Facing the Opioid Crisis in El Paso County:

A Needs Assessment Report

2018

COMMUNITY **HEALTH** PARTNERSHIP

Message from the Chief Executive Officer, Community Health Partnership

Aimee Cox

When I joined Community Health Partnership (CHP) in April 2017, I was reluctant to believe we were experiencing an opioid crisis in El Paso County. I was familiar with the reports from West Virginia where over a six-year span, drug wholesalers shipped 780 million painkilling pills to pharmacies – more than 400 pills for every person living there. And from Ohio, where there were 3,495 opioid overdose deaths in 2016. By comparison, the 120 opioid related deaths in El Paso County in 2016 hardly felt like a "crisis."

Turns out, our community has an only vague understanding of the opioid epidemic here, and this lack of understanding could be the greatest obstacle to tackling our problem before it escalates.

And to be clear, opioid misuse and abuse is a significant and growing problem in Colorado and El Paso County.

- In 2016, there were 767 opioid prescriptions written for every 1,000 residents in El Paso County – over 30,606,000 pills were dispensed.
- Opioid deaths nearly doubled in El Paso County between 2013 and 2016 from 66 to 120. Drug deaths in Colorado (928) now outnumber car accident fatalities (600).
- The number of opioid-addicted newborns in Colorado jumped 83% from 2010-2015.

Last year, The Colorado Health Foundation provided a generous grant to CHP to conduct a community readiness assessment and develop an action plan to address the opioid problem in our region. This report presents the results of that study.

Over the next several months, CHP will complete a plan for educating our community about opioid misuse and abuse and motivating local leaders to take action. We have also partnered with the Colorado Area Health Education Center and AmeriCorps to bring additional educational resources into schools and medical practices. This is in addition to our ongoing work leading the Coalition for Prevention, Addiction Education and Recovery.

Opioid misuse kills more than 90 people a day across our country and has been declared a national public health emergency. With bold leadership and a sense of urgency, we can solve this problem in El Paso County and the state of Colorado.

With special thanks to The Colorado Health Foundation for making this study possible.

Aimee Cox, CEO
Community Health Partnership

Message from the Coordinator of the Coalition for Prevention, Addiction Education and Recovery, a program of Community Health Partnership

Mary A. Steiner

During the two years I have served as the Coordinator of the Coalition for Prevention, Addiction Education and Recovery, I have come to appreciate the significant impact of prescription opioid misuse and heroin use on the community of Colorado Springs and surrounding areas.

This awareness stems from data giving proof to the tragedies of lives cut short due to overdose, hearing the heart-wrenching stories of families who have lost loved ones, conversations with grandparents raising their children's children because of an opioid use disorder that renders the parent unable to safely care for their own children, and listening to the plight of first-responders, law enforcement officers, health care and behavioral health specialists who are on the front line caring for those who suffer from an opioid use disorder.

Despite the significant work that lies ahead of us as a community, there are reasons to be hopeful. I find hope in the way the community is coming together to face a crisis that is causing tremendous pain and economic loss. This Needs Assessment Report is the springboard for the development of a strategic plan that will be followed up by action. I encourage all members of the community to become part of the solution in ending the opioid crisis that is present in everyone's "backyard."

Mary A. Steiner, BSN, RN
Community Program Manager

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Report Overview

Background

The nation's opioid crisis is a topic that receives wide coverage in the media. Given the scope of the crisis, the attention is warranted. 60% of drug overdose deaths, now the leading cause of unintentional deaths in the United States, involve an opioid. Americans are dying at a rate of 91 individuals every day from an opioid overdose - four people every 15 minutes.

In September 2015, the North Colorado Health Alliance sponsored the Colorado Opioid Epidemic Symposium: Best Practices for Opioid Management in Colorado Springs, CO. This symposium provided an opportunity for members of the community (medical, behavioral, legal, pharmacy, and case management professionals) to receive education and to establish dialogue about best practices for the management of opioids for the treatment of pain.

Following the symposium, discussions ensued regarding the need to address the opioid crisis in El Paso County, which was evidenced by high numbers of emergency department visits and hospital admissions, children experiencing abuse and neglect because their caregiver is using drugs, limited access to treatment services, and drug related crimes. Community Health Partnership (CHP) reached out to the Colorado Consortium for Prescription Drug Abuse Prevention, an organization that coordinates Colorado's response to the misuse of medications, such as opioids, stimulants, and sedatives. The Consortium's mission is to reduce prescription drug misuse and abuse in Colorado by developing policies, programs, and partnerships with the many Colorado agencies, organizations, and community coalitions addressing one of the state's major public health crises.

> **"Americans are dying at a rate of 91 individuals every day from an opioid overdose — four people every 15 minutes."**

A strong working relationship between CHP and the Consortium was established and continues to exist. This affiliation has yielded technical assistance from the Consortium and educational materials that have been distributed in the community during public awareness events and in the offices of medical professionals. It has also resulted in local involvement in several of the Consortium's work groups, e.g., Affected Friends and Families, Data and Research, Provider Education, Safe Disposal, and Public Awareness.

In March 2016, CHP convened key stakeholders in the community to address the opioid crisis in El Paso County. The initial community discussion resulted in the establishment of a community coalition comprised of four work groups: Access to Treatment, Public Awareness, Provider Education, and Public Safety. Over the course of six months, members of the work groups met to identify gaps, assess community capacity, and prioritize recommendations relevant to the opioid crisis.

On September 27, 2016, the El Paso County Opioid Coalition, a program of CHP, hosted a community forum to report on these recommendations, and to begin the development of a community-based response to the epidemic. Nearly 60 individuals were in attendance, including representation from Colorado Springs local government, the Colorado Attorney General's office, the Colorado Consortium for Prescription Drug Abuse Prevention, and key stakeholders from the community. During this meeting, it was acknowledged that a community

readiness assessment needed to be conducted prior to implementation of interventions identified by the work groups. This prompted the search for grant funding to support a community readiness assessment. In February 2017, CHP was awarded a one-year grant from The Colorado Health Foundation to conduct a Community Readiness Assessment and Action Plan Concerning Opioid Use.

The Coalition for Prevention, Addiction Education and Recovery (CPAR), formerly called the El Paso County Opioid Coalition, has played an important role in completing the community readiness assessment, a key part of the Report, and will be instrumental in supporting the call to respond to the opioid crisis.

CPAR's Vision and Mission

Members of CPAR have coalesced around CPAR's vision and mission.

Vision Statement: We are a safe, informed, and thriving community of engaged individuals making healthy choices free of substance misuse.

Mission Statement: To build a sustainable community of partnerships committed to preventing and reducing substance misuse by promoting a culture of wellness through education, prevention, treatment, and recovery support.

Additional information about CPAR can be found at CHP's website: www.ppchp.org/programs/chp-initiatives/opioid-abuse-prevention/

Audience

This Report is intended for individuals, families, community members, health care and public health professionals, educators, and government officials who want to know more about the opioid crisis in El Paso County, to learn about the community's readiness to address the opioid crisis, and the potential strategies identified by key stakeholders in the community to address the problems created by prescription opioid misuse and heroin use.

To meet those needs, the Report provides information about the scope and impact of the nonmedical use of opioids in El Paso County, reviews and synthesizes the results from the data collection methods used to complete this needs assessment, presents an action plan to move forward with development and implementation of a community-based plan, and provides information about community efforts to address the opioid crisis.

Section 1 – The Opioid Crisis

Definition of Opiates and Opioids

The term opiate refers to natural substances that come from opium. Opium is extracted from the opium poppy and contains chemical compounds. Examples of opiates are morphine and codeine.

The term opioid means "opiate-like," referring to substances derived from opium, and synthetic substitutes, used for pain relief. In this Report, opioid refers to both prescription opioids and non-prescription opioids such as heroin, a highly-addictive derivative of morphine that is commonly abused by injection that has no accepted medical use in the United States.[1]

Prescription opioids are drugs that can help manage acute and chronic pain when prescribed appropriately and when used by the patient as directed. However, when these medications are misused, there can be serious consequences, including addiction, overdose, and death.[2] Commonly abused prescription pain medications, include oxycodone, hydrocodone, codeine, morphine and others.

Heroin is an opioid drug that is not prescribed and is an illegal street drug in the U.S. Three out of four new heroin users admit to first misusing prescription opioids, then starting to use heroin because it was cheaper and easier to obtain.[3]

To decrease confusion in this Report, the term opioid will be used for both natural or synthetic (or semi-synthetic) substances that act at one of the three main opioid receptor systems in the brain.

Opioid Use

National Level

Prescription Opioid Medications: From 1999 to 2014, sales of prescription opioids in the United States nearly quadrupled. However, the amount of pain reported by Americans has not significantly changed.[4]

In 2015, the number of opioids prescribed was enough for every American to be medicated around the clock for three weeks.[5]

Heroin: From 2002 to 2013, heroin use among Americans increased nearly 50%.

State Level

Prescription Opioid Medications: Based on the data in the Colorado Prescription Drug Profile (2014 – 2016) published by the Colorado Department of Public Health and Environment [6], prescribing practices in Colorado in 2016 alone resulted in:

- 765 opioid prescriptions written per 1000 residents
- Approximately 179 million opioid pills dispensed [7]

Heroin: The increased availability of opioids is compounded by the concomitant increase in access to heroin. According to *Heroin in Colorado*, a report compiled by the Colorado Consortium for Prescription Drug Abuse Prevention, there was a 477% increase in pounds of heroin seized in Colorado from 2011 to 2015. [8]

During the same timeframe, the price per gram for heroin in Denver decreased, indicative of a greater supply in the market.

