EXPLORING THE ISSUES RELATED TO PAIN:
A PRELIMINARY ASSESSMENT

Prepared for Board of Directors, Health District of Northern Larimer County
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EXECUTIVE SUMMARY

SCOPING THE ISSUE

The Health District Board of Directors selected pain as a high priority issue in July, 2014. In order to focus our assessment, we put some boundaries around our inquiry: We focused mainly on chronic pain, taking an in-depth look at the issue of use of opioids for chronic noncancer pain (CNCP) and the associated harms of overdose, misuse and abuse, then more broadly looking at the many other modalities for treatment of pain and approaches to chronic pain care.

METHODS

We began our preliminary assessment in January 2015. Our information gathering included interviews with stakeholders and experts at the local, state and national level. We collected personal stories from people living with chronic pain in our community. We attended regional and national meetings and conferences, read several seminal books on the subject, sought out local data on the magnitude of the problem and conducted a literature review of the evidence base supporting treatment modalities and systems of care for those with chronic pain. This report summarizes what we learned.

FINDINGS

**Pain as a Public Health Challenge:** Chronic pain contributes substantially to disease burden and disability, and places demands not just on our local health care system, but on society as a whole. Estimates are that 7 to 14% of US adults live with “high-impact” chronic pain. Because of the extent of the burden, the fact that peoples risk of developing chronic pain is affected by social and economic environments, that treatment for it has impacts that go beyond the individual (e.g. opioids that are used to treat pain can also be abused or diverted), that our ability to prevent and treat it suffers from large gaps in knowledge, and because it differentially impacts vulnerable populations, it is being approached as a public health challenge at both the state and national level.

There are in fact two interacting public health challenges: the undertreatment of pain—a problem most recently brought to the public’s attention with the Institute of Medicine’s report, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research* (Institute of Medicine, 2011), and the “opioid epidemic”—the dramatic increases in prescription drug overdose deaths and opioid use disorders brought about by the increase in use of prescription pain relievers that has gotten widespread media attention. However, our inventory of the current activities and initiatives that are taking place at the federal and state level, and therefore the local level, shows that the focus of the public health attention is largely in addressing the issue of opioid overdose, misuse and diversion.

**The Typologies of Pain:** We all recognize that pain is a signal that something is wrong, its biological purpose is to get us to do something. Once the painful stimulus is gone and the tissue heals, the pain
goes away. But pain is much more complex than a simple relay between the injury and the brain. The perception of pain, how it evolves and response to treatment is affected by genetics, culture, past experience, psychological and social influences, and as it turns out, complex neurobiological changes that can sometimes cause pain to persist and become a disease of the nervous system in its own right. Chronic pain has been defined as pain that lasts longer than the normal tissue healing time. There have been remarkable advances in understanding of the neurobiological basis of pain, and in particular the molecular, cellular, and structural changes in the brain that give rise to chronic pain. Given its complexity, the IOM, clinical guidelines and experts in pain management recommend taking a “biopsychosocial approach” to assessment and treatment.

**What is the science behind the care for people with pain?** Despite advances in the basic biology of pain, there have been few meaningful advances in the treatment of pain in the past decade. What is striking to us in reviewing the literature and hearing from experts is that the current options for treating chronic pain offer at best, limited improvements in level of pain and meager improvements in functioning for most patients.

We were surprised by the paucity of evidence behind even the centuries old pharmaceutical remedy for pain, opioid pain relievers. In fact, there have been no known randomized controlled trials of the use of opioids in the treatment of CNCP that have lasted more than a few months, and yet, the harms due to opioids are well established, serious and dose-dependent: abuse and overdose. Although estimates of the risk of abuse are widely varying, the most recent and robust suggest as many as a third of patients prescribed long-term opioids for chronic non-cancer pain have opioid use disorders. A number of clinical guidelines for the use of opioids for non-cancer pain have been produced and they all recommend careful risk assessments before starting opioids and careful monitoring during use to prevent adverse consequences, yet the recommended risk assessment instruments have been found to be “extremely inconsistent” when studied, and there have been no studies on the recommended risk mitigation strategies such as urine drug screens and use of prescription drug monitoring programs, even in high risk patients, not to mention the added cost and provider time we heard that they require. Essentially every decision a healthcare provider and patient need to make with respect to opioid treatment must be made on the basis of weak or insufficient evidence. Opinions regarding the role of opioids in chronic noncancer pain are all over the map, but in general the consensus in published reports and among the local providers we spoke with is that there is an appropriate role for prescription opioids in the treatment of some patients with high-impact chronic pain.

A new guideline on opioid use in CNCP was released this week by the Center for Disease Control—it stands out in that it establishes a “bright-line” ceiling for maximum daily dosage of opioids and it is well below the doses that many patients currently treated for pain are taking. This is just one of many “forces of change” incentivizing prescribers, most of whom are primary care providers, to rein in the numbers of patients with CNCP they initiate on opioid treatment, and the doses they prescribe for patients with pain. As we rebalance the opioid pain reliever conundrum, patient advocates are concerned that the pendulum will swing too far the other direction and undertreatment of pain will become a greater problem. We share Jamie’s story of his path into addiction while being treated for a shoulder injury, having his dosage abruptly tapered by his doctors, his life spiraling out of control until a local primary
care clinic physician offered him counseling, a medication (Suboxone) and support to treat his addiction. “It saved my life”, he told us. Access to medically assisted treatment for opioid use disorder will become more of an issue as opioid prescribing is reined in. We learned that our community, like most, has a dearth of resources to meet the needs of those with severe opioid use disorders (addiction to opioids).

The potential harm from misuse of opioids must be balanced against a humane concern for the suffering of people with persistent pain. This has not been an easy balance to find. What we heard from the experts presenting at national conferences was that solutions will likely require education of both physicians and patients on appropriate use of opioids and improved access to non-drug therapies that could reduce the need for opioids.

There are a variety of evidence-based treatments have been shown to be effective for chronic pain management and combinations of these treatments are now the gold standard of care for CNCP. We review the evidence supporting these therapies in this report. Patient education in the biology of pain and self-care, cognitive behavioral therapy, physical therapy and exercise, manual therapies and a variety of complementary modalities have been studied. For any treatment modality, there are some who will experience substantial benefit and others who experience little improvement. Factors that would allow providers to match treatments to patients haven’t been identified for the most part, so it is trial and error—a pathway that most of the pain suffers we interviewed talked about with frustration. In most patients, combining approaches (multimodal treatment) can lead to additive or even synergistic positive effects.

For patients who don’t get better with usual care, multidisciplinary and interdisciplinary care models are likely to yield the best results (e.g., the Veterans Health Administration’s stepped care model). Interdisciplinary pain care centers, fairly common a few decades ago, have virtually disappeared in recent years due to reimbursement issues, but new telehealth strategies are giving primary care “medical home” practices that have integrated behavioral health services the support to establish slimmed down versions of these pain care models on site. The Colorado Medicaid Accountable Care program has sponsored a telehealth technology called “Project ECHO” that provides primary care practices with access to an interdisciplinary pain care team for consultation and education. Family Medicine Center in Fort Collins has developed an interdisciplinary pain management program, and currently has a waiting list for patients to get in.

The best results for patients who don’t get better with self-care education and enhanced primary care are likely to come from interdisciplinary/integrative pain centers. There is a crucial need for improved access to these approaches and as payment reform evolves into value-based reimbursement arrangements, these centers may re-emerge as centers of excellence for complex pain care.

What did we learn from persons who live with chronic pain and the providers who care for them in our community? To understand pain and how it affects people’s lives, it was essential to talk to people who have experienced chronic pain. We share six stories that patients shared with us in this report. Our patient stories show how difficult, all-consuming and isolating chronic pain can be, but that there is hope, often times it comes from low-tech approaches—someone listening and believing them, helping
them understand their pain and learn coping skills, and learning how to take some control of their pain and function with exercise, social supports and sometimes complementary treatments. We learned that the power of patient education is underappreciated and even if physicians understand its value, they don’t have time to deliver it. Ann described her experience seeing a series of 14 different doctors over three decades, receiving multiple medications and interventional procedures for her back pain with little improvement, until she referred herself to a physical therapist who listened to her story and explained to her what was happening in her central nervous system to amplify her pain. She said it was a breakthrough discovery for her: “Education has been the most valuable form of treatment I’ve received.” With the help of her therapist she began a progressive exercise program, and practiced self-care with adaptive yoga mindfulness exercises. Maggie’s story reinforces the power of patient education in the neurobiology of pain and the importance of developing self-efficacy. The stories of Jill and Lisa showed us how patients with chronic pain, even if they have been on long-term opioid pain relievers, can experience a turnaround and “feel like a new person”, but it takes accepting that they may not be able to entirely relieve their pain, practicing self-care, exercising and in some cases trying complementary and integrative treatments for pain.

From our interviews with providers and other stakeholders in our community, we learned that there is broad appreciation for the value of behavioral healthcare in supporting patients with chronic pain, but also barriers in accessing those services. Chronic pain takes an emotional toll on patients and also the providers caring for them. Physicians feel pressure from practice or payer level policies restricting the use of opioids, or worry about the risk of sanctions if they prescribe or even if they don’t and their patient satisfaction survey results suffer. We heard that pain management is complex and takes time, a resource sorely lacking in rapid paced primary care setting. Providers and patients talked about misaligned reimbursement policies, where prescriptions and surgery were the treatment approaches most likely to be covered by typical insurance and high out of pocket costs created barriers to patients getting appropriate treatment, including treatment for substance use disorders. Lack of training in pain management and in identifying and treating addiction was a challenge for some providers. Physicians, including surgeons, talked about how patients expectations for quick and complete relief from their pain causes frustration, anxiety, maladaptive behaviors and increases their attraction to surgical interventions, even when risks and costs are substantial and success rates are limited.

RECOMMENDATIONS

Chronic pain is a complex public health issue. The opioid epidemic is a separate and related complex problem. To adequately address the opioid epidemic we need to address the problem of chronic pain. To make a difference in chronic pain will require an intensive, multi-year, organized community wide effort. We have only begun to understand the issues and identify stakeholders. We have only rough ideas about specific solutions that might make real and lasting changes in our community, but we believe the Health District is in a unique position to organize and facilitate a process with community partners that will identify and prioritize effective solutions. The components of a community initiative will likely include:
1. Increasing the availability of effective treatment for chronic pain by identifying local sources of care and creating resources to make it easier for providers to establish referral networks and enhance opportunities for education for physicians and other providers, and perhaps develop more integrative pain approaches.
2. Increase availability of effective treatment for opioid use disorders in coordination with the mental health and substance abuse partnership.
3. Increase availability of sources of patient support and education.
4. Support the implementation of the CDC Guidelines.
5. Advocate for policy and payment structure changes, partnering with providers and payers and local, state and national initiatives that align with our goals.
The Health District Board of Directors selected pain management as a high priority issue in July, 2014. The issue first came to the board’s attention in 2011 as a result of the 2010 Triennial Community Health Assessment process when we noted that overdose deaths due to prescription opioids had dramatically increased in Larimer County as well as in Colorado, overtaking motor vehicle fatality rates.

The major reason that we decided to investigate the issue more thoroughly was when the Larimer County Mental Health and Substance Abuse Partnership set a priority to investigate what services existed for those with substance use disorders, and whether they were adequate. During our staff’s investigation in substance use disorder services, it became clear to them that our community had a growing opioid use disorder challenge, and as we explored that, we learned that many of those with an opioid use disorder started their use of opioids due to pain, and that pain management continued to be a problem for some of them. At the same time, the Northern Colorado Health Alliance was organizing meetings and trainings on the issue of pain management and the use of opioids, and national attention to the issue was increasing. In the end, it seemed difficult to tackle the issue of substance use disorder treatment without also considering the issue of pain management.

Pain management is a very broad and complex topic. It is something everyone experiences at some time in their life, and its assessment and treatment consumes a large part of the healthcare enterprise. In order to focus our assessment, we put some boundaries around our inquiry: We mainly focused on chronic pain, specifically looking at approaches to pain management, and in particular, taking an in-depth look at the issue of use of opioids for chronic noncancer pain, since that is the type of pain for which the increased use of opioids has come under scrutiny.

A full treatment of chronic pain would include addressing the full spectrum of interventions, from primary prevention through tertiary prevention, and across all disease processes. It is thought that one way to prevent chronic pain is to treat acute pain earlier and more effectively, which includes making an accurate diagnosis of the cause of the pain. Although we briefly address the issue of primary and secondary prevention, we did not investigate the risk of missed diagnoses of causes of acute pain. Also, some therapies which contribute to the improvement of chronic pain were beyond the scope of our assessment. These include specific disease-modifying therapies (e.g. anti-rheumatic therapies, joint replacement) and specific treatments for intermittent pain conditions such as migraine. That said, we are ready to dive deeper or expand more broadly if that is where the next step in assessment needs to take place.
Following the Health District’s “Shaping the Future” model (see Figure 1), the Healthy Mind Matters Assistant Director and the Health District’s Medical Director began a preliminary assessment in January, 2015. This report is a summary of key learnings from the preliminary assessment.

The primary objectives for the preliminary assessment were to answer the following questions:

1. How big is the problem of pain in our community?
2. What are the key issues to be considered?
3. What are the relationships between pain, opioids, and substance use disorders that our community may need to consider?
4. Does the current system seem to meet the needs of our community?
5. What is working well in other communities?
6. Who else cares about this problem and might partner with us to make improvements?

Staff gathered information for this preliminary assessment through stakeholder interviews, personal stories from current and former patients, literature searches, and attendance at national and regional meetings. All four methods were implemented simultaneously.

**STAKEHOLDER INTERVIEWS**

Forty-seven people were included in a total of 33 interviews. Thirty-six of these individuals shared primarily a local perspective on the issues related to chronic pain and 11 shared primarily a state perspective. All interviews were scheduled for 60 minutes each and conducted in-person with the Medical Director and Assistant Director of Healthy Mind Matters. These interviews provided a general sense of the current status of pain care in our community. However, it is important to note that interviewees identified an additional 40 key stakeholders who have not yet been interviewed. Interviews with these additional important stakeholders would likely be useful to understand in more detail which services are available in our community and what strengths and barriers exist in relation to treatment of chronic pain.

Information gained from stakeholder interviews can be categorized as follows and key learnings are described later in this report:

**Stakeholder Interviews Categories of Key Learnings**

- Psychological aspects of experiencing and treating pain
- Practice level issues, problematic incentives and pressures on primary care physicians
- Reimbursement, insurance and cost
- Opioid addiction
- Community resources
- Training and knowledge about pain
- Patient expectations and cultural beliefs about pain

**PERSONAL STORIES**

Six current and former patients with chronic pain shared their personal stories during our preliminary assessment. Interviews were conducted and stories written by a professional journalist. Key learnings and the stories are included later in the report. These six stories provide a brief glimpse into real lives and give us a sense of the significant impact this medical condition has on our neighbors, co-workers, family and friends. We are grateful to these six people for providing these valuable stories.
LITERATURE SEARCHES

At the time of this writing, 570 resources are cataloged in an online reference management tool for easy access during the next phase, if this project moves forward. The volume of available information on the topic of chronic pain is much larger than could be systematically reviewed during the preliminary assessment phase. In addition, new and important resources are published each week that can further inform this project. In reviewing the science, we relied first on the higher quality evidence of systematic reviews, meta-analyses, and health technology assessments. When relevant we also reviewed randomized controlled trials, clinical guidelines and observational studies. A bibliography of the references upon which this report is based is at the end of this document.

NATIONAL AND REGIONAL MEETINGS

Key staff attended national and regional meetings as listed in the table below. Staff used information gathered at these meetings to identify resources, initiatives and models from across the country aimed at the problems of chronic pain and/or the “opioid epidemic” and to understand the multiple and often contradictory views on these important issues. Key learnings from national and regional meetings are woven throughout this report.

<table>
<thead>
<tr>
<th>Conference or Meeting Name</th>
<th>Brief Description</th>
<th>Attended by:</th>
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<tbody>
<tr>
<td>Pain Action Alliance to Implement a National Strategy (PAINS) National Collaborator's Strategy Meeting</td>
<td>An invitation-only convening of PAINS members, leaders in federal agencies, academic institutions, policy organizations, patient advocacy groups, industry and others to discuss the National Pain Strategy and promote collaboration to advance it.</td>
<td>Bruce Cooper, Erin Hall</td>
</tr>
<tr>
<td>Managing Pain in Practice</td>
<td>A CME event focused on management of opioid prescriptions. This event was hosted and sponsored by North Colorado Health Alliance and St. Mary’s Medical Center in Grand Junction.</td>
<td>Bruce Cooper, Erin Hall</td>
</tr>
<tr>
<td>PainWeek</td>
<td>The purpose of this 5 day conference was to enhance the effectiveness of frontline pain practitioners from multiple western medicine disciplines. The focus was on the science of pain, education for those seeking certification in pain specialties and safe prescribing of opioids.</td>
<td>Erin Hall</td>
</tr>
<tr>
<td>No Life Limited by Pain: 26th Annual Meeting American Academy of Pain Management</td>
<td>A CME event for pain practitioners from multiple disciplines. Focus was on comprehensive pain management and integrative pain care.</td>
<td>Bruce Cooper</td>
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PAIN AS A PUBLIC HEALTH ISSUE

“Pain can be conceptualized as a public health challenge for a number of important reasons having to do with prevalence, seriousness, disparities, vulnerable populations, the utility of population health strategies, and the importance of prevention at both the population and individual level (Institute of Medicine, 2011, pg. 55).”

According to the Institute of Medicine report an estimated 100 million Americans experience chronic pain conditions (defined as pain that lasts more than 3 to 6 months). By extrapolating this national estimate to the population of Larimer County we can estimate that about 100,000 local residents experience chronic pain. Chronic pain that substantially limits a person’s ability to participate in work, social or self-care activities is sometimes referred to as “high-impact chronic pain.” In 2015, the National Pain Strategy Collaborators estimated 7-14% of Americans experience high impact chronic pain. Applying this same estimate to Larimer County reveals that approximately 14,000 - 22,000 of our friends, co-workers and neighbors live with high impact chronic pain.

Chronic pain affects more people in the United States than any other medical condition. In fact, chronic pain affects more people than stroke, cancer, diabetes, coronary heart disease and heart attack combined. See figure 2.

![Yearly Comparison of Common Conditions in the United States](image)

**Figure 2**
THE IMPACT OF PAIN ON OUR COMMUNITY

This section includes a sampling of local statistics to provide more details on the magnitude of pain and related problems in our community.

The Family Medicine Center, a local residency training program that also serves as a safety net clinic for those with low incomes offers a multi-disciplinary pain clinic for patients with chronic pain. As of February 2015, 135 patients were enrolled in the pain clinic and an additional 80 patients were eligible and on a waiting list to join the clinic (Personal Communication, Dr. Dave Marchant, May, 2015).

In the Health District’s 2013 Community Health Survey 22% of respondents reported experiencing back pain. This is up from 16% in 1995 (HDNLC). This trend occurs across all age groups and has been reported in national surveys. Respondents with back pain also indicated increased rates of depression and anxiety. Other types of chronic pain were not part of this survey. See Figure 3.

![Looking at back pain over time](image)

*This question was not asked on the 2007 Community Health Survey.

**Figure 3**

Patients with pain are frequently prescribed opioids as one strategy to decrease the level of pain they experience. The effectiveness of prescription opioids on chronic pain is not well understood but adverse effects of these powerful medications are well-documented and include physical dependence, opioid use disorder (addiction), accidental overdose and death. Across the nation, problems related to prescription opioids are referred to as the “Opioid Epidemic” and in recent months have grabbed the attention of the media, the White House, national and state policy makers and the 2016 presidential

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1 The Opioid Epidemic is discussed in more detail later in this report.
candidates. According to the 2014 Coroner’s Annual Report (Allen, 2014), 22% of deaths from suicide (19 or 83) and 60% of accidental overdose deaths in Larimer County involved prescription drugs.

The Emergency Medicine Department in our local hospital system regularly treats many patients with chronic or recurrent pain and/or long term prescriptions for opioids. A multi-disciplinary staffing team meets monthly and creates treatment plans for Emergency Department patients with known or potential high risk for opioid use disorders or criminal behavior related to opioid prescription medications (i.e. illegally obtaining and selling prescription drugs). Treatment plans are created for other complex patients as well. As of February 2016, the Emergency Department has implemented 1140 treatment plans and an estimated 85% (969) are related to prescription opioids (Personal Communication, Julie Merlino, February, 2016).

**HIGH COST BURDEN CREATED BY CHRONIC PAIN**

Chronic pain impacts thousands of people locally as described above and places a significant financial burden on individuals, families, employers, insurers and tax payers. A conservative estimate of annual cost burden due to chronic pain in the US is $560 - $630 billion. These costs can be split roughly in half between direct health care expenditures and lost productivity (Gaskin & Richard, 2012). Three types of chronic pain (arthritis, headaches and musculoskeletal pain) contribute most to lost productivity and directly impact the individual, the employer and family members (see Figure 4)(Stewart, Ricci, Chee, & Morganstein, 2003).

![Lost Productive Work Time](image-url)

Figure 4
At an individual level, estimates are that a person with moderate chronic pain generates health care expenditures $4,516 higher on average than those for a person without pain. A person with severe chronic pain generates health care expenditures $3,210 higher than those for a person with moderate pain or $7,726 higher than those with no chronic pain (Gaskin & Richard, 2012).

We do not have any data specific to the cost burden in Larimer County. By extrapolating the National estimate of $560 billion to our county population, we get a very rough estimate of $560 million. If we estimate 14,000 people in Larimer County have severe chronic pain and we use the cost estimate of $7,726 per person more than a patient without chronic pain, the result is an estimated $108 million additional costs related to treatment for people with severe pain.
A widely accepted definition of pain was developed by the International Association for the Study of Pain (IASP): Pain is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (IASP, 1994). There is no single standard taxonomy of pain, but distinctions are frequently made between acute and chronic pain and between cancer related pain and noncancer pain. The differentiation between cancer-related pain and chronic noncancer pain (CNCP) is mainly relevant with respect to the long-term use of opioids in treatment. People with cancer-related pain usually have a limited life expectancy and the goals of improving pain and quality of life outweigh concerns about risk of drug abuse or addiction. Other than that distinction, these two types of pain are managed similarly.

Chronic pain is defined by the IASP as “pain that persists beyond normal tissue healing time, which is assumed to be three months.” Table 1 shows the most common anatomical locations in which chronic pain is reported in US adults.

**TABLE 1: Age-Adjusted Rates of U.S. Adults Reporting Pain during the Last 3 Months, 2009**

<table>
<thead>
<tr>
<th>Cause of Pain, U.S. Average, Adults 18 and Over (%)</th>
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<tbody>
<tr>
<td>Severe headache or migraine</td>
</tr>
<tr>
<td>Low back pain</td>
</tr>
<tr>
<td>Neck pain</td>
</tr>
<tr>
<td>Knee pain</td>
</tr>
<tr>
<td>Shoulder pain</td>
</tr>
<tr>
<td>Finger pain</td>
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<tr>
<td>Hip pain</td>
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</table>


From a functional perspective, the key attribute that differentiates acute pain and chronic pain is that the latter is maladaptive. The idea is that acute pain serves a vital function as a warning sign of injury or infection, but once its warning role is over, persistent pain serves no biologic purpose. Chronic pain results in changes in the peripheral and central nervous system that contribute to its persistence, leading to an emerging perspective that some types of chronic pain are central nervous system diseases (Institute of Medicine 2011, p3).

We will briefly describe the different kinds of chronic pain and how the nervous system is believed to process pain—how pain signals travel to the brain where pain is actually perceived, how the brain can dampen down the pain, or rev it up, and most importantly how research from a variety of methods has shown how the nervous system actually changes physically with persistent pain, becoming a disease in and of itself (Institute of Medicine, 2011).

