



September 30, 2020

The Honorable Michael Conway  
Insurance Commissioner  
Colorado Division of Insurance  
1560 Broadway, Suite 850  
Denver, CO 80202

Dear Commissioner Conway:

On behalf of the American Medical Association (AMA), Manatt Health, Colorado Medical Society and the Colorado Pain Society, we offer the attached response to the Colorado Division of Insurance's (DOI) Request for Information (RFI) on the costs associated with the health coverage provisions proposed in Colorado House Bill (HB) 20-1085 that would have increased access to multidisciplinary, multimodal pain care.

Our organizations have consulted with pain medicine specialists in Colorado and worked with Oliver Wyman Actuarial Consulting, Inc. on a preliminary set of actuarial analyses to compile the information in this response. Specifically, we have focused on six of the nine questions posed in the RFI (Questions 4-9) that are most applicable to the experience and expertise of physicians who care for patients with pain. As you will see, the analysis affirmatively answers the central question of whether HB 20-1085 would have provided access to cost-effective, evidence-based alternatives to opioids (ALTOs) for patients with pain. These non-opioid treatments provide clear health benefits and would save money on other health services.

The analysis also reinforces the need for a multimodal approach to treatment of pain that requires a critical review of administrative and other health benefit barriers, exclusions and exceptions to coverage that both inhibit the use of ALTOs and fail to address the needs of patients with acute or chronic pain. Future proposals similar to HB 20-1085 must enable shared decision-making between patients and providers to ensure that non-opioid treatments are an option based on patient needs, while balancing the cost-effectiveness and clinical evidence for such treatments.

This analysis, moreover, suggests that the full continuum of options must continue to include opioid therapy as appropriate for certain patients. As with the decision about whether ALTOs are appropriate, the individualized determination of care is essential to initiate, continue or taper a patient's opioid therapy. Optimal care decisions require that the patient has all treatment options accessible. This analysis provides further clarity and evidence in support of that overarching principle.

We thank the DOI for its continued commitment to addressing ways to positively increase access to evidence-based care for those with a substance use disorder, mental illness or pain. As the nation's drug overdose epidemic continues, including in Colorado, your work will provide critical guidance to other states to affirmatively remove barriers to care. This analysis confirms our organizations' work as to why it is essential to directly address and remove deficiencies in coverage for multidisciplinary, multimodal pain care, and we therefore greatly appreciate this opportunity to offer the attached analysis.

American Medical Association / Colorado Medical Society / Colorado Pain Society / Manatt Health



If you have questions or need more information, please contact Daniel Blaney-Koen, JD, Senior Legislative Attorney, American Medical Association, at [daniel.blaney-koen@ama-assn.org](mailto:daniel.blaney-koen@ama-assn.org); Joel Ario, Managing Director, Manatt Health, at [jario@manatt.com](mailto:jario@manatt.com); Chet Seward, Chief Strategy Officer, Colorado Medical Society, at [chet\\_seward@cms.org](mailto:chet_seward@cms.org); or Jonathon Clapp, MD, President-elect, Colorado Pain Society, at [jclappmd@gmail.com](mailto:jclappmd@gmail.com).

Sincerely,

American Medical Association  
Colorado Medical Society  
Colorado Pain Society  
Manatt Health

## RESPONSE TO COLORADO DIVISION OF INSURANCE RFI ON COVERAGE PROVISIONS OF HB 20-1085

### Introduction

The Colorado Division of Insurance (DOI) has issued an RFI seeking information on the costs and benefits associated with several health coverage provisions proposed in Colorado HB 20-1085 that are aimed at improving access to multidisciplinary, multimodal pain care:

- Up to six physical therapy, occupational therapy, acupuncture and chiropractic visits, respectively, with cost-sharing no greater than that charged for non-preventive primary care visits, as nonpharmacological alternatives to opioid treatment;
- Eliminating prior authorization (PA) for nonpharmacological treatments;
- Coverage for at least one “atypical opioid” at the lower cost tier, without step therapy or PA; and
- No step therapy for the prescription and use of any additional atypical opioids for the treatment of acute or chronic pain.

When Governor Jared Polis vetoed HB 20-1085 over cost concerns, he charged the DOI with establishing a process for reviewing the costs and benefits of coverage mandates. This RFI is part of that process. The American Medical Association (AMA) and Manatt Health have consulted with pain medicine specialists in Colorado and worked with Oliver Wyman Actuarial Consulting, Inc. (Oliver Wyman) on a preliminary set of actuarial analyses to compile the information in this response to the Colorado DOI. We have organized our response around six of the nine questions posed in the RFI (Questions 4-9).

### Brief Conclusion

This analysis affirmatively answers the central question of whether HB 20-1085 would have provided access to cost-effective, evidence-based alternatives to opioids (ALTOs) for patients with pain. These non-opioid treatments provide clear health benefits and would save money on other health services. The analysis also reinforces the need for a multimodal approach to treatment of pain that requires a critical review of administrative and other health benefit barriers, exclusions and exceptions to coverage that both inhibit the use of ALTOs and fail to address the needs of patients with acute or chronic pain. Future proposals similar to HB 20-1085 must enable shared decision-making between patients and providers to ensure that non-opioid treatments are an option based on patient needs, while balancing the cost-effectiveness and clinical evidence for such treatments.

This analysis, moreover, suggests that the full continuum of options must continue to include opioid therapy as appropriate for certain patients. Just as the decision about whether ALTOs are appropriate, the individualized determination of care is essential to initiate, continue or taper a patient’s opioid therapy. Optimal care decisions require that the patient has all treatment options accessible. This analysis provides further clarity and evidence in support of that overarching principle.

## Discussion

There are three overarching points about the benefits of a multidisciplinary, multimodal, patient-centered approach to pain care that this response emphasizes.

- **Chronic pain is a widespread and costly problem.** According to the Centers for Disease Control and Prevention, 50 million adults in the United States have chronic daily pain, with 19.6 million adults experiencing high-impact chronic pain that interferes with daily life or work activities.<sup>i</sup> The cost of pain to our nation is estimated at between \$560 billion and \$635 billion annually.<sup>ii</sup> In a review of 2018 Colorado claims for an insured population, Oliver Wyman found that 13% of patients treated for pain incurred more than \$2,500 per person in pain-related claims that year, and that these individuals had roughly eight times the healthcare costs of all remaining insured members.<sup>1</sup>
- **Opioid analgesics are typically the most accessible and affordable pain treatment for patients, even where ALTOs may be preferred by the patient and physician.** Even if a patient and physician prefer to pursue a non-opioid course of treatment, the current practice of using a low-cost generic opioid as first line treatment is often the only way to treat a patient with acute or chronic pain given the considerable insurance barriers that must be navigated to access other validated pain treatments. While there is a definite need for opioid therapy for many patients with acute or chronic pain who are unable to be functional and live productive lives without these medications, they may be overutilized in some circumstances because of the low barriers to access and ways in which insurers design benefits and coverage. The need for ALTOs as part of the available options for optimal pain care has never been more critical. More than 2,500 Coloradans died due to causes related to opioid analgesics from 2014 to 2018,<sup>2</sup> and nearly 12,000 Americans died due to causes related to opioid analgesics in 2019 alone. At the same time, the epidemic has become a more deadly and complicated drug overdose epidemic due to illicit fentanyl, methamphetamine, heroin and cocaine.<sup>iii</sup> While opioid prescriptions have been dramatically reduced,<sup>3,iv</sup> the standard health insurance benefit plan continues to feature opioids as the cheapest treatment option while imposing barriers to ALTOs. To the extent that broader access to ALTOs reduces the number of patients with acute pain who develop an untreated opioid use disorder (OUD), substance use disorder (SUD) or diagnosable addiction, lives will be saved and health costs will be reduced.<sup>4</sup> In an analysis of claims for an insured population

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<sup>1</sup> Utilizing the 2018 IBM® MarketScan® Research Database (2018 MarketScan), Oliver Wyman identified members in Colorado with comprehensive private health insurance coverage and at least one claim in 2018 with the presence of an ICD-10 code for chronic pain and/or other pain-related ICD-10 codes commonly used for patients with pain, as identified by Colorado pain physicians. In reviewing the distribution of enrollees' total annual cost of pain-related claims, 13% of all enrollees treated for pain were found to have greater than \$2,500 in annual pain-related claims (please see Figure 1 for more detail). In addition, Oliver Wyman found that patients with more than \$2,500 in annual pain-related claims had total average monthly claims of \$3,250.64, while all remaining members had total average monthly claims of \$424.38.

<sup>2</sup> Data from the National Opinion Research Center (NORC) Opioid Misuse Tool, which tracks drug overdose deaths in the United States. Available at: <https://opioidmisusetool.norc.org/>.

<sup>3</sup> According to recent CDC data, the overall national opioid prescribing rate showed a decline from 2012 to 2018. In 2018, the prescribing rate had fallen to the lowest in the 13 years for which the CDC has data, at 51.4 prescriptions per 100 persons.

<sup>4</sup> This report should not be taken to suggest that opioid therapy is not appropriate. Rather, the determination of whether to prescribe an opioid to a patient to address an acute, chronic or reoccurring condition is one that must be made between the physician and his/her patient. This report addresses the economic and other impacts of opioid therapy.

conducted by Oliver Wyman, Colorado patients with an SUD were found to have an average medical cost of \$2,237.82 in 2018, which was five times the average medical cost of the population without an SUD diagnosis (\$373.13 in 2018).

- **ALTOs can also save money by reducing the need for other more expensive interventions.** ALTOs expand the options available to patients and providers, and thereby help ensure the most appropriate treatment can be accessed at the initial onset of injury. A comprehensive set of benefit options also may potentially reduce expensive healthcare interventions, such as emergency department and inpatient services, costly imaging studies (e.g., MRIs), other lab services, and injectable drugs. Oliver Wyman's analysis found that among patients with more than \$2,500 in pain-related claims in 2018, all of these services were used less by patients who received the ALTOs proposed by HB 20-1085, compared with those who did not. These findings are consistent with other studies cited below.

We caution that our findings are far from definitive on the costs and benefits of the coverage provisions of HB 20-1085. For example, in our answer to Question 5, we note that the Oliver Wyman findings on cost savings did not find the surgery savings that other cited studies have found. In that case and in others, we describe how additional actuarial analyses could provide a fuller understanding of how broader access to ALTOs, including mental/behavioral healthcare, may impact overall health costs.