County Level

Prescription Opioid Medications: Based on data from the El Paso County Prescription Drug Profile (2014 – 2016), prescribing practices in El Paso County in 2016 resulted in: [9]

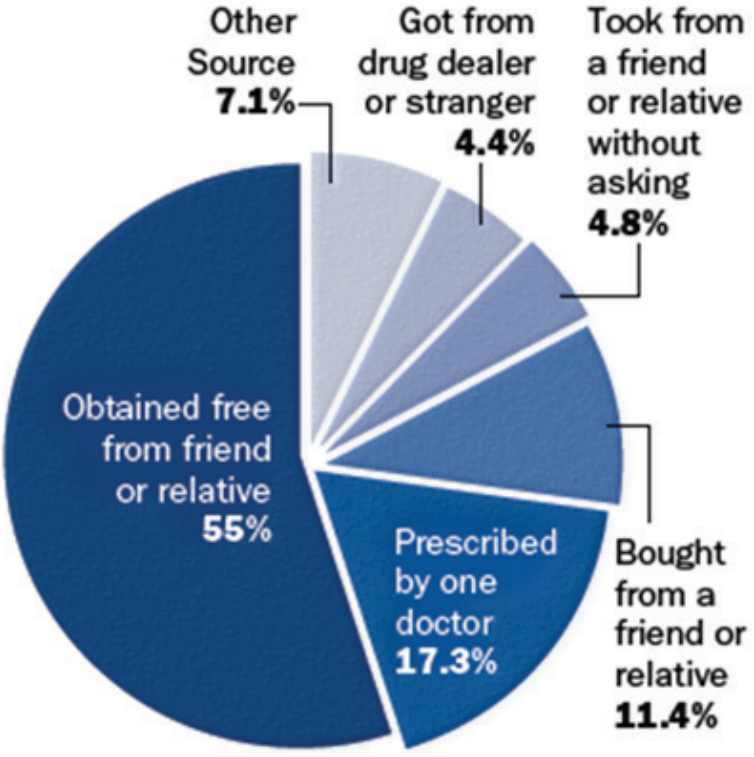
- **767 opioid prescriptions written per 1000 residents**
- **Over 30 million opioid pills dispensed [10]**

Concerns about the enormous volume of prescription opioid medications may make more sense when considering the sources of pills among nonmedical users – meaning, those taking pills inappropriately or that were prescribed for someone else. [11]

Heroin: El Paso County local law enforcement personnel participate in initiatives to identify significant drug trafficking organizations operating in the state, investigate, and seize heroin and subsequently disrupt their ability to traffic drugs.

In September 2017, nearly 11 pounds of heroin was recovered in Colorado Springs, with a street value of approximately $2.4 million. [12]

National Sources of Opioids among Nonmedical Users



CDC/MMWR Jan 13, 2012; 61(01):10-13. SAMHSA/NSDUH 2009 ngsurvey

Impact of Prescription and Non-Prescription Opioids

An estimated 2.4 million people in the United States have substance use disorders related to the nonmedical use of opioids.[13] The consequences of these disorders have been disastrous and are continuing to increase.

Medical Consequences

- *Opioid overdose-related deaths* – The number of unintentional overdose deaths has more than quadrupled since 1999.[14] Every day, more than 90 Americans die from opioid overdose.[15] The actual number is likely underestimated because death certificates for drug overdose deaths often lack information on the specific drug(s) involved.[16] In addition, some opioid related deaths may be missed when people die from other causes, but where opioid use was a mitigating factor. As a result, many drug-related deaths, including those from opioids, are not being counted. [17]
- *El Paso County* – According to the El Paso County Coroner, as reported by local newspaper, The Colorado Springs Independent, in August of 2017, opioid deaths continue to rise year-over-year.
  - In 2014, there were 93 opioid-related deaths; an increase of 50% over the prior year of 66 deaths,
  - In 2015, there were 97 deaths,
  - In 2016, the number increased to 120 deaths, [20]

> **"An estimated 2.4 million people in the United States have substance use disorders related to the nonmedical use of opioids."**

- *Neonatal Abstinence Syndrome* – The number of babies born addicted to opioids in the U.S. has increased by 300% from 1999 to 2013, that's 1.5 births per 1000 to 6.0. [21]

Colorado – From 2010 to 2015, the number of newborns addicted to opioids jumped 83%. The state's rate, according to the Colorado Department of Public Health and Environment, climbed from 2 births out of 1,000 to 3.6 births in that five-year period.[22]

- *Infections and infectious disease* – Intravenous drug users are at risk for contracting Hepatitis C virus (HCV) and human immunodeficiency virus (HIV), as well as life-threatening bacterial infections, including pneumonia and endocarditis. [23]
- *Opioid poisonings* – Between 1997 and 2012 there was a 205% increase in the number of opioid poisonings in toddlers and preschoolers ages 1 to 4 years.[24]

Economic Burden

Costs of opioid-related fatalities – The Council of Economic Advisers to the White House released a report in November 2017 about the underestimated cost of the opioid crisis. Unlike other estimates, the Council considered quantifying the costs of opioid-related overdose deaths based on economic valuations of fatality risk reduction, the "value of a statistical life." The Council concluded that fatality costs were $431.7 billion in 2015. [25]

Cost of nonfatal opioid misuse – In 2015, the cost of healthcare and substance abuse treatment increased by $29.4 billion; criminal justice costs increased by $7.8 billion, and the cost associated with reduced productivity among those who do not die of overdose increased by $20.8 billion. The average cost to the 2.4 million people with opioid disorders in 2015, resulted in a total cost of $72.3 billion for non-fatal consequences. [26]

The Council concluded the epidemic is putting a massive strain on our society in terms of loss of life, rising health care costs, expenses incurred by the criminal justice system and departments of human services, as well an individual's inability to be gainfully employed and self-sufficient.[27]

Societal impact

- *Increase in the number of children in foster care* – Children living in homes with a drug abuser are at an increased risk for abuse and neglect because the caregiver is using drugs. According to the U.S. Department of Health and Human Services, new foster cases involving parents who are using drugs accounted for 92,000 children entering the child welfare system in 2016. Experts report that opioid-use is driving the 32% spike in drug-related cases from 2012 to 2016.[28]

Vulnerability to Prescription Opioid Misuse and Heroin Use

Risk and Protective Factors: Keys to Vulnerability

According to the *Surgeon General's Report on Alcohol, Drugs, and Health,* it is not inevitable that an individual who uses an opioid will develop a misuse problem or a use disorder. Risk and protective factors play an important role in predicting an individual's vulnerability. Research has shown that these predictors are highly consistent across gender, race and ethnicity, and income. [29]

- *Risk factors* – Factors that increase the likelihood of beginning substance use, of regular and harmful use, and other behavioral health problems associated with use. Examples:
  - Early initiation of substance use
  - Genetic predictors
  - Family conflict
  - Lack of commitment to school or work
  - High availability of substances
  - Low socioeconomic status

- *Protective factors* – Factors that directly decrease the likelihood of substance use and behavioral health problems or reduce the impact of risk factors on behavioral health problems. Examples:
  - Marriage and committed relationships
  - Bonding
  - Recognition for positive behavior
  - Self-Efficacy
  - Spirituality [30]

Three Important Points about Vulnerability

1. There is no single risk factor that determines whether an individual will develop an opioid misuse or use disorder.

2. Preventive programs and policies play a key role in modifying risk and protective factors to reduce vulnerability.

3. Adolescents and young adults are at greater risk for developing a misuse problem and disorder due to the potent effects on the developing brain. Recent scientific findings indicate that brain development is not complete until approximately age 21 to 23 in women and 23 to 25 in men. [31]

Most American teenagers who misuse opioid drugs first received the drugs from a doctor who prescribed them following an acute injury, such as a sports related injury or surgery. [32] One in four teens have misused or abused prescription medications at least once. Also of concern, opioid medications are the most commonly abused drug among 12- and 13-year-olds. [33]

The potential for developing an opioid use disorder is not limited to youth. In 2014, approximately 9.5 million adults 18 or older misused opioids in the past year. Adults 50 or older were least likely to misuse opioids in the past year (2.0%), while adults 18 to 25 were most likely (8.1%). When compared with young adults who misuse opioids, the percentage of older adults is small. However, recent data indicates opioid misuse is increasing among older adults.[34]

Therefore, it is important to implement prevention efforts and early interventions across the lifespan to reduce risk factors for development of a prescription opioid misuse or heroin use disorder. It is also important for clinicians, pharmacists, and patients to take a proactive role in reducing this risk.

- *Clinicians* – Consider the use of or referral for non-pharmacological treatment for pain, e.g., home exercise plan, acupuncture, massage therapy, and physical therapy. Screen for nonmedical use of prescription drugs; take note of rapid increases in the amount of medication needed or frequency, unscheduled refill requests; check the Prescription Drug Monitoring Program (PDMP) [35] to identify use of multiple prescribers; implement a controlled substance agreement for long term opioid usage, and balance the legitimate medical needs of patients with the potential risk for misuse and related harms.

> **One in four teens have misused or abused prescription medications at least once. Also of concern, opioid medications are the most commonly abused drug among 12- and 13-year-olds.**

- *Pharmacists* – Help patients understand instructions for taking their medications; be watchful for prescription falsifications or alterations; serve as the first line of defense in recognizing problematic patterns in prescription drug use; and use the PDMP to help track opioid prescribing patterns in patients. Offer a drug take-back program for unused medications.

- *Patients* – Follow the directions as explained on the label or by the pharmacist; be aware of potential interactions with other drugs, as well as alcohol; never stop or change a dosing regimen without first discussing it with the prescribing doctor; never use another person's prescription, and never give prescription medications to others; store prescription stimulants, sedatives, and opioids safely; properly discard unused or expired medications; and inform all health-care providers about each prescription, over-the-counter medicine, and dietary or herbal supplements taken before obtaining any other medications. [36]

Substance Use in Specific Populations

Based on available research, it has been proposed that the genetic, neurobiologic, and environmental processes that are the root of substance misuse and disorders are unrelated to the age, sex, race and ethnicity, gender identity, or culture of an individual. Many of the treatments for opioid use disorder have shown to be generally effective across the demographic spectrum, including cultural and special needs subgroups, e.g., those with co-occurring mental or physical illnesses; those involved with the criminal justice system. [37]

These treatments include, individual and group counseling, inpatient and residential treatment, intensive outpatient treatment, partial hospital programs, medication assisted treatment, and recovery support services. [38]

Social determinants of health, such as socioeconomic status, physical environment, education, social support networks, and access to health care disproportionately affect the health of drug users in minority groups, as well as those experiencing homelessness and involvement with the criminal justice system. These conditions affect health indirectly by shaping individual drug-use behavior and directly by affecting the availability of resources and ability to comply with treatment recommendations. [39]

Therefore, to affect positive change, we must be respectful and responsive to the various health needs and beliefs of diverse population groups. This "cultural competence" goes beyond race and ethnicity to also consider gender, sexual orientation, disability, religion, income, education, geography and profession.

Cultural competency training has been made available to CPAR members to promote:

- Respect and mutual understanding
- Civility in problem-solving through new perspectives, ideas, and strategy
- Participation and inclusion of other cultural groups
- Trust, cooperation, and equity

Section 2 – Data Assessment Methods

Three studies were used to collect information to help drive the creation of community-based action plan. Here, these studies and their outcomes will be discussed as well as the key participants involved in each process.

1. SWOT Analysis

A **S**trengths, **W**eaknesses, **O**pportunities, **T**hreats analysis, also known as a SWOT, is an assessment tool used to identify the strengths, weaknesses, opportunities, and threats that are associated with a specific idea. [41]

Process of Conducting the SWOT

Discerning the Focus

The Coalition for Prevention, Addiction Education and Recovery (CPAR) conducted a SWOT on July 7, 2017 with community members for the purpose of identifying key strategic initiatives/opportunities the community should consider to counteract prescription opioid misuse and heroin use.