Only a few decades ago, the view of pain processing was that it was like a simple telephone relay transmission from the pain sensing nerve endings called “nociceptors” through the peripheral nerves
and spinal cord to the base of the brain, the brain stem, and then to the thalamus and cerebral cortex where pain is experienced (Woolf, 2011). This simple stimulus-response phenomenon is called “nociceptive pain”. Pain can be defined as nociceptive when it is generated by noxious stimuli (a hammer hitting your finger), inflammatory when produced by tissue injury (when the finger swells up) and/or immune cell activation (when the finger gets infected). Neuropathic pain is due to an injury of a nerve or a lesion in the brain. But what if the original stimulus is gone but the pain persists, or there was never an original detectable stimulus? The telephone relay model doesn’t explain that type of pain.

Over the last 20 years, advances in neurobiology have now shown that pain is determined not only by the transmission to the brain of messages from pain sensitive nerve endings in the body, but also by a complicated “neuromatrix” of feedback loops and controls in the peripheral and central nervous system designed to protect body tissues (McMahon, Koltzenburg, Tracy, & Turk, 2013). There is a system that damps down pain perception through inhibitory circuits in the spinal cord, the “endogenous opioid system”, with inputs from the hormonal and immune systems. There is also a system that produces the opposite effect, where pain is actually amplified in a process called “central sensitization”. The structure of the brain and spinal cord actually change (called “neuroplasticity”) with persistent noxious stimuli, so that pain becomes amplified and distorted and no longer coupled with the original stimulus from the injury. These structural changes are profound enough to be detectable using neuroimaging techniques—a study a decade ago was the first to show substantial losses of grey matter volume in the brains of people with chronic low-back pain (Apkarian, 2004). Studies since then have confirmed this for a variety of conditions causing pain, and others have shown that these changes can be at least partially reversed with treatment (Seminowicz et al., 2011).

There is now data from many studies in human research subjects and patients that this amplification of pain signals in the central nervous system is a real phenomenon. Functional neuroimaging studies have shown that what feels like the same pain is associated at its onset with the classic sensory brain regions but is later associated with other brain regions such as those involved in emotion and reward. Over time, pain and pain intensity shifts from the nociceptive source to be linked more with emotional and psychosocial factors (Ballantyne & Sullivan, 2015). While there is no consensus on how large a contribution to chronic pain central sensitization makes, many experts believe that it plays a major role in most forms of chronic pain. A review by Woolf cited accumulating evidence for its role in pain in rheumatoid arthritis, osteoarthritis, musculoskeletal disorders (whiplash, shoulder impingement syndrome, tennis elbow, chronic radiating low back pain), headache (both tension type and migraine), post-surgical pain, peripheral neuropathy, and functional pain syndromes like fibromyalgia, chronic regional pain syndrome, irritable bowel syndrome and interstitial cystitis (Woolf, 2011).

According to Woolf, this emerging framework was generally not very well received initially, “particularly by physicians who believed that pain in the absence of pathology was simply due to individuals seeking work or insurance-related compensation, opioid drug seekers, and patients with psychiatric disturbances.” That central sensitization might actually be contributing to a diverse set of pain conditions seemed unlikely to them, preferring instead labels such as “psychosomatic” to label pain conditions that were not well understood (Woolf, 2011). Even now, that notion is still held by some. For instance, Medscape, a leading web-based physician education resource, notes the cause of chronic pain
is poorly understood, but prominently offers the theory that it is a “learned behavioral syndrome” that is reinforced by “attention from family members and friends, socialization with the physician, medications, compensation, and time off from work,” which sounds much like the perception Wolff was describing. Central sensitization is mentioned in passing in the Medscape article in reference to a single study of fibromyalgia, but with no description of its meaning or significance. (http://emedicine.medscape.com/article/310834-overview#a6 accessed 2/20/2016).

There are certainly psychological factors at play in the causes of chronic pain. Psychiatric disorders are common in persons with chronic pain, particularly anxiety disorders, depression, substance-use disorders, and post-traumatic stress syndrome. Psychological factors such as expectation of pain and reinforcement of “pain behavior” increase pain, and distraction reduces it (Dersh, Polatin, & Gatchel, 2002). Research has now demonstrated the brain structures and pathways through which these psychological factors operate, providing opportunity for physicians and patients to set aside the notion that “it’s all in your head” or “my pain must mean I’m injuring myself” or “my pain must mean we need to find and treat the injury”, and focus on recovery. Later we discuss how patient education is a key modality in the management of chronic pain and teaching about the neurobiology of pain is an emerging component of that. Uninformed or incorrectly informed patients believe that their pain is threatening and have catastrophic thoughts and fewer adaptive coping strategies (Jackson et al., 2005). Therefore, reconceptualizing pain through education is regarded as a key aid in patient treatment (Moseley, 2003; Nijs, Wilgen, Oosterwijck, Ittersum, & Meeus, 2011; Louw, Diener, Butler, & Puentedura, 2011). In addition, the most effective treatments for chronic pain involve a multidisciplinary approach with many professionals playing important roles in educating patients.

PREVENTION OF PAIN

When the IOM described the problem of pain to be a public health challenge, one of the reasons was “...the importance of prevention at both the population and individual levels.” Traditional concepts of disease prevention can be applied to pain:

- primary prevention aims to prevent acute pain before it ever occurs (e.g., preventing injuries, avoiding surgery when possible, increasing protective factors and reducing risk factors for developing pain);
- secondary prevention aims to identify and aggressively treat acute pain to prevent it turning into chronic pain (e.g., early postsurgical interventions to prevent transition to chronic pain; screening for and addressing modifiable risk factors); and
- tertiary prevention aims to soften the impact of chronic pain (e.g., treating chronic pain and loss of function once it has developed).

We discuss treatment of pain in the next section, emphasizing managing chronic pain (tertiary prevention). But what is known about more upstream approaches? A discussion of primary pain prevention is outside the scope of this report but it is easy to bring to mind examples of the myriad approaches to preventing injuries, surgeries and other insults from ever happening in the first place.
Like the approach to prevention of other chronic diseases, early identification of modifiable risk factors and intervening to address those risk factors is the key to secondary prevention. Both prospective and retrospective cohort studies have identified risk factors for development of chronic pain. They can be divided into four general categories: the intensity and nature of the acute inciting pain, demographic factors, psychological factors and the contextual details surrounding the pain (Clark, 2013: “critical factors” are italicized):

- **Acute pain characteristics**: High pain intensity, long pain duration, radiation of pain, prior episodes of pain, multiple sites of pain
- **Demographic factors**: Poor health status, age, gender, education, employment
- **Psychological factors**: Depression, anxiety/stress, anger, fear, catastrophizing, hypervigilance, pain sensitivity, somatization
- **Contextual factors**: Litigation, injury at work, work satisfaction, compensation issues, social support, external attributions of responsibility

The new insights into the neurobiology of pain discussed above have suggested that one might be able to prevent the progression of acute pain to chronic pain by targeting the mechanisms that lead to sensitization of the nervous system (McGreevy, Bottros, & Raja, 2011). If development of chronic pain, at least in part, is mediated by nerve damage from the acute injury itself or from an increase in the excitability of nerve cells in the spine due to severe acute pain (central sensitization), then maybe minimizing that damage as early as possible would decrease both acute and chronic pain. This has spawned a lot of research into prevention of chronic pain following surgery, major trauma or nerve injuries (e.g., the “shingles” virus infection) using drugs and interventions in the acute pain scenario that target mediators in the nervous system believed to be involved in sensitization (Gilron & Kehlet, 2014; McGreevy et al., 2011). So far, the studies have been disappointing, but there continues to be optimism for this approach (Gewandter et al., 2015) and it is considered best practice to aggressively treat pain in acute injury and surgery.

A more general approach is to target other modifiable risk factors listed above. Few such interventions have been identified or widely adopted for use in clinical practice, but it is recommended that providers conduct a comprehensive assessment of patients with acute pain, with an eye for identifying modifiable risk factors for the development of chronic pain such as depression or other psychiatric conditions and treating them accordingly, and identify patients whose acute pain is persisting beyond the normal healing process so that comprehensive pain management can be initiated (McGreevy et al., 2011; Clark, 2013). In the next section we describe treatment modalities for chronic pain—many of these are applicable to secondary prevention if risk factors or persistence of pain indicate greater risk for becoming chronic.
THE CARE FOR PEOPLE WITH CHRONIC PAIN AND THE SCIENCE BEHIND IT.

Despite advances in basic science, diagnostics, and interventions, systematic reviews conclude that current approaches to treatment of chronic noncancer pain provide only limited relief from pain and little improvement in daily functioning or quality of life for the majority of patients. What’s frustrating to both patients and healthcare providers is that in general, one can’t know which care plan is better, because evidence for most regimens is sorely lacking (Turk, Wilson, & Cahana, 2011).

There are numerous treatments for chronic noncancer pain (CNCP) and clinical guidelines recommend an initial comprehensive assessment be conducted in every patient to guide the treatment plan and shared decision making. Some patients with CNCP are appropriate for focused therapy with one or a small number of modalities (modes of treatment). Patients with more complex cases, including those with disabling CNCP, generally have better outcomes if they are managed using a comprehensive “biopsychosocial” approach that integrates pain relieving strategies with strategies to address the psychosocial factors and functional impairments that are often associated with CNCP—called a “multi-modal” approach.

What follows is a brief overview of the most commonly used interventions in the management of chronic non-cancer pain, including pharmacological, interventional, physical, psychological, and alternative modalities. Various classes of pain disorders may have different underlying pain-producing mechanisms and responses to specific treatments will differ. Reviewing the effectiveness of treatments for specific diagnoses of pain is beyond our scope. We begin with a discussion of opioid medications, starting with a history of opioid use for pain, as these drugs play a central role in the current controversy over the management of chronic noncancer pain. Achieving a balance between the perceived benefits of opioids and the potential harms of misuse, abuse and addiction has become a major focus of current pain management policy.

OPIOIDS

HISTORY OF OPIOID USE FOR CHRONIC PAIN

“We will not be able to reverse the epidemic without understanding how it began.” (Franklin, 2014).

Opioids have been regarded for literally thousands of years as among the most effective drugs for the treatment of pain. On the other hand, for at least the past century they have been widely feared for their association with abuse, addiction and diversion (Rosenblum, Marsch, Joseph, & Portenoy, 2008). Conventional wisdom regarding the use of opioids in the treatment of chronic pain has followed major swings as political, cultural and social fault lines shifted over the past century. Concern about addiction to opium and its negative effects were prominent in the early 1900s and led to legislation and profound changes in clinical practice. Throughout much of the twentieth century, many patients with severe pain due to terminal cancer suffered because of the resistance to prescribing opioids (Juurlink & Dhalla, 2012).
During most of the twentieth century, the perception among physicians was that long-term use of opioids to treat chronic pain was contraindicated because of the risk of addiction, increased disability and lack of effectiveness over time (Rosenblum et al., 2008). However, beginning in the early 1980s increasing attention was being focused on the undertreatment of pain, particularly at the end-of-life. It was argued on moral grounds, that opioids should be available for treating not just acute pain but also chronic pain (Ballantyne & Sullivan, 2015). The promotion of opioids for treating severe acute pain and chronic pain related to cancer and advanced terminal disease was less controversial and fairly quickly became standard of care. In contrast, the adoption of opioids for long-term treatment of chronic noncancer pain (CNCP) was gradual and coincided with a confluence of factors, beginning with observations from small pilot studies suggesting safety and effectiveness, combined with concerns about the long-term safety of alternative medications (especially NSAIDS in the elderly), endorsements from national organizations like the American Academy of Pain Medicine and the American Pain Society, and aggressive promotion of opioids (OxyContin in particular) to clinicians by pharmaceutical companies (Juurlink & Dhalla, 2012).

These changes in perception emerged in the absence of any evidence from clinical trials that opioids could be safely used in patients with CNCP (see below). Several small observational studies conducted in the early 1980s had concluded that patients with chronic noncancer pain, if carefully chosen, could take opioids long-term safely and with less risk of abuse or addiction than previously believed (e.g., Portenoy & Foley, 1985). However the average dose of opioid used in these studies were low in comparison with current practice (Franklin et al., 2015).
The principles of opioid pain management in CNCP were largely based on the successful use of these drugs to treat acute and end-of-life pain. The prevailing thought at the time was the “titrate to effect” principle; whatever dose provides relief based on a pain intensity scale. When the Joint Commission for the Accreditation of Healthcare Organizations mandated that pain be recognized and treated, it chose numerical ratings of pain intensity as the chief metric, and “pain as the fifth vital sign” was the healthcare systems response, even though pain is a symptom rather than a sign, and cannot be measured objectively like other vital signs (Ballantyne & Sullivan, 2015).

In many states patient advocacy and pain specialty groups successfully lobbied legislatures and state medical boards to liberalize laws and regulations that had effectively prohibited the use of long-term opioids for chronic noncancer pain (Franklin et al., 2015). Colorado was among one of the 45 states that passed legislation to reduce the risk of sanction for prescribers. House Bill 97-1188, was passed in 1997 with bipartisan support.

**SECTION 1. 12-36-117, Colorado Revised Statutes, 1991 Repl. Vol., as amended, is amended BY THE ADDITION OF A NEW SUBSECTION to read: Unprofessional conduct.**

(1.5) (a) A physician shall not be subject to disciplinary action by the Board solely for prescribing controlled substances for the relief of intractable pain.

(b) For the purposes of this subsection (1.5), "intractable pain" means a pain state in which the cause of the pain cannot be removed and which in the generally accepted course of medical practice no relief or cure of the cause of the pain is possible or none has been found after reasonable efforts including, but not limited to, evaluation by the attending physician and one or more physicians specializing in the treatment of the area, system, or organ of the body perceived as the source of the pain.

Concerns that aggressive marketing by pharmaceutical companies may have influenced these lobbying efforts have led to investigations by the media and by Congress (Alexander, Gielen, & Frattaroli, 2015). What followed was a dramatic increase in opioid prescribing for CNCP. Between 2000 and 2010, an estimated 20% of patients presenting to physicians with noncancer pain received a prescription for an opioid (Daubresse et al., 2013). Nearly half of all opioid dispensed prescriptions were by primary care providers (Levy, Paulozzi, Mack, & Jones, 2015). Not only were more patients being managed with long-term opioids, but the average doses of these drugs were substantially increasing. Studies have documented a strong relationship between volume of sales of opioid pain relievers, increasing misuse of prescription opioids (Dart et al., 2015), deaths due to overdoses and people seeking treatment for opioid use disorders (Paulozzi, Budnitz, & Xi, 2006).

On the other hand, there is on-going evidence that pain is undertreated in some patients, particularly women, the elderly, racial/ethnic minorities, the cognitively impaired, those with known histories of abuse/addiction (Rosenblum et al., 2008) and even in persons with cancer at the end-of-life (Institute of Medicine, 2011).
HOW DO OPIOIDS WORK?

Opioids act by binding to proteins called opioid receptors which are widely distributed in the central nervous system (the spinal cord and brain) and the peripheral nervous system (made up of the peripheral nerves). These receptors are also the sites where our “endogenous opioids”, the opioids produced by our own bodies, bind. These chemicals are produced in the central nervous system and are important for numerous functions in the body including not just the modulation of pain, but also, deep in the brain, our centers for reward/reinforcement mechanisms, mood and stress. They are also found on cells in the immune system. When our internal opioid chemicals or those taken as drugs bind receptors, they have the net effect of inhibiting the transmission of pain signals to the brain, thereby reducing the severity of the perception of pain. But a diverse array of side effects relate to the effect that activating the receptor has on other functions: in the peripheral nervous system they reduce motion of the bowel, causing constipation, and in the central nervous system, sleepiness, mental clouding, mood effects (both euphoria, and the opposite, dysphoria) and the potentially life-threatening effect of depression of the mechanism that controls breathing (“respiratory depression”). Binding to receptors in reward centers can lead to powerful reinforcement in some individuals, and lead to craving, loss of control, compulsive use and the other manifestations of addiction, however in most individuals treated for chronic pain, there appears to be no overt effects on the reward system (Rosenblum et al., 2008)—see “Addiction and Related Outcomes” below.

Adaption of the nervous system occurs with ongoing use of opioid drugs, even over relatively short-terms, leading to tolerance and physical dependence, two phenomena that are shared with other addictive substances. Tolerance is a decreased effect of the same amount of opioid over time, requiring an increased amount to achieve the same effect. Tolerance to side effects such as sedation and respiratory depression occurs routinely in clinical practice, but evidence of clinically significant tolerance to pain relieving effects is less clear. Many patients appear to tolerate stable dosing of opioids over long periods of time (Rosenblum et al., 2008), but others may require substantial dose increases to maintain control of pain and for some of these, pain may actually worsen (Ballantyne, 2006). Experimental studies in animals and humans have demonstrated that a phenomenon labeled “opioid-induced hyperalgesia” (OIH) may be induced by changes in the nervous system triggered by opioid pain relievers, leading to central sensitization and the perception of worsening pain with escalating doses. The prevalence of this paradoxical reaction in humans is unknown, but is a serious concern considering the paucity of research on the long-term effectiveness of opioids (Brush, 2012).

Physical dependence represents a set of signs and symptoms that kick in with abrupt reduction or cessation of an opioid or administration of an opioid antagonist (opioid withdrawal syndrome). Because physical discomfort can be a symptom of opioid withdrawal, it may be difficult to distinguish primary chronic pain from withdrawal pain, and withdrawal from opioids can increase pain in the original pain site (Rosenblum et al., 2008).

Unlike tolerance and physical dependence, which predictably occur in virtually all persons taking daily opioids for pain, “Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry” (ASAM, 2015).
EVIDENCE OF EFFECTIVENESS/ADVERSE EFFECTS

Physicians generally believe that opioid treatment can be effective in controlling chronic noncancer pain but acknowledge that physical dependence, tolerance and addiction are common sequelae (Wilson et al., 2013). So what is known about the effectiveness and the risks of harm in treating persons with chronic pain with long-term opioid therapy? As opioid related deaths began to point towards a serious public health problem, an increasing number of systematic reviews have been conducted and published examining the effectiveness of opioids in treating CNCP (A. D. Furlan, Sandoval, Mailis-Gagnon, & Tunks, 2006; Ballantyne, 2006; Chou, 2009; A. Furlan, Chaparro, Irvin, & Mailis-Gagnon, 2011; Chou et al., 2015). These reviews each found that evidence was of low to moderate quality, that the effects on pain were only moderate (i.e., a 30% reduction in pain severity), that the effects on improvements in function were very small and that the risk of harms was substantial and dose-dependent.

Most recently, the federal Agency for Health Care Research and Quality (AHRQ) funded a systematic review by the Pacific Northwest Evidence-Based Practice Center which addressed: 1) the effectiveness of long-term opioid therapy (defined as 1 year or longer) for outcomes related to pain, function, and quality of life; 2) the comparative effectiveness of different methods for initiating and titrating opioids; 3) the harms and adverse events associated with opioids; and 4) the accuracy of risk-prediction instruments and effectiveness of risk mitigation strategies on outcomes related to overdose, addiction, abuse, or misuse (Chou et al., 2014). The Center for Disease Control and Prevention updated this review late in 2015 and added a fifth clinical question regarding the effect of treating acute pain with opioids on the probability of long-term use. Their results and conclusions are summarized below.

DETAILED FINDINGS

EFFECTIVENESS:

As surprising as it seems, the investigators found no randomized placebo-controlled studies that have tested long-term (≥ 1 year) effectiveness of opioids in treating pain (chou 2015, CDC 2016). What’s more, shorter term trials have yielded mixed findings:

- The randomized placebo-controlled trials of opioid therapy that have been done have typically lasted only 4 to 8 weeks (several have run 16 weeks and one was extended to 32 weeks). In a 2011 review of these trials (A. Furlan et al., 2011),
  - opioids were found to be moderately effective for pain relief for both nociceptive and neuropathic pain, with small benefits in patient function;
  - for fibromyalgia, the amount of improvement was small for both pain and function.
- A Cochrane Database systematic review included observational studies measuring the effectiveness of opioids after 6 months of treatment. All but one of the studies was uncontrolled and the one controlled trial compared two opioids.
  - They found a high percentage of patients discontinued their opioid pain treatment because of lack of effectiveness (10%) or because of adverse effects (23%) (Noble et al., 2010).
For those able to continue treatment, clinically significant reductions in pain were reported, though the evidence was judged as weak and the amount of pain relief varied between studies.

- No conclusions could be reached regarding functioning or quality of life.
- One fair-quality randomized trial found no difference in pain or functional outcomes between a liberal escalating dosage strategy with a “hold the line” dosing strategy at one-year (Chou et al., 2014).
- A randomized trial comparing two types of extended release opioid for back pain showed that patients not experiencing clinically meaningful pain relief within the first month are unlikely to experience it with longer term use (Dowell, Haegerich, & Davis, 2016).

Based on the lack of evidence from controlled studies evaluating outcomes after a year or more, the Center for Disease Control judged the body of evidence for effectiveness “insufficient” (Dowell et al., 2016).

HARMS

The adverse effects of opioids reported in randomized trials include symptoms such as constipation, nausea and vomiting, dizziness and drowsiness. More serious long-term complications have been identified in observational studies, primarily overdose and misuse/abuse/addiction (Chou et al., 2015).

OVERDOSE:

Not surprisingly, several observational studies have found a substantial increased risk for overdose events among persons prescribed an opioid for CNCP, compared with those not prescribed an opioid. A large “fair-quality” retrospective study of claims data found patients prescribed opioid pain meds were over five times more likely to experience an opioid overdose event and over eight times more likely to have a serious overdose event. The risk was proportionate to the dose of opioids prescribed (Dunn et al., 2010). Three other observational studies found substantial dose-dependent associations between opioid prescription and overdose events and death (Dowell et al., 2016). The table below shows the relationship between daily dose (measured in morphine milligram equivalents (MMEs), the standard dosage indicator for opioids) and odds of overdose and overdose death from these studies.

<table>
<thead>
<tr>
<th>MME/day</th>
<th>Odds of overdose (dunn 2010)</th>
<th>Odds of overdose death (gomes 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20mg</td>
<td>1 (reference)</td>
<td>1 (reference)</td>
</tr>
<tr>
<td>20-&lt;50</td>
<td>1.44</td>
<td>1.32</td>
</tr>
<tr>
<td>50-&lt;100</td>
<td>3.73</td>
<td>1.92</td>
</tr>
<tr>
<td>&gt;100mg</td>
<td>8.87</td>
<td>2.04</td>
</tr>
</tbody>
</table>

In addition to those on higher daily doses, patients treated with extended release/long-acting opioids, methadone, or who are also taking sedatives (e.g., benzodiazepines) had a higher risk of overdose.
Other higher risk groups include patients with sleep apnea syndrome, older adults, patients with depression and patients with alcohol or other substance use disorders.

**ADDITION AND RELATED OUTCOMES:**

It is difficult to estimate the prevalence of addiction and related outcomes in patients treated with long-term opioids for CNCP. Some of the difficulty in characterizing the risk is the inconsistency of terminology (Juurink & Dhalla, 2012). The term “addiction” is defined as a brain disorder by the American Academy of Addiction Medicine, while the diagnostic labels and criteria used by other behavioral health professionals come from the Diagnostic and Statistical Manual of Mental Disorders (DSM). Until 2015, the DSM used behavioral criteria to diagnose “opioid abuse”, a less severe form, and “opioid dependence”, a more severe form, of “maladaptive patterns of substance use”. In practice, DSM-4’s concept of “dependence” has been used interchangeably with ASAM’s concept of “addiction”. In the most recent edition DSM-5, the terms “abuse” and “dependence” have been abandoned in favor of “opioid use disorder” (OUD) under the heading “Addictions and Related Conditions”.

