into the community, causing the price of such drugs to rise, making them less accessible, and therefore preventing people from starting down the path to illegal opioid use. Ultimately, this program’s goal is to decrease the supply of prescription opioids in the community and in schools to prevent teenagers from becoming addicted to prescription opioids and then switching to heroin. Program E reported that it has achieved significant reductions in brand name-opioid prescriptions.

III. Increased use of data analytics.

Many programs are using data analytics to proactively identify patients at risk of developing chronic pain, as well as those who are using high levels of opioids. Some of these programs only use claims data, while others draw on additional data sources to predict patients at risk of opioid prescription misuse and abuse.

A. Identifying patients at risk of developing chronic pain.

Rather than looking at opioid use directly, Program K has developed a unique way to identify patients at risk of developing chronic pain. The goal of this computer model is to proactively reduce the number of patients seeking to initiate opioid use. Program K has determined that people with conditions lasting 30 days or more are most likely to develop chronic pain. As a result, the computer model first identifies people with conditions that have lasted for 30 days. The model then monitors those people every 30 days during which they continue to seek treatment for those conditions. To identify those who are at risk for developing chronic pain, the model uses information from various claim fields, including those regarding pharmacy utilization, musculoskeletal issues, behavioral and psychosocial issues, and comorbidities.³⁴

Once the model has identified a patient who is at risk of developing chronic pain, Program K evaluates whether there is a concern regarding either opioids or certain combinations of prescriptions. If there is a concern, the program then reaches out to the patient’s doctor. The program also has nurses and other healthcare professionals who may reach out to the patients themselves and perform addiction screening.

³⁴ Comorbidities refer to the presence of two or more chronic diseases or conditions. Here it refers to the disease or injury that is causing the pain along with other diseases or conditions, such as nutritional deficiencies, obesity, diabetes, vascular disease, chronic obstructive pulmonary disease, tobacco use, substance use (including alcohol use), and osteoporosis.

B. Identifying patients using high levels of opioids.

Several other programs have developed algorithms to identify patients at highest risk for opioid prescription misuse and abuse. Program E developed an algorithm for all patients who are prescribed opioids.³⁵ The algorithm determines a risk score for each patient by analyzing factors from the patient's records, such as the number of prescribers, number of care providers, and the use of multiple pharmacies.³⁶ The data analytics team uses this statistical analysis to identify patients who have anomalous activity (such as using several different pharmacies over short periods of time). The data team then communicates this information to the program's physicians and other clinicians to develop action plans for how to treat high-risk patients. The partnership between the data team and the clinical team has been critical to the program's success. Program E also has opioid committees, which include physicians, pharmacists, drug education coordinators, data analysts, nursing administrators, and others. The data analytics team meets with the opioid committees to review data and determine if there is any data in need of validation.

Program F has been using data from its state's prescription monitoring program to identify patients at risk for addiction and prescription drug fraud. A prescription monitoring program ("PMP") is a website where all pharmacies report patients' prescriptions. This allows prescribers to have access to a patient's prescription history regardless of whether the person used cash or insurance to pay for the prescription.

Program F has found PMP data to be more helpful than pharmacy claims data alone because people with high levels of opioid utilization often pay cash and the program does not know about prescriptions for which it does not pay. Program F has also worked with a consulting company to use demographic and other non-claims data to identify people at higher risk of addiction. From this data, the program identifies the providers with the most at-risk members and then conducts outreach to screen the program's patients for opioid abuse.

Program C uses data analytics to identify people at high risk for addiction by analyzing claims data from the CMS. This program looks for a variety of factors in the claims data to identify people at risk for addiction, including treatment for overdose in an emergency room; opioid prescriptions greater than 120 mg MME;³⁷ and patients with at least three different providers, three different pharmacies, or three different opioid prescriptions. Once Program C has identified people at high risk, the program reviews the information about each person individually as some of these factors alone may not be an indicator of opioid misuse.³⁸ This program also recognizes the inherent weaknesses in using claims data, including the three-month lag between when the claims occurred and when it receives the data from CMS. Therefore,

³⁵ This program excludes from review those patients with cancer and terminal illnesses.