Participants were provided a list of recommendations that were identified by CPAR's initial four work groups and shared during a community forum in September 2016. It was deemed important to draw from the previous work that had been done, while at the same time encouraging participants to consider other interventions not included on the list.

Success Defined

Participants in SWOT analysis were asked which strategies would be most effective in addressing the opioid epidemic. Participants were encouraged to "dream big" and put forth ideas, regardless of perceived or actual barriers.

Some of the strategies include:

- Prescribers offering alternative pain management therapies
- Consensus regarding messaging; focus on prevention
- Rebuilding community and support systems
- Removing silos between agencies to create a continuum of care, including addressing social determinants of health
- Increasing access to evidence-based, high-quality treatment

Key Strategic Initiatives Considered as Potential Action Items

Having defined success, participants were challenged to answer the question posed by the facilitator, "Given our envisioned future ideas, what are the key strategic initiatives and/or opportunities the community should consider to counteract prescription opioid misuse and heroin use in our community?" Following are the key ideas that emerged:

- Awareness campaigns targeted to change behavior and attitudes toward prevention and sobriety
- Restrict access to prescription drugs (for nonmedical opioid use that are being diverted for nonmedical use)
- Require provider education, using evidence based strategies for prescribing pain management
- Payment and policy reform, e.g., remove reimbursement and policy barriers to substance use disorder treatment, including those, such as patient limits, that limit access to medication assisted treatment, counseling, inpatient/residential treatment, and other types of treatment, particularly fail-first protocols and frequent prior authorizations
- Build a resilient, compassionate, and partnership community based on the development of trusting relationships
- Public advocacy for parity in healthcare, i.e., access for all the healthcare needs associated with prescription opioid misuse and heroin use disorders

Identification of Strengths, Weaknesses, Opportunities, and Threats for each Identified Potential Action Item

During the final stage of the SWOT, participants conducted a SWOT analysis of each potential action item. The results are included in Appendix C of this report, which were shared with Dr. Tom Wilson and Melissa Ugianskis who conducted the Cost Benefit Analysis.

Key Participants

The SWOT analysis was designed and facilitated by The Third Sector Group (TSG), a Colorado-based consulting practice providing strategic counsel to nonprofit organizations. Kimberley Sherwood, TSG Principal, worked closely with CHP's Community Program Manager, Mary Steiner and Project Administrator, Kristina Fortenberry to plan the event.

The following sectors were represented:

- First responders
- Hospitals
- Primary Care
- Behavioral Health
- Homeless (agency service provider)
- Military
- Public Health
- Substance Use Disorder Recovery
- OMNI Institute
- Colorado Consortium for Prescription Drug Abuse Prevention

Outreach efforts were made by CHP following the SWOT analysis and representatives of Hispanic/Latino, Black American, and Foster Child Populations were interviewed, as well as members of the LGBTQ community. During the interviews, representatives reviewed the SWOT analysis and were asked to provide additional input. The responses reflected agreement with results from the SWOT analysis. However, interviewees stressed the need for interventions to be culturally sensitive and appropriate, e.g., public awareness messages to reflect the target population and conveyed (both written and orally) in Spanish. In a subsequent interview with representatives from Springs Rescue Mission, a community agency that provides shelter for the homeless, emphasis was placed on the need for access to affordable housing to be included as part of the solution.

2. Community Readiness Assessment

CHP contracted with the OMNI Institute and Just-In-Time Consulting to assist with conducting a community readiness assessment to inform future strategies. The purpose of assessing a community's readiness is to better understand the degree to which a community is willing and prepared to act on an issue and develop strategies for community change. Like individual behavior, communities are at different levels of readiness. An effective community response to addressing an issue is contingent upon a community's culture, resources, and the level of readiness. Just like with individual change, the key to achieving success is to match the interventions to the level of readiness.

Process of Conducting the Community Readiness Assessment

Conducting the Community Readiness Assessment involved: (1) Identifying and recruiting relevant participants who work and/or live in El Paso County, (2) Interviewing, and (3) Scoring the responses to identify the level of community readiness.

Key Participants

Ten El Paso county residents were identified as key participants and were interviewed by CHP's Community Program Manager, Mary Steiner and Project Administrator, Kristina Fortenberry, including one individual representing the Hispanic/Latino community who was interviewed by interpreters from GlobeLink. The interviews were scored by Julie Thompson, Regional Technical Assistant Consultant from the OMNI Institute, and Justin Lewis from Just-in-Time Consulting. Analysis of the results was completed by Ms. Thompson.

3. Cost-Benefit Analysis

This study compares the cost of an intervention to its economic benefit. Results are reported as a benefit-cost ratio, and an intervention is usually deemed cost beneficial if the benefit-cost ratio is positive. However, it is important to weigh alternate uses of the same resources when considering which intervention to implement.[42] Also of importance when determining an intervention is the community's level of readiness to support implementation of an intervention.

Process of Conducting the Cost-Benefit Analysis

CHP contracted Trajectory Healthcare, LLC (Trajectory) to explore the potential costs and benefits of interventions to address the prescription opioid and heroin use problem in the Colorado Springs Metropolitan Statistical Area (CSMSA). The list of interventions provided to Trajectory were derived from those that were identified by CPAR's initial four work groups, as well as the interventions identified during the SWOT analysis.

The process of identifying the five interventions to be analyzed involved two steps:

1. Categorizing the interventions according to the following groups:

- Primary Prevention – prevention of inappropriate use of opioids
- Secondary Prevention – screening and treatment of opioid use disorders
- Tertiary Prevention – prevention of complications attributed to opioids, including overdose deaths

2. Interviewing key stakeholders in the Colorado Springs area to solicit their input regarding interventions they deemed necessary to address the prescription opioid misuse and heroin use problem in the community.

These interviews were for research purposes and it was agreed to keep the names confidential. The areas of expertise included law enforcement, emergency response, primary care, and behavioral health.

Because the goal shifted to focus on three types of prevention, the number of interventions to be analyzed decreased from fourteen to five.

The following five interventions were the subject of the cost-benefit analysis:

1) Medication-Assisted Treatment to treat those addicted to opioids (secondary)

2) Naloxone to treat overdoses (tertiary)

3) Provider Education regarding alternatives to opioids for pain management and recommended prescribing practices (primary)

4) Needle Exchange Programs for intravenous drug users (tertiary)

5) Community Education for the entire Colorado Springs metropolitan area (primary)

The CBA was undertaken by the Cost-Benefit Analytic Team (CBAT) of Trajectory with the principal investigators, Thomas Wilson, PhD, DrPH and Melissa Ugianskis, MPH.

Section 3 – Key Findings

1. Strengths, Weaknesses, Opportunities, and Threats (SWOT) Report

The results from the SWOT analysis will facilitate development of a strategic plan that capitalizes on our community's strengths, overcoming weaknesses or challenges, harnessing opportunities and countering the threats. The opioid crisis in El Paso County is a complex issue that will require multiple types of interventions. The following interventions recommended by participants in the SWOT analysis focus on the entire spectrum of the issue from prevention to intervention, treatment, and recovery.

- Awareness campaigns targeted to change behavior and attitudes toward prevention and sobriety
- Restrict access to prescription opioid medications
- Require provider education on evidence based strategies
- Payment and policy reform
- Build resilient, compassionate community around the issue
- Public advocacy or parity in healthcare to ensure access for all the healthcare needs associated with prescription misuse and heroin use

(The SWOT findings for each intervention is located in Appendix B – SWOT Analysis Report.)

2. Community Readiness Assessment Report

The Community Readiness Assessment results, found in Appendix C, revealed that the overall readiness level of El Paso County to address prescription opioid misuse and heroin use is a 3 on the Vague Awareness readiness stage.

- Vague Awareness readiness stage is characterized by the following:
  1. A few community members have at least heard about local efforts, but know little about them
  2. Leadership and community members believe this issue may be a concern in the community, but show no immediate motivation to act
  3. Community members have only a vague knowledge about the issue
  4. There are limited resources identified that could be used for further efforts to address the issue.

It was recommended that the Coalition for Prevention, Addiction Education and Recovery (CPAR) work first to raise the levels of readiness in the dimensions that received the lowest scores: Community Climate and Community Knowledge of Efforts. Actions should focus on working to change awareness, knowledge, attitudes and norms by addressing stigma, coordinating with existing efforts that already have traction, identifying and sharing current data and information available on this issue. Also of importance is for CPAR to pay special attention to targeting the right audience, the type of message, connections and relationships, and communicating the message.

3. Cost-Benefit Analysis Report

The rank order of the five interventions, based on a one year period where the benefit was calculated as reduced emergency room visits and inpatient stays is as follows:

1. Community Education
2. Needle Exchange Program
3. Provider Education
4. Medication Assisted Treatment (MAT)
5. Increased availability of Naloxone

- The three interventions with a positive cost-benefit were:
  1. Community education, where one dollar invested could yield a return of $9.10
  2. Needle exchange program, where one dollar returns $8.91
  3. Provider education, where one dollar invested could yield a return of $1.10

Of note, the cost benefit analysis did not yield a positive return on the secondary prevention intervention of MAT. In fact, the research has shown MAT to be very expensive. Further exploration of how to best help those with an active opioid use disorder needs to be assessed in future steps, in addition to exploration of ways to reduce the cost of MAT in El Paso County.

Cost Benefit Analysis

Section 4 – Action Plan

Call to Action

The opioid crisis has devastated countless families in El Paso County – a crisis where no sector of society is immune from the devastation. Lives have been shattered without regard to income, race, ethnicity, gender, family structure, or educational attainment. The individuals who suffer from an opioid use disorder are no longer in control of their lives but instead, they suffer from a disease that pushes them to find the next "fix," regardless of the consequences.

In October 2017, President Trump declared the opioid crisis a national public health emergency. As the community considers how best to respond to the crisis, it is critical to acknowledge that the crisis is local and ultimately it is up to the community to respond now – not wait for an outside entity.

To achieve the goal of decreasing the number of people affected by opioid use and misuse, including overdose deaths, as well as the societal impact on El Paso County, there is an urgent need to develop a countywide action plan to implement solutions.

Development and implementation of this plan will require the following action steps:

- Systems and key stakeholders coming together to work collaboratively within the supportive frameworks adopted by the Coalition for Prevention, Addiction Education and Recovery.
- Development of a common agenda based on the results from the SWOT Analysis, Community Readiness Assessment Interviews, and the Cost-Benefit Analysis.
- Identification of metrics to measure success
- Identification and implementation of mutually reinforcing activities
- Continuous communication that fosters trust among community members
- Identification of funding sources to support capacity building, implementation of interventions and evaluation of community efforts

A great deal of work has been done to bring the community together to explore ways of dealing with the opioid crisis in El Paso County and throughout Colorado. This work will serve to inform us as a community about the interventions needed to address the growing opioid epidemic. Following dissemination of this report, members of CPAR will work together to develop a comprehensive strategic plan as outlined above, including a timeline for completion. The members of CPAR are committed to achieving results that will "turn the curve" of overdoses and deaths attributed to opioids, as well as the societal impact.