Most studies estimating the prevalence of opioid use disorders were conducted using DSM-4 criteria. Another difficulty in interpreting these studies is that the DSM-4 criteria had serious limitations when assessing abuse and dependence among patients being prescribed opioids chronically (Von Korff, 2010). That is because physiological dependence, tolerance and the potential for withdrawal are expected consequences of long-term therapy with opioids and don’t necessarily indicate a maladaptive pattern of substance use. While these were among the defining criteria for substance use dependence in DSM-IV and for substance use disorders in DSM-V, DSM-V specifically omits both opioid tolerance and withdrawal as criteria in diagnosing opioid use disorder among patients receiving prescribed analgesics.

Another challenge is in the case of patients exhibiting what has been termed pseudoaddiction. These are patients who, due to inadequate pain relief, employ behaviors such as demanding dosage increases or getting medications from multiple prescribers that can be misinterpreted as signs of addiction. Pseudoaddiction resolves when the dose increases.

With those challenges in mind, here is what we know about risk of abuse and dependence: A Cochrane review reported only 0.27% of patients enrolled in randomized trials abused opioids (Noble et al., 2010), however the reviewers pointed out that because the randomized trials were of short duration, employed doses lower than used in clinical practice, excluded participants at high risk of opioid abuse, and often only passively assessed for adverse effects, they provide little insight into more serious long-term complications of chronic opioid use. What is known about addiction potential of chronic opioid treatment comes from case series, cross-sectional studies and a few retrospective cohort studies. The CDC review identified a cohort study based on claims data judged to be of fair quality. Among patients prescribed 3 or more months of opioids for a new CNCP diagnosis, between 0.7% (on low-dose treatment) and 6.1% (on high-dose treatment) had been diagnosed with opioid abuse or dependence within 12 months of their diagnosis, compared with 0.004% of those not treated with opioids (Edlund et al., 2014). As with overdose events, higher prescribed opioid doses yielded higher risk of OUD. Three fair quality uncontrolled cross-sectional studies in primary care settings reported a wide range of
estimates of opioid abuse, from 0.6% to 8%, and opioid dependence, from 3% to 26% (Chou 2015). All of these studies were done before DSM-V criteria for opioid use disorder became the diagnostic standard.

The prevalence of abuse and addiction would be expected to vary substantially based on the setting—depending not only on the characteristics of the patient population but also the prescribing practices of the providers. Perhaps the most generalizable estimates to the Health District come from a study of 9 primary care clinics and 3 specialty clinics in a large integrated healthcare system in Pennsylvania. Among noncancer pain patients receiving at least 4 opioid prescriptions over one year, 35% met DSM-V criteria for current or previous opioid use disorder—22% moderate and 13% severe opioid-use disorder (Boscarino et al., 2010; Boscarino et al., 2011; Juurlink & Dhalla, 2012). Factors associated with development of opioid use disorder included history of substance use disorder, followed by age less than 65, use of psychotropic medications or history of major depression.

In summary, there are difficulties interpreting studies of the risk of abuse of opioids in patients on long-term treatment for chronic pain because of differences in terminology, changes in diagnostic criteria, and variations in patient populations and prescribing practices across settings. However, one can conclude from the most recent and rigorous studies that the problem is not rare, and that opioid use disorders may occur in up to one third of patients on long-term pain relievers. Unfortunately, given the complex clinical picture of opioid use disorder in the context of opioid treatment for chronic pain, it is challenging for the uninitiated prescribing provider to appropriately identify and intervene (Franklin, 2014).

**STRATEGIES TO PREDICT AND MITIGATE OVERDOSE, MISUSE AND ADDICTION**

Given the need to balance the potential for effective pain relief with the risk of serious harms, it is essential that prescribers have tools they can use to allow them to predict the risk/benefit ratios for individual patients. Existing guidelines commonly recommend clinicians use risk prediction tools prior to starting chronic pain patients on opioids. However, there are potential harms of either underestimating risk as well as overestimating it. Recent systematic reviews have examined the evidence for the predictive value and effectiveness of using these tools (Chou et al., 2015). As with the evidence basis for long-term effectiveness, there is only weak evidence to base practice on and the findings are mixed. Four studies reported the accuracy of risk assessment tools (e.g., the Opioid Risk Tool—ORT or the Screener and Opioid Assessment for Patients with Pain—SOAPP) to predict misuse and abuse of opioids. Their methodological quality ranged from poor to fair and they reported markedly differing results with likelihood ratios (a measure of the usefulness of a screening test) ranging from noninformative to moderately useful (Dowell et al., 2016). No studies measuring the effectiveness of using risk assessment tools for improving outcomes of overdose or misuse/abuse/addiction were identified (Chou et al., 2014).

Once the decision is made to start an opioid for CNCP, clinical guidelines recommend close monitoring of patients to detect contraindications such as decreased function or quality of life and for “aberrant drug-related behaviors”. The term “aberrant drug-related behaviors” applies to a wide array of
potentially problematic behaviors by patients taking long-term opioids for pain that may signal misuse, abuse or addiction. Interpretation of these behaviors, which can be common in some patient populations, often require astute clinical judgment to ascertain a cause. On careful assessments, these behaviors might be due to anything from abuse or addiction to impulsive drug taking in the context of a psychiatric disorder, a family issue, a cognitive issue or criminal intent, or it may be caused by desperate attempts to control their unrelieved pain (see “pseudoaddiction” above). Some aberrant behaviors strongly suggest the existence of addiction (e.g., injection or snorting) and some are less suggestive (drug hoarding, occasional unsanctioned dose increases) (Rosenblum et al., 2008).

Risk mitigation strategies are often recommended in clinical guidelines to reduce risks of harm from overdose or misuse, abuse or addiction. These range from using patient pain contracts, random urine drug testing, use of prescription drug monitoring programs, pill counts, monitoring checklists, more frequent monitoring, and abuse-deterrent formulations to patient education. A variety of risks have been described for these mitigation strategies, including the cost of urine drug screens, which are often borne out of pocket by patients, increased stigmatization of patients, strains on the physician-patient relationship from perceived lack of trust, and the potential for them to be applied or interpreted with discriminatory intent (see PAINS Policy Brief #3). The reviewers found no studies meeting their inclusion criteria that evaluated any of these strategies (Chou et al., 2015).

OTHER POTENTIAL HARS

The 2014 AHRQ review found weak evidence from observational studies that long-term opioid use was associated with increased risk of fractures, heart attacks, erectile dysfunction in males and motor vehicle accidents. No controlled trials or observational studies in persons treated for chronic pain evaluated risk of falls, psychological, cognitive or social harms (Chou et al., 2015). Other reviews have cited studies showing increased risk of falls in older adults, infertility, adverse pregnancy outcomes, and emergency department visits (Franklin, 2014).

ROLE OF OPIOIDS IN THE PREVENTION OF ACUTE PAIN BECOMING CHRONIC PAIN

It was noted in the previous section of this report that it is generally held that more aggressive treatment of acute pain may prevent the development of chronic pain. Does this apply to the use of opioids? Given the harms of prescription pain relievers, may begin in the acute pain setting, this is an important question. It turns out that although studies in animals and humans have supported the preventive effect of opioids when used in epidural injections in surgery, there haven’t been controlled trials of the effect of using oral opioids to treat acute pain on development of chronic pain (McGreevy et al., 2011).

A related question was posed in a recent systematic review of opioids: what are the effects of opioid therapy for acute pain on long-term use of opioids (Dowell et al., 2016)? Two fair-quality retrospective cohort studies addressing this question were identified. Each found that opioid therapy prescribed for acute pain was associated with greater likelihood of use at some time frame in the future. One study evaluated patients who had undergone low-risk surgery (Alam et al., 2012). Use of opioids within 7 days
of surgery was associated with a 44% increased risk of use at 1 year. The other study found that early opioid use for acute low back pain with a workers’ compensation claim doubled the likelihood of receiving five or more opioid prescriptions within a period 1 month to 2 years later. The higher the dose, the greater the likelihood (Webster, Verma, & Gatchel, 2007). The investigators concluded, “Given the negative association between receipt of early opioids for acute LBP and outcomes, it is suggested that the use of opioids for the management of acute LBP may be counterproductive to recovery.” Given that more than a few days of exposure to opioids significantly increases hazards of overdose and that prescriptions with fewer days’ supply will minimize the amount of drug available for unintentional or intentional diversion, recently released federal guidelines concluded that “long-term opioid use often begins with treatment of acute pain, and recommended providers prescribe the lowest effective dose of pain medicine for three or less days for pain due to causes other than trauma or major surgery” (Dowell et al., 2016).

THE ROLE OF OPIOIDS: A WIDE VARIATION IN OPINION

According to the conclusion of A Systematic Review for a National Institutes of Health Pathways to Prevention Workshop on long-term effectiveness of opioids for pain, “…there is insufficient evidence for every clinical decision that a provider needs to make regarding the use of opioids for chronic pain, leaving the provider to rely on his or her own clinical experience” (Chou et al., 2015).

More than 2,000 years ago Diagoras concluded that it was better to suffer pain than to develop an addiction to opium. Hippocrates, in contrast, believed that opium should be prescribed to some patients but only with great caution (Juurlink & Dhalla, 2012). Not much has changed in two millennia. While there is widespread agreement that the medical profession and society have over-relied on opioids for the treatment of chronic pain (Alford, 2016), there is a wide range of opinion on the role of opioids in the management of CNCP and the best strategies for ending the epidemic of opioid pain medication misuse.

Professional groups lobbying against using opioids for chronic pain point out that the effectiveness of long-term use is unproven (e.g., Physicians for Responsible Opioid Prescribing, Franklin 2014, others), that the harms are well documented and substantial, and that opioids do not facilitate conditions supportive of the rehabilitation and recovery needs of patients. They also caution that the occurrence of pharmacological tolerance and the phenomenon of opioid-induced hyperalgesia, may indicate that maintenance of pain relief over longer periods of time should not be expected (Franklin, 2014).

Patient advocacy groups, pain management specialty associations and others remind us that this is “a case of absence of evidence rather than evidence of absence”, that there continues to be a parallel epidemic of undertreated pain in the US, and that the health professions are ethically obligated to treat pain when it can be treated (PAINS). Even within the same primary care practices, we found that views of physicians on the role of prescription opioids can sit on opposite sides of the fence.

The diversity of views on the indication for opioids for CNCP is reflected in the different approaches of major pain treatment centers. For many, long-term opioids are standard fare for patients with moderate
to severe chronic pain, but a few provide multidisciplinary pain management without prescribing opioids at all (personal communication—Paul Arnstein, PhD, RN, Massachusetts General Hospital Center for Pain Medicine, Boston). The Cleveland Clinic’s Department of Pain Management enlists all new patients referred to them on long-term opioid therapy in a drug tapering program with the goal of lowering the dose or discontinuing opioids if possible. The UC San Diego Center for Pain Medicine takes a similar approach. Approaches such as this require a multimodal interdisciplinary approach that includes a variety of modalities to treat pain as well as integrated medication assisted treatment and supports for patients with both chronic pain and opioid use disorders (personal communication, Roger Chou, MD).

The paucity of evidence of effectiveness of long-term opioid use along with the conundrum created by the harms of misuse and diversion has created a climate of uncertainty and distrust in the primary care setting. Primary care providers report that they worry about opioid prescription misuse and patient addiction and find managing patients with chronic pain stressful (Jamison, Sheehan, Scanlan, Matthews, & Ross, 2014). “Health care providers, often poorly trained in management of chronic pain, are sometimes quick to label patients as ‘drug-seeking’ or as ‘addicts’ who overestimate their pain” (Chou et al., 2015). Patients commonly report that they feel stigmatized, mistrusted, treated as “criminals”, and fear losing the only treatment that helps relieve their unremitting pain. Many physicians believe that opioid treatment can be valuable for patients but many believe that patient expectations for pain relief are unrealistic. Some patients get substantial relief and do not suffer from adverse effects, while others continue to have severe pain and impaired quality of life or suffer overdose, addiction or other serious adverse effects (Chou et al., 2015).

**PROFESSIONAL GUIDELINES**

Many guidelines for safe opioid prescribing exist and all include similar recommendations (Dowell et al., 2016). These include:

- Conduct a baseline history, physical exam, psychosocial history and urine drug screen,
- Conduct assessments of risk of opioid misuse/abuse,
- Consider all treatment options, weigh benefits and risks of opioid treatment and use opioids only when expected benefit outweighs risk and other therapies have been ineffective,
- Use signed informed consent and pain agreements,
- Start patients with short-acting opioid at low dose and titrate them to the lowest effective dose, and avoid co-prescribing of sedative-hypnotics (benzodiazipines, barbiturates)
- Use strategies and tools to monitor patients for treatment progress (pain and function) and for “aberrant behaviors” (see below) that are red flags for misuse, such as checking prescription drug monitoring programs and random urine drug screens;
- Increase the vigilance of monitoring and/or consult specialists for high risk patients or those taking high opioid doses. (There is considerable variation on the dose threshold that prompts further precautions, ranging from 50 mg MME/day up to 200 MME/day).
- Taper or wean off opioids if no progress or patient is engaging in repeated aberrant behaviors.
Using a core group of experts free of conflicts of interest, CDC recently developed a clinical guideline for prescribing opioids for chronic pain that was vetted by stakeholder groups, peer reviewed and subjected to a public comment period. Its release a few days ago is being widely covered in the media and in communications to physicians. These are the first opioid treatment guidelines promulgated by a federal agency. They are specifically designed for use by primary care physicians. The most significant deviation from other guidelines is the lower opioid dose threshold—50 MME/day—for implementation of additional precautions (reassess the patient’s pain, function, and treatment, increased frequency of follow-up, additional steps to mitigate overdose risk such as considering offering naloxone and overdose prevention education to both patients and the patients’ household members); and generally not to increase dose >=90 mg. They also recommend that prescriber’s limit the quantity of opioid pain pills prescribed for most acute pain to be no more than three days (Dowell et al., 2016).

Although generally well received by stakeholder groups (as judged by public comments submitted), the draft guidelines have been met with criticism from patients and patient advocacy groups and some professional groups. The concerns related to what some might consider subtle details, e.g., whether improvements in either or both pain and function should be required in determining whether treatment is progressing; at what “yellow-flag” doses further precautions in terms of monitoring or consultation should be triggered, and what dose should be considered an upper threshold. Behind these details however, are serious concerns about the potential dampening impact on appropriate prescribing for chronic pain. The letter from the AMA to the CDC commenting on the draft guideline aptly expressed this worry:

“Based on feedback from patient groups, patients suffering from chronic pain increasingly view themselves as collateral damage in efforts to restrict opioid prescribing decisions via state-based regulations and legislative mandates, and are fearful of the potential effect these guidelines may have on patients with legitimate medical needs. It is important that this not be an unintended consequence of this process.”

It is of interest to note that these guidelines are quite similar to those recommended by authors of one of the original small case series reports that some blame for the initiation of the surge in opioid prescribing (Franklin et al., 2015; Portenoy & Foley, 1985). The “yellow-flag doses” are near what the limit was for dosing in that small cohort of patients, single physician, close monitoring, start only after no other treatments have worked were all recommended in that paper.

**POLICY RESPONSE TO OPIOID EPIDEMIC**

Federal, state and other entities with vested interests have implemented a variety of policies and programs with the goal of preventing inappropriate prescribing. These include educating prescribers and the public about appropriate and inappropriate use (Alford, 2016), prescription drug monitoring programs, taking statutory, regulatory and enforcement actions to curb over-prescribing (Franklin et al., 2015; NAMD 2014; NAMSDL 2014) and supporting the development of “abuse-deterrent” technologies.
We describe these and other initiatives and models in more detail later in the section “Initiatives to Address the Opioid Epidemic”.

There are some indications that these efforts have made a difference nationally. Opioid prescribing leveled off between 2010 and 2012 and actually decreased for all specialties except pain medicine, physical medicine/rehabilitation, and internal medicine after 2010 (Levy et al., 2015). Jurisdictions that took the most aggressive action have experienced a decrease in the availability of prescription opioids coupled with a decrease in death rates from opioid overdoses (Longo, Compton, Jones, & Baldwin, 2016; Johnson, Paulozzi, Porucznik, Mack, & Herter, 2014; MMWR, 2015). A study examining trends in abuse rates based on the Researched Abuse, Diversion, and Addiction-Related Surveillance (RADARS) System also showed a plateau between 2011 and 2013 after a steady increase between 2002 and 2010 (Dart et al., 2015).

On the other hand, some approaches may have led to unintended consequences. For instance, some data indicate that while abuse-deterrent formulations reduced abuse of the specific drug, they led to replacement of that drug with other opioids, including heroin (Cicero, Ellis, & Surratt, 2012). As noted above regarding clinical guidelines, there is also the concern that efforts to prevent diversion and abuse through drug control and professional practice policies do not interfere with patient pain care, including the medical use of opioid pain relievers (Christopher, 2015).

PRESCRIPTION OPIOIDS AND THE HEROIN SURGE

Heroin is an opioid pain reliever but because of its high abuse and addiction potential it is considered to have no medical use in the US and is illegal. Recently there has been a surge in heroin use and deaths from heroin overdose and some researchers have suggested that the attempts to reduce inappropriate prescribing of pain reliever opioids has sparked these increases (Dart et al., 2015). A recent review of the relationship of nonmedical prescription opioid use and heroin use observed that although the former is a strong risk factor for the latter, heroin use among people who use prescription opioids for nonmedical reasons is rare and the conversion to heroin use appears to occur at a low rate (Longo et al., 2016). Noting that the increases in rates of heroin use and overdose deaths preceded the robust implementation of policies aimed at reducing the availability of prescription opioids, the authors concluded that there is no consistent evidence supporting a causal link between these policies and the rise of heroin. Instead, the major drivers appear to be the increased accessibility, reduced price and purity of heroin. The CDC has cited this paper in defense of more restrictive guidelines for use of prescription opioids.

CONCLUSIONS REGARDING THE USE OF OPIOIDS FOR CNCP

The potential harm from misuse of opioids must be balanced against a humane concern for the suffering of people with persistent pain. This has not been an easy balance to find. Solutions will likely require education of both physicians and patients on appropriate use of opioids, research to identify the patients most likely to benefit from opioid therapy, and improved access to non-drug therapies like those discussed below that could reduce the need for opioids.
WESTERN MEDICINE BEYOND OPIOIDS

The appropriate use of long-term opioid therapy must be considered within the context of all pain management strategies including both nonopioid pain medications and nonpharmacologic treatments. Several treatments in these categories have been shown to be effective for chronic pain management and combinations of these treatments are now the gold standard of care for CNCP.

NON-OPIOID PAIN MEDICATIONS: EVIDENCE OF EFFECTIVENESS/ADVERSE EFFECTS

The analgesics acetaminophen (e.g., Tylenol), NSAIDS (e.g., ibuprofen) and COX-2 inhibitors (a form of NSAID that specifically targets the cyclooxygenase-2 enzyme, e.g., Celecoxib) as well as certain anticonvulsants (e.g., gabapentin, pregabalin) and selected anti-depressants (specifically tricyclic antidepressants such as amitriptyline and serotonin/norepinephrine reuptake inhibitors, SNRIs, e.g., duloxetine) can be helpful in the treatment of chronic pain.

Some practice guidelines recommend NSAIDs as first line treatment for low back pain and osteoarthritis while others recommend acetaminophen. Studies of NSAIDs have demonstrated modest efficacy for treatment of pain due to osteoarthritis, rheumatoid arthritis and back pain. They are generally thought to be ineffective for neuropathic pain and fibromyalgia (Turk et al., 2011). While considered innocuous by some because they are over-the-counter, each are associated with serious side effects. Risks for NSAIDS include serious gastrointestinal bleeding, renal failure and increased risk of heart attack and stroke. The risk of aspirin and other NSAID-related gastrointestinal effects occurs at recommended doses and is dose-related. Annually, 1% to 2% of people taking NSAIDs on a regular basis experience serious gastrointestinal complications that result in hospitalization (G. Singh, 2000). Estimates of the number of deaths from NSAID-related gastrointestinal bleeding vary widely. Singh estimated that 103,000 individuals are hospitalized annually in the United States for NSAID-related serious gastrointestinal complications. In addition, Singh estimated that 16,500 NSAID-related deaths occur each year in the United States among patients with rheumatoid arthritis and osteoarthritis alone (G. Singh, 2000), similar in magnitude to the number of annual deaths attributed to prescription opioids. Acetaminophen overdose is the #1 cause of acute liver failure in the US, although this complication is rare (W. Lee, 2001). Persons with chronic liver disease and those who use alcohol or take certain medications can develop liver toxicity at doses just slightly above the recommended dose.

Neuropathic pain treatment guidelines generally recommend the anticonvulsants gabapentin or pregabalin and the tricyclic or SNRI antidepressants as first and second-line medications for treating chronic pain, particularly neuropathic pain conditions and fibromyalgia. Like other drug therapies including opioids, the levels of efficacy are modest. A Cochrane Collaboration review of gabapentin for treatment of pain in neuropathies and fibromyalgia found moderate quality evidence of benefit for some, with about 35% achieving at least a 50% reduction in pain severity compared to 21% for placebo. Over half do not receive pain relief judged worthwhile (Moore, Wiffen, Derry, Toelle, & Rice, 2014).
INTERVENTIONAL APPROACHES:

Regional anesthetic interventions are invasive procedures aimed at reducing inflammation (sacroiliac and epidural steroid injections), blocking transmission of nociceptive pain signals to the spinal cord (e.g., facet joint nerve blocks), delivering anesthetics directly into the spinal cord (e.g., “pain pumps”) or modulating pain transmission to the brain using spinal cord stimulators. The usefulness of some of these procedures has been called into question (Institute of Medicine, 2011). Epidural steroid injections, one of the most common interventional approaches for chronic back pain, have been shown to provide short-term relief in pain and improvements in function for certain conditions (e.g., low back and leg pain due to compression of a spinal nerve root—radiculopathy) but there is no evidence supporting their use for nonspecific low back pain (Turk et al., 2011). Facet joint injections and intradiscal steroid injections show fair evidence of effectiveness for facet joint pain and prolapsed discs, respectively (Chou et al., 2009).

Chronic low back pain that persists despite conservative treatment often leads to surgery. Lumbar fusions were some of the most rapidly increasing types of surgery between the 1990s and recently. Evidence from systematic reviews have shown fair evidence of effectiveness for lumbar fusions for low back pain with degenerative changes early on, but benefits tended to diminish over time with as many as 41% of patients reporting returning to the same or worse pain than before surgery or a worsened quality of life (Turk et al., 2011). High complication rates and repeat procedures are also common. Evidence shows better outcomes for discectomies and laminectomies for the specific conditions they are indicated for.

PHYSICAL THERAPY AND EXERCISE

Physical therapy mostly focuses on helping to restore or maintain the ability to move and walk while occupational therapists focus on improving ability to perform activities of daily living and work. Depending on diagnosis and patient goals, the therapist generally designs customized stretching and strengthening exercises, educates on optimal body mechanics and may suggest special assistive devices. Exercise therapy has been shown to reduce pain and improve function in chronic low back pain and in osteoarthritis of the knee and hip and improve symptoms, function and wellbeing in fibromyalgia (Dowell et al., 2016).

In addition to designing an exercise program, many therapists offer other treatments. Good scientific data supporting the effectiveness of these treatments are limited (e.g., transcutaneous electrical nerve stimulation, iontophoresis, ultrasound and cold laser therapy), but some patients find them helpful and they are relatively harm-free when appropriately used (Christensen, Monson, & Harvard Medical School, 2015).