³⁶ These factors tend to indicate that a patient is doctor or pharmacy "shopping" to obtain multiple prescriptions at the same time.

³⁷ See footnote 31.

³⁸ For example, a patient may have seen three providers within the same practice. This would not ordinarily be a red flag for doctor-shopping because the patient could not hide treatment by providers who work together and share patient records.

Program C also has regular weekly provider meetings to discuss patients who may be at risk for opioid addiction. During these provider meetings, the providers share information about patients from non-claims sources – including information gained from home visits – and re-formulate care plans as necessary.

Program G has developed a screen within its electronic medical record system that allows providers to quickly identify those patients with high levels of opioid use who may be at risk for overdose. The screen shows Program G's providers all of their patients who have been prescribed opioids and identifies the ones with the highest risk levels for pain. The screen displays the patients receiving opioids and their daily dose, history of addiction, whether the patient takes any other drugs, the date of the person's last doctor's appointment, and whether the person has an opioid agreement³⁹ in place. Program G is currently developing a similar tool to identify patients most at risk for addiction.

IV. Engaging in outreach and education.

Many programs noted that a key component of the success of their interventions has been outreach and education to both clinicians and patients. Several noted that it would have been difficult to implement a new policy or program without successful provider engagement.

A. Provider education.

Nearly all the programs in this review conducted outreach to physicians and other medical professionals, both in person or through webinars. Programs used outreach activities to: (1) educate clinicians about new policies being put in place, as well as the risks and benefits of opioid use; (2) get feedback from these professionals on ways to improve the programs, as part of ongoing quality improvement; and (3) work with physicians who are prescribing opioids at higher rates than their colleagues.

For instance, Program B held a meeting that focused on pain education for providers, including primary care and emergency department physicians. Specialists presented information about various alternative pain management options. Program E conducted outreach to and education for all physicians who were prescribing opioids, including physicians in family medicine, pain management, orthopedics, and neurology. Program J focused on teaching primary care physicians (PCP") to screen adolescents for substance use disorder as adolescents are often treated for drug overdoses in the ER without follow-up. Program H conducted a similar program targeting patients of all ages. Program G has trained providers from a variety of specialties – including primary care doctors and those in specialties such as anesthesiology, rheumatology, neurology, and neurosurgery – in alternative pain management. This program also discusses pain management techniques at its yearly meetings with over 500 physicians. Program J also offers in-person trainings that count toward continuing medical education ("CME") credits, which acts as an additional incentive to providers who need CME credits to renew their licenses.

³⁹ Opioid agreements generally inform patients of the risks of taking opioids and provide instructions on safe administration.

Although some programs emphasized in-person trainings, other programs recognize that such trainings and consultations are not always possible. As a result, virtual resources can play a valuable role. For example, Program H offers online trainings about a screening tool for substance use disorder in primary care settings that is evidence-based and endorsed by the Substance Abuse and Mental Health Services Administration.

With regard to engaging providers in policy formulation, Program F utilized a robust process to gather feedback from medical professionals about the best approaches to alternative pain management. Once its policies were in place, it again engaged providers to inform them about its new pain management policies. All of these conversations included doctors from various hospitals, addiction specialists, pain specialists, and representatives from the state's medical association.