Confronting the Opioid Crisis: All Hands on Deck

A public health emergency requires multi-faceted response efforts. There is not a single solution that will take care of the problem. Instead, a mosaic of solutions is needed. Representatives from the following sectors are encouraged to answer the call to action:

Elected officials

- County Commissioners
- Local mayors

Government

- El Paso County Public Health
- El Paso County Coroner/medical examiner
- El Paso County Department of Human Services: County Job and Family Services
- El Paso County Department of Human Services: Child Protective Services
- VA/county Veteran's Services
- El Paso County Extension

Law Enforcement and Criminal Justice

- El Paso County Sheriff
- Police Chiefs from municipalities in El Paso County
- Municipal court judges
- Juvenile courts
- Jail administrators
- Correctional facility; halfway houses
- Parole and probation professionals

Treatment and Prevention

- Behavioral Health Providers
- Doctors, social workers and other clinicians
- Peak Vista Community Health Center
- Hospitals (UCHealth and Penrose St. Francis)
- First responders
- Pharmacists
- Local medical societies
- Parents, family members and individuals in recovery
- Community coalitions
- Safety Net Providers (agencies serving the homeless, underserved health care)

Educators and Community

- Superintendents, principals, guidance counselors
- PTO/PTA presidents
- Universities/community colleges
- Churches, synagogues, mosques
- Local NAACP
- Businesses and Chamber of Commerce
- Service clubs (Rotary, Kiwanis, etc.)
- Senior centers/Area Agencies on Aging

The impact of the opioid epidemic on human lives is tragic. However, residents of El Paso County have the opportunity to rise above this tragedy to build a community committed to preventing and reducing substance misuse by promoting a culture of wellness through:

- building a resilient and compassionate community based on the development of trusting relationships;
- providing education to prevent substance misuse;
- ensuring access to treatment; and
- supporting those in recovery.

All hands on deck are needed now to address the current crisis and to decrease the risk of the opioid epidemic becoming worse. For information on how to become involved in CPAR, visit the Community Health Partnership's (CHP) website: www.ppchp.org/programs/chp-initiatives/opioid-abuse-prevention/

Footnotes

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Appendix A PowerPoint Slide Set: Scope and Impact of Opioid Misuse

Prescription Drug Abuse in Colorado: Scope and Impact of the Problem

Robert Valuck, PhD, RPh, FNAP

Departments of Clinical Pharmacy, Epidemiology, and Family Medicine
Director, Colorado Consortium for Prescription Drug Abuse Prevention

El Paso County CHP/CPAR
Community SWOT Analysis Meeting
July 7, 2017

Objectives

- Understand the scope of the prescription drug abuse problem in the U.S. and Colorado
- Provide data specific to El Paso County
- Discuss factors contributing to the growth in prescription drug abuse
- Highlight some of the solutions being tried in Colorado, in other states, and at the federal level

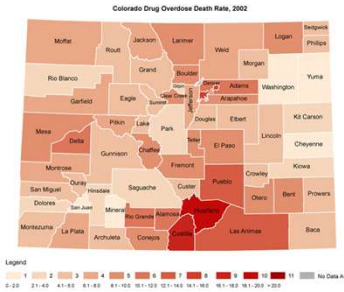
What's the big deal?

Drug Overdose Mortality

- In 2016, over 51,000 people died from drug overdoses in the United States
  - One every 10 minutes (3 more during this half hour talk)
  - Nearly 60% of those deaths involved prescription drugs
  - Painkillers (opioids) were involved in 75% of those deaths
- In Colorado, drug overdose deaths now number ~600/yr
- Since 2003, more overdose deaths have involved opioids than heroin and cocaine combined
- The problem knows no regional, gender, age, income, or other bounds: it is truly an epidemic (CDC: top four)

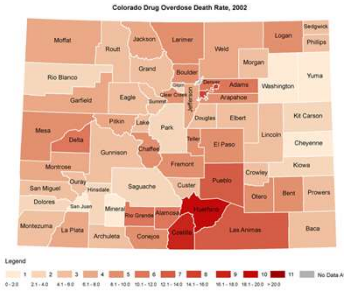
CDC/MMWR Jan 13, 2012;61(01):10-13.
Colorado Rx Abuse Task Force data
SAMSHA/NSDUH 2009 survey

Drug Overdose Mortality in Colorado



CDC/NCHS National Vital Statistics System,
CDC Wonder. Updated 2010.

Drug Overdose Mortality in Colorado



CDC/NCHS National Vital Statistics System,
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Drug Overdose Mortality in Colorado

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CDC/NCHS National Vital Statistics System, CDC Wonder. Updated 2010.

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Drug Overdose Mortality Trends (1979-2010)

DRUG OVERDOSE MORTALITY OVER THE YEARS

	Drug Overdose Mortality Rate (per 100,000)						Drug Overdose Mortality Rate Change		Motor Vehicle Deaths vs. Drug Overdose Deaths	
State	1979[a]	1990[a]	1999[b]	2005[b]	2010[b]	2010 Rank	1979 to 2010	1999 to 2010	MV Death Rate 2010[c]	DO > MV in 2010
Alabama***	1.6	2.3	3.9	6.3	11.8	26	638%	203%	19.4	No
Alaska	N/A	3.7	7.5	11.4	11.6	29	N/A	55%	10.4	Yes
Arizona	4.1	4.8	10.6	14.1	17.5	6	327%	65%	12.3	Yes
Arkansas**	1.7	1.1	4.4	10.1	12.5	25	635%	184%	20.7	No
California	6.7	5.9	8.1	9.0	10.6	37	58%	31%	7.7	Yes
Colorado	4.1	4.0	8.0	12.7	12.7	24	210%	59%	9.5	Yes
Connecticut	1.1	1.7	9.0	8.5	10.1	39	818%	12%	9.1	Yes
Delaware**	N/A	3.6	6.4	7.5	16.6	10	N/A	159%	12.5	Yes
D.C.	5.0	N/A	8.3	13.7	12.9	21	158%	55%	6.0	Yes
Florida**	3.7	3.4	6.4	13.5	16.4	11	343%	156%	13	Yes
Georgia***	2.6	2.3	3.5	8.2	10.7	36	312%	206%	13.9	No
Hawaii	3.8	2.0	6.5	9.4	10.9	34	187%	68%	9.1	Yes
Idaho**	2.1	2.6	5.3	8.1	11.8	26	462%	123%	13.8	No

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CDC/NCHS National Vital Statistics System, CDC Wonder. Updated 2010.

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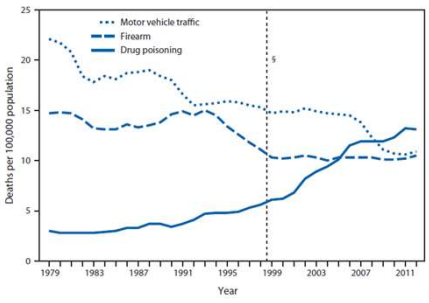
Drug Overdose Death Rates in the US



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CDC WONDER data file, Nov 21, 2014; 63(46);1095.

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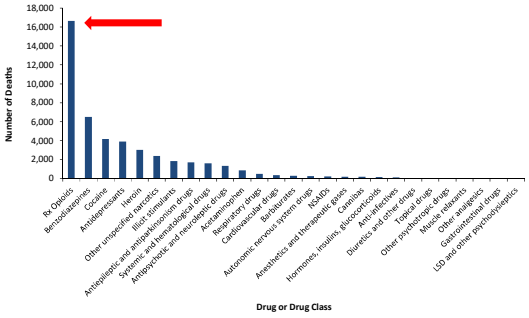
Prescription Drugs: primary driver of Overdose Deaths in United States



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Jones et al. JAMA 2013; and CDC/NCHS 2010.

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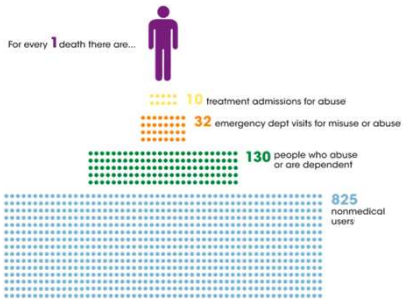
Deaths are the Tip of the Iceberg

For every opioid overdose death in 2013 there were…



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SAMHSA NSDUH, DAWN, TEDS data sets
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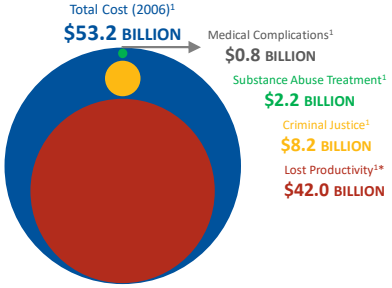
Cost of Prescription Drug Abuse on the US Economy



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*Productivity loss included mortality, unemployment/sub-employment, and incarceration.
1. Hansen RN et al. *Clin J Pain* 2010;27:194-202.
2. Florence CS et al. *Med Care* 2016;54:901-906.

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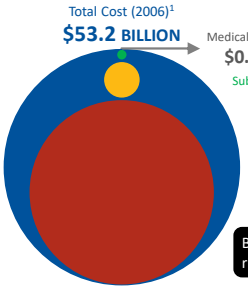
Cost of Prescription Drug Abuse on the US Economy



Total Cost (2006)[1]
$53.2 BILLION

Medical Complications[1]
$0.8 BILLION

Substance Abuse Treatment[1]
$2.2 BILLION

Criminal Justice[1]
$8.2 BILLION

Lost Productivity[1]*
$42.0 BILLION

By 2013, the cost on the US economy had risen to **$78.5 billion**[2] (>50% increase)

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*Productivity loss included mortality, unemployment/sub-employment, and incarceration.
1. Hansen RN et al. *Clin J Pain* 2010;27:194-202.
2. Florence CS et al. *Med Care* 2016;54:901-906.

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Substance Abuse Treatment Gap: 90%

SUBSTANCE ABUSE TREATMENT GAP IN 2011

Number of People Needing Treatment for Substance Abuse Problems

Number of People Who Received Treatment at a Substance Abuse Facility

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SAMHSA/NSDUH 2011 survey

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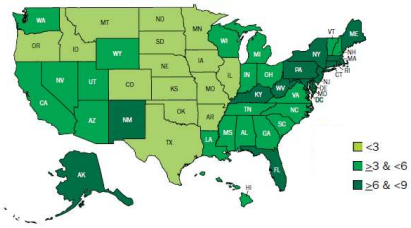
Physicians Authorized to Treat Addiction (Buprenorphine/Methadone)

Rate of Providers (per 100,000 people)



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SAMHSA. National Expenditures for MH Services and Substance Abuse Treatment, 1986-2009. Pub SMA-13-4740.