#### **Comprehensive Responses to the DOI's RFI: Questions 4 – 9**

##### **Question 4: The DOI requested information regarding the potential health benefits of the proposed coverage and the extent to which scientific evidence exists regarding the potential health benefits.**

In 2019, a U.S. Interagency Task Force on Pain developed an extensive report<sup>v</sup> that emphasized the importance of providing an individualized, patient-centered approach for diagnosis and treatment of pain. This requires the availability of a multimodal approach for provider and patients to address acute pain conditions together through a therapeutic alliance, targeting measurable outcomes that focus on improvements in quality of life (QOL), improved functionality, and activities of daily living (ADLs). The Task Force outlines five broad treatment categories that are essential in achieving excellence in acute and chronic pain care, including (1) medications (both non-opioids and opioids), (2) restorative therapies, including those implemented by physical and occupational therapies, (3) interventional approaches (including image-guided and non-invasive procedures), (4) behavioral approaches, and (5) complementary integrative health practices, including acupuncture, massage, movement therapies and others, where clinically indicated.

Pain is a very complex sensory and emotional experience for patients. Because of the nature of pain, classification (and therefore, diagnosis, management and treatment) can be extremely challenging for both the patient and the provider; for each type of pain (acute or chronic, nociceptive or neuropathic, inflammatory or central pain syndromes), the process of providing diagnosis, pain management options or treatment options requires a complete and comprehensive toolkit for patients and providers to ensure they are equipped with the appropriate tools to address the needs of each patient and his or her unique circumstances. This includes a multidisciplinary team and multimodal approach that includes primary and specialty care, physical therapy, occupational therapy and other restorative therapies; care

provided by acupuncturists, chiropractors, osteopaths and others; as well as opioids and atypical opioids in appropriate cases.<sup>5</sup>

**4a. Efficacy of Physical Therapy for the Treatment of Pain.** Physical therapy is commonly used to treat functional and/or musculoskeletal pain, and aims to increase mobilization, decrease pain, and improve functional and psychological status. A 2018 study that examined nearly 89,000 patients who visited a healthcare provider for either back, knee, shoulder or neck pain found that those with knee pain that received early physical therapy treatment were 66% less likely to fill a long-term opioid prescription for 120 days or more, and patients with low back pain (LBP) that received early physical therapy treatment were 34% less likely to become long-term opioid users.<sup>vi</sup> This does not necessarily suggest that the patient will develop an OUD or experience adverse effects of opioid therapy, but rather that early prevention efforts may likely have the positive effect of reducing the potential for long-term opioid exposure.

Physical therapy also benefits patients by reducing the likelihood that they will have to experience the physical and financial costs of more burdensome healthcare interventions. In the same 2018 study, among those who took prescription medications for pain, those who engaged physical therapy early on also used fewer prescribed opioids for back, shoulder and knee pain over the course of their treatment.<sup>vii</sup>

Physical therapy as a treatment (or component of treatment) for pain is likely efficacious for many important reasons. When guideline-adherent, physical therapy is a treatment regimen that is accompanied by patient education, requires active patient participation, and offers a wide range of treatment modalities aimed at decreasing pain by correcting poor body mechanics and alignment. Physical therapy provides the patient a minimally invasive option as part of a treatment plan.<sup>viii</sup> These components are critical in treating biomechanical and structural causes of pain, and in addressing the psychological and behavioral components of pain that are lower-risk options than prescription opioids. Numerous studies highlight physical therapy as an important component to sustained recovery for patients with LBP and other musculoskeletal pain diagnoses. Extensive literature reviews show that “physical therapy only or added to usual care implies improved health in almost all studies.”<sup>ix</sup>

Yet physical therapy also may be unaffordable or inaccessible for many patients due to several factors. First, unlike a prescription for a generic prescription opioid that may have a \$5 or \$10 copay, physical therapy costs are accompanied by much more costly copays and coinsurance, and are subject to a patient’s deductible. These costs can run into the hundreds or thousands of dollars and are not able to be fully captured in a market scan or claims database, but they effectively serve as a barrier to care for many patients. Oliver Wyman found that in 2018, the population covered by commercial group

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<sup>5</sup> These principles have been articulated by both the AMA Opioid Task Force and AMA Pain Care Task Force. Among the recommendations is support for increased research and access to evidence-based treatment, including: • Medication, including non-opioid pain relievers, anticonvulsants, antidepressants, musculoskeletal agents, anxiolytics and opioid analgesics when appropriate. The Task Force notes that physicians and patients now face a multiplicity of new laws, guidelines and policies from payers, pharmacy benefit managers (PBMs) and national organizations, which are often contradictory. • Restorative therapies, which include physical therapy, occupational therapy, physiotherapy, therapeutic exercise, osteopathic manipulative therapy (OMT) and other modalities such as massage and therapeutic ultrasound. • Interventional procedures, such as neuromodulation, radio frequency ablation, peripheral nerve stimulation, central and peripheral nerve ablation, spine surgery and steroid injections, and other emerging interventional therapies as part of the multimodal pain care plan.

insurance in Colorado was required to pay the following average cost-sharing amounts per visit for the therapies shown.

| Therapy                                    | Average Cost-Sharing<br>Per Visit |
|--------------------------------------------|-----------------------------------|
| Outpatient Facility – Physical Therapy     | \$46.01                           |
| Outpatient Facility – Occupational Therapy | \$42.05                           |
| Clinic – Physical Therapy                  | \$29.87                           |
| Clinic – Occupational Therapy              | \$32.67                           |
| Clinic – Chiropractic                      | \$30.31                           |
| Clinic – Acupuncture                       | \$30.67                           |

Similarly, PA or other utilization management requirements may ultimately delay or deter patients from accessing physical therapy. Survey data from the American Physical Therapy Association shows that medically necessary physical therapist services are delayed as a result of time and resources that providers spend on documentation and administrative tasks, ultimately impacting patients' outcomes.<sup>x</sup> The other primary barrier that cannot be quantified in an actuarial analysis (but is nonetheless real for patients) is the intersection of social determinants of health and pain. For example, a patient who would prefer to receive physical therapy but does not have the time to take off from work, or a patient who cannot go to physical therapy before or after work because of child care responsibilities or transportation limitations—these are not necessarily factors that a health insurer can address, and are not the focus of the RFI, but they point to the complexity of situations faced by patients, and necessitate the availability of a wide range of treatments and therapies for patients with pain.

**4b. Efficacy of Occupational Therapy.** Occupational therapy is a form of therapy for those recovering from physical or mental illness that encourages rehabilitation through the performance of activities required in daily life. According to the American Occupational Therapy Association (AOTA), occupational therapy addresses the “physical, cognitive, psychosocial, sensory-perceptual, and other aspects of performance in a variety of contexts and environments to support engagement in occupations that affect physical and mental health, well-being, and quality of life.”<sup>xi</sup> Because of the training of occupational therapists in psychosocial interventions, occupational therapists help provide evidence-based, nonpharmacological interventions for treating acute and chronic pain.<sup>xii</sup>

In addition, early referral for restorative therapies like physical therapy and occupational therapy are likely to serve as effective interventions and preventive measures for patients with pain before they lead to increasing levels of physical deconditioning, psychological distress and overutilization of healthcare.

For similar reasons as to why physical therapy is recognized as being efficacious for patients with pain, the active patient participation and patient ownership of treatment aspect of alternative pain care may improve the treatment options for the multiple sources and causes of pain that no one type of therapy or one medication can effectively address alone.

**4c. Efficacy of Chiropractic Services.** Chiropractors utilize a wide range of techniques and methods, including spinal manipulation, cold therapy, hot therapy, strengthening and stretching exercise regimens, nutrition, and massage to address neuromuscular disorders and alleviate pain.<sup>xiii</sup> Though current studies are mixed in the efficacy of chiropractic care for spine pain,<sup>xiv,xv</sup> and additional, high-quality studies are needed to examine the medical value and clinical efficacy of chiropractic services. In a 2018 study of active-duty U.S. service members aged 18 to 50 years with LBP from a musculoskeletal source found that patients who used chiropractic services in addition to usual medical care, compared with patients who used usual medical care alone, demonstrated moderate short-term (apx. six weeks after treatment) improvements in LBP intensity<sup>6</sup> and functional disability.<sup>7,xvi</sup> Using chiropractic services to decrease pain and disability and improve function is one more ALTO that providers can use to lower patients' risk, but it must be affordable and accessible.

**4d. Efficacy of Acupuncture.** Acupuncture is an evidence-based, cost-effective and low-risk treatment option for numerous pain conditions, including chronic LBP, headache, chemotherapy-induced nausea and vomiting, knee osteoarthritis, migraines, post-operative nausea and vomiting, post-operative pain, and others.<sup>xvii</sup> Treatments from licensed acupuncturists, however, requires adequate insurance coverage and reimbursement to enable patients' access.

Acupuncture is an extensively studied medical intervention for pain available to consumers. Though there is still a need for high-quality controlled clinical trials to evaluate its clinical value, many existing peer-reviewed, published studies provide evidence showing that acupuncture is an effective treatment for a variety of pain-related diagnoses. The safety profile of acupuncture was one of the determining factors in the decision of the Centers for Medicare and Medicaid Services to add acupuncture as a covered service for chronic LBP.<sup>8</sup>

When administered in post-operative settings, acupuncture has been shown through multiple studies to decrease opioid use and associated nausea, dizziness, sedation, itching and urinary retention.<sup>xviii</sup> In addition, acupuncture's effectiveness for the treatment of migraines, acute pain in an emergency department (ED) setting,<sup>xix</sup> neck pain, shoulder pain, osteoarthritis<sup>xx</sup> and acute and chronic LBP has been well-studied and validated per the American College of Physicians (ACP)<sup>xxi</sup> and the National Institute of Health (NIH),<sup>xxii</sup> which recommend acupuncture as a first-level treatment for pain. A 2017 meta-analysis and systematic review found that for the treatment of acute pain in an ED setting, where measured, acupuncture as a treatment for acute pain was consistently associated with improved patient satisfaction, lower cost and fewer harmful side effects when compared with standard analgesia care alone.<sup>xxiii</sup> The cost-effectiveness of acupuncture was also shown in a large review in the following conditions: chronic pain, depression, post-operative nausea and vomiting, LBP, neck pain, knee pain, headache, migraine, osteoarthritis, dysmenorrhea, allergic rhinitis and ambulatory anesthesia.<sup>9, xxiv</sup>

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<sup>6</sup> As assessed by the Numerical Rating Scale, ranging from 0 to 10, 10 being the worst possible LBP.