Two of the programs, Programs A and K, conduct peer-to-peer education for clinicians who are prescribing high levels of opioids. After a patient's second opioid prescription fill, Program A sends the patient and the prescriber an information packet about the risks and benefits of opioids. At this point, the program's goal is to make sure that opioids are used safely, rather than explicitly instructing physicians to lower the dose or duration of the prescription. However, if a patient continues on opioids for more than six weeks, the program sends a nurse case manager in person to the physician's office to discuss prescribing. If this is not effective in reducing opioid prescribing, Program A then has a physician in the same specialty as the prescribing physician call that physician to discuss alternative pain management options.⁴⁰

Program K also reaches out to providers when a computer model identifies a concern for the provider's patients based on either the amount of opioids being prescribed or the combination of different prescriptions that the patient is receiving. The program may decide to call the provider, send a letter to the provider with information about the patient's prescriptions, or have a pharmacist or a physician contact the prescriber.

B. Patient outreach.

Many programs are also conducting outreach directly to patients who they identify as having a high risk of addiction. To conduct this type of outreach, programs stressed the importance of having staff who are medical professionals or case managers, rather than claims professionals who may not be comfortable or qualified to discuss opioid use and addiction issues with patients.

Program K, which uses a predictive model to identify patients at high risk for chronic pain, has nurses and other professionals conduct outreach to those patients. These healthcare professionals call the patients to screen them for potential addiction and then follow up with the patient's provider.

Program A is implementing an initiative in which it identifies when a person fills a first opioid prescription so that the program can start monitoring the patient. After the second

⁴⁰ Program A specifically trains the physicians who conduct the peer-to-peer outreach before they begin making these calls.

prescription fill, the program provides the patient with a packet of information about the risks and benefits of opioids, pain tools, a sample patient “opioid contract,” and other resources.

Program B, which serves a large homeless population, contracts with a behavioral health provider to identify people with addictions and to engage this traditionally difficult-to-engage population in treatment. This program also reaches out to patients who have overdosed in the past to see if they want to enroll in a care management program.

Program I has community health workers reach out to patients who are receiving treatment in outpatient substance use disorder clinics to conduct health assessments and connect them to PCPs and other health services they may need. The goal of this program is to connect patients to sources of healthcare other than the emergency room to reduce emergency visits and save costs.

Yet another program is conducting outreach to people that it identifies to be at high risk of overdose: Program C conducts home visits for its participants, many of whom have chronic disabilities. Health outreach workers screen patients for opioid misuse or abuse during the home visit; patients that the health workers identify as at high risk of overdose may receive certain tools, such as a locked pill dispenser, which the outreach worker fills once a week. The patient can only open the pillbox at predetermined times to take a specific dose of medication. This tool is particularly useful when prescribers are concerned about pill diversion to other family members.

For every person taking opioids for more than 90 days, Program G sends a cover letter and pamphlet describing how to take opioids responsibly, along with an educational DVD that reviews the components of the program’s opioid agreement. This opioid agreement outlines the risks and benefits of opioid use, the patient’s goals for long-term opioid therapy, and the alternative treatment options available. All patients must sign the opioid agreement, which the program considers to be an informed consent document. Moreover, Program G offers patients the option to attend a group class to review the forms and ask questions before signing the opioid agreement. Program G has encountered some resistance from patients who are concerned that their pain cannot be managed adequately without opiates, which highlights the importance of patient education.

V. Removing barriers to treatment.

In addition to encouraging the use of alternative pain management, programs are also working to ensure that their policies do not present barriers to seeking treatment for substance use disorders. For example, Program B no longer requires prior authorization for two medications – Suboxone and Vivitrol – used to treat opioid dependence. By doing so, Program B hopes to facilitate access to these medications for patients who need them and has seen an increase in prescriptions for these drugs since removing the prior authorization requirement. Even though these drugs are expensive, the program expects to see a return on its investment over the long-term because the cost of the drugs is modest compared to the total medical costs for patients with addiction.

Also, Program G is expanding access to treatment by increasing the number of providers in its system with Suboxone licenses as federal law limits the number of patients one provider can treat with Suboxone at a time.⁴¹ Programs that have removed barriers to accessing drugs to treat opioid addiction report increases in pharmacy costs over the short term, though they expect this investment to lead to long-term cost savings.