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How did we get here?

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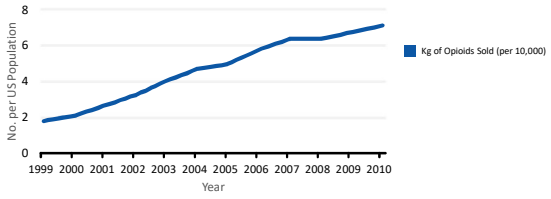
The Ubiquity and Impact of Opioid Prescription Drugs on the US Population



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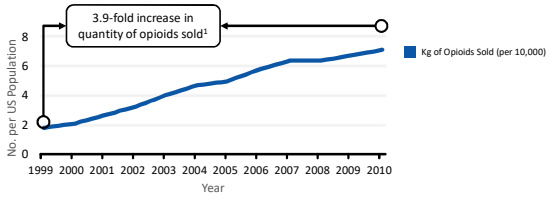

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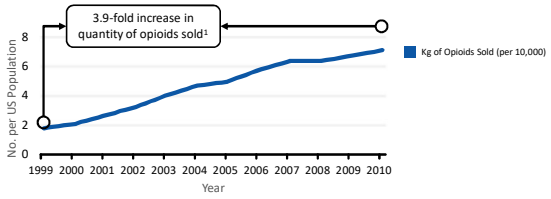
The Ubiquity and Impact of Opioid Prescription Drugs on the US Population



259 million opioid prescriptions were dispensed at retail in 2013[2]
…enough for every American adult to have a bottle of pills…every year!

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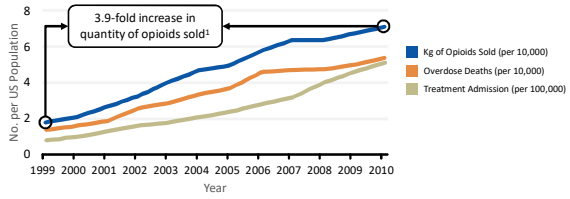

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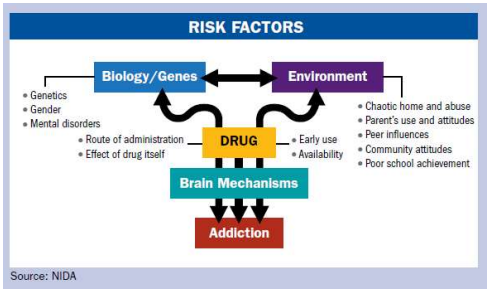
2. CDC Vital Signs. http://www.cdc.gov.

Risk Factors for Prescription Drug Abuse



Drugs, Brains, and Behavior: The Science of Addiction. *National Institute on Drug Abuse.* http://www.drugabuse.gov/publications/science-addiction/drug-abuseaddiction (accessed December 2013)

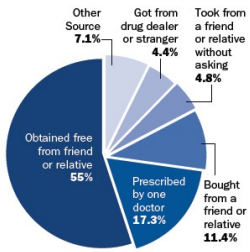
The "Perfect Storm" of Opioids

- Over past 25 years: rapid increase in amount of opioids being prescribed and dispensed
- Causes of the increase?
  - Increased recognition of pain, under-treatment of pain
  - Pain as the "fifth vital sign", JCAHO quality measure, etc.
  - Drug company advertising and promotion
  - Practitioners are not well trained in pain management, opioid pharmacology, and addiction
  - Drugs are very powerful, highly addictive if not used properly
  - Scamming, doctor/pharmacy shopping, black market for opioids

CDC/MMWR Jan 13, 2012;61(01):10-13.
SAMHSA/NSDUH 2009 survey

How does this problem start?

Sources of Opioids among Nonmedical Users



CDC/MMWR Jan 13, 2012;61(01):10-13.
SAMHSA/NSDUH 2009 survey

Sales of Opioid Pain Relievers and Nonmedical Opioid Use (2010-11)

RATES OF NON-MEDICAL USE OF PRESCRIPTION OPOIDS, AND SALES

State	Sales of Opioid Pain Relievers, 2010.[1] Source: Drug Enforcement Administration, 2011	Nonmedical % Use of Prescription Pain Relievers in the Past Year by Persons Aged 12 or Older, 2010-2011. Source: National Survey on Drug Use and Health
Alabama	9.7	4.4
Alaska	8.2	5.3
Arizona	8.4	5.7
Arkansas	8.7	5.6
California	6.2	4.7
Colorado	6.3	6.0
Connecticut	6.7	4.4
Delaware	10.2	5.6
D.C.	3.9	4.7
Florida	12.6	4.1
Georgia	6.5	3.8
Hawaii	5.9	3.9
Idaho	7.5	5.7
Wyoming	6.0	4.7
National Rate	**7.1**	**4.6**

#2 in U.S.
(Oregon = 6.4)

[1] Kilograms of opiod pain relievers sold per 10,000 population, measured in morphine equivalents.

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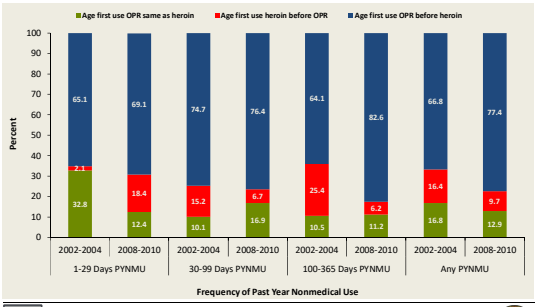
Majority of Heroin users in past year reported Nonmedical use of Opioids before heroin initiation (US, 2002-2004 and 2008-2010)



Jones, C.M. Drug Alcohol Depend 2013.

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What does the problem look like in El Paso County?

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Controlled Substance Prescriptions Dispensed: Characteristics

Characteristics	2014	2015	2016
Number of Prescriptions Dispensed	844,079	918,592	916,492
Number of Unique Patients	168,033	176,385	175,567
Number of Unique Prescribers	9,448	11,280	11,402
Number of Unique Pharmacies	770	821	839
Estimated Median Distance Traveled by the Patient to the Prescriber (miles)	5.8	6.3	6.3
Estimated Median Distance Traveled by the Patient to the Pharmacy (miles)	2.7	2.8	2.8

Schedule 2-4 Controlled Substances
In 2014 NPI was used to identify unique prescribers and pharmacies as DEA numbers were not available until 2015
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment, 2016

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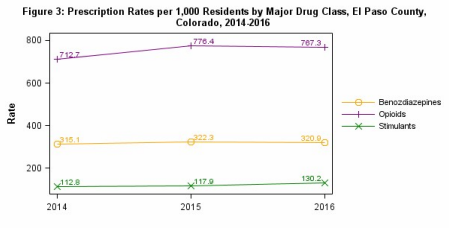
Controlled Substance Prescriptions Dispensed: Rates per 1,000 Residents

Figure 3: Prescription Rates per 1,000 Residents by Major Drug Class, El Paso County, Colorado, 2014-2016



Schedule 2-4 Controlled Substances
*2016 population estimates were not available, therefore 2015 estimates were used
Source: Vital Statistics Program, Colorado Department of Public Health and Environment and the Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment, 2016

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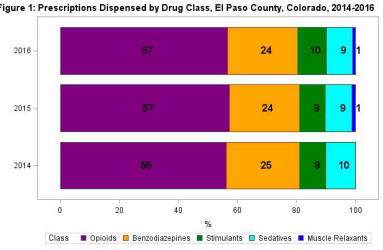
Controlled Substance Prescriptions Dispensed: By Class

Figure 1: Prescriptions Dispensed by Drug Class, El Paso County, Colorado, 2014-2016



Schedule 2-4 Controlled Substances
Muscle Relaxants were not included as a class in 2014
Data Source: Colorado Prescription Drug Monitoring Program, Colorado Department of Regulatory Agencies
Analysis by: Colorado Department of Public Health and Environment, 2016

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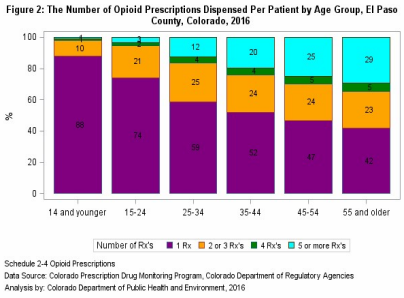
Controlled Substance Prescriptions Dispensed: By Age Group



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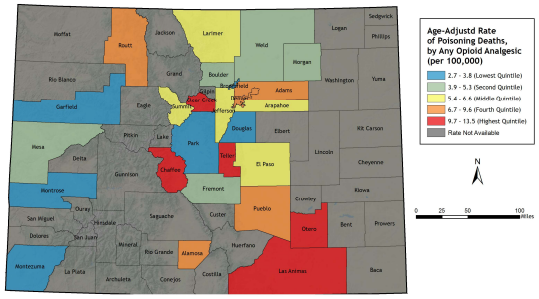
Opioid Overdose Death Rates: 2013-2015



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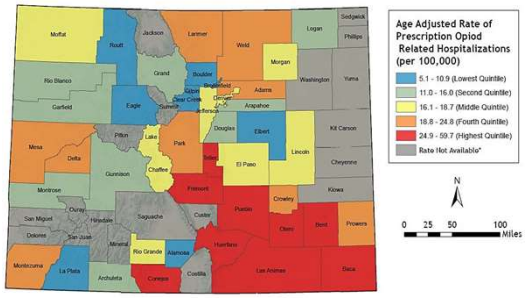
Opioid Overdose Hospitalizations: 2013-2015



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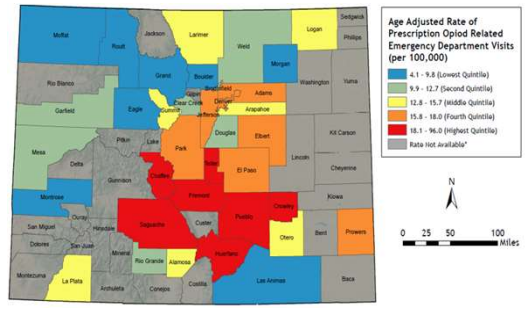
Opioid Overdose ED Visits: 2013-2015



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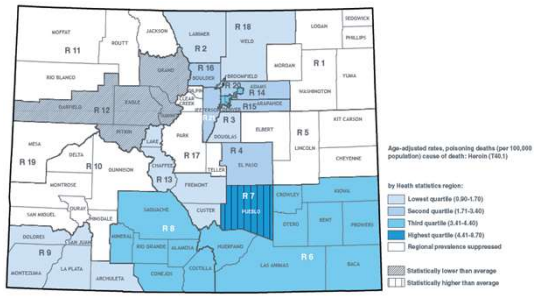
Heroin Overdose Death Rates: 2013-2015



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What is being done?