Some physical therapists have adopted an educational approach that aims to help patients with chronic pain reconceptualize pain by helping them understand the underlying neurobiologic processes involved (cf, the “Explain Pain” approach). This has become a key element in interdisciplinary pain care (see below).
**SPINAL MANIPULATIVE THERAPY**

Manual or spinal manipulative therapy (SMT) is a “hands-on” approach practiced by chiropractors, osteopaths and sometimes physical therapists which holds that the structure of the spine affects the function of every part of the body. SMT includes both manipulation and mobilization. In mobilization, the therapist moves the patient’s spine within their range of motion, starting with a small range and gradually increasing to a larger range of motion. Manipulation is also a passive technique where the therapist applies a thrust to a joint near the end of the range of motion often accompanied by an audible ‘crack’. Results of studies of SMT have yielded mixed results. A recently updated Cochrane Collaboration review of use of SMT for chronic back pain found high quality evidence of a small effect on short term pain relief and functional status when compared to other interventions, but the effect was judged not to be clinically relevant (Rubinstein, van Middelkoop, Assendelft, de Boer, & van Tulder, 2011). SMT for neck pain shows mixed results, suggesting multiple sessions may provide better pain relief and functional improvements than certain medications (Gross et al., 2015).

Another manual therapy used by chiropractors, osteopaths and physical therapists for low back pain called muscle energy therapy involves alternating resistance to contractions and assisted stretching of muscles. A systematic review found low quality evidence to conclude that this technique is not effective for treatment of low back pain (Franke, Fryer, Ostelo, & Kamper, 2015).

While the mainstay of chiropractic is spinal manipulation, chiropractic care also includes a variety of other treatments including massage, heat and cold therapies, electrotherapies, use of mechanical devises, nutrition advise, exercise programs and patient education. A systematic Cochrane review showed that these combined interventions slightly improved pain and disability in the short term and pain in the medium term for acute low back pain, but that there was no significant difference in long term pain or disability, and, like SMT alone, no meaningful difference in chronic low back pain (Walker, French, Grant, & Green, 2010).

**CBT, PSYCHOLOGICAL THERAPIES**

Some might take from the biopsychosocial model of pain the inaccurate implication that the continued pain is “all in their head” or somehow the patient’s fault. In the language of medicine, a common phrase is that the “patient failed” treatment. Surgeons may refer to a patient who continues to have pain after surgery as a “failed back” (AHRQ, 2011). The idea that pain persists beyond the expected duration or can’t be tied to a nociceptive cause is psychogenic persists among healthcare providers in spite of what is now known about the neurophysiology of chronic pain. In fact, the description of the cause of “chronic pain syndrome” in the on-line medical reference Medscape suggests that it is a “learned behavioral syndrome” that is reinforced by things such as the attention it brings and responsibilities it relieves one of (M. K. Singh, 2015). Several patients we spoke with talked about being made to feel as if they are malingering or deliberately exaggerating their symptoms when their pain persisted after treatment. Lebovits addresses the difficult interaction between psychology and pain, noting that it can be difficult to tell which came first, and that the two can interact to the patient’s detriment (Lebovits, 2001) (see “What is Pain?” section above). Judy Foreman, a health journalist who suffered herself from
chronic pain, describes in her book “A Nation in Pain”, the challenge providers face in making a referral for psychological therapy: “Even the gentlest suggestion from...a psychiatrist...that I might be able to reduce my pain with psychological strategies such as meditation, cognitive behavioral therapy, or psychotherapy not only did not help: it enraged me!” (Judy Foreman, 2015).

Persons with chronic pain can become anxious, discouraged, socially isolated and depressed searching for relief. They may also be all-consumed by their pain, experiencing it as a catastrophe that they can’t control. These responses have been shown to worsen their pain and disability, causing a vicious cycle. Cognitive Behavioral Therapy (CBT) and behavior therapy (also called operant conditioning) are two robust psychological approaches that focus on helping people change behaviors that maintain pain, disability, and catastrophic thinking. CBT also addresses the thoughts and emotions that cause distress for people with chronic pain. Numerous studies support the use of these approaches for treatment of chronic pain. A systematic Cochrane Collaboration review recently summarized the evidence of effectiveness for the treatment of chronic pain, excluding headaches. They found that CBT, but not behavior therapy, has been shown to yield small to moderate benefits, more for disability, negative mood and catastrophic thinking than for pain, some durable for six months or longer. Behavior therapy shows fewer and only brief benefits (Williams, Eccleston, & Morley, 2012). These approaches appear to be generalizable to a variety of delivery models and populations. Other systematic reviews found that psychological approaches delivered remotely primarily by internet, are effective in reducing pain severity in adults (Eccleston et al., 2014) and in children (Fisher, Law, Palermo, & Eccleston, 2015), although trials were few and involved small numbers of subjects. Psychological therapies are also beneficial in reducing pain severity when delivered face-to-face in children (Palermo et al., 2016).

The authors commented that the amount of average benefit found in studies of psychological treatments—small to moderate—is similar to what has been measured for pharmacological and physical treatments of chronic pain, however, the likelihood of adverse effects or deterioration is known to be small. They noted that CBT is effective when provided by experienced, well trained and supervised staff and can’t be presumed for untrained staff. They also noted that there were no clear benefits of adding particular components of CBT such as mindfulness training, and that the question of which elements of psychological therapy (such as relaxation, acceptance, or reinforcement) are most effective is conceptually and statistically complex and unlikely to be teased out of post hoc analyses of controlled trial data. That said, recent observational studies have suggested that an adaption of CBT called Acceptance and Commitment Therapy (ACT) is particularly effective in treatment of chronic pain (Singer, 2015).

Not unlike other approaches to treating chronic pain, the average effects measured in trials of CBT masks the wide variation in response by individual patients, and more knowledge about which patients are likely to experience substantially better outcomes with CBT or would benefit from adaptions of it would be very helpful in practice (Williams et al., 2012).
PATIENT EDUCATION

Patient education is a key component of rehabilitation practices and has long been used as a modality in the management of chronic pain. There have been a number of studies on the effect of patient education on chronic pain with results ranging from “excellent” to “poor” (Louw et al., 2011). In general, systematic reviews of the effectiveness of patient education for low back pain and neck pain have concluded that benefits are unclear (Brox et al., 2008; Liddle, Gracey, & Baxter, 2007; Heymans, van Tulder, Esmail, Bombardier, & Koes, 2005; Engers et al., 2008; Udermann et al., 2004; Cohen et al., 1994; Gross et al., 2012). Most education programs for musculoskeletal pain have used biomechanical models (e.g., back schools; “The Back Book”) which not only have shown limited efficacy, but in some cases may even negatively impact outcomes by contributing to increased patient fears and anxiety (Maier-Riehle & Härter, 2001). Several other educational strategies are advocated for patients with LBP, including cognitive behavioral therapy, and recently, “neuroscience education (NE)” or “pain neurophysiology” education (Louw et al., 2011). NE focuses on teaching patients about how the nervous system processes pain in the chronic pain state, with the goal of reconceptualizing their pain as a manifestation of nervous system dysfunction (sensitization) and not a true reflection of tissue injury. Several systematic reviews of the small number of studies evaluating this approach have found low quality evidence that NE can have a positive effect on pain, disability, catastrophization, and physical performance (Louw et al., 2011) (Clarke, Ryan, & Martin, 2011).

COMPLEMENTARY AND ALTERNATIVE TREATMENTS

Complementary and alternative medicine (CAM) includes healthcare approaches developed outside the mainstream Western or conventional medicine. When these approaches are used in place of conventional medicine, they are called “alternative”; if used together with conventional practices, they are “complementary”, or if they are brought together in a coordinated way, “complementary and integrative medicine” (CIM)

There has been recent recognition that CIM approaches are a potentially untapped resource in treating CNCP that could augment standard pain management practices while also improving patient safety, reducing medication burden and lowering costs (Buckenmaier & Schoomaker, 2014). However, research into non-pharmacological care has been substantially underfunded at the federal level and there is a critical lack of quality evidence to support the use of many of these modalities (Delgado et al., 2014). But this is changing. Because chronic pain is a common problem among active-duty military and veterans, the National Center for Complementary and Integrative Health (NCCIH) and the Department of Veteran Affairs and other agencies are sponsoring research to determine if these approaches will help. There are a variety of approaches to categorizing the growing number of CIM modalities. One used by the US military health systems breaks them down into physically-oriented therapies (e.g., acupuncture, massage, self-correcting exercises, transcutaneous electrical stimulation), mind-body therapies (mindfulness, meditation, biofeedback, relaxation/breathing exercises, hypnosis, therapeutic touch, etc.), movement therapies (tai chi, yoga, qi gong) and sensory art therapies (aromatherapy,
art/dance/music therapy and others). We reviewed the literature for the most common adjuncts in pain care below.

**ACUPUNCTURE/ACUPRESSURE**

Acupuncture is an ancient art that has been practiced for centuries in Asia. It involves the insertion of very fine needles into the skin at specific “acupoints”. Acupressure substitutes deep pressure for needle insertion. Acupuncture/acupressure are widely used for chronic pain despite mixed results on studies and uncertainty about mechanism of action. A evidence synopsis of a meta-analysis of 29 randomized trials that compared acupuncture with “sham” acupuncture showed a significant benefit for acupuncture for any of four conditions—chronic nonspecific musculoskeletal pain (e.g., low back pain), osteoarthritis, chronic headache and shoulder pain). They estimated that response rates for at least a 50% reduction in pain were 50% for real acupuncture, 42% for sham acupuncture, and 30% for no acupuncture (Vickers et al., 2012). Adverse effects of acupuncture are exceedingly uncommon. A number of explanations have been offered for the weaker but still beneficial effect of sham acupuncture. One explanation is the diffuse inhibitory controls in the dorsal horn of the spinal cord where neurons are strongly inhibited when a painful stimulus is applied to any part of the body, separate from their sensory nerve endings (A. D. Furlan et al., 2012). Another explanation could be the nonspecific effects of believing in a potentially beneficial treatment (placebo effect).

Acupuncture has been found to be cost-effective relative to usual care or no treatment in subjects with back pain (A. D. Furlan et al., 2012) and is a recommended adjunct treatment for chronic back pain in clinical guidelines (Chou et al., 2007).

**THERAPEUTIC MASSAGE**

Massage is commonly used by patients with CNCP, however the wide variations in techniques makes a generalization about its effectiveness difficult (Turk et al., 2011). A systematic review concluded that evidence supports effectiveness for low back and shoulder pain, and possibly neck pain and fibromyalgia (Tan et al., 2007).

**MIND-BODY TECHNIQUES**

Mind-body interventions include mindfulness exercises, movement therapies, relaxation techniques, and biofeedback as well as psychological treatments (see above). These approaches are used to help patients with chronic pain restore a sense of control and self-efficacy, and can reduce stress and anxiety, which exacerbate pain.

Mindfulness meditation and a specific model called “mindfulness –based stress reduction” have been used for pain management for more than 30 years. Several systematic reviews of randomized controlled trials have found moderate effect sizes for low back pain, fibromyalgia and “general chronic pain”. However several more recent controlled trials reported in the same review did not show benefit (Tan et al., 2007). A recent systematic review of randomized controlled trials of mind-body interventions for
fibromyalgia concluded that there was little or no difference in pain, function and mood comparing biofeedback or mindfulness therapy with usual care. Whether or not movement therapy or relaxation therapy improved pain, function and mood could not be determined because of the low quality of the studies (Theadom, Cropley, Smith, Feigin, & McPherson, 2015). In summary, while the evidence is not strong enough to recommend mind-body therapy routinely, it shows promise for people with chronic pain who are interested in it (Tan et al., 2007).

**MOVEMENT THERAPIES**

Yoga and Tai Chi are combined mind-body and exercise therapies. Studies suggest that yoga and tai chi can benefit people with fibromyalgia, osteoarthritis, low back pain and other chronic pain conditions (Christensen et al., 2015).

**MEDICAL MARIJUANA**

Marijuana is classified as a drug with a high risk of abuse by the federal government and as such is not recognized as having any medical uses, however 21 states, including Colorado allow use of marijuana to treat certain medical conditions. The most common health problem that people try marijuana to treat is chronic pain (Post 2015). Given the key role that cannabinoid receptors and endocannabinoids play in the central nervous system pain pathways, pain modulating properties are biologically plausible, but whether marijuana is effective for chronic pain treatment is difficult to determine because clinical research is scant. However, several systematic reviews have found the studies that do exist are of generally excellent quality and show a modest pain relieving effect for smoked marijuana and other forms of cannabis in neuropathic pain, fibromyalgia and rheumatoid arthritis (Lynch & Campbell, 2011; Boychuk, Goddard, Mauro, & Orellana, 2015; Petzke, Enax-Krumova, & Häuser, 2016). No serious adverse effects were reported in any trial, however, like opioids, the duration of clinical trials was too short to be of much help in understanding long-term effects. Observational studies have identified a number of adverse effects with long-term use, including addiction, which is estimated to occur in about 9% of those who experiment with marijuana, and up to 25% to 50% in those who smoke marijuana daily. Regular use of marijuana in adolescence is particularly concerning since use in this age group is associated with increased likelihood of adverse outcomes, including addiction, altered brain development, cognitive impairment, diminished educational achievement and lower life satisfaction (Volkow, Baler, Compton, & Weiss, 2014).

**HERBAL MEDICINE**

Herbal medicines have been used for treatment of pain for millennia. A Cochrane review (Oltean et al., 2014) of herbal treatments found some evidence that cayenne reduces low back pain more than placebo. Other herbal remedies also seem to reduce pain more than placebo, but evidence was “of moderate quality at best”. For instance, feverfew is used predominantly to treat migraine headaches. Several randomized trials in the 1980s and a 2011 study each found the herb effective in relieving early, mild migraines when compared with placebo (post 2015). Ginger may reduce osteoarthritis and muscle
Glucosamine and chondroitin sulfate are widely used for arthritis pain but study results are mixed and inconsistent (Christensen et al., 2015). Omega-3 supplements, SAM-e and valerian do not have much scientific support.

**COVERAGE OF COMPLEMENTARY AND INTEGRATIVE THERAPY BY HEALTH INSURANCE**

Lack of insurance coverage is often the reason given by providers for not including complementary and integrative therapies in treatment plans (PAINS Issue #6). A largely ignored requirement in the ACA Section 2706 entitled “Nondiscrimination in Health Care Clause” requires that insurers include and reimburse all health care providers acting within the scope of their license in health care plans, however, other than chiropractic, CAM treatments are rarely included in health insurance benefit packages. Workmen’s Compensation Programs are often more inclusive of CAM approaches. Colorado Workmen’s Compensation benefits cover a limited number of sessions of acupuncture and biofeedback. Other CAM therapies may be covered with prior authorization. Colorado Medicaid covers limited physical therapy and occupational therapy services and massage therapy in conjunction with PT/OT with physicians order but does not cover any form of CAM. Chiropractic care is limited to “dual-eligibles” through Medicare.

Since 1996, Washington State has been an experiment for coverage of licensed complementary and alternative medicine practitioners. The law that forced inclusion of CAM treatment has been compared to Section 2706 of the ACA described above. Research has found lower average costs from covered users of these practitioners compared to non-users (Lind, Lafferty, Tyree, & Diehr, 2010).

**CONCLUSIONS REGARDING INDIVIDUAL MODALITIES FOR CHRONIC PAIN**

Because of the variations in diagnostic criteria, outcome measures, treatment methods and settings, it isn’t possible to compare different treatment approaches head-to-head from this summary of systematic reviews, but the general conclusion for the treatment of chronic noncancer pain is, as one reviewer put it, “sobering” (Turk et al., 2011). Pain reductions averaging roughly 30% in about half of treated patients seems to be the best that can be expected, a good deal of that appears to be accounted for by the placebo effect, and improvements in function are at best small on average. That said, treatment responses are unique to the individual. Studies report average effects, and for any treatment modality, there are some who will experience substantial benefit. Factors that would allow providers to match patients to treatments based on characteristics that would predict who will have substantial benefits haven’t been identified for the most part, so it is trial and error—a pathway that most pain sufferers we interviewed talked about with frustration.

**MULTIMODAL, MULTIDISCIPLINARY AND INTERDISCIPLINARY THERAPIES**

As noted above, pain is complex. The draft National Pain Strategy released in May 2015 (discussed below) observed that treating chronic pain as a “biopsychosocial condition” often requires “integrated, multimodal, and interdisciplinary treatment, all components of which should be evidence-based.” In the IOM report, descriptors such as “comprehensive”, “rehabilitative”, “multimodal”, “interdisciplinary”,
“integrated” and “integrative” are all used synonymously with “biopsychosocial” in referring to this conceptual model (PAINS Issue 6). However, these terms have evolved to capture somewhat different scope and levels of integration of biopsychosocial approaches.

Multimodal treatments refer to combination therapy. Given the complexity of the pain pathways in the nervous system, the theory is that combinations of approaches that work at different sites in the neuromatrix of pain will have additive or even synergistic effects. While this has become a standard approach in chronic pain, the few studies that have addressed this are inconclusive (Turk et al., 2011). An approach called “functional restoration” was the first evidence-based form of interdisciplinary pain management for CNCP. It was developed in the 1980s as a team-based approach with the goals of restoring functional capacity and psychosocial performance (Gatchel, McGeary, McGeary, & Lippe, 2014). The research literature most commonly uses the label “Multidisciplinary Pain Programs” (MPP) to describe such approaches, but these protocols go by many names including “Interdisciplinary Pain Rehabilitation Programs” and “Interdisciplinary Chronic Pain Management Programs” (AHRQ, 2011). The term “interdisciplinary” has come to mean multidisciplinary care with a collaborative care plan, which is a key feature of this treatment approach. We will refer to these models as “interdisciplinary pain programs” (IPPs) in this review. While some IPPs are emerging with the Patient-Centered Medical Home model in primary care, more commonly, this collaborative approach to pain care is provided in academic medical centers under the direction of pain specialists in collaboration with other providers.

There is no single protocol for treatment provided in these IPPs, but all provide multimodal interdisciplinary care—where providers in each modality come together to develop a treatment plan. They generally combine biomedical and behavioral approaches, physical rehabilitation, and patient education. Complementary and integrative (CAI) treatments are increasingly added as well.

**EVIDENCE OF EFFECTIVENESS AND COST-EFFECTIVENESS**

The IPP is thought to improve pain and function by simultaneously addressing the multiple influences on chronic pain in the biopsychosocial model (AHRQ, 2011). It is also a conservative option associated with minimal adverse effects when compared to surgery or long-term opioid therapy. The AHRQ commissioned a Technical Brief to accumulate the current evidence base for the IPP model, along with a discussion of key trends and challenges. The definition used in IPP included each of four components: medical treatment, behavioral therapy, physical reconditioning and education. Key informants and a large body of peer-reviewed literature formed the basis of their findings. A total of 184 published studies representing 160 trials met inclusion criteria. Notable was the fact that the patient populations enrolled in these studies were often complex treatment challenges. Most patients had not gained relief from multiple prior treatments before admission to the IPP. On the other hand, restrictions on admissions are common, including active litigation, age, active substance abuse and psychological factors. The most common diagnoses included chronic low back pain. Only one-third included a comparison treatment condition. There was no consensus among IPPs regarding the appropriate role of opioids in the management of chronic pain. Many programs taper patients off opioids when or before they begin treatment.
Most U.S. studies were essentially convenience samples of patients referred to the clinic, accepted for treatment, and approved for reimbursement. There were only three US randomized controlled trials (RCTs). While the volume of published studies is large, the populations, settings, conditions, interventions, control groups and measured outcomes were heterogenous, making systematic reviews challenging (the AHRQ Technical Review compiled a matrix of study elements and findings but did not attempt a systematic review).

There are a number of reviews on effectiveness of IPPs (listed in: Gatchel & Okifuji, 2006; Gatchel et al., 2014; AHRQ 2011). The most comprehensive systematic review reported qualitative evidence for IPPs effectiveness compared to standard treatment (strong), wait-list controls (strong), as well as to multidisciplinary treatments without collaborative care plans (moderate), for patients with chronic back pain (moderate) and fibromyalgia (moderate), and mixed chronic pain (limited) (Scascighini, Toma, Dober-Spielmann, & Sprott, 2008). The differences after treatment were maintained at follow-up in those studies where results were described. The review noted generally poor study quality among the 27 studies that met their inclusion criteria. The central elements of interdisciplinary therapy in the studies were CBT or behavioral approaches, exercise therapy, clinical support for adaptation and reduction of medication, and patient education focusing on the pathophysiological processes of chronic pain, ergonomics, self-care, etc. Among the studies that compared different kinds or duration of treatments, no regimens were found to be superior to any others.

With the accumulating evidence of the effectiveness of the IPP approach in care for patients with CNCP, clinical guidelines have recommended the approach. In 2009, the American Pain Society’s evidence-based clinical practice guideline on low back pain identified the use of interdisciplinary treatment for low back pain as a “strong” recommendation associated with a “high” quality of evidence (Chou et al., 2009). The CDC Guideline conceptual review concludes that therapies that combine exercise, manual treatments, and psychological-based approaches are more effective at reducing pain and improving function than single modalities (Dowell et al., 2016).

Several reports examining the cost-effectiveness of interdisciplinary pain programs alleged that while widely perceived as costing more than usual care, IPPs may be cost-saving (Gatchel & Okifuji, 2006; Gatchel et al., 2014). For instance, a cost-utility analysis of a randomized controlled trial of back surgery (fusion) vs. a rehabilitation program in the UK demonstrated that an IPP costs half of what surgical treatment for low back pain costs, with comparable outcomes at 2 years (Rivero-Arias et al., 2005). The wide variety of program settings and regimens makes generalizations about cost-effectiveness difficult to make. A recent review of the status of interdisciplinary pain care in the US sponsored by the Task Force on Comprehensive Pain Rehabilitation of the American Pain Society concluded that although there is enough evidence to consider IPPs the state of the art in biopsychosocial treatment of CNCP, and that although there are data available that support the cost-effectiveness of this approach, there are few published economic analyses, making it more difficult to advocate for third party reimbursement that will allow new programs to stay afloat (Gatchel et al., 2014).
In spite of data available since the late 1990s suggesting that such models produce better outcomes at lower cost than purely biomedical care, and in spite of the fact that they are increasingly held up as a possible alternative to the widespread use of opioid therapy, the IOM report documents a dramatic decrease in the number of these comprehensive pain management centers across the country (while the number in other countries is actually growing—AHRQ 2011), primarily due to lack of reimbursement (Institute of Medicine 2011). The AHRQ Technical Review noted that there has been a decline in access to IPPs largely due to inadequate reimbursement from third party payers. IPPs run counter to the prevailing structure of healthcare financing and organization: For one, the fee-for-service model rewards interventional procedures like percutaneous spinal procedures and surgery over assessments and behavioral therapy; it is difficult getting adequate reimbursement for time-intensive individual assessments and collaborative meetings often required for intensive interdisciplinary care. The discipline-siloed organization of major medical centers presents barriers to interdisciplinary collaboration and the common managed care carve-outs for behavioral health and physical therapy dilute the clinical effectiveness of integrated programs. Finally, the curative/medical/procedural model is preferred not just by provider and payer, but also the patient themselves—patients desperate for relief naturally seek surgery or pills over intensive cognitive and behavioral changes (AHRQ 2011).

Both the Commission on Accreditation of Rehabilitation Facilities’ (CARF) Interdisciplinary Pain Rehabilitation, and the American Academy of Pain Management’s Pain Program Accreditation, which includes a category of Comprehensive Multidisciplinary Program, accredit IPPs. There is no central accreditation for IPPs. CARF accreditation requires that the treatment team include physicians, psychologists, and physical therapists, specifically trained in the care of chronic pain patients. A recent web search found that 69 interdisciplinary pain rehabilitation programs are currently accredited by CARF in the US, down from 84 in 2005. One is in Colorado (VA Eastern Colorado Healthcare System).