VI. Integration of physical and behavioral healthcare.

A number of programs identified the integration of physical and behavioral healthcare as another key component to addressing substance use disorder. Recognizing that primary care visits are often the only time that a patient interacts with the healthcare system, several programs require PCPs to screen for addiction and substance use disorder. After PCPs screen patients, they can refer those with positive screenings to behavioral health service providers. Programs believe that training PCPs to detect potential addiction early may help prevent future ER visits and negative health outcomes for patients.

Program H, which has PCPs screen for addiction and substance use disorder, has developed a behavioral health hotline that PCPs can call for guidance on referring patients to appropriate behavioral health providers. The program worked with the state's Medicaid program to develop a new code to allow providers to bill for the screening. Program H is also planning to expand its physician-training program beyond PCPs to include OB-GYNs, who act as PCPs for many women.

In another example of behavioral health integration, Program B has created integrated care management teams in which physicians and social workers work together. This allows a patient to have one point of contact regardless of whether his issue is physical or behavioral. Program C has patient care teams that include a licensed mental health clinician, which helps to keep the program's focus on providing physical and behavioral health services in a streamlined manner. It also helps the providers to recognize when a particular patient has both physical and behavioral health issues.

The lack of integration of physical and behavioral health can present a major challenge to programs. For example, Program I's state recently removed substance use disorder treatment services from the Medicaid managed care program. This means that managed care providers can no longer provide treatment for substance use disorder. As a result, it is difficult for this managed care program to know which patients are receiving substance use disorder treatment and therefore may not be providing the necessary care to those patients. Although Program I aims to link its patients with substance use disorder to PCPs and other treatment for physical health conditions, the lack of integration between behavioral health services and other healthcare has presented a challenge.

⁴¹ 21 U.S.C. § 823(g)(2)(B).

VII. Creating interventions for special populations.

Some programs are implementing interventions focused specifically on unique populations. In addition to the program providing services to a large number of homeless patients,⁴² two other programs in this review are tailoring interventions to best address addiction in populations with specific characteristics and needs.

A. Adolescents.

After looking at its data, Program J recognized that a large number of adolescents were being treated in the ER for drug poisoning, but that only a few received follow-up care after the ER visit or had had any previous office visits during which their physician identified a substance use disorder. Program J recognized that PCPs may not believe that substance use is an issue among their adolescent patient population.

To combat this misperception, Program J's staff conducts outreach to physicians' offices with data to demonstrate that substance use is a local problem among their patients. The program also trains physicians to use a screening tool specific to adolescents, known as the CRAFFT screening tool, which the American Academy of Pediatrics' Committee on Substance Abuse recommends.⁴³ Program J has trained physicians on the use of the CRAFFT tool and providers may receive reimbursement for conducting screenings.

The programs that have trained PCPs to screen for substance use disorder have documented increased substance use disorder screenings. Program J, which is working with adolescents, noted that before it began educating PCPs to screen their adolescent patients for substance use disorder, none of the PCPs had screened their patients. However, at six-month follow-up, 50% of the patient records in the intervention group documented some screening for substance use disorder.⁴⁴ Finally, Program H reports that it has had approximately 5% of its members screened by PCPs during the first year of its interventions.

B. Pregnant women and their newborns.

Program L is focusing on treating pregnant women with opioid addiction. A patient care manager coordinates the care for these women and provides Suboxone treatment in conjunction with obstetric services, behavioral health treatment, and social services. Some of the social services to which Program L links women include a transportation liaison who helps them get bus tickets to and from the clinic, daycare in the clinic, an on-site nutritionist who helps them apply for WIC and other services, and a program to address domestic violence. Other services include employment placement assistance, especially for those with prior felonies, and housing

⁴² See page 16.

⁴³ The name of this tool is a mnemonic acronym of the first letters of key words in its six screening questions (car, relax, alone, forget, friends, trouble). For more information, see <http://www.ceasar-boston.org/CRAFFT/>.