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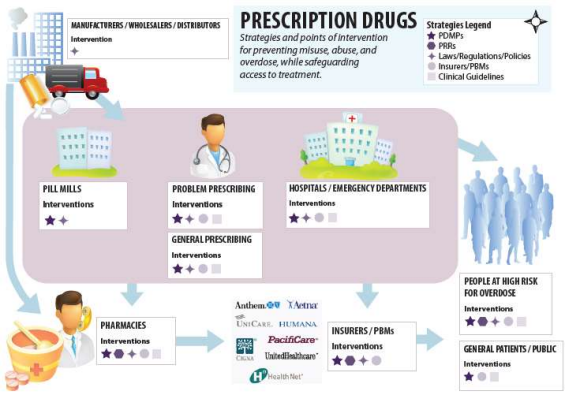

New Federal Initiatives

- **CDC:** calls Prescription Drug Abuse one of the top four epidemics facing the U.S.; issued new guideline for prescribing opioids for chronic pain
- **CMS:** recently "adopted" CDC guidelines for Medicare patients
- **FDA:** issued new Black Box Warnings for opioids (risk of OIRD and death); guidance for abuse deterrent formulations; Advisory Panel just recommended that Opana ER be removed from the market
- **DEA:** tougher scheduling (Tramadol; Hydrocodone combination products); National Drug Take Back days (just had one April 29th); new rules allowing pharmacies and law enforcement to register as "reverse distributors"

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New Federal Funding

- **CARA (Comprehensive Addiction and Recovery Act):** parity for substance abuse disorder treatment; funding for expansion of Medication Assisted Treatment (MAT)
  - Colorado received funds, using them to create "hub and spoke" model to increase provider capacity for offering MAT (one via Denver Health)
- **21st Century Cures Act:** additional funding for treatment, naloxone expansion, education, prevention
  - Colorado receiving formula funding of $7.8M/year for next 2 years
  - Primary use (80%): MAT treatment expansion
  - Other programs (20%): naloxone access, better referral systems, etc.

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Colorado Plan to Reduce Prescription Drug Abuse

September 2013
Kelly Perez
Policy Advisor
Office of Governor John Hickenlooper

University of Colorado | Office of the Governor

COLORADO CONSORTIUM for Prescription Drug Abuse Prevention

- Created by Governor John Hickenlooper in the fall of 2013 to establish a coordinated, statewide response to this major public health problem
- The Consortium serves as a backbone, which links the many state agencies, organizations, health professions, associations, task forces, and programs that are currently addressing the prescription drug abuse problem
- Seeded with $1M in funding from former AG John Suthers

Colorado Consortium for Prescription Drug Abuse Prevention. About the consortium. http://www.conconsortium.org.

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Colorado Consortium for Prescription Drug Abuse Prevention

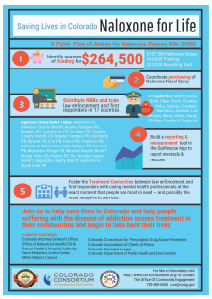
A coordinated, statewide, interuniversity/interagency network

Resources for Public Awareness, Patient Education and Medication Disposal

TakeMedsSeriously.org

TakeMedsBack.org

Colorado AG: Naloxone for Life program



- Launched September 2016
- AG Coffman purchased Narcan Nasal Spray for first responders in 17 counties (mostly rural)
- On site training (9 sites), online version available after
- OpiRescue app/system

DORA "Quad Regulator Policy"

- Issued in 2014 (revision to longstanding policy from 1980's)
- Medical, Pharmacy, Dentistry, Nursing Boards agreed to the following guidelines regarding opioid prescriptions in Colorado. Providers prescribing and/or dispensing opioids should:
  - Follow the same guidelines
  - Use the Colorado Prescription Drug Monitoring Program (PDMP)
  - Be informed about evidence-based practices for opioid use in healthcare and risk mitigation
  - Educate patients on appropriate use, storage and disposal of opioids, risks, and the potential for diversion
  - Collaborate within the integrated healthcare team to decrease overprescribing, misuse and abuse of opioids.

Opioid prescribers and dispensers must conform to the regulations set forth by the respective licensing board and other laws.

Regional Coalitions and Initiatives

- San Luis Valley AHEC
- North Colorado Health Alliance
- Boulder Opioid Advisory Group
- Pueblo Heroin Task Force
- Yampa Valley Rx Task Force
- Tri-County Opioid Overdose Partnership
- El Paso County Opioid Coalition (CPAR)
- Mountain Areas Drug Awareness Partnership
- SW Colorado AHEC (Durango/Four Corners)

Questions?

robert.Valuck@ucdenver.edu
Tel (303) 724-2890

Appendix B
Strengths, Weaknesses, Opportunities, and Threat Analysis Report

Community Health Partnership (CHP)

Community SWOT Analysis Report

Topic: Prescription Drug Misuse/Heroin Epidemic

July 7, 2017

Hosted by the YMCA

FOR YOUTH DEVELOPMENT®
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Funded by a grant through

The Colorado Health Foundation™

THIRD SECTOR GROUP, INC.

COMMUNITY HEALTH PARTNERSHIP

Table of Contents

I. Overview

Community Health Partnership (CHP), a coalition of more than 25 health care provider organizations in southern Colorado was awarded a 1 year grant through The Colorado Health Foundation (TCHF) to engage in a multi-faceted approach to combating the prescription drug misuse and heroin epidemic in Colorado's 4th Judicial District. Grant-funded activities include hosting a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, cost benefit analysis, community needs assessment, and community readiness assessment, which will inform the development of a community-wide action plan.

Sponsoring organization: The Colorado Health Foundation

The Colorado Health Foundation (TCHF) is a nonprofit organization that engages the community through grantmaking, public policy and advocacy, private sector engagement, strategic communications, evaluation for learning and assessment and by operating primary care residency training programs. Partners include nonprofits, health care leaders, policy makers, educators and the private sector. TCHF funds impactful work that helps Coloradans live their healthiest lives by advancing opportunities to pursue good health and achieve health equity.

Kimberley Sherwood, TSG Consultant sets the stage

Design and facilitation: Third Sector Group

The SWOT analysis was designed and facilitated by Third Sector Group (TSG). TSG is a Colorado-based consulting practice providing strategic counsel to nonprofit organizations.

TSG's principal directly facilitates organizations' staffs and boards as they navigate the complexities of collaborative work, strategic alliances, joint ventures and mergers – working alongside clients through direct service, rather than simply providing advice.

TSG worked closely with CHP's Community Program's Manager, Mary Steiner and Project Administrator, Kristina Fortenberry to ensure that the SWOT Analysis was a success. Key community stakeholders were identified and invited to participate in the day-long event. Stakeholders were chosen based on their level of subject matter expertise, and their involvement with target populations within the community (e.g. the homeless, active duty military, youth and young adults, severely mental ill, etc..) A total of nineteen people participated at the event and even more lent their unique insights to the process after the fact.

II. Background

Deaths from drug overdoses in Colorado are reaching a crisis level. Not only does the state's death rate from overdoses top the national average, but those numbers have increased across the state, according to the Colorado Health Institute. Within El Paso County the cause of deaths due to opioid overdose has steadily increased during 2010-2015. This increase in opioid overdoses correlates to the increase in heroin-caused deaths during 2010-2015.

We now know that overdoses from prescription opioid pain relievers are a driving factor in the 15-year increase in national opioid overdose deaths. Since 1999, the amount of prescription opioids sold in the U.S. nearly quadrupled, yet there has not been an overall change in the amount of pain that Americans report. Deaths from prescription opioids—drugs like oxycodone, hydrocodone, and methadone—have also quadrupled since 1999.

Taking Action

In response to the growing epidemic, Community Health Partnership convened a group of key community stakeholders to discuss the issue. In March 2016, as a result of the convening, the Coalition for Prevention, Addiction Education and Prevention (CPAR) was formed, and CHP committed to serve as the backbone organization. As the backbone organization CHP has been instrumental in supporting the development of the coalition's organizational structure. CHP's commitment to collaboration is showcased in CPAR's structure, as is their reputation for building durable and sustainable community partnerships. CPAR is structured to be responsive to each facet of the complex issue of substance misuse and abuse. Each level of the coalition is tailored specifically to address key areas to effect positive change in our community and for the purpose of mobilizing residents to develop and carry out a community wide plan to prevent and reduce sub-

Colorado Drug Overdose Rate 2002-2014

CDC/NCHS National Vital Statistics System, CDC Wonder.

CPAR's 6 work groups are as follows:

- **Access to Treatment**
- **Affected Friends and Families**
- **Data**
- **Provider Education**
- **Public Awareness**
- **Public Safety**

The coalition is comprised of representatives from the following sectors in the community:

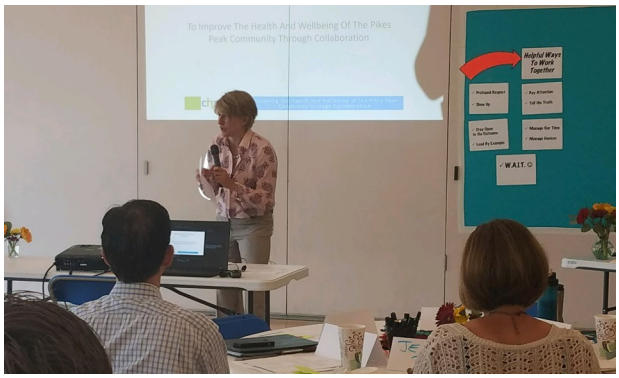
- **elected officials**
- **public health**
- **emergency departments**
- **hospitals**
- **ambulatory care practices**
- **law enforcement**
- **behavioral health treatment providers**
- **faith-based**
- **emerging leaders**
- **recovery advocates**
- **harm reduction advocates**
- **military**
- **dentists**
- **veterinarians**
- **judicial court system**
- **first responders**

The results of the TCHF grant-funded activities, such as the SWOT analysis will be shared with CPAR to inform the work of each work group.