<sup>7</sup> As assessed by the Roland Morris Disability Questionnaire, with scores ranging from 0 to 24, with higher scores indicating greater disability.

<sup>8</sup> Medicare Coverage Database Decision Memo for Acupuncture for Chronic Low Back Pain (CAG-00452N). :41. Available at: <https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=295>.

<sup>9</sup> The comparators for cost-effectiveness varied by condition in this study. For example, for migraines, acupuncture was compared with sham acupuncture, and compared with conventional preventive medication. For knee pain, acupuncture was found to be equal to balneotherapy and superior to sham acupuncture, muscle-strengthening exercise, Tai Chi, weight loss,

Findings are also impactful across various populations. A study of the military population showed that patients who had at least four acupuncture treatments within one year reported using 45% less opioids, 42% less NSAIDs, 34% less muscle relaxants and 14% less benzodiazepines prescribed.<sup>xxv</sup> The U.S. Army's former surgeon general, Lt. Gen. Eric Schoomaker, MD, PhD, has advocated for the use of acupuncture, stating, "What we're doing here is to open the aperture . . . to a much wider range of modalities that can be applied to the management of both acute and chronic pain, and they're largely focused on the results of pretty careful studies.

"In fact, the use of acupuncture for pain management is almost mainline.

"We're now using it on the battlefield, even in the special operations community and other places with much success."<sup>xxvi</sup>

In 2016, the Vermont legislature commissioned a study investigating the efficacy of acupuncture in Medicaid recipients with chronic pain in response to the state's rising opioid epidemic. Results of that study were released in 2018 and found that 91% of patients reported qualitative improvements (physical, functional, behavioral and psycho-emotional), 74% of employed patients reported an improved capacity to work and 32% of patients using opioids reported reductions in opioid use after the intervention.<sup>xxvii</sup>

For pediatric patients who may not find traditional pain management strategies suitable for the treatment of pediatric chronic pain, the cost savings of ALTOs (including acupuncture) were examined in a study of an interdisciplinary pediatric pain clinic, which found that offering interdisciplinary pain therapies (including psychotherapy, biofeedback, acupuncture and massage) resulted in a reduction in hospital costs of \$36,228 on average (and generated Medicaid savings of \$11,482) when compared with the patient's costs generated in the year prior to initiating interdisciplinary pain care.<sup>xxviii</sup>

**4e. Efficacy of Atypical Opioids.** For patients who have a severity of pain that persists and is not suitable for restorative therapies (or fails to respond to ALTOs), atypical opioids such as buprenorphine, tapentadol and/or tramadol are an important coverage benefit, and can serve as a lower-risk and more efficacious option with a significantly lower risk of abuse, diversion and other harms than commonly prescribed opioid analgesics. For example, tapentadol has been used by physicians for patients with severe opioid-requiring pain and neuropathic pain<sup>xxix</sup> and is the only "opioid" FDA-approved for diabetic peripheral neuropathy,<sup>xxx</sup> and independent studies show 65% less risk of abuse of tapentadol than of oxycodone. In addition, in a 2016 study of the diversion and illicit sale of extended-release tapentadol in the United States,<sup>10</sup> researchers found that diversion rates based on drug availability were 0.03 (tapentadol IR) and 0.016 (tapentadol ER) per 1,000 prescriptions dispensed. Other Schedule II opioids were diverted six to 10 times more frequently at 0.172 per 1,000 prescriptions.<sup>xxxi</sup>

Data from the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS) System also shows that the Butrans Transdermal System (BTDS), or a buprenorphine patch) is used for non-medical

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standard care and aerobic exercise. For headache, no comparative is offered; it was a large Cochrane systematic review that assessed that evidence for acupuncture's efficacy is mixed. More detail can be found in the full study, cited in endnote xxiii.

<sup>10</sup> This study used the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS) System data from 260 drug diversion cases in 49 states and StreetRx™ (a crowdsourcing website) to collect the prices paid for licit or illicit drugs) to examine the prevalence of illicit sales and estimated street price of tapentadol.

uses and diverted at low rates compared with other opioid groups including other forms of buprenorphine, fentanyl patches, ER opioid formulations and ER tramadol.<sup>xxxii</sup>

Additionally, one study found that less than 5% of patients on long-term tapentadol experience withdrawal symptoms when abruptly stopping.<sup>xxxiii</sup> This may decrease costly downstream ED visits, or potential diversion and non-medical use of opioid analgesics or use of illicit fentanyl or heroin that may occur for opioid-related withdrawal.<sup>11</sup> On top of the improved safety and tolerability of tapentadol, three large studies of chronic LBP, acute post-operative pain and chronic end-stage post-operative pain all showed that 50-100 mg of tapentadol reduced pain with the same efficacy as approximately 10-20 mg of oxycodone,<sup>xxxiv</sup> illustrating the promise that atypical opioids may bring for patients with pain outside of their existing benefits.

Access to atypical opioids, however, currently remains a challenge due to prior authorization requirements, step therapy and other utilization management techniques. Coverage of at least one atypical opioid on the lowest cost tier as proposed by the CO HB 20-1085 is a positive step to help ensure providers are able to provide a low-risk alternative to more commonly prescribed opioid analgesics for patients where medically appropriate. At the same time, we recommend that the DOI not limit its analysis to only one atypical opioid because, as with ALTOs, the decision to prescribe and pursue a course of pharmacological treatment may require different atypical opioid options for different patients. As with the decision to use ALTOs, opioid therapy or atypical opioid therapy, if a health insurer's or PBM's formulary restricts individualized patient care decisions to provide optimal care, it will likely lead to sub-optimal, higher-cost effects.

**4f. Prescribing Opioids When Medically Indicated.** For certain patients, opioids will remain a necessary component of their treatment plan, and should be prescribed as appropriate by physicians who have reviewed, assessed and determined the patient's pain factors and conditions in detail. For example, opioid analgesics can be highly effective pain relievers for certain patients suffering from pain.<sup>xxxv</sup> Among pain medicine physicians, researchers and available data, there is broad consensus that the number of persons with chronic pain receiving chronic opioid therapy who develop diagnosable addiction is low (but never negligible). At the same time, there still can be problems with long-term opioid receipt that don't amount to addiction. While much state and national opioid-related policy has tended to be an "either-or" false dichotomy, it is essential for patients to have access to a comprehensive set of evidence-based options, including ALTOs, atypical opioids and opioid analgesics.

This does not ignore that there are risks of non-medical use and addiction as well as the potential for diversion.<sup>xxxvi</sup> Unfortunately, despite the broad recognition of the drawbacks to limited options that sometimes cause an over-reliance on opioids, there are few examples of health benefit packages that do not rely on opioids as the primary affordable option for patients with pain.

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<sup>11</sup> There are many factors that come into play when discussing opioid-related withdrawal. For patients receiving prescription opioids as part of a chronic pain treatment regimen, there have been disturbing national reports of patients being non-consensually tapered from their current dose to a much lower dose—regardless of whether the patient is stable or functional. These non-consensual reductions have resulted from many causes, but one important factor continues to be the relative absence of affordable and accessible non-opioid and nonpharmacological pain care options. Withdrawal, furthermore, is not limited to opioid analgesics, but also occurs for people who use illicit fentanyl and heroin.

**Question 5: The DOI requested information on the extent to which proposed coverage would be a substitute for more expensive or less safe treatment.**

There are many studies documenting that use of ALTOs can reduce the use of other, high cost healthcare services. We cite leading studies in our response, but first we describe an Oliver Wyman analysis based on the 2018 IBM® MarketScan® Research Database (2018 MarketScan)<sup>12</sup> for individuals in Colorado with comprehensive private health insurance, what that analysis found and what further studies may be helpful to gain a fuller picture.

We have previously provided a synopsis of the varied efficacy of other evidence-based options for the treatment of pain, and hypothesize that providing a comprehensive set of options for the treatment of pain is likely to reduce unnecessary opioid use. In this section, we describe an Oliver Wyman analysis of Colorado 2018 MarketScan claims that documents how expensive SUD cases can be, and we discuss the range of estimates as to how many opioid users may develop an SUD or OUD and how many of those with OUDs/SUDs would exhibit the behaviors requisite to a diagnosis of addiction. We note that these estimates are difficult because opioid prescriptions are not an “unsafe” treatment where proper screening and other protocols are observed. Among persons who receive long-term opioids, the Director of the National Institute on Drug Abuse, Nora Volkow, M.D., wrote in the New England Journal of Medicine in 2016:

“There is lingering misunderstanding among some physicians about the important differences between physical dependence and addiction. The repeated administration of any opioid almost inevitably results in the development of tolerance and physical dependence. These predictable phenomena reflect counter-adaptations in opioid receptors and their intracellular signaling cascades.<sup>xxxvii</sup> These short-term results of repeated opioid administration resolve rapidly after discontinuation of the opioid (i.e., in a few days to a few weeks, depending on the duration of exposure, type of opioid, and dose). In contrast, addiction will occur in only a small percentage of patients exposed to opioids. Addiction develops slowly, usually only after months of exposure, but once addiction develops, it is a separate, often chronic medical illness that will typically not remit simply with opioid discontinuation and will carry a high risk of relapse for years without proper treatment.”

In an older retrospective study from 2000 to 2005, Edlund et al. studied persons who received opioid analgesics for chronic non-cancer pain. The authors said that “prescription opioid exposure was a strong risk factor for incident OUDs; magnitudes of effects were large. Duration of opioid therapy was more important than daily dose in determining OUD risk.” However, the actual magnitude of risk is low. The authors found that “[t]he unadjusted rates of post-index OUD diagnoses for the various opioid dose/days categories were 0.12% (111/90,415) for low dose, acute; 0.72% (50/6902) for low dose, chronic; 0.12% (101/83,542) for medium dose, acute; 1.28% (47/3654) for medium dose, chronic; 0.12% (15/12,378) for high dose, acute; and 6.1% (23/378) for high dose, chronic.”<sup>xxxviii</sup> In other words, opioid therapy is not without risk, but the risk should be stratified and placed in its proper context.

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<sup>12</sup> An analysis was only performed on claims for only those with commercial health insurance; the analysis excludes the uninsured, Medicaid, Medicare, etc.