Components of Comprehensive Pain Care (from PAINS Issue #6 p6.)

- Medication and medication assistance
- Self-management training
- Diet and nutritional counseling
- Behavioral health, including counseling for addiction when necessary;
- Access to interventional therapies through organized healthcare delivery networks;
- Chiropractic care; and
- Other complementary and alternative therapies

One of the difficulties with the application of multidisciplinary pain centers is that the patient receives intensive services over a relatively short period of time even though the patients care needs extend over a longer period of time (Gatchel et al., 2014). The emergence of Patient-Centered Medical Homes has focused attention on the enhanced role of the “home” in collaborative ongoing management of these patients. The PCMH model has allowed some primary care practices to deliver comprehensive pain care using a patient-centered approach (PAINS Issue #6). One way of supporting this model is the recent
innovation of providing support for the team at the primary care home with telemedicine consultation from a pain treatment center. The Colorado Medicaid Accountable Care Collaborative program is sponsoring a telehealth consultation platform called “Project ECHO”. Both Family Medicine Center and Salud Family Health Center staff, with key support from Health District Integrated Care behavioral health providers, have participated over the past year.

PUTTING IT ALL TOGETHER: INTEGRATIVE PAIN CARE

A recent trend is the inclusion of complementary and integrative modalities (CIM) of treatment in interdisciplinary models. The PAINS Alliance—the Pain Action Alliance to Implement a National Strategy—has recommended the label “comprehensive pain care” to refer to this expanded clinical approach. Recent innovative models of interdisciplinary pain care have combined complementary and alternative modalities with active self-care (ACT) “integrative pain care” or “ACT-CIM” models. Like biomedical approaches, CIM therapies can allow patients to remain passive participants in their health care. However, promotion of self-management strategies is a key element of the management of chronic disease and was a cornerstone of the IOMs call for a “cultural transformation” in the approach to management of chronic pain. Promoting active self-care empowers patients to be responsible and participatory in their own care, increasing their sense of control, an attribute that is believed to be particularly important in the rehabilitation of chronic pain patients. ACT-CIM models include complementary and alternative modalities focusing specifically on those that could be adapted for self-management.

The US military’s ACT-CIM approach to pain management has been held up as a model (Institute of Medicine, 2011). Chronic pain is a major issue for the Veterans Administration and the arms forces, in part due to major improvements in battlefield survival during the decade long Iraq-Afghanistan conflict. Fifty percent of male veterans and three quarters of female veterans cared for in the VA system report chronic pain (Institute of Medicine, 2011) often times complicated by service-related PTSD and traumatic brain injury (Eric Schoomaker, 2015). Development of the standard approach began in 2009, when the VA released a “Pain Management Directive” that prescribed a “Stepped Care” approach in which increasingly aggressive modalities are introduced as milder methods fail. Primary care provides the platform for the first step, followed by access to specialists in pain medicine, behavioral health, physical and rehabilitation medicine and palliative care in Step Two. The third step involves referral to accredited interdisciplinary pain centers, which include integrated services for veterans with both chronic pain and substance use disorders. The model includes “patient-centered care teams” led by nurse care coordinators across the platforms (Institute of Medicine, 2011).

In 2010, the Department of Defense (DoD) produced a widely publicized report entitled “Pain Management Task Force Final Report” that outlined the US military’s approach to pain management to optimize the care for warriors and their families. The model expanded the VA stepped model to include a tiered structure of implementation of CIM therapies, favoring approaches that required some level of patient participation and self-direction (Army Surgeon General 2010, p 44).
Recently, in collaboration with researchers at the Samueli Institute, the Department of Defense published a series of systematic reviews of the scientific evidence for components of the ACT-CIM model in a special issue of Pain Medicine (April 2014). Despite considerable research base on the passive forms of many of these therapy methods, they found very limited research on their active forms. A total of 149 randomized controlled trials were identified that 1) incorporated complementary and alternative medicine with conventional medicine, 2) were interdisciplinary and 3) included a CAM therapy that patients were trained to practice on their own. In general, the findings were promising but the quality of most of the studies was graded as poor. Recommendations could only be endorsed for yoga, tai chi and music therapy for self-management of chronic pain symptoms and these recommendations were graded as “weak” and subject to considerable uncertainty (C. Lee, Crawford, & Swann, 2014; Crawford, Lee, & Bingham, 2014). The researchers concluded that the evidence base for this approach is in its infancy and that better designed studies are needed. The ACT-CIM model is being enthusiastically deployed throughout the VA and Department of Defense healthcare systems with attention to conducting research on outcomes (Schoomaker, 2015). Currently there is widespread use of CIM therapies throughout the military health system even though many are not evidence-based (Buckenmaier & Schoomaker, 2014).

**TIER I:**

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<tr>
<th>Modality</th>
<th>Passive</th>
<th>Active</th>
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<tr>
<td>Acupuncture</td>
<td>Clinic-based treatments</td>
<td>Self-directed acupressure</td>
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<tr>
<td>Yoga</td>
<td>Facility-based classes</td>
<td>Self-directed exercises</td>
</tr>
<tr>
<td>Chiropractic care</td>
<td>Clinic-based treatments</td>
<td>Self-correcting exercises</td>
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<td>Therapeutic medical massage</td>
<td>Clinic-based treatments</td>
<td>Partner or self-treatment</td>
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<td>Biofeedback</td>
<td>Clinic-based treatments</td>
<td>Self-directed with video, heart rate variability monitors, meditation</td>
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<tr>
<td>Mind-body therapies (meditation, mindfulness)</td>
<td>Facility-based classes</td>
<td>Self-directed</td>
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**TIER II:**

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<th>Modality</th>
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<td>Movement therapy Qi Gong, Tai Chi, Martial Arts</td>
<td>Facility-based classes</td>
<td>Self-directed</td>
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<tr>
<td>Art therapy</td>
<td>Facility-based classes</td>
<td>Self-directed</td>
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<tr>
<td>Music therapy</td>
<td>Facility-based classes</td>
<td>Self-directed</td>
</tr>
<tr>
<td>Aroma therapy</td>
<td>Facility-based treatment</td>
<td>Self-directed</td>
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<tr>
<td>Cold Laser</td>
<td>Facility-based treatments</td>
<td>N/A</td>
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<td>Monochromatic Near Infrared Energy Treatments</td>
<td>Clinic-based treatments</td>
<td>Self-directed with MIRE equipment</td>
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<tr>
<td>Cranial Electrical Stimulation</td>
<td>Clinic-based treatments</td>
<td>Self-directed with CES equipment</td>
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The Interdisciplinary and Integrative approaches to pain care clearly aligned with new models of payment and healthcare delivery associated with the values-based care movement linked to the...
Affordable Care Act (PAINS Issue Brief #5, 2014): Supporting self-care and patient engagement are key features of both PCMHs and IPP models, as are team care and interprofessionalism. Patient-centered care acknowledges and reinforces the CIM approaches that are already widely used by chronic pain patients. Both interdisciplinary and integrative models have been shown to improve patient’s experience and satisfaction. Finally, cost-effectiveness and even cost-savings are possible with these models (see above for IPPs; Lind 2010 for CAM therapies).

SUMMARY OF TREATMENT MODALITIES FOR CHRONIC PAIN

Overall, currently available treatments for chronic pain provide modest improvements in pain and minimum improvements in functioning. The quality of evidence is mediocre and has not improved substantially during the past decade. While combination treatments are promising, knowing what treatments work for which patients under what circumstances and at what cost is beyond the state of evidence. The best results for patients who don’t get better with self-care education and primary care are likely to come from interdisciplinary/integrative pain care. There is a crucial need for improved access to this approach.
WHAT DO WE KNOW ABOUT CHRONIC PAIN TREATMENT IN OUR COMMUNITY?

Local stakeholders interviewed for this preliminary assessment shared observations, challenges and ideas about the complex issue of chronic pain from their first-hand experience. The 47 stakeholders represented a wide range of professionals including complimentary and integrative treatment providers, primary care providers, surgeons, pain specialists, counselors, physical, occupational and massage therapists, chiropractors, pharmacists, nutritionists, administrators and policy makers. As mentioned in the Approach Section, there are many more important stakeholders who were not contacted during this preliminary assessment. A list of stakeholders who have been interviewed is included as Appendix A.

The information gathered from these interviews resulted in a general sense of chronic pain treatment in our community. Themes that emerged from the interviews fell into the following categories and are discussed below:

- Psychological aspects of experiencing and treating chronic pain
- Practice level issues, problematic incentives and pressures on primary care physicians
- Reimbursement, insurance and cost
- Opioid related issues
- Community resources
- Training and knowledge about chronic pain
- Patient expectations and cultural beliefs about pain

PSYCHOLOGICAL ASPECTS OF EXPERIENCING AND TREATING CHRONIC PAIN

Experiencing chronic pain is an emotional experience for patients and treating patients in pain elicits emotional reactions from providers. One physician stated that he sees anxiety in his patients begin as soon as they leave his office. They are worried about adequately managing their pain for the 30 days between appointments. Another physician reported referring people with pelvic or abdominal pain elsewhere for treatment. Her explanation implied that she had strong, negative, emotional reactions to these patients.

There seems to be agreement among all interviewees that behavioral healthcare is one of the most important components of effective treatment for chronic pain. At the same time, lack of access to behavioral healthcare was cited as a perceived barrier. Many access issues are related to lack of provider knowledge about behavioral health services in our community and lack of personal relationships between behavioral health therapists and other providers (physicians, surgeons, physical therapists, massage therapists, etc). One physical therapist mentioned wanting to refer patients for counseling but reported they did not know anyone to refer patients to. Other providers mentioned occasionally referring to local pain psychologists but were unsure if insurance covered the services.
Numerous practice-level issues, problematic incentives and pressures on primary care physicians were mentioned as barriers to providing effective treatment to patients with chronic pain. For some, practice-level policies limit the types, dosages and amount of opioid medications physicians can prescribe. These restrictions limit the ability of physicians to customize prescriptions to the specific needs of their patients. One physician mentioned being limited to 120 Milligram Morphine Equivalents (MME) per day, another mentioned being limited to 4 pills per day even if 5 pills per day worked better for the patient and lowered the overall MME amount. Another mentioned having access to only 4 different types of opioids for patients (there are more than 15 types of generic opioid medications approved by the FDA).

Physicians feel pressure from potential legal actions related to the treatment of chronic pain. Within the last five years two lawsuits in California represent opposite ends of the legal spectrum. In one, a physician was found guilty of under treating pain and in another a physician was convicted of murder related to the overdose deaths of three patients. These are extreme examples but demonstrate the legitimacy of concerns among physicians. One physician reminded us of a Fort Collins doctor who lost his license in the 1980’s for unscrupulous prescribing practices. This was many years ago, but Fort Collins is not immune to the problems of malpractice lawsuits and unethical practices. The threat of legal issues is understandably on the minds of physicians and may impact their ability to effectively care for people with chronic pain.

Patient satisfaction is an important measure of physician performance in some practices and patient satisfaction is often related to whether they receive quick, easy, effective and inexpensive solutions for their problems. Opioid prescriptions are quick, easy and inexpensive for both the patient and the physician and often the solution patients expect and want. In general, patients are not aware of the potential limited effectiveness and serious adverse effects of long-term opioid therapy. Even those of us who are aware may still request or demand relief during moments of severe pain. Several providers discussed the challenge of balancing patient satisfaction, the desire to offer relief and the desire to provide safe and effective care.

Productivity is another common measure of physician performance that results in pressure to see more patients in shorter appointments. Chronic pain is a complex medical issue. All interviewees agreed that effective treatment often requires more lengthy appointments that include a significant amount of patient education, care coordination and revisions to treatment plans. As noted by one physician, it is more lucrative to see two patients for 15 minutes each than to see one patient for 30 minutes. This same physician accepts a lower productivity rate and a lower salary in order to provide 30 minute appointments to patients with chronic pain. Offering 30 minute appointments may not be an option for physicians who work in environments with high productivity standards. Both patient education and intensive care coordination require additional and often unreimbursed provider and/or staff time. One idea that holds the potential to save physicians time is community-based patient education services. When asked if referring her patients to an education program would be beneficial to her practice and
her patients one physician hesitated. She explained her hesitation was based on knowing how important patient education is to effective treatment, acknowledging that she can’t afford the time it takes to provide adequate education for all her patients with chronic pain and yet believing that follow-through and buy-in decrease if education is provided by someone other than the physician.

At a practice level the trend away from smaller family practices with three to five physicians to larger primary care clinics with more physicians was mentioned as potential barrier to effective treatment. In smaller practices, patients typically see the same physician, allowing personal relationships and in-depth knowledge of the patient, their family and lifestyle to develop over time. This relationship allows physicians to provide more personal, individualized treatment and allows them to more easily track use and effectiveness of treatments including medications and any complimentary approaches that have been recommended (e.g. physical therapy, massage, nutrition, etc.). In larger clinics, patients may see a number of different physicians overtime, making it more difficult to build relationships and get to know the patients. As a result, it is more challenging to monitor patient follow-through and effectiveness of previously recommended treatments.

Lack of consistency in treatment approaches is another practice level issue. Within one clinic, attitudes and practices related to complimentary treatments and opioid prescriptions can vary wildly. One primary care physician stated they have a provider in their clinic who is very comfortable prescribing opioids for long-term pain management and regularly provides prescriptions and refills while another provider in the same practice believes long-term opioid use is not effective at decreasing pain or increasing function and is fearful of potential problems with opioids so therefore, rarely prescribes them. Differences such as these are likely extremely common in our community just as they are around the nation. Such variations in practice are central to the ‘art’ of medicine.

These variations can become a barrier to effective care when they collide with patient expectations. Patients with treatment plans that include long-term opioid therapy may become anxious and demanding when seeing a physician who does not feel comfortable refilling their opioid prescription. On the other hand, a patient with a treatment plan that includes complimentary approaches may feel dismissed by a physician who does not value the type of treatment the patient is engaged in. As described in other sections of this report, lack of consistent and strong data make it impossible for physicians to know the ‘right’ or ‘best’ approach to treating chronic pain.

**REIMBURSEMENT, INSURANCE AND COST RELATED ISSUES**

There seemed to be general agreement that primary care, prescriptions, physical therapy and surgery were the treatment approaches most likely to be covered by typical insurance plans. Occupational therapy, massage and chiropractic care seemed the next most likely services to be covered. Complimentary treatment providers and primary care providers cited lack of insurance coverage and inability of patients to afford out-of-pocket costs as barriers to patients accessing complimentary treatment. One behavioral health counselor with expertise in treating chronic pain noted barriers to joining insurance panels as an individual provider.
Due to the complexity of chronic pain as a medical condition and the large numbers of people seeking treatment, chronic pain is a costly issue for insurance companies. Strictly from a cost perspective, opioid prescriptions are less expensive than any other treatment approach, in the short term. Opioids are relatively cheap and prescribing them requires minimal provider time. Physical therapy, chiropractic care and many other complimentary treatment approaches require multiple and possibly on-going treatments in addition to occasional appointments with a primary care provider to monitor progress. Thus, complimentary treatments are more costly than opioid prescriptions from the perspective of an insurance company and less likely to be covered. In the absence of consistent and strong data supporting cost-effectiveness of complimentary treatment approaches it is logical for insurance companies to favor the least costly treatment plans.

Some providers have noticed a recent increase in the number of people with high deductible insurance plans. The perception among these providers is that patients are delaying care or choosing not to follow through on referrals to avoid out-of-pocket costs. Health District data from Larimer Health Connect confirm the increase in high deductible plans locally. We have no specific data showing the degree to which these high deductible plans are impacting access to care.

Stakeholders commented on the lack of control patients and sometimes physicians have over treatment decisions. For example, some plans dictate which treatment approaches to try, in which order, and for how long. Patient preference may not have much influence, at least in the early stages of treatment. The perception is that this is true for plans like Worker’s Compensation. However, during our conversation with administrators from one of our local Workers Compensation providers they stressed how limited they were in influencing treatment decisions made by physicians. The issue of patient control and choice of treatment approaches is important according to some stakeholders because lack of patient buy-in can negatively influence treatment effectiveness. The preliminary assessment did not include exploration of this issue.

**OPIOID MEDICATIONS**

Every interview included comments on opioid medication and related problems such as abuse, diversion and addiction. With regard to these problems there is agreement among nearly all stakeholders that we lack timely access to affordable, effective treatment for people with opioid use disorders. The most effective treatment for opioid addiction is a combination of counseling and prescription medication (Methadone or Suboxone) (Center for Substance Abuse Treatment, 2005). Access to these prescriptions is strictly regulated. Patients can access Methadone from a designated clinic or Suboxone from a physician with specific certification. Physicians are currently limited to providing prescriptions to no more than 100 patients at a given time, although there are national proposals to raise that limit. Larimer County has one Methadone clinic which is a small satellite office of a larger clinic in Longmont. They will provide Suboxone but are currently at their limit of 100 and not accepting new patients. We know of eight physicians in Fort Collins with certification to prescribe Suboxone and two more are prepared to start accepting patients. We spoke with two physicians who report feeling overwhelmed by referrals for Suboxone from other physicians. One local practice is preparing to add Suboxone as a
treatment option for opioid use disorder and they are hesitant to inform others for fear of the potential deluge of referrals. At the time of this writing the largest, local, Medicaid approved provider of addiction treatment will accept patients who are already stable on Suboxone but will not start new patients on Suboxone. In addition, access to affordable, timely non-medication addiction treatment is a significant frustration for some. One interviewee mentioned she could access residential OUD treatment for her patients within one day if they had the ability to pay roughly $30,000 out of pocket. For others, even with insurance, the wait was weeks or months.

Most physicians do not receive much training in medical school on substance use disorder assessment or treatment. Some seek additional training once they enter practice. As a result, some physicians we spoke with are comfortable assessing for and treating OUDs, others are comfortable assessing but prefer to refer out for treatment and some are not comfortable assessing or treating opioid addiction in their practice. One physician stated that questioning a patient about substance abuse was a sign of distrust and could potentially damage their relationship with the patient. On the other hand, another physician stated that she feels the medical community created a significant problem with opioid prescriptions for many patients and we owe it to all patients to uncover and treat all cases of OUD. A third physician, with extensive training in addiction treatment stated that he would like physicians to understand that patients become addicted to opioids because they are susceptible for genetic or psychological reasons and exposure to opioids “flips the switch.” They do not become addicted because of a moral failing or personality trait. His point is, a physician may have known and trusted a particular patient for many years but this person can still develop opioid use disorder. He believes it is the moral duty of physicians to assess for this illness and to recognize that the disease itself prevents the patient from asking for help, admitting to or even recognizing their illness.

Most guidelines related to opioid prescribing include use of a Prescription Drug Monitoring Program (PDMP) to determine whether patients are refilling prescriptions more often than prescribed and from multiple providers. One physician indicated that it takes 8 minutes per patient to check the PDMP which results in a significant cost to providers and practices. This physician believes additional administrative support is needed to make it feasible for physicians to check the PDMP for every patient with an opioid prescription on every visit as is recommended in many of the existing guidelines for physicians.

Complementary treatment providers may or may not discuss opioid prescriptions with their patients depending on their relationship and comfort with the patient and the topic. Those who do discuss medications unanimously agreed that the majority of people want to reduce or discontinue use of opioids if at all possible. Pain specialists and surgeons reported the same. Because opioid medications result in physical dependence, tapering to a lower dose and/or ultimately discontinuing use must be carefully monitored to avoid withdrawal symptoms. Withdrawal symptoms are notoriously unpleasant and painful. Physicians who regularly support patients while tapering down or off opioids point out that this takes time and is largely not reimbursable. One stated directly, “There is no reimbursement for the time it takes to clean up the opioid mess.”

Another interesting comment related to opioid use disorder included one physician’s question about whether the local problem is being fueled by just a few doctors who are unscrupulous or unintentionally
over prescribing versus a more systemic problem across most physicians. This issue was not explored during this preliminary assessment.

**COMMUNITY RESOURCES**

In general and simply put, there appears to be a significant lack of shared knowledge about existing community resources for the treatment of chronic pain. During the stakeholder interviews we uncovered many potentially excellent mainstream and complimentary treatment services in our community with capacity for serving more patients. Many interviewees commented they would like a broader network of providers to refer to. Not surprisingly, providers from all disciplines want to refer patients to people they know and trust. Opportunities to build referral relationships seem to be lacking in our community.

The depth of local resources is not yet fully understood and would require a more detailed service mapping effort. However, it seems that we have all the components of effective multi-disciplinary treatment including behavioral health, patient education, physical therapy, occupational therapy, nutrition, massage and acupuncture with providers who have knowledge and experience working with people who have chronic pain. We have pain specialists and addiction specialists in our community who travel around the world training others but we seem to underutilize their expertise locally. While we have the components of effective treatment and local expertise it is likely that we do not have enough of the necessary services and it is clear that we lack an effective and coordinated system.

Medicaid patients seem to lack access to physical therapy and surgery. One provider shared that, to her knowledge, there is only one physical therapy practice able to accept Medicaid and in her experience the wait to begin treatment can be as long as several months. We learned about one surgery practice with limits on the number of scheduled procedures for patients with Medicaid. There was an expressed assumption that this is the result of perceived high rate of no shows and resulting loss of income for the practice.

We also seem to be lacking patient led support groups. One behavioral health counselor has a new small practice specializing in chronic pain and support groups are included. We learned of 14 nationwide support and advocacy groups (there are likely many more) but are unaware of any with chapters in the Fort Collins area. Support groups for people with chronic pain can be an effective adjunct to other types of treatment and many are available on-line. The table below includes the groups we learned about during the preliminary assessment.

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<thead>
<tr>
<th>Pain Related Advocacy and Support Groups</th>
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<tr>
<td>American Chronic Pain Association</td>
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<td>Daily Strength</td>
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<td>Interstitial Cystitis Association</td>
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<td>Maze of Pain</td>
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<td>National Fibromyalgia &amp; Chronic Pain Association</td>
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TRAINING AND KNOWLEDGE ABOUT CHRONIC PAIN

There is agreement among providers from all disciplines that lack of knowledge about chronic pain is a significant barrier. Physicians report receiving very little education in medical school related to chronic pain. One new physician reported learning about pain medications during one lecture in a pharmacology course, limited discussion of chronic pain in a psychology lecture and having the option of a chronic pain elective during the last rotation. She shared that not many of her colleagues had the energy or desire to add another elective at that point in their education. Physical and occupational therapists reported little or no training on chronic pain while in school. Each provider we met who had expertise on chronic pain sought training on their own.

A number of provider education opportunities are available remotely and in–person at locations across the country. Most professionals have conference and training opportunities specific to their discipline. There are multidisciplinary conferences with a focus on pain and many medical specialty conferences now include sessions on treatment of chronic pain. In addition, there are many resources available via the internet.

One noteworthy resource is the Weitzman Institute offering seemingly high quality and valuable supports for physicians and multi-disciplinary team members. Their programs include PainNet, an online community forum where primary care providers can discuss pain related cases with specialists and share resources. Project ECHO for pain offers bi-weekly video case consultation and topic specific webinars for one year cycles. They also offer a Project ECHO for physicians prescribing Buprenorphine (Suboxone). Finally, they offer e-consult, a secure web-based option for rapid case consultation. More information is available at http://www.weitzmaninstitute.org. The State of Colorado, Health Care Policy and Finance is sponsoring their second year of ECHO Pain for safety net clinics and other primary care practices across the state. Staff from both local safety net clinics attended year one of ECHO in Colorado which ended in March, 2016.