III. SWOT—Discerning the Focus

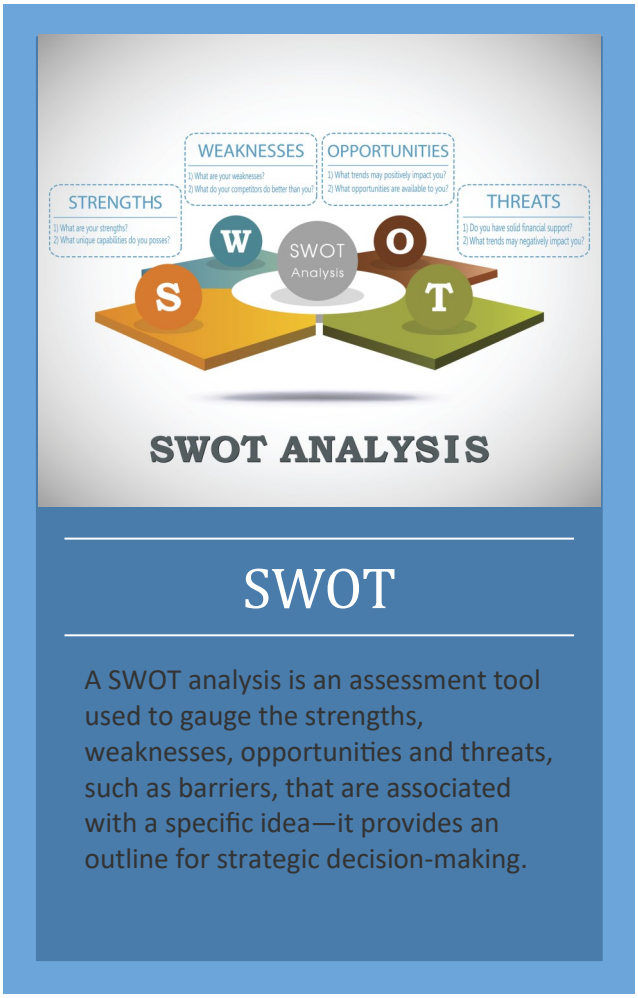
Third Sector Group designed the SWOT analysis event around the concepts of collaboration, truth, innovation and a deep respect for the community.

The morning focused on setting context with stage-setting remarks from CHP's CEO, Aimee Cox, providing perspective on CHP's role as a backbone organization supporting a collaborative framework that brings organizations together to work on common goals. Specifically, CHP seeks to drive innovation and partnership in solving challenging community-wide healthcare challenges. Stressing urgency, Aimee suggested that while the community may not be "seeing" the "epidemic" on its streets and in its neighborhoods, she suggested the crisis is on its way. Taking this proactive step to get in front of the issue is paramount.



CHP's CEO Aimee Cox

To sharpen the point, CHP invited Robert Valuck, PhD, RPh, and FNAP who leads the Colorado Consortium for Prescription Drug Abuse Prevention to present. Dr. Valuck offered a deep and illuminating perspective on just how robust this issue is in Colorado, His unique vantage point helped participants connect pharmacology with behavior from various actors including medical providers, pharmaceutical companies, and patients. His metaphor that misuse and abuse is like an iceberg, strongly advocating that the issue is deeper and more significant than most people realize, rang true with the audience.



Following Dr. Valuck, the group heard a personal and powerful testimony from Jason DeaBueno, Vice President, AspenPointe Health Services, who shared his family's experience with the realities of opioid prescriptions, which surpass all other drug types in terms of frequency of prescription.

Mary Steiner then led the group through a thoughtful review of the Coalition's work to date, including a summary of recommendations and suggestions that have been elevated through other stakeholder convenings. She then presented the current evidence-based practices recommended by Johns Hopkins University, the National Institute of Health, the National Governors Association Center for Best Practices, and the U.S. Department of Health and Human Services—Surgeon General's Report on Alcohol, Drugs and Health.

Fueled with empathy, new insights, best practices, and much deeper understanding of the pharmacological background, the group then collaborated to consider what success would like if the community were able to make significant positive progress in addressing the issue. The group was encouraged to “dream big” and to put forth ideas regardless of perceived or actual barriers (i.e. funding.) People worked in groups of 4 -5 to develop a list of success factors:

Group One	Group Two	Group Three	Group Four
Prescribers prescribing alternative pain management therapies	Safe2Tell; e.g. safe, confidential reporting of illegal activities like pill parties	Access to evidence-based quality treatment	Increase community education, engagement, and commitment including a financial component
Consensus of Messaging:	Make a "Doppler radar" accessible for all to see on the drug problem. What's trending? Going up or down?	Harm reduction	Removal of access barriers
*Understanding of root causes that lead to disease of despair		Screening	Town Hall Meetings
*Active participation in recovery, meaning personal accountability		Continuum of Care for treatment through recovery fully resourced	Community-wide festival /event
Focus on prevention - get upstream	Limit what surgeons can prescribe	Drop Box availability	"Food for thought" organization
Opportunity for developing relationships	Community outreach - sharing stories/education in schools, YMCAs, Boys and Girls programs; e.g., like they did with AIDS	Provider education (BHHL/MD/PDMP/MAT/Pain Mgt)	Increase training of and "use of" peer report specialists
Rebuilding community; support systems	Community health care to help people detox at home and accessible/affordable government oversight for treatment programs	Awareness (stigma/problem/hope) broad community education; passive education; live events	
Relationships between providers and patients	Evidenced based protocols	*Interagency Collaboration	
No Silos between agencies and cultures to create a continuum of care, including addressing social determinants	Drop boxes at both stand along pharmacies and hospital pharmacies	*Prevention, intervention, team and recovery	
Monitoring of unintended consequences	Loan forgiveness for social workers and behavioral councilors	*Healthcare	
		*Faith-based communities	

Lt. Juliet Stone, CSFD, Darlyn Miller, CHP, and Cathy Plush, ED of Springs Recovery Connection discuss success factors

With success defined, the group was challenged to consider how it would answer a provocative question: "Given our envisioned future ideas, what are the key strategic initiatives/opportunities the community should consider to counteract prescription drug misuse and heroin addiction?" New configurations of small groups worked to articulate, prioritize, and rank ideas that all could agree were most potent, important, viable, helpful, etc. Seven key ideas emerged that the group then analyzed using a SWOT process.

Idea One	Idea Two	Idea Three	Idea Four	Idea Five	Idea Six	Idea Seven
Awareness Campaigns targeted to change behavior and attitudes toward prevention and sobriety • Make information more accessible • Education focused on targeted communities like the workforce, families, peer recovery coaches • Data visualization of the problem • Develop a robust, ongoing, durable understanding of the complexities	**Restrict access to Prescription drugs** • Expand drop-box access • Limit access to prescription drugs	**Required provider education on evidence based strategies** • Provider Education re: Evidence Based Practices for prescribing and pain management	**Payment and policy reform**	**Build resilient compassionate partnering community around the issue "lean in relationships"**	**Public advocacy for parity in healthcare - personal stories. By parity, we mean access for all the healthcare needs associated with Rx misuse and heroin addiction**	**Create access to comprehensive evidence-based treatments** • Expand treatment through incentives and Medical Detox • Increase the availability of treatment options

Verbatim capture of Consensus of Priority Ideas

For this final stage, small groups were yet again reconstituted. This time, groups of 4 addressed each of the seven big ideas. Their instructions included clear definitions for SWOT area, as follows:

Strengths (Internal; Positive)

What unique strengths does our community have to address this issue?

What do we do well?

Weaknesses (Internal/Negative)

What do others see as weaknesses of our community?

What do we avoid?

What do we need to face up to?

Opportunities (External/Positive)

What trends can we take advantage of?

What's going on at the state/federal level that we can capitalize on?

Threats (External/Negative)

What obstacles are coming up?

What trends or threats could harm our community's capacity to address this issue?

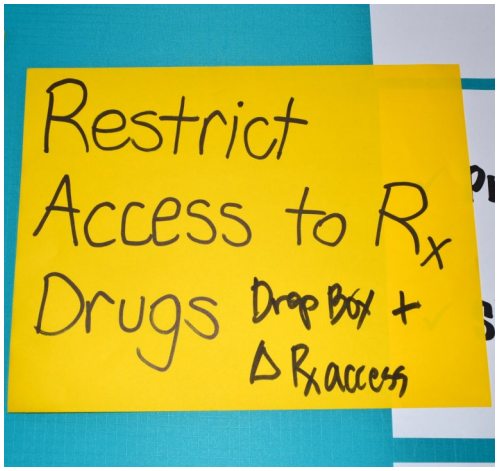
What threats do our weaknesses expose us to?

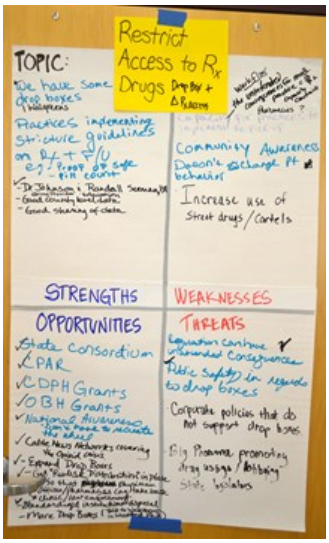
IV. Idea 1

Idea One Awareness Campaigns targeted to change behavior and attitudes toward prevention and sobriety			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
Skilled providers - 1st line providers	Transient workforce population = lose connectedness	Faith based communities	Cartel presence
Strong recovery community	We're schizophrenic in our messaging + behavior	National awareness of epidemic	Stigma
StoryCorps - local podcast that highlights stories of self based in truth	Stigma	SAMHSA resources	Funding for campaigns
Library is open to disseminating information	THC Use/ decreased perceived risk	Rx Consortium materials/other national/local campaign materials to use/borrow	Compassion fatigue
Both secular and faith-based nonprofits	Lack of awareness of the issue		Competing priorities for funding
Springs Recovery Connection	Disconnect between providers/resources related to navigation		
	Volunteer commitment - our ability to sustain attention..."how serious are we?"		
	Compassion fatigue among providers (acute care) and community re: panhandlers - drug money?		
	Grant funding is time limited - no sustainability of programs		
	Strong recovery community, but need to be vocal		

V. Idea 2

Idea Two Restrict access to Rx drugs			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
We have some drop boxes (Walgreens)	Capacity for practices to implement Rx pick-up: workflow and the unintended consequences for medical practices that could cause increased costs and put capacity constraints on staff	Get "reverse distribution" in place so physicians offices and pharmacies can take back unused Rx	Regulation can change
Practices implementing stricter guidelines on Rx and F/U, e.g. proof of safe pill count	Community awareness doesn't change patient behavior	CPAR	Unintended consequences
Dr. Johnson and Randall Seeman, PA doing provider education	Increased use of street drugs and cartels	CDPH grants	Public safety in regard to drop boxes
Good county level data		OBH grants	Corporate policies that don't support drop boxes
Good sharing of data		National awareness: Don't have to recreate the wheel	Big pharma promoting drug usage/lobbying state legislators
		Cable news networks covering the opioid crisis	
		Expand drop boxes	
		State Consortium	
		Standardized institutional disposal	
		More drop boxes	





VI. Ideas 3&4

Idea Three Required provider education on evidence based strategies			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
CPAR- Provider Ed work groups	Stand alone practice may not comply	Different requirements	No consensus on what the requirements are or should be
CHP working on practice transformation in the area SBIRT	Lack of incentives to act on education	Federal + state for Rx practices	Conflicting systemic processes
We have expert advocates in our community	Education may not change behavior	Managed Care Co. are implementing value-based care	practice defensive Medicare rather than good medicine
BH Integration	Lack of supports	SIM	Lack of time
Consortium has provider education programs (state)	Generational learning	BH Integration	
	Fractured accountability		
	Resistance of providers willing to be trained to administer MAT		
	Lack of resources for providers to use to act on education		