**5a. Findings from an Oliver Wyman analysis comparing patients with pain who used ALTOs with patients with pain who did not use ALTOs.** According to an actuarial analysis conducted by Oliver Wyman, there are notable differences in the healthcare cost drivers that are demonstrated between patients who use ALTOs (physical therapy, occupational therapy, acupuncture, chiropractic and/or osteopathic services) and patients who don't. In particular, service categories that demonstrated significant cost differentials between the ALTO study group and the non-ALTO study group included:

- Emergency Department Visits (Facility and Professional)
- Inpatient Medical (Facility)
- Outpatient Injectable Drugs
- Outpatient Radiology – CT/MRI/PET Scans (Facility)
- Outpatient – Lab/Pathology (Facility and Professional)

The study utilized the 2018 Marketscan data to identify members in Colorado with comprehensive private health insurance coverage and at least one claim in 2018 with the presence of an ICD-10 code for chronic pain and/or other pain-related ICD-10 codes commonly used for patients with pain, as identified by one of many different diagnostic codes identified by Colorado pain physicians.<sup>13</sup> Of those enrollees, the study population was then bifurcated based on total annual cost of ALTO-related claims (see Appendix B for a complete list of ICD-10 codes used to identify use of ALTOs), including physical therapy, occupational therapy, chiropractic care and/or acupuncture, of greater than \$500,<sup>14</sup> indicating a “notable degree” of utilization over the course of one year, and those that did not utilize ALTOs to a notable degree.<sup>15</sup>

In our findings, the overall allowed cost per member per month (PMPM) is similar between the ALTO pain population and the non-ALTO pain population; however, certain service categories are significantly higher for the non-ALTO pain population, while other cost categories/services demonstrated unexpected results (see Figure 2 for a summary of the service categories driving the cost differentials between the ALTO pain population and the non-ALTO pain population).

One unexpected result was that the ALTO pain population utilized significantly more surgeries, a finding that is at odds with most other studies finding that ALTOs generally reduce surgeries. One reason for this finding is likely that this high-level study only looked at one year of claims and did not look at the sequence of claims, so it may be that the surgeries preceded post-operation therapy.<sup>16</sup> Since individuals

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<sup>13</sup> See Appendix A for a full list of pain-related ICD-10 codes that were used to identify the study population. In reviewing the distribution of enrollees' total annual cost of pain-related claims, enrollees included in the analysis were limited to those with greater than \$2,500<sup>13</sup> in pain-related claims.

<sup>14</sup> This threshold was based on an estimate of six physical therapy/occupational therapy/acupuncture/chiropractic visits (as proposed in HB20-1085) multiplied by approximately \$80 per visit, based on Colorado claims data.

<sup>15</sup> Cost models were developed for each population and examined by cost category to determine the frequency with which individuals within each subgroup utilized other downstream services such as back surgery, injections and advanced imaging. Cost statistics for each of these services were examined to determine the approximate savings to downstream costs that could potentially be expected if more individuals utilized alternative therapies.

<sup>16</sup> Coordinating post-surgical physical therapy, including recommended duration, is a common element of post-surgical care. See, generally, <https://orthoinfo.aaos.org/en/recovery/low-back-surgery-exercise-guide/>, <https://orthoinfo.aaos.org/en/recovery/knee-arthroscopy-exercise-guide/>, <https://www.aans.org/Patients/Neurosurgical-Conditions-and-Treatments/Cervical-Spine>, <https://www.asahq.org/whensecondscount/preparing-for-surgery/procedures/knee-surgery/>.

receive ALTOs in both pre-surgery (as an intervention or first line of treatment) as well as part of post-surgery rehabilitation, it would be helpful to conduct a more robust longitudinal study of the Colorado data to better assess the relationships between ALTOs and surgeries.

**Figure 1. Distribution of Insured Members Identified as Having Claims Containing a Pain Diagnosis in Colorado in 2018 by Total Pain-Related Claims Costs<sup>17</sup>**

| Lower Bound<br>(Exclusive) | Higher Bound<br>(Inclusive) | Count of Insured<br>Members | Distribution |
|----------------------------|-----------------------------|-----------------------------|--------------|
| \$0                        | \$100                       | 8,631                       | 11.5%        |
| \$100                      | \$500                       | 33,650                      | 44.9%        |
| \$500                      | \$1,000                     | 11,623                      | 15.5%        |
| \$1,000                    | \$2,500                     | 11,165                      | 14.9%        |
| \$2,500                    | \$5,000                     | 5,321                       | 7.1%         |
| \$5,000                    | \$10,000                    | 2,629                       | 3.5%         |
| \$10,000                   | \$25,000                    | 1,231                       | 1.6%         |
| \$25,000                   | \$50,000                    | 399                         | 0.5%         |
| \$50,000                   | \$100,000                   | 161                         | 0.2%         |
| \$100,000                  | \$500,000                   | 106                         | 0.1%         |

The above table represents the distribution of insured members who are identified as having claims containing a pain diagnosis in Colorado in 2018, by their total pain-related claims cost.<sup>18</sup> 13.1% of insured members who were identified as having a pain diagnosis and had greater than \$0 in pain-related claims subsequently had \$2,500 or more in pain-related claims costs. This 13.1% of enrollment forms the basis of the population underlying the analysis that compares costs for the pain population that utilizes alternative therapies and the pain population that does not utilize alternative therapies.

**Figure 2. An Analysis of Differential Costs and Cost Driver Categories Between Patients With Pain That Used ALTO Services Compared With Patients With Pain That Did Not in 2018 in Colorado<sup>19</sup>**

| Allowed PMPM Comparison |                                     |                                  |                     |                    |
|-------------------------|-------------------------------------|----------------------------------|---------------------|--------------------|
|                         | Pain - No<br>Alternative<br>Therapy | Pain -<br>Alternative<br>Therapy | Difference<br>in \$ | Difference<br>in % |
| Medical                 | \$2,946.78                          | \$2,912.99                       | \$33.79             | 1%                 |
| Rx                      | \$321.83                            | \$317.18                         | \$4.65              | 1%                 |
| <b>Total</b>            | <b>\$3,268.60</b>                   | <b>\$3,230.16</b>                | <b>\$38.44</b>      | <b>1%</b>          |

<sup>17</sup> The total number of members in the chart (74,916) represents 18.2% of the Colorado population in the 2018 Marketscan dataset.

<sup>18</sup> This data excludes any insured members who were identified as having a pain diagnosis but had \$0 in pain-related claim costs.

<sup>19</sup> The study populations were not normalized for differences in demographics or co-morbidities, limiting the generalizability of the results and study validity; average age underlying the populations has been provided for comparison. Further study on this population and the identified cost differentials is warranted.

| Drivers of Increase in Allowed PMPM                       |                                     |                                  |                     |                    |
|-----------------------------------------------------------|-------------------------------------|----------------------------------|---------------------|--------------------|
|                                                           | Pain - No<br>Alternative<br>Therapy | Pain -<br>Alternative<br>Therapy | Difference<br>in \$ | Difference<br>in % |
| Inpatient - Medical (Facility)                            | \$252.98                            | \$129.39                         | \$123.58            | 96%                |
| Inpatient - Transplants (Facility)                        | \$39.76                             | \$0.00                           | \$39.76             |                    |
| Inpatient - Mental Health (Facility and Professional)     | \$18.16                             | \$7.25                           | \$10.91             | 151%               |
| Maternity (Facility and Professional)                     | \$36.51                             | \$12.31                          | \$24.20             | 197%               |
| Emergency Room (Facility and Professional)                | \$497.66                            | \$188.41                         | \$309.26            | 164%               |
| Outpatient Radiology - CT/MRI/PET Scans (Facility)        | \$58.05                             | \$45.89                          | \$12.16             | 27%                |
| Outpatient Radiology - Nuclear Medicine (Facility)        | \$10.79                             | \$6.92                           | \$3.87              | 56%                |
| Outpatient - Lab/pathology (Facility and Professional)    | \$42.29                             | \$27.98                          | \$14.31             | 51%                |
| Outpatient - Drugs - Injectable Drugs                     | \$72.87                             | \$37.01                          | \$35.86             | 97%                |
| Outpatient - Dialysis                                     | \$13.84                             | \$1.83                           | \$12.01             | 656%               |
| Ambulance                                                 | \$28.12                             | \$15.60                          | \$12.52             | 80%                |
| Inpatient - Surgical (Facility and Professional)          | \$618.45                            | \$721.74                         | -\$103.30           | -14%               |
| Surgery - ASC and OP Hospital (Facility and Professional) | \$443.54                            | \$680.37                         | -\$236.83           | -35%               |
| Physical Therapy (Facility and Professional)              | \$8.19                              | \$187.96                         | -\$179.77           | -96%               |
| Professional - Office - Surgery                           | \$46.12                             | \$61.90                          | -\$15.78            | -25%               |
| Professional - Office - Chiro                             | \$1.19                              | \$28.94                          | -\$27.74            | -96%               |
| Professional - Office - Radiology (Stand-Alone)           | \$27.62                             | \$43.13                          | -\$15.52            | -36%               |

| Average Age by Population                 |    |
|-------------------------------------------|----|
| Pain - Non-Alternative Therapy Population | 40 |
| Pain - Alternative Therapy Population     | 43 |
| Non-Pain Population                       | 32 |

| Members Without a Pain Diagnosis - Allowed PMPM |                 |
|-------------------------------------------------|-----------------|
| Medical                                         | \$335.95        |
| Rx                                              | \$88.43         |
| <b>Total</b>                                    | <b>\$424.38</b> |

**Further Analysis of the Relationship Between ALTOs and Opioids for Patients With Pain.** Our findings suggest that additional analysis of how patients respond to various combinations of ALTOs and opioid prescriptions might help illuminate the impact of ALTOs on the full range of healthcare services, not just surgery. While the short timeline for responding to this RFI precluded our initial high-level study from examining different combinations of services or differentiating the order in which services occurred throughout the course of the year, we recommend that the DOI examine the individuals within the pain population who utilize ALTOs only, opioids only, both ALTOs and opioids, or neither ALTOs nor opioids in a longitudinal format to better determine the cost efficacy of ALTOs.

**5b. Cost Savings From ALTOs (Physical Therapy, Occupational Therapy, Acupuncture, Chiropractic Care) for Patients With Pain in the Literature.** Numerous studies show that providing ALTO therapies

early in the diagnostic process can lead to reduced costs due to reduced utilization of several downstream services.