⁴⁴ None of the providers in the intervention group had billed for this service, however, and the program plans to continue to encourage providers to bill for it.

assistance. Program L treats women for up to six weeks postpartum, after which they are transferred to a community Suboxone provider.

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The Cost of Interventions

Few of these programs have calculated the costs of implementation. As a result, it is difficult to determine whether their interventions generated cost savings. However, a few programs were able to give rough estimates of the cost of program implementation. For example, Program H stated that it has spent about \$50,000 to reimburse providers who trained other providers how to screen for substance use disorder in a primary care setting.

Other programs said that their interventions did not necessarily cost anything to implement or that they simply redirected existing staff and resources to fund them. For example, Program F explained that it did not need any funding to implement its new prior authorization policy, since the pharmacy benefit manager was already in place and only needed to follow the new guidance concerning the prior authorization.

Some programs, such as Program B, stated that the cost of implementing their interventions was modest but that they fully expect to get a return on their investments based on improved health outcomes for their patients. Yet other programs do not plan to calculate the cost of their interventions, especially if the program did not design the intervention to reduce costs but rather to improve patient safety, or if the program has so few enrollees that it does not believe the data will be meaningful on a larger scale.

The interventions that Program A has implemented, such as sending a case manager to talk to the patient's doctor and peer-to-peer reviews, are actually revenue generating because this program does not pay for them itself. Conversely, Program J, which focuses on treating pregnant women and their newborns, reduced inpatient admissions for both the mothers and their newborns, which in turn reduces revenue for the hospital(s) that treat the mother and baby. This is an example of a positive healthcare outcome for the patients that creates a financial loss for the hospital. Finally, Program G has hired new staff and shifted many full-time positions to implement its alternative treatment programs for pain management but has not calculated the cost.

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Challenges to Measuring the Healthcare and Fiscal Impact of Interventions

Some of the programs in this review have measured the impact of their interventions in a variety of ways, in terms of both healthcare utilization and fiscal outcomes. At the same time, several programs have experienced challenges in evaluating outcomes and therefore information on fiscal and health outcomes for these 12 programs is generally limited. There are a number of reasons for these information gaps, including lack of data, outcome data that is not yet available, and the difficulty attributing specific health outcomes to a particular intervention.

I. Outcome data is not yet available for newer interventions.

Although many of the programs plan to assess health and fiscal outcomes in the future, they have not yet done so. Many of the programs started working on their interventions within the past two years, and want at least three years of data to draw conclusions about the fiscal impact of the interventions.

Programs also noted the need to calculate both short-term expenditures and long-term cost savings. In the short term, for example, alternative pain management such as acupuncture and yoga can cost more than opioids. In the long-term, however, reducing the number of patients on opioids will likely both reduce the number of overdoses and the overall use of the healthcare system, both of which would save money.

II. Calculating outcome data is challenging when there are simultaneous interventions.

Another challenge in tracking health and fiscal outcomes is that many programs are implementing numerous interventions simultaneously, some for substance use disorders and some for other conditions. For example, a program may have multiple initiatives to reduce all emergency room visits and inpatient admissions, including one for patients with substance use disorder. These overlapping interventions make it difficult to assess the impact of the intervention (or interventions) related to the substance use disorder.

III. Attributing outcomes based on claims data is difficult.

One way of measuring positive outcomes from substance use disorder interventions would be to focus on changes in specific types of health service utilization. However, programs noted that calculating such outcomes presents its own set of challenges. For example, using emergency room claims data to identify overdoses is difficult because the claims may contain many different designations. Thus, if an overdose resulted in cardiac arrest, the primary diagnosis would likely be cardiac arrest rather than the overdose. As a result, overdose may be far down the list of diagnoses or not even included on the claims form. Further, emergency room claims involving opioids may be coded as poisonings or suicide attempts rather than overdoses, which compounds the difficulty of using claims data to evaluate outcomes. Moreover, diagnoses on claims represent an interpretation from a healthcare coder. With the significant number of

possible codes, there is tremendous variation in how substance use disorder treatments are listed on claims.