The North Colorado Health Alliance (NCHA) has organized one-day symposia in four locations around Colorado, each time, tapping into local expertise and bringing at least one national expert as a keynote speaker. These symposia focus on opioid management. NCHA also facilitated a group of providers in Northern Colorado (including Fort Collins) to develop a brief guidelines document for primary care physicians. It is unclear at this time, how or when this document will be disseminated.

PATIENT EXPECTATIONS AND CULTURAL BELIEFS ABOUT PAIN

Patient expectations and cultural beliefs about pain were discussed by most stakeholders. Many interviewees talked about the challenge of patients expecting complete relief from pain and as quickly as possible. Effective treatment of chronic pain is rarely quick and often results in increased function but not complete resolution of pain. Providers understand that wanting and expecting quick relief inhibits some patients from engaging in longer term strategies like exercise and weight loss to address chronic pain.
Many providers with expertise in chronic pain discussed the importance of getting patients to focus on improved function as a treatment goal instead of, or at least in addition to, decreased pain. Some interviewees also discussed the value of teaching patients about the pathophysiology of chronic pain and the positive impact of revised beliefs and expectations. This message was emphasized very clearly in the personal stories we collected. One local physical therapy practice prioritizes patient education related to pathophysiology and seems to achieve good outcomes. Other patient education options seem to focus more on coping strategies like meditation, relaxation and goal setting. Outcomes for these programs were not explored.

Several stakeholders discussed a phenomenon related to patient expectations about surgery, particularly for back pain. In general, in the predominant culture, we believe that western medicine has a solution for pain. In the case of back pain many patients believe surgery is that solution. In fact, surgery’s long-term success rate for the most common types of chronic low back pain is limited (see “Interventional Approaches” section above). Further, one diagnostic tool used to identify causes of pain is an MRI. We were told MRI’s of most people will reveal abnormalities, but most of these abnormalities do not cause any symptoms and do not require surgery. This is one of the reasons physicians and insurance companies prefer to try other treatment approaches before completing an MRI. Many patients with back pain, in our western culture, believe that MRI’s can clearly show the cause of pain and believe that surgery will relieve back pain. Sometimes these beliefs are supported by other providers. Stakeholders discussed this problem from the perspective of a surgeon who counsels her patients against surgery only to witness the patient visit multiple surgeons until they find one who will perform the surgery.
WHAT OTHER INITIATIVES OR MODELS ARE IN PLACE NATIONALLY AND LOCALLY TO ADDRESS THE PROBLEMS?

The IOM’s 2011 ground-breaking report “Relieving Pain in America” was a culmination of a several decade period of growing awareness of two intertwined problems, the problem of under-treatment of pain in America and the opioid pain prescription epidemic. The federal attention to the pain problem began in 2000 when Congress passed and the President signed a law that declared the ten-years beginning January 1, 2001 as the “Decade of Pain Control and Research” While much was learned in the basic sciences in understanding chronic pain as a disorder of the nervous system during that decade, there were not significant clinical advances in chronic pain management (Institute of Medicine, 2011).

So in 2010, congress included a call for Health and Human Services (HHS) to enter into an agreement with the Institute of Medicine (now the National Academy of Medicine) to increase the awareness of pain as a public health problem. IOM’s charge was to assess the state of science regarding pain research, care and education and make recommendations to advance the field. IOM’s report was released in 2011 with a call for “a cultural transformation”, including 16 recommendations for improvements in data and reporting, the availability and effectiveness of pain care, public, patient and professional education and related research.

The IOM report included a section on access to opioids and concerns about their use and one of the nine “underlying principles” of the report was “the conundrum of opioids”, the recognition of the serious problem of diversion and abuse as well as questions about long-term effectiveness. However, the committee concluded that used appropriately, they can be safe and effective, especially for acute pain and near the end-of-life. Given that, no recommendations specifically addressed opioid use. Similarly, the draft National Pain Strategy does not address use of opioids (see below). However, following the IOM’s 2011 report, many different policies, regulations and initiatives have mushroomed in both the public and private sectors, and at federal, state and local levels. Virtually all are focused on the opioid epidemic.

Here is a brief overview of some of these forces of change occurring at the national, state and community level, each contributing to or reflecting the complex milieu that patients with pain, their health care providers, and other stakeholders are experiencing nationally and in our community. We begin with initiatives that address the problem of pain. Then we cover those efforts focused on “the conundrum of opioids”.

PAIN INITIATIVES AND MODELS

THE NATIONAL PAIN STRATEGY

A core recommendation of the 2011 IOM Report: Relieving Pain in America (Recommendation 2.2) was that "The Secretary of the Department of Health and Human Services should develop a comprehensive, population health-level strategy for pain prevention, treatment, management, education, reimbursement, and research that includes specific goals, actions, time frames, and resources." In
response to this charge, Health and Human Services (HHS) created the Interagency Pain Research Coordinating Committee (IPRCC) in 2012 to oversee creation of a National Pain Strategy. Whereas the IOM report was a blueprint – a 30,000 foot view of where we are and need to go – the NPS was designed to be a document of action, a specific, tactical ground level view to guide actions in delivering the cultural transformation called for in the IOM Pain Report. Guided and coordinated by an oversight panel, expert working groups including expertise from clinical and public health, legal, ethical, and payment and traditional and complementary medicine, explored six important areas of need identified in the IOM recommendations—population research, prevention and care, disparities, service delivery and reimbursement, professional education and training, and public awareness and communication. The draft National Pain Strategy was released in April, 2015 for a 45 day public comment period that closed on May 20th, 2015.

We attended the NPS Collaborators meeting convened by the Pain Action Alliance to Implement a National Strategy (PAINS) in the Washington, DC in June 2015. The invitation-only meeting was attended by members of the NPS Working Groups, leaders from federal agencies, academic institutions, professional societies, patient advocacy groups, policy organizations, and others. The goal was to discuss opportunities and challenges of implementation once the report was released and promote collaboration among the attendees. While expectations for the plan were high and it appeared to be generally well received, there were concerns expressed about the lack of specificity and accountability, the absence of a timeline, and the fact that there has been no appropriation of funding designated for implementation of the plan. However, it is almost a year later and (as of March 12, 2016), the final report has not been released and funding has not been announced.

Here are the key learnings we took from this fascinating 2-day discussion that may be relevant to our local planning:

1) Public education about the impact and seriousness of chronic pain to counter stigma and correct misconceptions is considered fundamental. Campaigns to encourage safe medication use, especially opioid use, are also important.

2) For prevention and care, too many patients are getting high cost, low value care (e.g., injections and surgery). At the same time, there are some low-cost solutions that are under-deployed: patient self-management programs that provide people with skills, education & resources to play an active role in managing their pain and support groups can make a dramatic difference to the lives of pain sufferers.

3) There is a need for professional education and training for multiple disciplines, not just about pain medications, but also other evidence-based practices and programs. Core competencies are still in development for primary care and behavioral health and are only now starting to be introduced into medical school and licensure groups. There has been wide dissemination of continuing medical education programs for physicians around safe opioid prescribing (see below) but not for the other components of integrated, multimodal pain care. The availability of pain specialists and interdisciplinary pain treatment programs is scant, contributing to the limited opportunities for transdisciplinary education.
4) The focus on the “opioid epidemic” risks increasing the reluctance of many clinicians to prescribe these medicines and patients concerns over stigmatization associated with opioids, which could jeopardize quality pain control. How this “re-balancing” is playing out locally is an important question.

5) It is widely recognized that payment reform is a key issue. Although fee-for-service is not going to disappear quickly, there is keen interest among payers in programs that improve quality and save money. This presents an opportunity for local “fee-for-service with incentives” pilot programs in comprehensive pain care. A good example is an idea the medical director of a local primary care group recently shared: What if a primary care “bundled payment” arrangement could be set up with payers for their enrollees with moderate osteoarthritis who are currently being treated with total joint replacements, but could be managed equally well or better with conservative treatment from an interdisciplinary team?

6) Population research starts with measuring the prevalence of chronic pain, particularly the subset of individuals with “high-impact” chronic pain. The NIH and CDC have developed National Health Interview Survey questions to standardize this measure. We should consider adding these to our Community Health Survey.

The NHIS questions are:

1. Over the past six months, have you had pain on at least half the days? (No / Yes)
2. Over the past six months, how much has pain interfered with your life activities? (No / Mild / Moderate / Severe interference)
3. Over the past six months, how often did pain limit your life or work activities, including household chores? (Never / Rarely / Sometimes / Usually / Always)

DEPARTMENT OF VETERANS AFFAIRS AND DEPARTMENT OF DEFENSE

One of the best models of comprehensive pain care comes from the nation’s largest integrated health system, the Veterans Health Administration. A series of congressional acts beginning in the 1990s charged the Department of Veterans Affairs, and more recently the Department of Defense, with the development and implementation of a comprehensive approach to pain management. What has resulted is a highly mature primary care based model of chronic pain care that has received a lot of attention, scrutiny and praise (ref). It is a collaborative “stepped care model” (see figure below) that incorporates patient education, behavioral health, multimodal team-based care including complementary and alternative services, access to support from specialists using tele-health consultation (SCAN-ECHO) and referral to interdisciplinary specialty pain care when needed. Controlled trials of the model have demonstrated superiority to usual care for veterans (Bair et al., 2015; Frank et al., 2015; Dobscha et al., 2009; Kroenke et al., 2009; also see Interdisciplinary Pain Care Section in this report). The Veterans Health Administration (VA) approach is being held up as an exemplary model by a variety of stakeholder groups including SAMHSA, patient advocacy groups like the Pain Action Alliance to Implement a National Strategy (PAINS) and professional specialty societies such as the American Society of Pain Management. While the VA is unique in that it is a fully integrated healthcare system,
components of the model have been adopted in less integrated settings. An example is the Colorado Medicaid Accountable Care Collaborative Project ECHO program, which provides support for participating primary care practices to deliver Steps 1 and 2 in the model (see figure below).

The Six Essential Elements of Good Pain Care (VA):

- Educate Patient/families
- Educate/train all team members
- Develop non-pharmacological modalities and build Patient self-efficacy
- Institute safe opioid prescribing (universal precautions)
- Develop approaches to bringing together team members and train them together
- (SCAN-ECHO*, e-Consults, tele-health, tele-consultation)
- Establish metrics to monitor pain care

* SCAN-ECHO, Specialty Care Access Network – Extension for Community Healthcare Outcomes is the VA’s “Project ECHO”. The primary purpose in ECHO is not to treat individual patients; it’s to build expertise in primary care. It is not a one-on-one interaction between a specialist and a patient. Instead the model connects specialist multidisciplinary care teams to primary care providers in local communities. Through weekly or monthly virtual clinics, specialists and primary care providers explore treatment strategies, results, and the latest medical research to analyze their patient cases and develop solutions.
Currently the VA is leading a research initiative to evaluate non-opioid approaches to pain management and in conjunction with the Department of Defense has developed a standardized pain management curriculum for widespread use in education and training programs (http://www.dvcipm.org/clinical-resources/joint-pain-education-project-jpep).

OTHER FEDERAL ACTIONS INCLUDE

- The NIH Interagency Pain Research Coordinating Committee (IPRCC) and NIH Pain Consortium are prioritizing pain research needs and directing increased funding at basic, translational and comparative effectiveness research for treatment of pain.
- The Substance Abuse and Mental Health Services Administration (SAMHSA) is supporting a program of continuing medical education (CME) to promote appropriate prescribing for pain management under the Prescriber Clinical Support System for Opioid Therapies initiative (PCSS-O). Resources are targeted at appropriate opioid prescribing but include education and opportunities for mentoring in integrative pain management. Mini-grants for communities are available to promote trainings (www.pcss-o.org).

PROFESSIONAL SOCIETIES

The American Medical Association (AMA), as part of its initiative to combat prescription drug abuse, has advocated for ensuring that patients in pain receive the care they need and reducing the stigma of pain. Similarly, AMA is part of a large group of primary care and specialty medical societies led by the American Academy of Addiction Psychiatry that have collaborated to develop an evidence-based authoritative set of resources, a system for dissemination of educational activities (webinars, on-line modules, mobile app) and a novel system of colleague support and mentoring, funded by the federal SAMHSA-HRSA Center for Integrated Health Solutions. The program, called Prescriber Clinical Support System for Opioid Therapies initiative (PCSS-O http://pcss-o.org/about/goals-objectives/) focuses on safe use of opioids in treatment of pain, how to recognize misuse, abuse and addiction, and use of opioid therapies to treat opioid use disorder, but includes some modules on non-opioid treatment of pain.

Pain Specialist Professional Societies include three multidisciplinary groups: the American Pain Society, the American Academy of Pain Management and the American Academy of Pain Medicine. These societies support certification, develop and disseminate clinical guidelines, publish peer reviewed journals, and advocate for a balanced approach to safe and effective treatment of pain and work with their members and other pain societies to establish programs and educate their members, the public, members of Congress and federal regulatory agencies along those lines. A fourth society, the American Society of Interventional Pain Physicians, is a physician pain specialty group that supports and promotes interventional pain management techniques.
CONSUMER ADVOCACY ORGANIZATIONS AND RESOURCES

Pain Action Alliance to Implement a National Strategy (PAINS [http://www.painsproject.org/]) is “a national alliance of professional societies, consumer advocacy organizations, and others who believe there is a moral imperative to improve the treatment of pain”. PAINS was organized in response to the Institute of Medicine’s 2011 report, Relieving Pain in America. A major aim of the non-profit is to promote implementation of the National Pain Strategy.

There are a number of consumer advocacy groups, some present at the NPS Collaborating Meeting we attended, groups such as the Consumer Pain Advocacy Task Force, American Cancer Society Cancer Action Network, American Chronic Pain Association, C-Change, Chronic Pain Research Alliance, Global Healthy Living Foundation, Interstitial Cystitis Association, National Fibromyalgia & Chronic Pain Association, National Patient Advocate Foundation, Power of Pain Foundation, Reflex Sympathetic Dystrophy Syndrome Association, State Pain Policy Advocacy Network, The Pain Community, The Pain Cooperative, The Foundation for Peripheral Neuropathy, The TMJ Association and the US Pain Foundation. A number of these organizations sponsor websites for persons with chronic pain that offer education and self-management resources. A review and assessment of the many web-based resources for persons with chronic pain was beyond the scope of this initial scan of community assets.

Some of these patient advocacy groups have affiliate groups that work on policy, advocacy and support at the state and local level. It would be important to seek out and collaborate with patient advocacy groups in our community or state if we engaged in a pain project.

COMMUNITY INITITIVES AND PARTNERSHIPS

The Pain Action Alliance to Implement a National Strategy (PAINS) also supports innovative state and community-based initiatives to further the vision captured in the IOM guiding principles—in particular establishing the biopsychosocial approach to pain management as a community standard of care. Michael Felix, one of the Health District’s long-term mentors and consultants on community health development is a PAINS consultant and referred us to PAINS work. PAINS has worked with the Missouri Primary Care Association to apply for grant funding to support five community initiatives and are awaiting for funding. However one community has moved ahead with a partnership between FQHCs, hospitals, patients and families, professional groups and not-for-profits. Relieving Pain in Kansas is developing an integrative, comprehensive and coordinated bio-psychosocial model for chronic pain care treatment, referral, and consultation that will be piloted in the clinics that serve the safety net population in Kansas City. Other initiatives are being planned or have been launched in Texas and Oregon (the Pain Society of Oregon [https://www.painsociety.com]). According to their website, PAINS is in conversations with leaders in California, New Hampshire, Michigan, Indiana and Iowa to facilitate similar projects ([http://www.painsproject.org/]).
STATE OF COLORADO

Two payer initiatives happening in our state are focused on improving the overall care of patients with chronic pain. Both are public programs.

DEPARTMENT OF LABOR AND EMPLOYMENT

The Colorado Division of Workers’ Compensation produced a comprehensive guideline on treatment of chronic pain that was released in February, 2012 (Chronic Pain Disorder Medical Treatment Guidelines). The detailed guidance was based on an extensive literature review. It is based on an education-based paradigm that emphasizes active patient engagement. Like the VA model, it stresses the importance of having a multidisciplinary approach that may include a variety of medications, cognitive behavioral therapy, physical movement/exercise and patient education for better self-management. The benefit package for Colorado Workers’ Compensation (which is administered through Pinnocol Assurance) is unique when compared to commercial plans in that it covers physician delivered patient education, use of acupuncture, biofeedback, other CAM approaches and case management for patients with chronic pain. Outpatient Interdisciplinary pain treatment programs are covered when indicated as well.

COLORADO DEPARTMENT OF HEALTH CARE POLICY AND FINANCING MEDICAID PROGRAM

The Colorado Department of Health Care Policy and Financing operates the state Medicaid Program. In March 2015, Colorado’s Medicaid Accountable Care Collaborative launched a cutting-edge telehealth technology to help participating primary care providers treat chronic pain and reduce prescription opioid abuse among their patients. Modeled after “Project ECHO” programs piloted in the Veteran’s Administration and several other states, the “Chronic Pain Disease Management Program” provides access to an interdisciplinary team of chronic pain and addiction specialists from the University of Arizona for case reviews and short didactic presentations twice monthly. Family Medicine Center and the Salud Family Health Center in Fort Collins were among the 33 practices participating from across the state. Health District Integrated Care staff functioned as practice coordinators for each clinic. Our staff report it was highly valuable and changed how they work with patients. Another year long program is currently being launched. FMC is planning to extend for another year and increase resident involvement in the program. Salud has not decided yet whether to re-up for a year, in part because providers are feel too busy to free-up the four hours per month it requires to participate.

In terms of multidisciplinary care, Medicaid does not reimburse for CAM treatments but does cover physical therapy and occupational therapy with a physician’s order. Low reimbursement rates have been an issue in patients being able to access PT services, however the rate was increased in 2015.

INITIATIVES TO ADDRESS THE “OPIOID EPIDEMIC”

While the National Pain Strategy appears to be stalling, the issue of opioid overdose, misuse and diversion has exploded in the media and in the number of policies and programs that sprung up at all
levels of government and the private sector to address it. We review some of the most visible initiatives at the national and state (our own) level.

**FEDERAL GOVERNMENT**

**WHITE HOUSE INITIATIVES/PRESCRIPTION DRUG ABUSE PREVENTION PLAN**

In 2010, a year before the IOM report was released the President released his first National Drug Control Strategy, emphasizing the need for action to address opioid use disorders and overdose, while ensuring that individuals with pain receive safe, effective treatment. The next year, the White House released its national Prescription Drug Abuse Prevention Plan to outline goals for addressing prescription drug abuse and overdose. The plan focused on strategies to educate parents, youth and patients on the appropriate use and secure storage and disposal of prescription drugs. Then in October 2015 the White House announced a public-private commitment to expand training for opioid prescribers and public media campaign about the risks of prescription drug misuse. Obama also issued a Presidential Memorandum on improving access to medication-assisted treatment (MAT) for opioid use disorders.

**DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)**

Addressing the opioid crisis is a top priority for the HHS Department. HHS is focused on three key areas: improving opioid prescribing practices, increasing the use of naloxone, and increasing access to medication-assisted treatment (MAT) for opioid use disorders. Last week, HHS announced $94 million in Affordable Care Act funding to 271 health centers to improve and expand the delivery of substance abuse services, with a specific focus on screening and treatment of opioid use disorders in underserved populations. Colorado received $1.75M to expand MAT in five health centers including Salud Family Health Centers (HHS.gov press release, March 11, 2016).

HHS is coordinating the federal-wide response to the opioid crisis, with significant initiatives in most of its divisions. Some recent activities by the Food and Drug Administration (FDA), the Center for Medicare and Medicaid Services (CMMS), the Center for Disease Control and Prevention (CDC), the Substance Abuse and Mental Health Services Administration (SAMHSA), National Institutes of Health (NIH) and the Drug Enforcement Administration (DEA) are described below.

**FOOD AND DRUG ADMINISTRATION (FDA)**

The same day the president’s plan was released, FDA announced the elements of a Risk Evaluation and Mitigation Strategy (REMS) to ensure that the benefits of extended-release and long-acting (ER/LA) opioid analgesics outweigh the risks (FDA, 2014). As part of the REMS, all ER/LA opioid analgesic companies must develop education programs for prescribers that cover proper patient selection and use of these products, as well as patient education programs in safe use and disposal. Education is provided through accredited continuing education (CE) activities at low or no cost, supported by independent educational grants from the companies. Critics, including the FDA’s own REMS advisory committee, have
raised concerns about whether the pharmaceutical industry is the appropriate entity to develop unbiased education about drug use since it needs to promote its products. Other concerns were that the program is voluntary and does not cover all opioid pain medications. The 2011 Prescription Drug Abuse Prevention Plan and the 2014 National Drug Control Strategy both called for mandatory education for prescribers. An evaluation of REMS activity utilization and impact is currently underway and the FDA is considering expanding it to include immediate-release opioids. They were launched against vigorous opposition of professional associations such as the American Academy of Pain Medicine and PROP.

The FDA is also reexamining its entire framework for risk benefit assessments of new opioid pain relievers to consider the broader public health impact of approving these drugs; continue to support abuse-deterrent formulations (five have already been approved); considering ways to make naloxone more widely available, including as an over-the-counter medication; and working closely with industry and the National Institutes of Health to develop alternative medications without the addictive properties of opioids (Califf et al., 2016).

CENTER FOR MEDICARE AND MEDICAID SERVICES

CMMS put out a bulletin in January 2016: Best Practices for Addressing Prescription Opioid Overdoses, Misuse and Addiction, Jan 2016. The purpose of this Bulletin is to highlight emerging Medicaid strategies for preventing opioid-related harms including effective Medicaid pharmacy benefit management strategies for increasing the use of naloxone to reverse opioid overdose and expanding coverage and access to opioid use disorder treatment. Other bulletins to be released recommend removing methadone from formularies for use in treating pain. CMS is also testing three publically reportable measures for Part D drug plans designed to identify opioid over-utilization.

CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC released the first ever federal clinical guideline for prescribing opioid pain relievers, “CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016” this week with extensive media coverage. The CDC is also developing tools and resources to help inform prescribers about appropriate opioid prescribing; track data on prescribing trends; develop clinical quality improvement measures and programs on opioid prescribing and improve public understanding of risks and benefits of opioid use.

CDC announced the Prescription Drug Overdose: Prevention for States initiative in 2015 targeted at state health departments. Through a competitive bidding process, 16 states were awarded funds. Colorado was not among them, but the President’s 2016 budget requests an expansion of the program to all 50 states.

OTHER FEDERAL ACTIONS INCLUDE

• The HHS is reviewing how pain management is being evaluated by patient satisfaction surveys used by health care providers and hospitals and how use of these surveys impact pain management practices.
HHS has launched a one-stop federal web page resource on prescription drug abuse prevention and treatment.
The DEA will continue its National Prescription Drug Take Back Day Program;
The surgeon general is developing an education campaign for prescribers of opioid pain medications and is preparing the first ever surgeon general’s report on Substance Abuse, Addiction and Health. http://www.surgeongeneral.gov/priorities/prevention/strategy/report.pdf
The Substance Abuse and Mental Health Services Administration (SAMHSA) has developed an opioid overdose toolkit and resources for Opioid Use Disorder screening and medication assisted treatment. SAMHSA is funding continuing medical education through the PCSS-O program noted above.