- **The Use of Physical Therapy for LBP Reduces Downstream Costs.** A 2018 study of nearly 47,000 patients with LBP found that among those who received physical therapy compared with patients who did not, patients demonstrated a reduced use of opioids (36.2% compared with 36.6% of those who did not have PT), lower overall LBP-related healthcare costs (\$912 compared with \$1,290), non-LBP-related healthcare costs (\$7,919 compared with \$8,029), and fewer needs for imaging (11.5% compared with 14.5% of those who didn't receive PT), spinal injections (3.6% compared with 4.5%), specialist visits (12.8% compared with 16.6% %), and/or spine surgery (1.22% compared with 0.79%) downstream.<sup>xxxix</sup>
- **Increased Early Referral to Physical Therapy May Increase Cost Savings.** A 2012 study of over 32,000 patients identified that patients who were referred to physical therapy early on in their treatment plans were associated with a decreased risk of advanced imaging, additional physician visits, lumbar surgery, spinal injections and opioid use compared with delayed or no physical therapy referral. Additionally, medical costs for LBP were found to be \$2,736 lower for patients receiving early physical therapy.<sup>xi</sup>
- **Early and Adherent Physical Therapy Use for LBP Carries Significant Cost Savings.** Another notable study from 2015 examined over 750,000 patients with LBP and found that early and adherent use of physical therapy also showed substantial cost savings in the two-year follow-up period, with 60% lower total LBP-related costs, 13% lower non-LBP-related costs, 24% lower inpatient costs, and significantly lower healthcare utilization of imaging (12.8% compared with 17.5% among non-early-physical therapy users), lumbar spinal injections (9.2% compared with 11.1%), lumbar spine surgery (2.1% compared with 2.4%) and opioids (60.4% compared with 62.2%).<sup>xii</sup>
- **Using Advanced Imaging First Increases Downstream Costs.** Alternatively, studies have determined that when physical therapy is not initially part of the treatment plan for a pain diagnosis, patients are six times more likely to have surgery, five times more likely to have a spinal injection and four times more likely to have an ED visit downstream.<sup>xlii</sup>
- **Use of Advanced Imaging in the Management of LBP Is on the Rise.** Given the rise in use of advanced imaging in the management of LBP in recent years, with the use of a CT or MRI per visit increasing from 7.2% to 11.3% in the same period,<sup>xliii</sup> encouraging the initiation of physical therapy early on may reduce the initial use of these high cost diagnostics as part of the treatment of acute and chronic pain and generate significant cost savings downstream.
- **Acupuncture Has Demonstrated Cost Savings in Other States.** In a Medicaid pilot project in Rhode Island, opioid use dropped by 86%, ER visits by 61% and per member per year total average medical costs by more than 20%, finding that for every \$1 spent on complementary and alternative medicine (CAM) services and program fees resulted in \$2.41 of medical expense savings overall.<sup>xliv</sup>

- **Multidisciplinary Pain Care Generates Direct Cost Savings to Insurance Companies.** In pediatric populations with chronic pain, the patients who participated in interdisciplinary clinic care (including physician services, medication, acupuncture, massage, biofeedback) demonstrated a cost savings to the hospital of \$36,228 per patient per year, and a direct cost savings of \$11,482 to the insurance companies.<sup>xiv</sup>

**5c. Findings From an Oliver Wyman Analysis Comparing Patients With SUD Diagnosis to Patients Without SUD Diagnosis.** A second Oliver Wyman analysis suggested that expanded utilization of ALTOs raises the question whether there could be additional cost savings to the extent that this utilization reduced the number of patients developing SUDs.<sup>20</sup> Utilizing the 2018 Marketscan data, the study population was first limited to enrollees identified as residing in Colorado, and then select ICD-10 diagnosis codes were used to identify enrollees in Colorado with SUDs.<sup>21</sup> A review of the aggregate costs<sup>22</sup> for each population and the corresponding cost model categories found an average cost differential of \$1,982.84 PMPM. The SUD population cost 426% more than the non-SUD population on a PMPM basis, with the following areas driving substantially higher costs in the SUD population:

- Mental Health Outpatient Visits (42x more for the SUD population compared with the non-SUD population)
- Mental Health Inpatient Visits (36x more)
- Ambulance Usage (17x more)
- ED Visits (11x more)
- Medical Inpatient Visits (10x more)
- Surgical Inpatient Visits, Anesthesia (8x more)
- Mental Health Office Visits (4x more)
- Hospital Outpatient Surgical, Facility (4x more)
- Outpatient Radiology Services (3x more)

**Figure 3. A Cost Analysis of SUD vs. Non-SUD Populations in 2018 in Colorado<sup>23</sup>**

| Allowed PMPM Comparison |                |                    |                  |                 |
|-------------------------|----------------|--------------------|------------------|-----------------|
|                         | SUD Population | Non-SUD Population | Difference in \$ | Difference in % |
| Medical                 | \$2,237.82     | \$373.13           | \$1,864.69       | 500%            |
| Rx                      | \$210.78       | \$92.63            | \$118.15         | 128%            |

<sup>20</sup> Given the high-level nature of this analysis, it is not clear that this analysis alone demonstrated a direct correlation between people prescribed opioids for pain who go on to develop an SUD. Rather, the analysis focused on comparing costs of SUD with non-SUD populations regardless of the origin and causes of the initial diagnosis. Furthermore, the analysis did not address the severity of the diagnosis, that is, a diagnosis of having an SUD did not further investigate incidence, or the lack thereof, of addictive behaviors and resultant costs that might arise from, for example, overdose or hospitalization.

<sup>21</sup> See Appendix C for a full list of codes used in the analysis. Total annual SUD-related claims costs for each enrollee were examined and enrollees with greater than \$500 in SUD-related claims were identified as part of the SUD study population; enrollees with less than \$500 in total SUD-related claims in 2018 were identified as part of the non-SUD study population. Cost models were developed for each population (SUD versus non-SUD).

<sup>22</sup> Aggregate costs per population are based on total claims in 2018.

<sup>23</sup> As a note, study populations have not been normalized for differences in demographics or morbidities other than SUDs. However, an average age underlying the populations has been provided for comparison.

|              |                   |                 |                   |             |
|--------------|-------------------|-----------------|-------------------|-------------|
| <b>Total</b> | <b>\$2,448.60</b> | <b>\$465.76</b> | <b>\$1,982.84</b> | <b>426%</b> |
|--------------|-------------------|-----------------|-------------------|-------------|

| <b>Drivers of Increase in Allowed PMPM – Non-Substance Abuse</b> |                   |                       |                     |                    |
|------------------------------------------------------------------|-------------------|-----------------------|---------------------|--------------------|
|                                                                  | SUD<br>Population | Non-SUD<br>Population | Difference<br>in \$ | Difference<br>in % |
| Inpatient - Medical (Facility)                                   | \$225.72          | \$20.87               | \$204.84            | 981%               |
| Inpatient - Surgical (Facility)                                  | \$360.25          | \$40.25               | \$319.99            | 795%               |
| Inpatient - Mental Health (Facility and Professional)            | \$65.09           | \$1.77                | \$63.33             | 3586%              |
| Outpatient - Mental Health (Facility and Professional)           | \$54.45           | \$1.27                | \$53.18             | 4183%              |
| Office - Mental Health (Professional)                            | \$13.96           | \$3.10                | \$10.86             | 351%               |
| Emergency Room (Facility and Professional)                       | \$449.30          | \$38.63               | \$410.67            | 1063%              |
| Outpatient Hospital - Other Surgery (Facility)                   | \$147.31          | \$31.41               | \$115.90            | 369%               |
| Outpatient Radiology <sup>24</sup>                               | \$65.55           | \$15.23               | \$50.32             | 330%               |
| Office Radiology <sup>23</sup>                                   | \$6.46            | \$2.41                | \$4.05              | 168%               |
| Inpatient Surgery, Anesthesia (Professional)                     | \$41.12           | \$5.13                | \$35.99             | 702%               |
| Outpatient Surgery, Anesthesia (Professional)                    | \$38.91           | \$9.37                | \$29.54             | 315%               |
| Ambulance                                                        | \$47.74           | \$2.65                | \$45.09             | 1698%              |

| <b>Drivers of Increase in Allowed PMPM - Substance Abuse</b> |                   |                       |                     |                    |
|--------------------------------------------------------------|-------------------|-----------------------|---------------------|--------------------|
|                                                              | SUD<br>Population | Non-SUD<br>Population | Difference<br>in \$ | Difference<br>in % |
| Substance Abuse                                              | \$110.59          | \$0.00                | \$110.58            | 2349032%           |
| Alcohol/Substance Abuse                                      | \$30.83           | \$0.03                | \$30.80             | 100213%            |
| IP - Substance Abuse                                         | \$5.22            | \$0.05                | \$5.17              | 9581%              |
| OP - Substance Abuse                                         | \$1.33            | \$0.00                | \$1.33              | 511141%            |
| Office - Substance Abuse                                     | \$3.41            | \$0.01                | \$3.40              | 62101%             |

|                                |    |
|--------------------------------|----|
| Average Age SUD Population     | 39 |
| Average Age Non-SUD Population | 33 |

The aggregate savings from reducing SUD cases depends on how many fewer patients would be expected to develop SUDs if they utilize ALTOs instead of being prescribed opioids. The estimates vary widely on that point. A Cochrane review of opioid prescribing for chronic pain found that less than 1% of those who were well-screened for drug problems developed signs of opioid addiction during pain care;<sup>xlvi</sup> a less rigorous but more recent review put the rate of addiction among people taking opioids for chronic pain at 8-12%.<sup>xlvii</sup> We further urge caution here as it is important to avoid making a false, linear correlation between the initiation of opioid therapy and development of full-blown addiction. There is further need to avoid making the false, linear assumption that patients with chronic pain receiving

<sup>24</sup> CT, MRI, PET, ECG, EKG, EEG, Ultrasounds, Nuclear Medicine, X-Rays, Other.

opioid therapy for an extended period have a diagnosable addiction. And there is a need to ensure that patients who suffer an acute injury or have palliative care needs or require pain control as a part of a cancer diagnosis are not precluded from opioid therapy. And this is not to suggest that patients with an OUD or SUD should be prevented from having opioid analgesics if needed for pain control, albeit much greater care coordination would be necessary to ensure careful monitoring of therapy to avoid relapse and continuation of treatment for the underlying OUD or SUD.

Additional analyses to examine this finding further would include reviewing cost models for each type of SUD component independently (opioid, cocaine, alcoholism, heroin, marijuana, etc.), controlling for demographic differences and co-morbidities of the SUD vs. non-SUD populations, as well as a longitudinal study that incorporates the costs over a long-term period. It also should be noted that there are many historical, genetic, behavioral and other factors associated with why and how an individual might develop an SUD. It is beyond the scope of this analysis, but the organizations stress that a patient with an SUD should receive the same level of compassionate, comprehensive pain as any other patient.<sup>25</sup>

**Other Costs.** There is a broader social and societal case to be made in discussing the costs that are incurred with untreated SUDs, which include other detrimental, harder-to-measure costs to society, such as billions of dollars through lost economic productivity due to untreated SUD-related disability absences, a diminished QOL, or death. Other costs include public services such as public housing and food services, and even broad state programs such as Medicaid. Additional considerations not included in this analysis are untreated SUD-related costs to justice settings and law enforcement.