Impacts of Interventions

I. Reduced opioid prescribing.

Although the number of programs in this review that have been able to assess changes in fiscal outcomes and health service utilization is limited, some programs have documented changes in opioid prescribing after implementing their interventions. For example, Program A conducted a controlled trial to compare pharmacy costs and other outcomes between an intervention group and a control group. The patients in the intervention group had case managers and their physicians received prescriber education. Program A found:

- There was a 14% reduction in opioid prescriptions and a 22% reduction in pharmacy spending for the intervention group.
- The average pharmacy cost per patient per month for the intervention group was less than half the cost for the control group.
- The average opioid cost per patient per month for the intervention group was less than half the cost for the control group.
- The average daily MME⁴⁵ was 39 mg in the intervention group compared to 46 mg in the control group.
- The intervention group received opioids for 13% fewer days than the control group.

Another program, Program F, has seen a 36% decrease in opioid prescriptions. Yet another, Program G, has seen a nearly 75% reduction in patients on high doses of opioids (over 100 mg MME per day). One program, Program E, has reduced prescribing of OxyContin by almost 80% (measured by milligrams prescribed). After implementing its model to prevent chronic pain, Program K saw a 50% reduction in the number of claims for opioids, as well as a roughly 25% reduction in the average daily MME.

II. Reduced pharmacy spending.

Some of the programs have documented reduced pharmacy spending after implementing their interventions. For example, Program K, which implemented a predictive model to identify patients at risk of developing chronic pain, has seen a nearly 50% reduction in the cost of pharmacy claims for patients that the model identified. The reduction in cost occurs when, once the model identifies the patients at risk, the program reaches out to the patient and the patient's healthcare provider about appropriate opioid use and the dangers associated with improper use. Thus, this appears to be a promising approach.

As described in the previous section, Program A conducted a controlled trial to compare pharmacy costs and other outcomes. Program A found a 22% reduction in overall pharmacy

⁴⁵ See footnote 31.

spending for the intervention group. The program also found a significant reduction in total opioid costs and average prescription costs between the intervention and the control group.

A third program – Program G – tracked spending on opioids before and after its interventions, which include a number of initiatives to promote alternative treatments for pain. Program G found that pharmacy spending on opioids has fallen by about 30% since the beginning of its program approximately seven years ago.

Conversely, programs that have removed barriers to accessing drugs to treat opioid addiction report increases in pharmacy costs over the short term, though they expect this investment to lead to long-term cost savings. For example, after removing prior authorization requirements for prescription drugs to treat substance use disorder, Program B has seen an increase in the prescribing of Suboxone and Vivitrol, both of which are expensive. However, this program indicates that these drug costs are modest compared to the total medical costs for patients with substance use disorder.

Similarly, although the costs of alternative pain management therapies may exceed the pharmacy costs of prescribing opioids, several programs indicated that they expect cost savings in the long run through the reduction in healthcare costs related to treating people with opioid addiction.

III. Reduced healthcare utilization.

Because the programs in this review utilize a number of initiatives targeting opioid abuse, it can be difficult to disentangle the relative impact of each intervention on the cost of healthcare utilization. In spite of this difficulty, some programs have measured reductions in healthcare utilization, including the reduction in inpatient admissions, ER visits, and the length of hospital stays. For example, Program B found after one year that:

- Emergency room visits decreased by 14%.
- Emergency room visits related to substance use disorder (excluding alcohol) dropped 16%.
- Inpatient admissions decreased by 5%.
- Inpatient admissions related to substance use disorder (excluding alcohol) fell by 31%.

Furthermore, Program K noted reductions in pharmacy-related adverse events and in surgical rates to address pain-related conditions. Pharmacy-related adverse events include both negative reactions to over-the-counter drugs, such as Tylenol and Benadryl, as well as overdoses on opioids and other prescription drugs. With regard to a reduction in surgical rates, Program K reported a lower number of lumbar and shoulder surgeries to treat pain-related conditions. Finally, Program E reported a 21% reduction in opioid-related adverse events.