NATIONAL PRIVATE INITIATIVES

- National Safety Council has identified “prescription pain killers” as one of its top five safety priorities, designating significant resources to education and advocacy.
- The Association of State and Territorial Health Officials (ASTHO) has called for state public health interventions to stem the opioid crisis. Their “Inventory of State/Territorial Action for Prescription Drug Abuse & Overdose” identifies 32 recommended public health actions; Colorado had implemented or partially implemented 21 in 2013 (www.astho.org/rx/profiles).
- The American Medical Association has advocated at the federal and state level on a wide variety of issues related to combating prescription drug use and diversion and has produced education materials for physicians under the Prescriber Clinical Support System for Opioid Therapies initiative (PCSS-O http://www.ama-assn.org/).
- Professional Associations and Medical Societies have committed to opioid prescriber training initiatives amounting to over ½ million prescribers receiving training in 2016-2017 (Whitehouse, 2015). Groups include the American Medical Association, American Osteopathic Association, American Academy of Family Physicians, American College of Emergency Physicians, American Academy of Hospice and Palliative Medicine, American Congress of Obstetricians and Gynecologists, American Academy of Pediatrics, American Society of Anesthesiologists, American Society of Addiction Medicine, American College of Osteopathic Internists, American Pain Society, American Academy of Addiction Psychiatry, American College of Physicians, American College of Osteopathic Emergency Physicians, American Academy of Pain Medicine, Interstate Postgraduate Medical Association, Physician’s Institute, American College of Osteopathic Surgeons, American College of Osteopathic Family Physicians, American Osteopathic Academy of Addiction Medicine, American Medical Student Association, American Medical Women's Association, Michigan Osteopathic Association, Ohio Osteopathic Association, Massachusetts Medical Society, Washington Osteopathic Medical Association, New Mexico Medical Society, California Academy of Family Physicians, Conjoint Committee on Continuing Education, Collaboration for REMS Education, American Nurses Association, American Association of Nurse Practitioners, American Association of Nurse Anesthetists, Association of

- A national physician group has gained attention for its advocacy “to reduce opioid-related morbidity and mortality by promoting cautious and responsible prescribing practices” (Physicians for Responsible Opioid Prescribing, http://www.supportprop.org/).
- Many national pharmacy chains are supporting pharmacist training and expanding Naloxone dispensing programs.
- Many medical specialty groups have drafted guidelines or position papers (eg, American Society of Neurology).
- Many other stakeholders have created or updated policies or position papers to help combat prescription opioid misuse, including the National Governors Association, National Conference of State Legislators, Federation of State Medical Boards and the National Association of Boards of Pharmacy, the AMA and most state medical societies.
- There are many community initiatives that have organized specifically around responses to the prescription drug abuse issue (Levy et al., 2015).

COMMUNITY BASED INITIATIVES

The Project Lazarus project in North Carolina (http://projectlazarus.org) uses a community-based public health model to prevent drug overdose deaths. They use (1) community activation and coalition building, (2) monitoring and epidemiologic surveillance, (3) prevention of overdoses through medical education and other means, (4) use of rescue medication (e.g., Naloxone) to reverse overdoses by community members, and (5) evaluation of project components. Their approach is very similar to the community engagement process the Health District has used to establish and maintain the Mental Health and Substance Abuse Partnership. They have recently broadened their approach to address the management of chronic pain, for which they have developed a “toolkit” for communities.

STATE OF COLORADO

LEGISLATIVE ACTION

Much of the law and regulation that impacts the delivery of pain care and the availability of prescription opioids is at the state level. Prescription drug abuse and misuse laws vary greatly in states (Levi, Segal, & Fuchs Miller, 2013). The nonprofit Trust for America’s Health ranked states statutes for indicators of 10 indicators on a range of evidence-informed policies in place in different states, selected to provide a snapshot of the efforts that states are taking to reduce prescription drug misuse (Levi et al., 2013). The indicators were selected based on consultation with leading public health, medical and law enforcement
experts about the most promising approaches (see Appendix 3b for table of indicators). Colorado scored 8 out of 10—among top 17 states.

The Pain & Policy Studies Group at the University of Wisconsin (www.painpolicy.wisc.edu) has systematically evaluated and monitored governmental and regulatory policy globally regarding access to opioid pain relievers (referred to in statutes as “narcotics”) over the two decades. Their approach is focused not on reducing misuse, but instead is based on the principle of “balance”. Because opioid pain medications have both a medical indication and an abuse liability, their prescribing, dispensing, and administration is governed by a combination of policies, including international treaties and U.S. federal and state laws and regulations. The main purpose of these policies is drug control: to prevent diversion and abuse of prescription medications. However, there is a second purpose of drug control, that these drugs be available for pain relief. When both control and availability are appropriately recognized in public policy, and implemented in everyday practice, this is referred to as a balanced approach. Within policy provisions, there are “positive provisions” that have the potential to enhance pain management, and “negative provisions” that have to potential to impede pain management. Colorado’s statutes and regulations were graded a “B” overall on a scale of A to F in 2014, with an “A” for positive provisions and a “C” for negative.

The policy language in Colorado’s Medical Practice Act (C.R.S. 12-36-117, Subsection (1.5)(b)) that may impede safe and effective pain management included: 1) the implication that opioids are not a part of professional medical practice, 2) that medical decisions are limited by mandated consultation and 3) that unclear language may be interpreted to mean that medical immunity is available only if treatment options other than opioids are exhausted (PAINS Policy Brief #3). Ironically, this subsection was part of the 1997 bill that actually liberalized Colorado’s statutes regarding opioid prescribing (see Opioids Section above). What effect the Medical Practice Act language has had on the appropriate prescribing of pain relievers among Colorado’s healthcare providers is unknown.

The current interest in the opioid epidemic among state legislatures is intense. As of March 12, 2016 there were 1,277 active bills on pain-related issues being considered in 45 state legislatures, the majority of which focused on control of opioids or availability of opioid rescue treatment. There are currently 3 bills in Colorado’s legislative agenda, one proclamation and two overdose reversal bills. The number of pain-related regulatory actions currently under consideration far exceeds the number of bills being debated. There are 100 separate proposed changes in Colorado regulations currently being considered, ranging from scope of practice, prescriptive authority and licensure of health professionals (DORA) to sales, manufacturing and dispensing of medical marijuana, worker’s compensation treatment guidelines, Medicaid drug and substance abuse treatment benefits, and rules regarding use of PDMP.

Over the past few years, new bills are proposed in Colorado each year relating to opioid prescribing. Table 2 below lists pain-related Colorado bills passed in the last four sessions. No bills were entertained impacting non-opioid aspects of pain care.
Table 2: Bills Passed Relating to Opioid Prescribing or Pain Management Since 2012

<table>
<thead>
<tr>
<th>Bill</th>
<th>Title</th>
<th>What this law does...</th>
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<tbody>
<tr>
<td>SB15-053</td>
<td>Dispense Emergency Supply of Emergency Drugs for Overdose Victims (i.e., Naloxone)</td>
<td>Allows the prescription and dispensing of opiate antagonist drugs to those that might encounter an overdose situation, including individuals at risk, friends, families, emergency responders, and more. Pharmacies may request standing orders from CDPHE so they can provide Naloxone directly.</td>
</tr>
<tr>
<td>HB15-1214</td>
<td>Abuse Deterrent Opioid Analgesic Drugs</td>
<td>Prohibits pharmacists for substituting non-abuse-deterrent opiates for prescriptions for abuse deterrent opiates.</td>
</tr>
<tr>
<td>HB14-1099</td>
<td>Optometrists Prescription Drug Authority</td>
<td>Allows optometrists to prescribe some Schedule II drugs - hydrocodone combination drug - in addition to the schedule III, IV, and V drugs already allowed.</td>
</tr>
<tr>
<td>HB14-1173</td>
<td>Sunset Controlled Substances Abuse Act</td>
<td>Extended the Colorado Licensing of Controlled Substances Act, making minor modifications.</td>
</tr>
<tr>
<td>HB14-1283</td>
<td>Modify Prescription Drug Monitoring Program</td>
<td>Makes changes to the Prescription Drug Monitoring Program to incentivize prescribers to use the program more often, by reducing specific obstacles and burdens of use.</td>
</tr>
<tr>
<td>SB13-014</td>
<td>Immunity for Administration of Emergency Drugs to Overdose Victims</td>
<td>Extends protections to prescribers of opiate antagonist drugs and to those that administer the drugs in good faith to a person that is experiencing an overdose event.</td>
</tr>
<tr>
<td>SB12-037</td>
<td>Electronic Prescription of Controlled substances</td>
<td>Allows a pharmacy to dispense controlled substances when the prescription is electronically transmitted.</td>
</tr>
<tr>
<td>SB12-020</td>
<td>Immunity for Reporters of Overdoses</td>
<td>Offers immunity to persons who report overdose events to emergency personnel.</td>
</tr>
</tbody>
</table>

GOVERNOR’S COLORADO PLAN TO REDUCE PRESCRIPTION DRUG ABUSE

Governor Hickenlooper released a plan to reduce prescription drug abuse in September 2013. The major initiatives outlined were health care provider education, public awareness, safe disposal, Prescription Drug Monitoring Program (PDMP) improvements, research and data sharing, and improving access and referrals to addiction treatment; recently an additional initiative, increasing awareness of and access to naloxone, was added.

The governor launched a public awareness campaign in February 2015 called “Take Meds Seriously” to address the epidemic abuse of prescription drugs, focusing on “safe use, safe storage, safe disposal”.

COLORADO CONSORTIUM FOR PRESCRIPTION DRUG ABUSE PREVENTION

The Colorado Consortium for Prescription Drug Abuse Prevention was created in Fall 2013 to coordinate statewide implementation of the Governor’s Plan. The Skaggs School of Pharmacy acts as the coordinating center and eight workgroups to implement each of the Governor’s major initiatives. The Consortium serves as a backbone, providing infrastructure to link the many agencies, organizations, health professions, associations, task forces, and programs that were addressing the prescription drug abuse problem. Currently, over 250 members and organizations are actively involved—meetings of all 8
workgroups are scheduled monthly throughout 2016. The Consortium is also facilitating a broad range of training experiences for professional and postgraduate students and development of new research programs that will lead to more effective prevention efforts, treatment protocols, and awareness of the problem of prescription drug abuse in Colorado (http://www.corxconsortium.org/).

DEPARTMENT OF REGULATORY AFFAIRS

In response to the Governor’s plan, the regulatory Boards for dental, medical, nursing and pharmacy (the Quad-Regulator Boards) and the Nurse-Physician Advisory Taskforce for Colorado Healthcare collaborated to develop a Policy for Prescribing and Dispensing Opioids. After incorporating public and stakeholder feedback, the joint policy was adopted by the four Boards in 2014. The most controversial element in the new guidelines were the “Bright Line Thresholds” for triggering action from the prescribing practitioner: When opioid prescribing exceeds 90 days duration or 120 milligram morphine equivalents (MME) dosages per day, or certain formulations such as transdermal or long-acting preparations are prescribed, it cautions the practitioner to pause, re-evaluate treatment, and institute additional safeguards. Not all patients requiring pain therapy can reasonably be referred to pain specialists, given the number of pain specialists in the State, so mandating referral was not adopted (DORA 2014).

PRESCRIPTION DRUG MONITORING PROGRAM (PDMP)

A PDMP is a database that gathers information from dispensing pharmacies about controlled substance prescriptions to facilitate appropriate prescribing practices. All but 5 states have a PDMP. The Governor’s PDMP workgroup identified several enhancements to increase provider use—mandated registration, ability to delegate access to office staff and allowance for Medicaid to send unsolicited reports (“push notices”) to prescribers regarding their patients’ potential opioid misuse—and these were passed by the legislature in 2014. There is some evidence that these changes have had an impact. There has been a gradual increase in PDMP queries performed relative to prescriptions dispensed in 2015, and “push notices” have fallen precipitously, from 667 in October 2014 to 150 in February 2016 (https://www.colorado.gov/pacific/dora/PDMP_News#PushNotices).

The history and status of Colorado’s PDMP was reviewed in a report to the Health District Board of Directors later in 2014 and eleven recommendations for improvement were made by staff based on best practices from the National Alliance for Model State Drug Laws (Southard, 2014). No laws of regulatory changes have been implemented since the board received that report.
Health District Staff Recommendations for Improving Colorado’s PDMP, 2014:

1. Collect data in real time.
2. Provide mandatory training for prescribers, providers, and those who have been delegated access.
3. Integrate the PDMP with electronic prescribing and medical records.
4. Expand access to PDMP data to include treatment facilities, medical examiners, third-party payers, drug courts, and law enforcement.
5. Mandate utilization of PDMP before an initial controlled substance prescription is written and at certain points in a patient’s therapy.
6. Monitor drugs that are not yet scheduled, but may have the potential to be abused.
7. Share information with other states.
8. Encourage federal institutions, like Indian Health Services and Veterans Affairs to utilize the PDMP.
9. Use deidentified data for public health interventions.
10. Link people identified as drug users to treatment options.
11. Secure stable funding.

DEPARTMENT OF LABOR AND EMPLOYMENT

As noted above, the Colorado Division of Workers’ Compensation produced a comprehensive guideline on treatment of chronic pain in 2012. Directives regarding use of opioids were relatively restrictive. For instance, to be eligible for a trial of opioids for moderate to severe chronic pain, a patient should have failed alternative strategies including multidisciplinary pain care, CBT and self-management techniques, have undergone a complete physical, psychological and substance use assessment performed by both the treating physician and a pain specialist. If opioid pain relievers are prescribed, patient education, informed written consent, PDMP review and periodic urine drug screening are recommended, consistent with other guidelines. If clinically meaningful improvement of pain and function are not secured, the guideline recommends that opioids be discontinued. The threshold of 120 mg MME dosing is aligned with DORA guidelines (see above).

COLORADO DEPARTMENT OF HEALTH CARE POLICY AND FINANCING

The Colorado Department of Health Care Policy and Financing operates the state Medicaid Program. Studies in other states have shown that the population insured by Medicaid has a high burden of chronic pain and is disproportionately represented in prescription drug overdoses and deaths (franklin 2014). Colorado’s Medicaid ACC “Project ECHO” program was noted above under pain care initiatives.

The Department of HCPF has also made changes in policy to address opioids. To align with the DORA and Worker’s Compensation guidelines regarding opioid use in CNCP, HCPF promulgated a series of new opioid prescription guidelines under Medicaid. The short-acting oral opioid policy went into effect on August 1, 2014. It restricted prescriptions to 120 tablets in 30 days. Beginning February 1, 2016, the Department implemented a limit on total daily MME to 300mg with the goal of gradually decreasing that amount to the 120 mg of the other guidelines. Prior authorizations will be granted to allow for tapering. A web site was developed that has pain management resources and opioid use, tapering and
discontinuation guidelines ([https://www.colorado.gov/pacific/hcpf/pain-management-resources-and-opioid-use](https://www.colorado.gov/pacific/hcpf/pain-management-resources-and-opioid-use)).

As noted above, HCPF uses PDMP data to send “push notices” to prescribers; they also follow best-practices with respect to drug utilization review (DUR) and so-called “lock-in programs” for members who are getting prescriptions from multiple prescribers or pharmacies.

To help screen for substance use disorders, Medicaid recently added billing codes for substance use “Screening, Brief Intervention, and Referral to Treatment” (SBIRT) services. Medicaid also covers outpatient substance abuse treatment services including medication-assisted treatment (MAT) which combines behavioral therapy and medications to treat substance use disorders. Both methadone and buprenorphine (Suboxone) assisted treatment is covered.

**COLORADO MEDICAL SOCIETY**

CMS actively participates in the Governor’s Consortium and launched a “7 Strategies to Achieve Safe Opioid Prescribing” initiative in February 2016. The message will be disseminated to Colorado physicians through a variety of activities, sponsorship of CME trainings and media (CMS, 2016).

**LOCAL INITIATIVES**

See section “What Do We Know About Chronic Pain Treatment in Our Community” above for a description of the initiatives of the conferences sponsored by the North Colorado Health Alliance (NCHA), NCHA’s opioid guidelines development and local clinic participation is the Medicaid Project ECHO programs.

**SUMMARY OF POLICIES AND PROGRAMS**

The initiatives that are creating the forces of change in the current environment of treatment of chronic pain fall heavily on the side of efforts to rein in the prescribing practices of physicians to reduce diversion and misuse, with some emphasis on mitigating risk of overdose with Naloxone and most recently, attending to substance use disorders treatment. The opportunities and gaps appear to be in meeting the needs of pain patients and their families in integrative pain care and where opioid use disorder is a co-occurring problem, gaining access to medically assisted treatment.
CHRONIC PAIN STORIES: OUR NEIGHBORS, CO-WORKERS, FAMILY AND FRIENDS

“To have great pain is to have certainty; to hear that another person has pain is to have doubt.” – Elaine Scarry

Seven local residents graciously shared their personal stories to help advance our community’s understanding of chronic pain and what it means to live with this challenging medical condition. These people were asked to share their stories in an effort to demonstrate a variety of experiences. In reviewing all seven stories two key messages come through clearly.

1. Patient education including a focus on the physiology of pain can make a big difference.
2. Navigating the system of care when experiencing chronic pain is extremely challenging. Care coordination and support is needed and little help is available.

Names in the following stories have been changed when requested. We are truly grateful to all seven of these generous people.

“Education Has Been The Most Valuable Form Of Treatment”  ANN’S STORY

Ann, a physical therapist at a hospital, was helping a large, elderly patient get out of bed and to a walker when he unexpectedly collapsed. She tried to prevent him from falling by catching him, but fell down with him.

“I felt an immediate and severe sharp pain in my lower back and was unable to straighten up,” Ann says. The pain was so excruciating that the otherwise healthy and active 27-year-old had to stay in bed for the next week on pain medications and muscle relaxers with what doctors then diagnosed as a muscle strain.

Fast forward 33 years later, and Ann is in her living room flipping through a dog-eared book on new pain research, reading aloud passages that have helped her come to terms with her decades-long journey with persistent pain. Though she still suffers from low back pain, neck pain and migraines as a result of her injury, she’s found hope, healing and empowerment through tapping into new knowledge on pain.

Ann has always loved exercise and outdoor activities. Six months after the injury, she began feeling better and started exercising again, even though the pain wasn’t completely gone. A couple years later, she began experiencing reoccurrences of the original pain that seemed to happen out of nowhere. Ann had at least 12 reoccurrences that got progressively worse over the next 15 years. “I was moving quite differently by the end of those years,” Ann says. “And each time, it would take longer to get back to my normal activity levels.”
By this time, the injury and its aftermath had significantly impacted the trajectory of her career. A month after the injury, Ann went back to work and was immediately expected to take on a full-time caseload, which sometimes meant seeing up to 25 patients in one day.

“After continuing to work as a physical therapist at the hospital for two years after the injury and not feeling fully better, I knew I wasn’t going to be able to continue that kind of work,” Ann says. A part-time role as a pediatric physical therapist doing in-home treatments lasted 15 years after that, but also became too difficult to manage with her pain. She then took on a desk job that required extended periods of sitting, which was the worst thing she could do for her back. When that job went away with budget cuts, she took on a marketing role that she felt ill-equipped for.

“That’s when everything came crashing down,” Ann says. “The new job caused me a great deal of stress and the pain got so bad that I literally could not move.” This caused her to leave the workforce completely in 2009.

“It wasn’t a planned retirement,” Ann says. She still feels stress and remorse at not having had a full, satisfying end to her working life. “Luckily, I no longer need to work financially but I wish I could still contribute to my family and community.”

Ann saw at least 14 different providers over the course of her 33-year journey with pain, without much success, continuity or follow-up. MRI’s, CAT scans and x-rays pointed to ‘degenerative disc disease’ at L4, L5 and L5S1 and one recommendation was for her to get a spinal fusion. “The thought of putting all that hardware in my back and further restricting my movement didn’t sit well with me,” Ann says.

The various treatments Ann received over the years included pain, muscle relaxer and anti-inflammatory medications, continual physical therapy, a TENS (trans-cutaneous electrical nerve stimulator) unit, intradiscal electrical thermal therapy, a surgically implanted spinal cord stimulator, massage, acupuncture, Botox and more. Nothing helped the problem.

Then in 2009, Ann happened upon an intriguing brochure for a physical therapy clinic in Fort Collins offering trigger point dry needling. At this point, she felt she had tried everything and was at the end of her rope. “And I was moving like the tin man,” she says. So, she made an appointment.

“My first appointment with Terry Gebhardt at Colorado Physical Therapy Specialists was amazing—he listened to my whole story and said, ‘what’s going on is called Central Nervous System Sensitivity.’ And it made total sense to me. I thought, ‘finally, over 25 years later, someone gets it right.’” Central Nervous System Sensitivity is a dysfunction of the nervous system that results in persistent pain even after the initial injury might be healed.

Ann began a combination of trigger point dry needling treatments, physical therapy, regular exercises and adapted yoga under Gebhardt’s care. “I had to learn to move all over again,” she says. “He is the first and only practitioner thus far who has provided me with any real, useful education—and education has been the most valuable form of treatment I’ve received.”
Ann can now hike, bike, and do other activities that she hadn’t been able to enjoy for many years. And
she’s finding further success using tools like meditation, visualizations and mantras. “I am changing my
nervous system by giving it positive inputs,” Ann says. “I try to focus on what I can do and that’s helped
me learn to think positively.”

One of the most important things Ann learned was to change how she viewed pain. “My pain
progressed over time without any further tissue damage—that realization is what caused the big shift in
thinking for me,” Ann says. “Pain doesn’t necessarily reflect the amount of damage you have. It’s been
so freeing to learn about central nervous system sensitivity and to finally understand where the pain is
coming from—and to be able to move again.”

Though Ann feels that her pain would have been cured long ago had people known at the time she
was injured about the kind of research that’s out now, “I don’t feel any blame or anger toward the
practitioners I saw in the past. They did the best they could with the information available to them—but
now it’s time to consider new research about chronic pain and to change the treatment model.”

“I Didn’t See Any Other Options”  JAMIE’S STORY

Jamie was a high school kid who loved sports, especially football. While playing football his sophomore
year of high school in 2003, he suffered an ACL knee injury that required surgery. The following year, he
tore his ACL again, this time in the other knee, also requiring surgery. During his senior year in 2005, he
suffered another injury playing football, this time dislocating his shoulder and damaging the labrum. This
injury was by far the most serious of the three, requiring surgery and extensive recovery time.

The shoulder injury marked the end of his football career and resulted in him having to turn down an
opportunity to play college football for Chadron State in Nebraska.

Then on his parent’s health insurance plan, when he went to the an orthopedic surgeon for his shoulder
injury, he had already been on high doses of pain medication for his ACL injuries and developed a high
tolerance to it. He was told it would be six months before he could get in for shoulder surgery and was
given more pain medication to cope with the pain until then. Physical therapy would start after the
surgery and he wasn’t told to do anything in the meantime. He also couldn’t imagine doing anything else
because the pain was so bad he could hardly move. He was prescribed 80mg Oxycodone twice a day and
Percocet between doses. In that six-month period of waiting for surgery and taking pain medications, he
developed a serious addiction.

“Looking back, I wish there had been more guidance for me and more opportunities,” Jamie says. “I was
young and my parents didn't know what to do to help me. My health insurance was under their
coverage and wasn't the best so I was sort of limited in terms of what was available to me and the
advice I could get was only from the physicians I was seeing. There really wasn’t an opportunity for me
to do anything different.”
Jamie had virtually unlimited access to pain medication while waiting for his surgery and during his recovery. “I felt like I had more Oxycodone and Percocet than I knew what to with,” he says.

After the surgery, Jamie received physical therapy that helped him and gave him hope that he could overcome the injury. He started being active again and started playing basketball. The surgery led to an overall improvement that lasted for about a year, until he dislocated the same shoulder while attempting a rebound in a basketball game.

With pain medication addiction still an underlying problem, this setback plunged him even deeper into it. The re-injury was worse than the original injury and this time, he was periodically without insurance, no longer covered on his parent’s plan. He was discouraged, could not afford another surgery, and pain medication appeared to be his only option.

At the same time, pain medication was becoming more restricted. Jamie was being prescribed less and less but needed more and more to overcome his high tolerance. While he needed to do something to relieve the pain, he also knew that he was mentally and emotionally addicted to pain medication. He couldn’t see a way out. He simply couldn’t function without the medication.