**Question 6: The DOI requested more information on the estimated change in utilization as a result of providing the coverage.**

**6a. Providing Coverage for ALTOs Is Expected to Increase the Utilization of High-Value Services and Decrease the Utilization of Low-Value Services.** Provider referrals for patients with pain to physical therapy is currently low; approximately 20% of patients with LBP are currently referred to physical therapy by a physician.<sup>xlviii</sup> This may be due to the burdensome utilization management requirements that are often imposed on patients before receiving physical therapy, or associated cost burdens that come with a treatment that requires multiple visits, time and follow-ups that discourage patient utilization of such services. In addition, it must be recognized that the time and travel requirements to access non-opioid pain care also assume that patients have the time and transportation to make such care accessible. However, given the evidence that physical therapy is a high-value service for patients with pain, with demonstrated decreases in low-value, downstream services (see Question 5 for more detail) among patients with pain who utilize physical therapy, providing coverage for ALTOs along with eliminating PA requirements and reducing cost-sharing burdens are likely to increase provider referral rates for physical therapy as a component of patient pain care. It doesn't change the need to also address social determinants (e.g., child care responsibilities, employment, transportation, etc.), but those are unfortunately beyond the scope of this report.

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<sup>25</sup> As a note, we recognize that reducing the number of SUD individuals might incur a small increase in the utilization of other services, and acknowledge that such a study is limited to certain cost categories, and a full analysis would be required to present a more holistic view of the impact of changes we found.

While it is unlikely that providers will begin referring *all* patients with LBP to physical therapy as a result of increased ALTO coverage, especially since best practice emphasizes targeted interventions to address the individual's specific and modifiable psychosocial indicators, optimal physical therapy referral rates for patients with pain are likely to be greater than 20%. And the literature shows that of patients with pain who receive the referral to a physical therapist, many initiate care early on in their diagnostic period, and demonstrate improvements in health and function (see Question 4 for more detail on the medical efficacy of the proposed coverage benefits). In a 2012 study of a commercial claims database, for example, researchers found that 53% of patients who went to physical therapy did so within two weeks after the primary care physician (PCP) visits,<sup>xlix</sup> and a similar study found that 75% of Medicare enrollees with a new consultation for LBP received physical therapy care within four weeks of an index visit.<sup>i</sup>

A 2019 study also found that state coverage of physical therapy had a notable association with choice of initial provider for the treatment of pain. Compared with patients in states with limited access to physical therapy, patients in states with unrestricted and provisional access had 67% and 21% higher odds of visiting physical therapists initially, respectively.<sup>26</sup> Researchers noted "given that initial physical therapy is associated with significant reductions in early and long-term opioid use, these observations are potentially important."<sup>li</sup>

**6b. High Cost-Sharing Lowers Physical Therapy Utilization.** A 2012 study of 32,000 patients found that of all patients provided with a referral to PT, only 7% of patients utilized physical therapy within 90 days of their index diagnosis.<sup>lii</sup> A 2016 study conducted a secondary analysis of retrospective data and found that for U.S. adults with nonspecific LBP, out-of-pocket (OOP) expenditure was negatively predictive of the number of physical therapy visits per episode of care in a logarithmic regression equation. Specifically, their modeling showed that compared with a patient with OOP expenses of \$26.78 and five visits, a patient with OOP expenses of \$49.09 per visit would have one fewer visit, and a patient with OOP expenses of \$73.15 would have two fewer visits, illustrating the disincentives that patients face when considering physical therapy if they are enrolled in plans that subject them to high copays or coinsurance rates.<sup>liii</sup> This type of benefit design disincentive would be directly addressed by the provisions in HB 20-1085. Independent of OOP expenses, type of insurance also was related to number of visits, with privately insured and Medicare-insured people being more likely to have more physical therapy visits relative to those who were insured under Medicaid or uninsured. Providing coverage for physical therapy as a benefit for the treatment of pain is highly likely to increase the utilization of physical therapy visits and also decrease other downstream healthcare costs (as outlined in our response to Question 5).

Additional studies on the impacts of copays/OOP expenses and the propensity for patients to seek care for minor and/or serious symptoms are also relevant. Studies show that in comparison with a no-copay group, the low- and high-copay groups are both less likely to seek care for minor symptoms, but only the high-copay group is particularly less likely to seek care for serious symptoms.<sup>liv</sup> For patients with pain, whose initial symptoms may quickly lead to debilitating and increasingly difficult-to-manage

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<sup>26</sup> In limited-access states, 55.2% of initial providers were PCPs, 0.9% were physical therapists and 25.7% were chiropractors. In provisional-access states, the rates were 51.7% for PCPs, 1.6% for physical therapists and 23.2% for chiropractors, and in unrestricted-access states, the rates were 55.8% for PCPs, 2.6% for physical therapists and 22.6% for chiropractors.

psychosocial and physical symptoms if not appropriately managed, the impact of cost-sharing on patients' willingness to seek care is critical. Health plans should carefully consider the potentially adverse health effects that cost-sharing can have on their patients because of their potential to reduce the use of care that is medically necessary and appropriate. And we would encourage the DOI to consider that while a benefit may be technically included in a benefit package, adverse tiering and burdensome cost-sharing may be strategies to effectively preclude its use, making it a benefit in name only.

**6c. Lack of Access to ALTOs Negatively Impacts Patients.** Having extensive cost-sharing and/or utilization management requirements for ALTOs places a perverse incentive in favor of prescription opioids in many cases. Such barriers to ALTOs, including PA and step therapy, create a choice environment for providers and patients in which opioids are the only accessible or affordable pain treatment without significant barriers or restrictions. These measures may deter patients from pursuing non-opioid pain care options, and create significant burdens for providers that seek to provide their patients with a multimodal approach to pain care. A 2019 survey found that 92% of pain medicine specialists said that they have been required to submit a PA for non-opioid pain care—with the physicians and their staff spending hours per day on such requests; and 66% of pain medicine specialists said that they have had to hire additional staff to handle the PA requirements.<sup>27</sup> Insurer preferences for lower-cost opioids in step therapy protocols over atypical opioids (e.g., such as buprenorphine and other medications discussed above) also are not aligned with evidence-based practices and guidelines and are not in the best interest of many patients. Often, a physician who prescribes an atypical opioid does not know the particular restrictions or cost-sharing of the medication(s) on a patient's formulary. It is not until the patient attempts to fill the prescription that he or she is faced with the common scenario that the atypical opioid is subject to prior authorization and/or step therapy. Thus, the patient—who is in pain—must decide whether to forgo the prescription altogether, pay hundreds of dollars in OOP costs, or wait several hours or days while the pharmacist and physician attempt to resolve the PA hurdle with the health insurer or PBM. Ensuring that atypical opioids are part of a low-cost tier on a patient's drug formulary and removing utilization management controls would be immediate steps to help resolve these issues.

These misaligned incentives increase the likelihood of the patient and physician being placed in a situation where both may prefer a non-opioid route, but the insurance company and/or PBM's policies take the decision out of their hands. This is not to say that opioid therapy is an unsafe course of therapy—just that if other forms of therapy are preferred earlier in the treatment protocol, they need to be accessible and affordable. HB 20-1085 would have made that possible.

**Question 7: The DOI requested information on the extent to which insurance coverage already exists, or, if no coverage exists, the extent to which the lack of coverage results in inadequate healthcare or financial hardship for Coloradans.**

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<sup>27</sup> American Board of Pain Medicine, "Second Annual Survey of Pain Medicine Specialists Highlights Continued Plight of Patients with Pain, And Barriers To Providing Multidisciplinary, Non-Opioid Care." Available at: <http://abpm.org/component/content/article/296>

Coverage for ALTOs in Colorado is lacking, and as mentioned in our response to Question 6, creating an over-reliance on prescription opioids as the treatment option with the fewest barriers available to providers and patients seeking treatment for pain.

**7a. Coverage of ALTOs in Colorado.** The Affordable Care Act requires Individual and Small Group non-grandfathered health insurance plans to cover a minimum level of benefits, referred to as essential health benefits (EHBs), in each state. EHBs are defined based on state-specific EHB benchmark plans. In Colorado, the EHB benchmark plan outlines the minimum benefit coverage required for physical therapy, occupational therapy and chiropractic services. Acupuncture services are not covered under the Colorado EHB benchmark plan.<sup>lv</sup>

The EHB benchmark plan in Colorado outlines that both habilitative and rehabilitative physical therapy and occupational therapy benefits are covered in both inpatient and outpatient settings, but only for short-term periods. For example, rehabilitative therapies are only required to be covered if in the judgment of a plan physician, “significant improvement is achievable within a two-month period.” When covered in an inpatient setting, physical and occupational therapy services are limited to only 60 days. When covered in an outpatient setting, physical and occupational therapy visits are limited to 20 visits per year per type of therapy. There is no coverage for long-term physical and occupational therapies, with the exception of treatment for autism spectrum disorders. There is coverage for physical therapy for the treatment of temporomandibular joint (TMJ) disorders if a plan physician determines that the treatment is medically necessary; and there is coverage for hospice care when prescribed by a plan physician and hospice care team (and approved by the insurer), but the plan does not mention other acute or chronic pain conditions for which coverage would be provided. Finally, coverage for outpatient occupational therapy services is limited only to treatments to “achieve and maintain improved self-care and other customary activities of daily living.” Again, there is no mention of the coverage of physical therapy or occupational therapy long-term that pertains to the needs of patients with acute or chronic pain.

Chiropractic services are similarly limited in coverage. The services are covered when provided by contracted chiropractors, up to 20 visits per year, and are limited to evaluation, lab and X-ray services required for chiropractic care, and the treatment of musculoskeletal disorders. There are a number of exclusions to this coverage.<sup>28</sup> Most notably, as it relates to pain management therapy, there are exclusions regarding MRIs and other types of diagnostic radiology services.