IV. Increased screenings.

The programs that have trained PCPs to screen for substance use disorder have documented increased screenings. Program J, which is working with adolescents, noted that before it began educating PCPs to screen their adolescent patients for substance use disorder, none of the PCPs had screened their patients. However, at the six-month follow-up, 50% of the intervention group had received some screening for substance use disorder. Program H reports that it has had approximately 5% of its members screened by PCPs during the first year of its interventions.

V. Improved outcomes for pregnant women and their newborns.

Program L, which works with pregnant women and their newborns, has had measurable successes. Specifically, 48% of the women in the program graduated, which means that the women were treated throughout their pregnancy, through six weeks postpartum, and then transferred to a community Suboxone provider. The typical completion rate for Suboxone treatment is 35%.

Program L has also been able to track data on healthcare utilization, both for the women who are enrolled in their program and for their newborn infants. The program reports a reduction in the length of inpatient stays for babies born to mothers who are part of the program and who are receiving Suboxone treatment. This results in significant cost savings as these babies typically require a stay in the neonatal intensive care unit (“NICU”) if they are being treated for addiction. The program reports the following results:

- The average length of stay in a NICU for babies with mothers in the program is half the length of time for babies whose mothers are receiving methadone treatment.
- 35% of babies in this program require medication to treat neonatal abstinence syndrome, compared to 45% of babies of mothers treated by community buprenorphine providers and 60% of babies of mothers treated with methadone.

There is an opportunity in Massachusetts to learn more about how to care for pregnant women and their newborns. The Massachusetts Health Policy Commission recently provided almost \$3 million in grants to six hospitals to develop or improve interventions relating to neonatal abstinence syndrome, which will improve care for infants with neonatal abstinence syndrome, as well as for women in treatment for opioid use disorder during and after pregnancy. One goal of these grants is to demonstrate that an integrated delivery model for these infants and families will result in cost savings and quality improvements. Three hospitals will work with infants who show symptoms of neonatal abstinence syndrome and three hospitals will work with pregnant women with opioid use disorder. The three hospitals working with infants will, among other interventions, increase their focus on non-pharmacologic care, improve pharmacologic care, initiate new hospital care models, and implement a multidisciplinary approach to integrate pre- and post-natal management of the mother and baby. The three hospitals working with pregnant women will, among other interventions, treat the women and babies from pre-natal

screenings through six or twelve months postpartum with pharmacotherapy, behavioral healthcare, prenatal care, life skills education, breastfeeding, newborn care, lifestyle coaching, or alternative treatment for addiction. One of these hospitals will also provide enhanced training for clinicians regarding neonatal abstinence syndrome.

Recommendations and Conclusions

This review has discussed the interventions that different healthcare and insurance programs are implementing to address opioid prescription misuse and abuse, including both the fiscal and healthcare utilization outcomes of these practices, in an effort to determine which strategies may help to prevent substance misuse and abuse in the first instance. Effective prevention would, in turn, reduce the need for healthcare spending to treat substance use disorder; reduce the overall healthcare costs for people with substance use disorder; and lessen fraud, waste, and abuse in prescription drug programs. To the extent that MassHealth does not provide coverage for these interventions, it should consider doing so to provide additional options to MassHealth members and HSN users with substance use disorders.