“I never really got an evaluation where someone said, ‘hey you’re on this much [medication] our goal is to take you down to this much,’” Jamie says. “It was more like, ‘we were giving you four to five pills and now we’re going to give you two to three pills.’ I tried to get off of it, I tried to just be on the lower doses I was being given but I couldn’t stop, I had to have it.” He started buying pain medication off the streets, and crushing up Oxycodone and snorting it, until they changed the pills so they couldn’t be tampered with. He continued to buy it off the streets until his life spun out of control. He spent all of his money on medications and lost his car, house, and girlfriend in the process.

Jamie tried residential treatment for his addiction twice but it didn’t help. When he felt that he literally could not survive another day of this life, he called Healing Arts, a local primary care clinic offering counseling, medication (suboxone) and support to treat his addiction. He knows the phone call he made that day not only saved his life, it forever changed it. Jamie has now been completely off of pain medications for two and a half years and has learned other ways to cope with chronic pain. And for the first time since his injuries occurred, he feels he is getting the patient education and the support he’s been needing all along.

“It’s not just the medication they gave me that helped,” Jamie says. “It’s the meetings, support groups, and activities that saved me. It’s the people I’ve met at Healing Arts and what I’ve learned from them that allowed me to overcome this. I would not be alive today had I not made that appointment.” The resources Jamie has been provided with since he started going to the clinic have helped him realize that he’s not alone in his struggle and that there are things he can do to improve his situation.

Over ten years after the initial injury, Jamie’s shoulder injury is still an issue. While getting out of bed a month ago, it came out of its socket and he had to go the emergency room to have it put back into place. “[Severe pain] is still something I have to deal with everyday,” Jamie says. “[Chronic shoulder pain] is still a huge part of my life—my knees are always sore, especially in colder weather.”
But since getting off of pain medications and receiving counseling and support, Jamie is taking better care of himself. He has learned which physical therapy exercises and stretches help the most, uses an inversion table at home, and is back to enjoying life.

“While I’m not as athletic as I would like to be, I’ve found a way to be ok with it,” Jamie says. “I’m still active even though I will never be at the level I used to be. The key is that I have to keep doing the work: I can’t just say ‘ok, I’m better now and can stop doing all these new things I’ve learned that have helped me so much.’ I used to look at my situation and think ‘one day, I’m going to be better and this is all going to go away,’ but it doesn’t work like that—in my situation, I have to keep going to counseling, groups, and classes, and keep doing the physical therapy and when I do that, everything comes together and it’s great.”

“I Don’t Want To Be Perceived As Broken.” TOM’S STORY

Tom’s life changed in an instant when he was rear-ended in a traffic accident four years ago. His neck severely whiplashed, resulting in a protruding, herniated disc at C4-C5.

Tom has been seriously injured before. Earlier in life, he was able to recover from even more traumatic injuries than this. However, the lasting pain from this injury has not gone away or lessened in severity. Rather, it’s resulted in severe chronic neck pain that continues to frequently flare up without warning.

“Simply turning the wrong way can trigger the pain,” Tom says. “It’s a very extreme, stabbing nerve pain—it’s sharp like needles and tops out the pain scale.” He also deals with tingling and numbness sensations in his fingertips that stem from the point of injury in his neck. Living in a constant state of fear over when his neck pain will inevitably flare up has impacted every aspect of his life.

“I wish I could hold my infant son without thinking about my neck,” Tom says. “I’d like to be able to wear a backpack and not have to wonder when my neck pain is going to flare up and I’m going to have to sit down—I want those freedoms in my life.”

Tom can no longer mountain bike, run, play soccer, or even do the dishes like he used to because of the pain it triggers in his neck. “I can’t stand in one place for too long so I’m constantly shifting on my feet,” he says. “In every little facet of my life, I either have to modify or be aware that the pain can be triggered at any time. It’s just the way I live now.”

His relationships have suffered, too. “It’s been hard for my wife to know what to do for me or how to help. I hurt a lot, and at random times, so that affects everything. [Chronic pain] doesn’t just impact the person with the injury, it impacts the whole system around you.”

Tom’s medical care since the car accident has been dictated by the other driver’s insurance company, who would not pay for a MRI until he went through a year of physical therapy.
“I wouldn’t wish this process on my worst enemy,” Tom says. “Dealing with the insurance companies and a lawyer, and not being in control of the decision-making, has been the worst journey of my life.”

Tom felt that the physical therapy he received, which was comprised of electrode therapy and some stretching exercises on a foam roller, didn’t help because it couldn’t fix the fact that he had a herniated disc. During this time, he also tried medical massage therapy and dry needling. He found that the medical massage therapy did help a little bit because it increased blood flow to the area and improved his posture. After physical therapy, Tom was prescribed cervical steroid injections and cortisone shots, which did not improve his condition either. He’s currently seeing a surgeon and takes ibuprofen for pain when he needs to but steers clear of other pain medications out of fear of developing a dependence on them.

“I’m at the point where I can either modify my life and just live with these high shots of pain happening (which makes me feel like a puppet on a string because I don’t know when it’s going to occur) or, I can get surgery,” Tom says.

Though Tom is frequently in pain, he’s found the greatest physical relief from his own self-care efforts. “I lost some weight and started doing yoga and stretching. I think it helped, not only physically but mentally too,” he says. “There’s a lot to be said for keeping the muscles strong and the blood flow working well in order to help reduce the instances when my neck pain flares up, though I don’t know what the direct correlation is. I did notice that when my flexibility improved, I ate better, became stronger, and could do a little bit more activity each day—but then I would just be doing something as simple as hanging up my shirt and the neck pain would get me again. My self-care has been absolutely critical. It’s included me telling myself that I’m strong, that I’m going to be ok, and giving myself hope and optimism that I can work through this and have a good life ahead of me—I don’t want to be perceived as broken.”

After the accident, Tom was forced to quit working as a painter because it required too much physical movement. He eventually took a job working from home where he was able to maintain control over his work environment. He now directs visitation ministries for a church, a position that has become a much-needed and powerful source of fulfillment and positivity in his life.

“I love my job—this position allows me to have the wonderful opportunity of journeying with people going through physical hardships,” Tom says. “I see people who are homebound or in hospitals, rehab centers and nursing homes. As a person who struggles with chronic pain, I can relate to these people and am often humbled to witness their strength and hope.”

The surgery option currently being recommended to Tom, which would remove the injured area of his neck and put in a false disc, has him paralyzed with fear. He doesn’t like the idea of putting hardware in his body. He feels that surgery is a last resort and that there must be some other options out there that he could try first. But he hasn’t received much in the way of guidance, advice or support.
“I’ve been completely on my own,” Tom says. “No one has said, ‘let me help you manage this or, let me be your advocate for all of these companies so that you can work through your injury.’ That would have been nice to have, because trying to manage the injury and all of this other stuff at the same time is a huge burden.”

While Tom knew that the accident wasn’t his fault and believed that eventually his medical expenses would be reimbursed, he’s been overwhelmed with having to cover all the costs up front. “The bills start coming in from every direction you can imagine,” Tom says. “I wouldn’t wish this process on my worst enemy. The level of fear that consumes you during this journey is indescribable—because you just don’t know. I had to push and fight hard to get a MRI. Everything is tied to the dollar at some level—and I get that—but journeying as a patient through this system can be almost as traumatizing as the injury itself.”

“I No Longer See Pain As A Threat” JILL’S STORY

Jill worked as a receptionist for a physician for seven years, doing patient intakes and developing a good understanding of how health care works. When she got married 30 years ago, she left that job to become a full-time homemaker and start a family. She threw herself into this role and devoted all of her time and energy to improving the life of her children and husband, and volunteering when she could, leaving little time for herself and letting self-care fall by the wayside.

After about 10 years as a full-time homemaker, she began to experience episodic lower back pain and sciatica, which seemed to flare up after a particularly stressful week or if she moved her body in an unusual way. However, she could not pinpoint a specific cause of the pain. It seemed to just be a byproduct of living everyday life. At one point, the pain got so bad that she had to stay in bed on ice for several days and walk with a cane.

Jill tried painkillers, muscle relaxers, physical therapy, and chiropractic care to alleviate the pain. She found that the painkillers only masked the problem and gave her a false sense of her physical abilities. Once the medications wore off, the pain would get worse. Physical therapy helped but only sometimes. Chiropractic care initially made the problem worse and then subsequently would only help temporarily.

The back pain would come and go, and Jill had a hard time being consistent with any regimen of self-care. She would periodically try out an exercise program but found that with all of the demands on her time, she could not be consistent with anything.

A little over two years ago, Jill reached a point where she was feeling very run-down and taken for granted. She knew she needed to re-evaluate her life and take a closer look at how she was spending her time. What she discovered was that her personal health was in need of a major overhaul. She decided to take back control of her health and has found relief from her lower back pain as well as a new sense of peace and purpose by prioritizing self-care, acupuncture, and appropriate levels of exercise.
“My health has flourished because I shifted my way of thinking and created more space and time for self-care, acupuncture, yoga, meditation, positive people, and being more present in my life,” Jill says. “I don’t see pain as a threat—I see it as a message that something needs to change.”

Jill’s personal journey back to health started with doing yoga at home. As her practice became more consistent, she was able to stop seeing the chiropractor for her low back pain. She had heard about acupuncture but felt it was too expensive since it wasn’t covered by her insurance. Then she went to a health fair where it was being offered for free. She tried it and woke up the next day feeling like a new person. When she read about Fort Collins Community Acupuncture, which is accessible and affordable, she began going there for treatments. And that’s when things really began to change.

**“I’m Never Pain Free But I’m A Happier Person Now” LISA’S STORY**

Lisa was an active young woman who suffered from frequent migraine headaches but was otherwise healthy and happy. In 1994, a patient fell on her while she was working at an assisted living center. The fall caused her to twist and ruptured the L5S1 disc in her lower back.

Lisa’s care was covered by a Worker’s Compensation plan and the doctors she saw thought that she may have simply pulled some muscles. They treated her with steroid shots, pain medications, physical therapy, and muscle relaxers. Nothing really helped but the pain medications and the rest, ice, and heat she administered to herself at home. Lisa tried to go back to work after two months of rest but the pain was too debilitating. She also tried to take on a few other jobs since then but to this day remains unemployed because she cannot sit or stand for very long.

For the first two years after her injury, doctors didn’t know what was wrong. Then, in 1996, they discovered the ruptured disc and she underwent surgery for a full disc replacement. This surgery was unsuccessful as it caused a shift that resulted in a pinched sciatic nerve and caused sciatica and constant pain that Lisa still suffers from today.

Five years after the surgery, Lisa was still getting no relief from the pain and was given a fusion surgery. That surgery didn’t do anything to relieve the sciatica. Five years ago, Lisa accidentally fell down the stairs in her home, injuring her back even further and resulting in persistent back spasms and exacerbated sciatic nerve pain. This accident led her to seek treatment at the Family Medicine’s pain clinic.

While Lisa has not been able to work since her injury, the pain medication and muscle relaxers she has been taking allow her to function though she is never without pain. She has not experienced any negative side effects of taking pain medications. However, she has experienced depression as a result of feeling isolated in her pain experience and misunderstood by family, friends, and the medical community.

Since coming to the pain clinic, she feels like she is finally receiving valuable patient education and that she is being treated by physicians who aren’t judging her for needing pain medication. She is benefitting
from all of the monthly classes the pain clinic provides on different ways of managing chronic pain. These classes have helped her improve her diet, and find some pain relief through free weekly yoga and massage sessions.

Even more valuable for her has been the chance to make friends and connect with others who suffer from chronic pain. “I feel healthier, sleep better, and I’m a happier person now,” Lisa says. “Before coming to the pain clinic, I felt a lot of stress about going to try and get help from the medical community. I felt like a lot of doctors thought I was just after pain medicine and didn’t really understand what I was going through. But that’s changing with pain clinics. Now, when I tell someone that I’m going to a pain clinic, they know I’m being educated and it changes the way they look at me. New doctors who are being educated in pain management are a lot more understanding.”

“Things Need To Start Happening Differently In The Treatment Of Pain” MAGGIE’S STORY

On a cold, gray day in November, 65-year-old Maggie stood on her bed in an effort to reach a book on a top shelf. She immediately lost her balance and fell hard to the floor, hitting a wooden chair on the way. As she lay there in pain, thinking she had blown out her knee, the gravity of the situation began to sink in.

Maggie is single and lives alone. Her cell phone was in the other room. Up until now, she’d never been seriously hurt and had been in good health. She knew that one of her neighbors who always stopped by to chat would eventually come and find her, and she thought about just waiting for him.

“But I knew I was in trouble,” Maggie says. “I realized that I couldn't wait for him or anyone else...so I just started moving.”

Maggie had to get herself to the back patio door of her apartment, which she knew was unlocked and could be easily opened. “Even though my apartment is very tiny, it took me about four hours to get there,” Maggie says. “I was dragging myself inch-by-inch until the pain would strike, and then I would just breathe through it and keep going...drag and stop, drag and stop.”

Maggie finally reached the door, slid it open and yelled for help. A neighbor heard her and called 911. She was swiftly taken to the emergency room, where she was given morphine and learned that she had broken her left femur just above the knee.

After undergoing surgery to place a titanium rod with nine screws in her leg, Maggie was transferred from the hospital to a rehabilitation facility, where she spent the next five weeks. “I was in a lot of pain during my stay there,” Maggie says.

Maggie had been prescribed Percocet by the surgeon at the hospital. Prior to this incident, Maggie’s only experience with pain medications had been taking a baby aspirin on rare occasion. She didn’t like the way the Percocet made her feel, and figured it was best to not take any pain medication at all—she thought she should try and “tough it out.”
Maggie cut down her pain medication doses and didn’t make a fuss when the understaffed, overbooked rehabilitation facility made her wait over seven hours to receive it.

When Maggie returned home, Medicare provided in-home physical therapy twice a week until she could drive again. She also received a lot of love and support from her friends.

“I have fabulous neighbors, friends and social support network,” Maggie says. “My friends helped me do everything—from taking care of my cat while I was in rehab to picking up things for me at the store, to running books and DVD’s back and forth from the library for me. I also used Senior Alternatives in Transportation (SAINT) to get to my appointments. We are so fortunate in this community to have SAINT.”

Once Maggie could drive again, she began to receive standard physical therapy at a local facility, but it didn’t help. In fact, Maggie’s pain worsened during this time—and it had been about six months since the injury.

“I wasn’t happy with the way things were going at [the physical therapy facility,” Maggie says. “I also wanted to find a physical therapist closer to home.”

When someone told Maggie about Colorado Physical Therapy Specialists, she made the switch and started working with McKay Murdock.

Within two weeks Murdock knew that the original injury was fully healed and that Eichhorm was experiencing Chronic Pain Syndrome. Maggie believes “everything changed” at that point.

Maggie’s work with Murdock included physical exercises, visualizations and mantras, massage, mirror therapy and education about Chronic Pain Syndrome. She found success with all of it, particularly the education piece, which included reading books that explained the brain’s role in perpetuating pain long after an injury has occurred.

Murdock believes that going without pain medications for six hours after falling, lowering her pain medication dosage without consulting her physicians and going without it for seven-hour stretches at the rehab facility, were key factors that set the stage for her having persistent pain.

“I didn’t know anything about how persistent pain worked until I met Murdock and no one else I encountered did either,” Maggie says. “I know now that taking painkillers correctly is essential to preventing the development of persistent and chronic pain.”

Now, 11 months after the injury, Maggie is pain free. “I still walk with a cane though and am seeing Murdock every few weeks to gradually build my leg muscles back up,” she says.

Up until the injury, Maggie regularly volunteered at Bas Bleu and Open Stage theaters. She’s eager to return to that work as soon as she can sufficiently strengthen her leg and walk without the aid of a cane.

“I am very lucky,” Maggie says. “In a perfect world, everyone working in health care would have training and knowledge about how to prevent, recognize and treat persistent and chronic pain—especially physical therapists. Things need to start happening differently in the treatment of pain.”
RECOMMENDATIONS

Chronic pain is a complex public health issue. The opioid epidemic is a separate and related complex problem. To adequately address the opioid epidemic we need to address the problem of chronic pain. To make a difference in chronic pain we need an intensive, multi-year, organized community-wide effort. A fishbone diagram was created during the preliminary assessment as one way to deconstruct the many facets to these problems. This diagram is included as Appendix B and will reinforce the complexity of these important public health issues and support the need for a multi-year investment to achieve system level or community level change.

At the conclusion of this one-year preliminary assessment, the Health District’s Medical Director and Assistant Director of Healthy Mind Matters recognize limitations in our knowledge and acknowledge that we have only begun to understand the issues, identify stakeholders and have only rough ideas about specific solutions that might make real and lasting changes in our community. We believe the Health District is in a unique position to organize and facilitate a process with community partners that will identify and prioritize effective solutions. A potential source of expertise for launching such an effort would be the PAINS Alliance—the Pain Action Alliance to Implement a National Strategy. There are likely grant opportunities available to support a community level improvement effort. One place to start is the Mayday Fund.

The following recommendations are based on the findings of the preliminary assessment and offered to the Board of Directors for consideration.

RECOMMENDED GOALS

1. Improve health outcomes for people with chronic pain
2. Decrease the burden created by prescription opioids

POTENTIAL FOCUS AREAS AND NEXT STEPS

1. INCREASE AVAILABILITY OF EFFECTIVE TREATMENT FOR CHRONIC PAIN
   • Complete detailed service mapping of all pain related providers
   • Improve referral network between providers (i.e. in-person meetings and HealthInfoSource.com)
   • Disseminate information about existing education opportunities for physicians and other providers
   • Create a long-term education plan to build local capacity on state-of-the-art treatment for chronic pain using local and national experts
   • Develop research opportunities to demonstrate effectiveness of treatment approaches
• Develop workgroup to study the feasibility of creating and sustaining an integrative pain clinic and/or referral based integrated care network and/or expanding capacity of existing integrated pain treatment teams
• Explore options to provide intensive care coordination for people with chronic pain

2. INCREASE AVAILABILITY OF EFFECTIVE TREATMENT FOR OPIOID USE DISORDERS
   (in all efforts, coordinate with the mental health and substance abuse partnership)
   • Advance our community’s understanding of the disease of substance use disorders (both at the broad community level and among providers)
   • Improve access to Medication Assisted Treatment (Methadone, Suboxone, Buprenorphine), in coordination with the Mental Health and Substance Abuse (MHSA) Partnership
   • Explore options and adopt proven strategies to reduce opioid-related overdose deaths

3. INCREASE PATIENT SUPPORT AND EDUCATION
   • Assess evidence for key elements in effective chronic pain support groups
   • Create local workgroup with current and former patients to lead this effort with staffing support to help during start up
   • Work with national organizations for technical assistance with finding or establishing effective support groups
   • Include support groups in HealthInfoSource.com

4. SUPPORT IMPLEMENTATION OF CDC GUIDELINES
   For all patients with moderate-severe chronic pain
   • Patient education resources
   • Access to and means to integrate nonpharmacological treatments for chronic pain
   • Multidisciplinary pain management programs

   For high-risk patients currently on long-term opioids
   • Access to pain specialist consultation?
   • Access to evidence-based addiction treatment
     o Suboxone training and waivers
     o Intensive social/behavioral health support
   • Other support?

5. ADVOCATE FOR POLICY AND PAYMENT STRUCTURE CHANGES
   • Build partnerships with providers and payers
   • Design and seek funding to study alternative treatment and payment structures that minimize disincentives for providers and maximize health outcomes for patients
   • Monitor and take action on local, state and national level policies impacting:
- Treatment of people with chronic pain
- Treatment of people with OUDs
- Access to and restrictions on medications for the treatment of chronic pain

- Join and maintain active participation in local, state and national initiatives that align with our goals and push for more attention on treatment of chronic pain beyond the topic of opioids (PAINS, Colorado Governor’s Consortium, North Colorado Health Alliance)

NEXT STEPS

Our recommendations are based on our initial assessment of the problems of pain care and challenges of opioid prescription misuse and abuse. It will be essential to reach out to stakeholders in our community to assess whether these ideas have merit and can generate support for the “Engagement” step in the “Shaping the Future” model, generating interest and commitment.
REFERENCES


Wilson, H. D., Dansie, E. J., Kim, M. S., Moskovitz, B. L., Chow, W., & Turk, D. C. (2013). Clinicians’ attitudes and beliefs about opioids survey (CAOS): instrument development and results of a

## APPENDICIES

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<td>FISHBONE DIAGRAM OF THE PROBLEMS RELATED TO CHRONIC PAIN</td>
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Appendix A

Chronic Pain Stakeholder Interviews
(Through February 2016)

Addiction Treatment Providers
- Dr. Jeremy Dubin, Healing Arts Family Medicine

Behavioral Health Providers
- Kris Bell, Therapist
- Donna Goldstrum, Integrated Care
- Andrea Holt, Integrated Care
- Kari Lingl, Integrated Care

Chiropractors
- Dr. Elise Rigney, Impact Family Health

Complementary & Alternative Treatment (CAM)
- Nicole Eckman, Nutritionist
- Robert Evans, Thrive Wellness
- Nancy Evans, Thrive Wellness
- Tanya Hawkins, Massage
- Jason McKinley, Certified Massage Therapist

Insurance Companies
- Veronica Bundt, Worker’s Compensation
- Susan Canny, Worker’s Compensation
- Carrie Evans, Worker’s Compensation
- Christine Sims, Worker’s Compensation

National Experts / Stakeholders
- Anne De Biasi, Trust for America’s Health
- Michael Felix, Felix and Associates
- Jeff Levi, Trust for America’s Health

Orthopedic Surgeons
- Dr. Robert Benz, Orthopedic and Spine Center of the Rockies

Pain Specialists
- Dr. Jan Gillespie, Northern CO Pain Mngmnt
- Dr. Matthew Pouliot, Front Range Pain Medicine
- Dr. Steve Wright, CO Pain and Rehabilitation

Physical & Occupational Therapists
- Emily Clark, Physical Therapist, Rebound
- Craig Depperschmidt, Physical Therapist, Rebound
- Terry Gebhardt, Physical Therapist
- Jason Grisson, Physical Therapist, Rebound
- Alyson Stanton, Occupational Therapist, Liberty Wellness

Policy Makers
- Rebecca Hebner, Colorado Department of Public Health & Environment
- Ali Maffey, Colorado Department of Public Health & Environment
- Lindsey Myers, Colorado Department of Public Health & Environment
- Mark Queirolo, Health Care Policy and Finance
- Judy Zerzan, Health Care Policy and Finance

Primary Care Physicians
- Dr. Heidi Clune, Kaiser Permanente
- Dr. Lesley Brooks, Northern CO Health Alliance
- Dr. Lisa Butler, Private Practice
- Dr. Jeremy Dubin, Health Arts Family Medicine
- Dr. Susie Klingner, Associates in Family Medicine
- Dr. David Marchant, Family Medicine Center
- Dr. Jim Sprowell, Associates in Family Medicine
- Dr. Breanna Thompson, Salud Family Health Centers
- Dr. Steven Thorson, Private Practice
- Dr. Cynthia Van Farowe, Associates in Family Medicine
- Dr. Janell Wozniak, Family Medicine Center

Psychiatrists
- Dr. Richard Oddy, Private Practice
- Dr. Zeljko Ivanovic, Health District Integrated Care Team

Others
- Dr. Thomas Downes, UCH Health, Medical Officer for North Region
- Dr. Margo Geppert, Larimer County Jail
- Lauren Shomaker, HDFS Professor, Colorado State University
- Dr. Jamie Teumer, UCH Health, Emergency Department
- Robert Valuck, Governor’s Consortium on Pain
- Dr. Mark Wallace, Director, Northern CO Health Alliance