In sum, while physical therapy, occupational therapy and chiropractic services are currently covered for non-grandfathered individual and small groups in some form under the current EHB benchmark plan in Colorado, they come with a number of significant exclusions/exceptions to coverage that do not address the needs of patients with acute or chronic pain. In addition, acupuncture, which has been demonstrated in the literature as being a low-risk and cost-effective therapy for a multitude of patients

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<sup>28</sup> Exclusions include hypnotherapy; behavior training; sleep therapy; weight loss programs; services not related to the treatment of the musculoskeletal system; vocational rehabilitation services; thermography; air conditioners, air purifiers, therapeutic mattresses, supplies, or any other similar devices and appliances; transportation costs; prescription drugs, vitamins, minerals, food supplements or other similar products; educational programs; non-medical self-care or self-help training; all diagnostic testing related to excluded services; MRI and/or other types of diagnostic radiology; physical or massage therapy that is not part of the chiropractic treatment; and durable medical equipment and/or supplies for use in the home.

with pain, is not required to be covered for any health conditions under the Colorado EHB. Providing coverage for the proposed coverage benefits outlined in HB 20-1085 would expand cost-beneficial, effective treatment options to help patients with pain in Colorado.

**7b. Coverage of ALTOs Under Colorado Medicaid.** Colorado's Medicaid program currently provides coverage for physical therapy,<sup>lvi</sup> occupational therapy<sup>lvii</sup> and rehabilitation services,<sup>lviii</sup> all with no copayment or limit on services. Colorado Medicaid does not provide Medicaid coverage for chiropractic services.<sup>lix</sup>

Increasingly, state Medicaid programs are extending coverage for ALTOs (see Table 2). The federal government has been actively supportive of these efforts, issuing a number of guidance documents to encourage states to provide ALTOs, offering examples of states that are doing so, and explaining the statutory and regulatory tools available to states to do so.<sup>lx</sup>

**7c. Coverage of Alternative Pain Care Under Commercial and Medicare Advantage.** A 2018 study of U.S. insurer coverage policies for nonpharmacological approaches commonly used to treat acute or chronic LBP among commercial and Medicare Advantage insurance plans (and six additional treatments among Medicaid plans) found that commercial and Medicare insurers consistently cover physical therapy and occupational therapy, though they may have strict standards for medical necessity. Other examined therapies varied widely in coverage, despite the evidence in the literature that support the use of these other interventions for the treatment of patients with pain. This may be due to the absence of best practices in the development of coverage policies for nonpharmacological treatment, the administrative complexities of revising coverage policies, and payers' economic incentives and concerns for cost-effectiveness. However, insurers have an important opportunity to improve the accessibility and provision of ALTOs, reduce unnecessary opioid use, and improve the quality of care for their covered lives with patients with pain.<sup>lxi</sup>

See Question 4 for additional information on the medical benefits of alternative therapies.

See Question 6 for how cost-sharing creates financial hardship, delayed care and inadequate pain care for patients.

**Question 8: The DOI requested additional information on the extent to which the proposed benefit would result in changes to existing benefits and/or reduce access to other health benefits.**

There is an issue of whether insurers would change other benefits (exclude other coverage or increase cost-sharing or impose utilization management on other benefits) in response to HB 20-1085. This calls for speculation, but seems unlikely given the cost savings associated with the HB 20-1085 benefits discussed in this response. In addition, actuarial studies from states that have incorporated similar benefits into their EHBs suggest that the direct costs of the benefits are small. For example, Oregon's actuarial study estimated an impact of \$4 PMPM by adding up to 12 spinal manipulation visits and up to 20 physical therapy visits in their EHBs for acute/chronic pain.<sup>lxii, lxiii</sup> We point out that insurers for years have had the option to increase access to ALTOs but generally have not done so.

**Question 9: The DOI requested responses provide any other data responsive to Colorado Revised Statute Section 10-16-103 or other information that is relevant to the analysis.**

The information in this section supplements the answers to questions 4-8 in areas not directly relevant to those questions.

**9a. Community-Based Settings Should Be Additionally Considered by Colorado Lawmakers Seeking Cost-Effective Efforts to Improve Pain Care.** While not one of the primary questions in the RFI, our cost model of SUD vs. non-SUD patients raises important considerations for patients with SUD and sites of care that deserve further deliberation and discussion with the DOI and policymakers in Colorado more generally. This data highlights that care provided in a community-based, outpatient setting is considerably less costly than in-patient residential care. It is likely that given the pharmaceutical costs also are considerably less than the medical costs, the provision of office-based buprenorphine as part of SUD care provides considerable cost savings. Further analysis is necessary to identify outcomes, but it supports the work of Colorado already to reduce administrative and other barriers to medications to help treat OUD.

**9b. Use of Prescription Opioids Has Decreased in Recent Years.** The overall national opioid prescribing rate demonstrated a steady increase starting in 2006, and peaked in 2012 at a prescribing rate of 81.3 prescriptions per 100 persons. Since 2012 however, the overall national opioid prescribing rate has steadily declined, and in 2018, the prescribing rate had fallen to the lowest in the 13 years for which the CDC has data, at 51.4 prescriptions per 100 persons.<sup>lxiv</sup> Similarly, opioid dose strength also has decreased significantly in recent years, with total morphine milligram equivalents (MME) decreasing by more than 45% since 2014.<sup>29</sup> Providers increasingly understand the risks of prescribing opioids for the treatment of pain, have taken actions to limit the use of opioids as needed, and should be afforded additionally covered treatment options as needed to ensure patients with patient have appropriate care.<sup>30</sup>

**9b. Other Unintended Consequences of Not Addressing Comprehensive Pain Care.** A longitudinal study from 2019 found a steady annual increase in the rate of reported Hepatitis C cases in the population (from 0.7 reported cases of Hep C per 100,000 in 2013 to 1.0 per 100,000 in 2017), which has been influenced by increasing injection drug use due to the opioid crisis. Given that Hepatitis C is treated with very high-cost antiviral drugs (e.g., Sovaldi,<sup>31,lxv</sup> Harvoni,<sup>32,lxvi</sup> Simprevir, Viekira Pak), and may require hospitalization in some cases, there are significant social and economic costs to bear in not providing ALTOs such as physical therapy, occupational therapy, acupuncture and chiropractic care as options for

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<sup>29</sup> IQVIA Xponent market research services. (c) IQVIA 2020. All rights reserved. Source Notes: These materials include information derived from market research information provided by IQVIA, Inc. (IQVIA). IQVIA market research information is proprietary to IQVIA and available by subscription from IQVIA. The IQVIA Xponent® market research data includes estimates of dispensed drug prescription information from retail pharmacies (chain, mass merchandisers, independent and food stores) in the United States. IQVIA sources transaction information for +90% of the retail channel and uses a customized and patented estimation methodology to generate accurate market estimates. IQVIA employs various proprietary methodologies in data sourcing, data receipt, data editing and cleansing, creation and maintenance of reference files, data quality assurance processes, reference data bridging, database management and report creation to produce these estimates. More information about IQVIA can be found at [www.IQVIA.com](http://www.IQVIA.com).

<sup>30</sup> Additional considerations include the fact that many states, health insurance companies, national pharmacy chains and PBMs have imposed strict limits on the dose and/or quantity of opioid analgesics that may be prescribed to an individual. These entities have attempted to carve out patients with chronic pain, in hospice, receiving palliative or cancer care, but generally, the implementation of the policies make no distinction between these cohorts.

<sup>31</sup> Sodosbuvir (Sovaldi) costs \$1,000 per 400 mg pill, with the total cost of a 12-week course being \$84,000. Sovaldi is also often prescribed with other medications, such as simeprevir, which adds additional Rx costs to the treatment of patients with Hep C.

<sup>32</sup> Ledipasvir-sofosbuvir (Harvoni) costs \$1,125 per pill. An 8-week treatment course is \$63,000, while a 12-week treatment course is \$94,500.

patients with pain and failing to alleviate the burden of opioid-related harms in the community. We point out that there may be additional ALTOs providing such benefits than just those addressed in HB 20-1085.

**9c. Addressing SUD as a State Priority Through EHB Design.**<sup>lxvii</sup> To date, only five states have applied for the incorporation of new EHB benchmark plans through the flexibility afforded by the CMS Notice of Benefit and Payment Parameters for 2019. Of those five states, four (Illinois, Michigan, New Mexico and Oregon) have used the new process to update their EHB benchmark plan to prioritize and enhance coverage of treatments for SUDs and/or to encourage the use of ALTOs to address the opioid epidemic. This is not surprising given the rising death count from SUDs, and the medical consensus that two effective responses are to decrease barriers to medications to help treat opioid use disorder and increase access to naloxone to reverse opioid-related overdose.

**Figure 4. State Changes to the Essential Health Benefits Benchmark Plan, for Plan Years 2020-2022**

| State        | Changes to Benchmark Plan Coverage                                                                                                                                                                                                                                                                                                                                                                                                              | Applicable Plan Years |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Illinois     | Adds: <ul style="list-style-type: none"> <li>At least one intranasal opioid reversal agent (naloxone)</li> <li>A topical anti-inflammatory medication for acute and chronic pain</li> <li>Telepsychiatry care</li> </ul> Limits: <ul style="list-style-type: none"> <li>Opioid prescriptions for acute pain to no more than seven days</li> </ul> Removes: <ul style="list-style-type: none"> <li>Barriers to MAT of OUD, such as PA</li> </ul> | 2020-2022             |
| Michigan     | Adds: <ul style="list-style-type: none"> <li>At least one intranasal opioid reversal agent (naloxone)</li> </ul> Removes: <ul style="list-style-type: none"> <li>Barriers to MAT for OUD, such as PA</li> </ul>                                                                                                                                                                                                                                 | 2022                  |
| New Mexico   | Adds: <ul style="list-style-type: none"> <li>Artery Calcification Testing</li> <li>Weight loss treatment for obese members</li> <li>Opioid Reversal Agents (naloxone)</li> <li>Anti-Hepatitis C Agents</li> </ul> Removes: <ul style="list-style-type: none"> <li>Benefit limits on prosthetics</li> </ul>                                                                                                                                      | 2022                  |
| Oregon       | Adds: <ul style="list-style-type: none"> <li>Up to 20 spinal manipulation visits per year</li> <li>Up to 12 acupuncture visits per year</li> <li>At least one intranasal opioid reversal agent (naloxone)</li> </ul> Removes: <ul style="list-style-type: none"> <li>Barriers to MAT for OUD, such as PA</li> </ul>                                                                                                                             | 2022                  |
| South Dakota | Adds: <ul style="list-style-type: none"> <li>Applied Behavioral Analysis for the treatment of autism spectrum disorder</li> </ul>                                                                                                                                                                                                                                                                                                               | 2021-2022             |

To achieve federal approval of its new state benchmark plan, each state was required to demonstrate, through an actuarial analysis:

- I. that the plan is at least equal in scope to the typical employer plan; and,

American Medical Association / Colorado Medical Society / Colorado Pain Society / Manatt Health

- II. that it does not exceed the generosity of the most generous plan among the comparison set of 10 benchmark plan options for 2017.