Many of these interventions have the potential to be replicated or adapted by other insurers or programs. Some of these interventions have demonstrated positive fiscal or health outcomes; other interventions either do not have documented outcomes or are too new to show what fiscal or health impact they might have. These interventions occur at the patient, provider, insurer, and health system level, and include:

- **Alternative treatment for pain.** Managing pain better with alternative therapies – such as physical therapy, chiropractic services, cognitive behavioral therapy, acupuncture, osteopathic manipulative treatment, injections, and non-opioid pain-modulating drugs – means that patients may never have to use opioids or may use them for a shorter time, thereby reducing the risks of addiction.
- **Revised prescription policies.** Changing prescription limits, strengthening prior authorization requirements, and requiring second opinions for opioid prescriptions are all methods of reducing the use of prescription opioids. Switching from brand-name to generic opioid prescriptions may reduce the number of prescription opioids that are diverted into the community.
- **Creative uses of data analytics.** Data analytics can identify patients at risk of developing chronic pain, as well as those who are currently using high levels of opioids. By identifying these patients, providers have an opportunity to intervene to prevent opioid use, or to offer alternatives or treatment. A strong partnership between the data team and the clinical team appears to be critical to successfully using data analytics in this regard.
- **Outreach to and education of patients and providers.** Including providers in policy development and education has the potential to increase provider buy-in to new opioid management interventions. Educating providers in appropriate prescribing practices and alternate pain management can improve the quality of care that they provide. Reaching out to and educating patients can help to promote informed consent regarding opioid use, reduce opioid use, reassure patients that there are multiple ways to treat their pain, and manage expectations around the reduction – not elimination – of pain.
- **Removal of barriers to treatment.** Removing barriers to treatment by eliminating prior authorization for medication-assisted treatment for substance use disorder and

expanding the number of providers available to treat this disorder can increase treatment.

- **Integration of physical and behavioral healthcare.** Training PCPs to identify substance use disorder in both adult and teenage patients, as well as integrating physical and behavioral healthcare, provide opportunities to increase the identification of patients in need of treatment.
- **Focused treatment for specific populations.** Creating treatment programs for specific populations, such as pregnant women and their newborns, adolescents, and the homeless, can target unique needs that might otherwise go unaddressed.

There are significant challenges to documenting outcomes resulting from these interventions, both in terms of health service utilization and cost savings. However, the outcomes that programs have measured, both in terms of cost savings and improved health outcomes, are encouraging. Several programs have documented significant reductions in opioid prescribing, pharmacy spending, ER visits, or hospital length of stay, all of which have the potential to lead to reduced healthcare spending. The availability of outcome data will increase as programs obtain several years' worth of data to document the effects of their interventions. At the same time, preliminary fiscal outcome data should be interpreted with caution, as spending may increase on other treatments, such as Suboxone and alternative pain management techniques. However, even these more costly interventions may ultimately lead to cost savings in the long-term by decreasing overdoses and the related healthcare expenses, as well as decreasing overall healthcare costs by improving health outcomes for people with substance use disorders.

Further, the challenges of measuring the results of these interventions should not deter programs from tracking fiscal and health outcomes. In fact, programs that implement these or other interventions must track both fiscal and health outcomes for two reasons. First, they will be able to evaluate the cost and suitability of a particular intervention for their patients. Second, as more documentation becomes available, other insurers, hospitals, and health systems will be better able to evaluate which types of interventions are fiscally and clinically appropriate for their particular populations.

The new Massachusetts opioid law provides a foundation for addressing prescription opioid misuse and abuse by mandating opioid prescribing limits, provider education and training, and screening for substance use disorder in certain settings, among other interventions. The work to address opioid addiction must continue to evolve, however, since 2016 marked another increase in the number of opioid-related deaths, with 1,465 confirmed and more than 500 others suspected.⁴⁶ This review suggests other promising interventions that may help Massachusetts' public and private insurers and healthcare systems to reduce opioid prescription misuse and abuse among their patient population and contribute to addressing the opioid epidemic.

⁴⁶ Massachusetts Department of Public Health, *Data Brief: Opioid-related Overdose Deaths Among Massachusetts Residents* (Feb. 2017). Available at: <http://www.mass.gov/eohhs/docs/dph/stop-addiction/current-statistics/data-brief-overdose-deaths-february-2017.pdf>.