Because all five states added to their base-benchmark plan, which was itself one of the group market benchmark options, they automatically satisfied the first test. For the second test, Illinois' actuaries determined that the five changes to the benchmark plan would not have a "material" impact on the premium. Actuaries for South Dakota, Michigan, New Mexico and Oregon concluded that while the new benefits would add to the benchmark plan's value, it would still not exceed the generosity of the most generous of the states' 10 benchmark plans.

### **Recommendations**

- 1) This analysis affirmatively answers the central question of whether HB 20-1085 would have provided access to cost-effective, evidence-based ALTOs and atypical opioid options for patients with pain. These non-opioid treatments provide clear health benefits and would save money on other health services. The analysis also reinforces the need for a multidisciplinary, multimodal approach to treatment of pain that requires a critical review of administrative and other health benefit barriers, exclusions and exceptions to coverage that both inhibit the use of ALTOs and fail to address the needs of patients with pain. Future proposals similar to HB 20-1085 must enable shared decision-making between patients and providers to ensure that non-opioid treatments are an option based on patient needs, while balancing the cost-effectiveness and clinical evidence for such treatments.
- 2) We recommend that the DOI examine the individuals within the pain population who utilize ALTOs only, opioids only, both ALTOs and opioids, or neither ALTOs nor opioids in a longitudinal format to better determine the cost efficacy of ALTOs.
- 3) We recommend the DOI conduct additional analyses to examine the findings of our cost modeling of SUD vs. non-SUD populations further, include reviewing cost models for each type of SUD component independently (opioid, alcoholism, heroin, marijuana, etc.), and controlling for demographic differences and co-morbidities of the SUD vs. non-SUD populations, as well as a longitudinal study that incorporates the costs over a long-term period.
- 4) We recommend the DOI issue a carrier data call on cost-sharing and other related formulary issues to identify cost-, cost-sharing, and coverage of atypical opioids as compared to commonly prescribed opioid analgesics.

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A full list of codes used in the analysis of patients with pain, the use of alternative therapy by those identified patients with pain, and associated healthcare use and costs by study population can be provided upon request. The ICD-10 codes used in the full analysis are a representative sample approved for use by the AMA.

**Appendix A. Codes Used to Identify Patients With Pain for Analysis on Use of Alternative Therapy and Associated Healthcare Use**

| ICD-10 Code | Diagnosis                                                                   |
|-------------|-----------------------------------------------------------------------------|
| 338.21      | Chronic pain due to trauma                                                  |
| 338.29      | Other chronic pain                                                          |
| 338.4       | Chronic pain syndrome                                                       |
| 719.41      | Pain in joint, shoulder region                                              |
| 719.45      | Pain in joint, pelvic region and thigh                                      |
| 719.46      | Pain in joint, lower leg                                                    |
| 719.47      | Pain in joint, ankle and foot                                               |
| 724.2       | Lumbago                                                                     |
| F45.1       | Somatic symptom disorder (mild, mild with predominant pain, moderate, etc.) |
| F45.42      | Pain disorder with related psychological factors                            |
| G43.0       | Migraine without aura                                                       |
| G43.1       | Migraine with aura                                                          |
| G43.4       | Hemiplegic migraine                                                         |
| G43.5       | Persistent migraine aura without cerebral infarction                        |
| G43.6       | Persistent migraine aura with cerebral infarction                           |
| G43.7       | Chronic migraine without aura                                               |
| G43.8       | Other migraine                                                              |
| G43.9       | Migraine, unspecified                                                       |
| G43.A       | Cyclical vomiting                                                           |
| G43.B       | Ophthalmoplegic migraine                                                    |
| G43.C       | Periodic headache syndromes in child or adult                               |
| G43.D       | Abdominal migraine                                                          |
| G54.1       | Lumbosacral Plexus Disorder                                                 |
| G56.4       | Complex regional pain syndrome I, unspecified                               |
| G56.4       | Complex regional pain syndrome I of upper limb                              |
| G56.4       | Complex regional pain syndrome I of lower limb                              |
| G56.4       | Complex regional pain syndrome I of other unspecified site                  |
| G56.4       | Complex regional pain syndrome II of upper limb                             |

|         |                                                          |
|---------|----------------------------------------------------------|
| G57.00  | Lesion of sciatic nerve, unspecified lower limb          |
| G57.7   | Complex regional pain syndrome II of lower limb          |
| G89     | Pain, not elsewhere classified                           |
| G89.0   | Central pain syndrome                                    |
| G89.2   | Chronic pain, not elsewhere classified                   |
| G89.21  | Chronic pain due to trauma                               |
| G89.22  | Chronic post-thoracotomy pain                            |
| G89.28  | Other chronic postprocedural pain                        |
| G89.29  | Other chronic pain                                       |
| G89.3   | Neoplasm related pain (acute) (chronic)                  |
| G89.4   | Chronic pain syndrome                                    |
| G90.50  | Complex regional pain syndrome type I                    |
| G90.519 | Complex regional pain syndrome type I, upper limb        |
| G90.529 | Complex regional pain syndrome type I, lower limb        |
| M25.5   | Pain in joint                                            |
| M25.50  | Pain in unspecified joint                                |
| M25.51  | Pain in shoulder                                         |
| M25.511 | Pain in right shoulder                                   |
| M25.512 | Pain in left shoulder                                    |
| M25.519 | Pain in unspecified shoulder                             |
| M25.55  | Pain in hip                                              |
| M25.551 | Pain in right hip                                        |
| M25.552 | Pain in left hip                                         |
| M25.559 | Pain in unspecified hip                                  |
| M25.56  | Pain in knee                                             |
| M25.561 | Pain in right knee                                       |
| M25.562 | Pain in left knee                                        |
| M25.569 | Pain in unspecified knee                                 |
| M25.57  | Pain in ankle and joints of foot                         |
| M25.571 | Pain in right ankle and joints of right foot             |
| M25.572 | Pain in left ankle and joints of left foot               |
| M25.579 | Pain in unspecified ankle and joints of unspecified foot |
| M41.25  | Other idiopathic scoliosis, thoracolumbar region         |

|         |                                                                          |
|---------|--------------------------------------------------------------------------|
| M43.26  | Fusion of spine, lumbar region                                           |
| M47.816 | Lumbar spondylosis                                                       |
| M48.02  | Cervical Spinal Stenosis                                                 |
| M48.061 | Spinal Stenosis lumbar region without neurogenic claudication            |
| M50.11  | Cervical disc disorder with radiculopathy                                |
| M51.16  | Intervertebral disc disorders with radiculopathy, lumbar region          |
| M53.1   | Cervical Brachial Syndrome                                               |
| M53.3   | Sacroiliac joint dysfunction/pain                                        |
| M54     | Dorsalgia                                                                |
| M54.16  | Lumbar radiculitis                                                       |
| M54.2   | Cervicalgia                                                              |
| M54.31  | Spinal stenosis, lumbar region with neurogenic claudication              |
| M54.5   | Low back pain                                                            |
| M54.6   | Pain in thoracic spine                                                   |
| M54.8   | Other dorsalgia                                                          |
| M54.9   | Dorsalgia, unspecified                                                   |
| M79.18  | Myofascial pain syndrome                                                 |
| M79.18  | Myofascial pain                                                          |
| M79.7   | Fibromyalgia                                                             |
| M96.1   | Post laminectomy syndrome                                                |
| R07.0   | Pain in throat                                                           |
| R10.0   | Acute abdomen                                                            |
| R10.1   | Pain localized to upper abdomen                                          |
| R10.2   | Pelvic and perineal pain                                                 |
| R10.2   | Pelvic pain in female                                                    |
| R10.3   | Pain localized to other parts of lower abdomen                           |
| R10.8   | Other abdominal pain                                                     |
| R10.9   | Unspecified abdominal pain                                               |
| R52     | Pain, unspecified                                                        |
| T84.84  | Pain due to internal orthopedic prosthetic devices, implants, and grafts |
| Z79.891 | Long term current use of opiate analgesic                                |

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**Appendix B. ICD-10 Codes Used to Identify Alternative Therapy Use for Patients With Pain**

| <b>CPT Code</b> | <b>Description</b>                              |
|-----------------|-------------------------------------------------|
| 97161           | Physical Therapy eval low complex 20 min        |
| 97162           | Physical Therapy eval mod complex 30 min        |
| 97163           | Physical Therapy eval high complex 45 min       |
| 97164           | Physical Therapy re-eval est plan care          |
| 97165           | Occupational Therapy eval low complex 30 min    |
| 97166           | Occupational Therapy eval mod complex 45 min    |
| 97167           | Occupational Therapy eval high complex 60 min   |
| 97168           | Occupational Therapy re-eval est plan care      |
| 98925           | Osteopathic manipulation 1-2 regions            |
| 98926           | Osteopathic manipulation 3-4 regions            |
| 98927           | Osteopathic manipulation 5-6 regions            |
| 98928           | Osteopathic manipulation 7-8 regions            |
| 98929           | Osteopathic manipulation 9-10 regions           |
| 98940           | Chiropractic manipulation 1-2 regions           |
| 98941           | Chiropractic manipulation 3-4 regions           |
| 98942           | Chiropractic manipulation 5 regions             |
| 98943           | Chiropractic manipulation extraspinal region(s) |
| 97810           | Acupuncture w/o stimul 15 min                   |
| 97811           | Acupuncture w/o stimul addl 15m                 |
| 97813           | Acupuncture w/stimul 15 min                     |
| 97814           | Acupuncture w/stimul addl 15m                   |
| 97112           | Neuromuscular Re-education                      |
| 97124           | Effleurage, pertissage, tapotement              |
| 97139           | Unlisted therapeutic procedure                  |
| 97140           | Manual Therapy                                  |
| 97530           | Therapeutic Activities                          |
| 97110           | Therapeutic Exercise                            |
| 97014           | Electrical Stimulation                          |
| 97012           | Traction                                        |

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**Appendix C. Codes Used in SUD vs. Non-SUD Patient Cost Modeling**

A full list of codes used in the cost modeling of SUD vs. Non-SUD populations in 2018 can be provided upon request. The ICD-10 codes used in modeling are a representative sample approved for use by the AMA for analysis.