Idea Four Payment and policy reform			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
Local connection to state policy-makers	Low PDMP (^20%)	Leverage COPIC or insurer/payer	Lack of regulation of sober living homes
Military presence/Use of evidenced-based practices	MCR Fezer MCD Providers	Existing State Policies (on Books) PDMP (mandatory registration); Data sharing; Quad regulator policy	Must fail lower level treatments before you can get into an optimal treatment
UCCS med school presence	Low Guideline Awareness/Uptake	Tap into some of the state and federal policy for prescribing + dispensing opioids a la CDC	Shrinking reimbursement
EPIC-PDMP hyperlink		DORA is an influencer	Affordable Care Act
			Liability issues

VII.Ideas 5&6

Idea Five Build resilient compassionate partnering community around the issue "lean in relationships"			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
Partnering around homelessness & expansion of SRM	Stigma around substance abuse and BH	A lot of caring, compassionate organizations that can communicate and collaborate better	Strong perception of judgment throughout the community toward substance abuse disorders
Financial resources that could be tapped into	Polarization	Including military as a partner more intentionally	Transient military population
healthy reputation; natural settings; restorative; livable	Dehumanize; lack of empathy	Education K-12, faith-based work; resilience; coping; participation - issue specific	Lack of respect for each other's world view
Social media	Sprawl, segregation by geography, SES	Including faith-based and other sectors as partners (higher education agencies)	Social media
Caring people	Not enough sober activities for young people	Social media	Stigma
	Private sector needs to weigh in		

Idea Six Public advocacy for parity in healthcare - personal stories. By parity, we mean access for all the healthcare needs associated with Rx misuse and heroin addiction			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
CPAR	People in recovery not sharing their stories	National acceptance of substance abuse as a disease	On-going stigma
Refining Palliative Techniques	Fear	Advocacy at the state level	Political non-consensus
MAT	Still walking around the "elephant in the room"	Behavioral health Advisory Council	
	Stop sugar coating and give the reality	Colorado Health Institute	

VIII.Idea 7

Idea Seven Create access to comprehensive evidence-based treatments			
STRENGTHS	**WEAKNESSES**	**OPPORTUNITIES**	**THREATS**
Growing understanding of essential need for collaboration	Shortage of BH providers	NO - SB 17-074 - expands access suboxone	Federal changes in Obama Care
Natural beauty of the area fuels quality of life	Stigma	Increased notoriety of issue	Federal budget cuts in programs
Rich in alternative activities	Lack of sustainable funding	Tie into Consortium	Physician shortage
Table is set for conversation	Lack long-term options	Learn from other counties, agencies, apply best practices locally	Inadequate scrutiny of txt (research, testing, data)
Medical education in community (UC Health, Residency at PVCHC)	Antidotal treatment	Collaborations	Possible funding cuts for substance use prevention
	Resistance to change	Grants	
	Lack of EBP treatment for all age groups	Student loan repayment programs	
		Scholarships for additional treatment professionals	
		Medicaid-funded residential tx	
		Medical detox	

Stakeholders collaborate to analyze the issue and cultivate ideas

IX. Stakeholder Participation

Charlene Coffin

Leo Ybarra

Kristina Fortenberry

Velda Baker

Roberta Renfro

Suzanne T. Phillips

Cathy Plush

Tami King-Latka

Aimee Cox

Darlyn Miller

Juliet Stone

Mary Steiner

Justin Lewis

Kris Green

Terri Reishus

Taryn Bailey

Jessica Eaddy

Dr. Robin Johnson

Julie Thompson

Jason DeaBueno

Terri Carver

Robert Valuck

Presenters

Aimee Cox, CEO

Community Health Partnership

Robert Valuck

Colorado Consortium for Drug Abuse Prevention

Mary Steiner, Community Programs Manager

Community Health Partnership

Jason DeaBueno, VP Health Services

AspenPointe

X. Closing

The final convening invited stakeholders to share reflections of the day's significance. There were many comments about feeling hopeful or optimistic, general agreement that the day was very productive, and enthusiasm for the next phase of this project. The day concluded with a Maya Angelou poem read by Dr. Robin Johnson:

Father, Mother, God,
Thank you for your presence
during the hard and mean days.
For then we have you to lean upon.
Thank you for your presence
during the bright and sunny days,
for then we can share that which we have
with those who have less.
And thank you for your presence
during the Holy Days, for then we are able
to celebrate you and our families
and our friends.
For those who have no voice,
we ask you to speak.
For those who feel unworthy,
we ask you to pour your love out
in waterfalls of tenderness.
For those who live in pain,
we ask you to bathe them
in the river of your healing.
For those who are lonely, we ask
you to keep them company.
For those who are depressed,

we ask you to shower upon them
the light of hope.
Dear Creator, You, the borderless
sea of substance, we ask you to give to all the
world that which we need most — Peace.

XI. Next Steps

Community Health Partnership will use the information gathered during the SWOT analysis to inform the next set of TCHF grant-funded activities:

- Cost Benefit Analysis of interventions
- Community Needs Assessment
- Community Readiness Assessment

} Development of a community-wide action plan

COMMUNITY HEALTH PARTNERSHIP

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Appendix C
Community Readiness Assessment Report

Coalition for Prevention, Addiction and Recovery (CPAR)

Community Readiness Assessment Report

Submitted to: Community Health Partnership

December 2017

OMNI

Coalition for Prevention, Addiction and Recovery (CPAR) Community Readiness Assessment Report

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Introduction

OMNI assisted Community Health Partnership staff with the process of conducting a community readiness assessment for the Coalition for Prevention, Addiction and Recovery (CPAR) in order to inform future strategies. The purpose of assessing a community's readiness is to better understand the degree to which a community is prepared to take action on an issue and develop strategies for community change. Community Readiness is a process for community change that integrates a community's culture, resources, and level of readiness to more effectively address an issue. Affecting change in a community takes time and a concerted effort. A clear vision of the future coupled with an accurate understanding of a community's readiness for change is essential. As defined by the Tri-Ethnic Center, "community readiness is the degree to which a community is willing and prepared to take action on an issue." To be effective, the actions which affect change must meet the community where they are at. [1]

Methodology

OMNI and CHP employed the Community Readiness Model, developed by the Tri-Ethnic Center for Prevention Research[1], located at Colorado State University in Fort Collins, Colorado, to assess the level of community readiness in El Paso County to engage in prescription opioid drug misuse/heroin use prevention efforts. This process included:

Figure 1: Dimensions of Community Readiness

- Identifying key informants who work and/or live in El Paso County. Community Health Partnership identified and recruited the key informants
- Qualitative interviews with key informants on seven different dimensions of community readiness (see Figure 1).
- Scoring the responses given by the key informants to identify the level of community readiness (see Table 1)

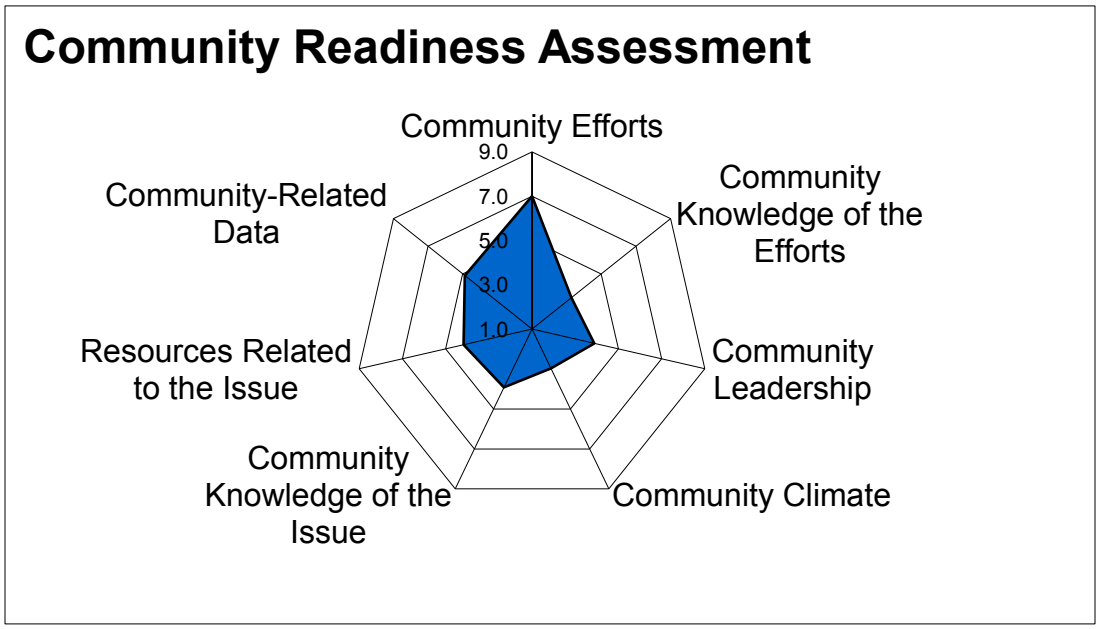
In total, 10 key informants representing the sectors of law enforcement, behavioral health, public health, the military, engaged citizens, Hispanic/Latino citizens, homeless people and affected families were interviewed. Eight interviews were included in the scoring calculations due to the lack of answers transcribed in two of the 10 interviews (Two respondents did not answer most of the questions). Key informants were asked up to 42 questions, depending on their areas of knowledge, and each interview took approximately 45-60 minutes.

[1] Community Readiness for Change Model, by E.R. Oetting, B.A. Plestad, R.W. Edwards, P.J. Thurman, K.J. Kelly and F.Beauvais and expanded by: Linda R. Stanley (2015, Aug.)

Table 1: Stages of Community Readiness

Stage	Description
1. No Awareness	Issue is not generally recognized by the community or leaders as a problem.
2. Denial/Resistance	At least some community members recognize that it is a concern, but there is little recognition that it might be occurring locally.
3. Vague Awareness	Most feel that there is a local concern, but there is no immediate motivation to do anything about it.
4. Preplanning	There is clear recognition that something must be done, and there may even be a group addressing it. However, efforts are not focused or detailed.
5. Preparation	Active leaders begin planning in earnest. Community offers modest support of efforts.
6. Initiation	Enough information is available to justify efforts. Activities are underway.
7. Stabilization	Activities are supported by administrators or community decision makers. Staff are training and experienced.
8. Confirmation / Expansion	Efforts are in place. Community members feel comfortable using services, and they support regular expansion. Local data are regularly obtained.
9. High Level of Community Ownership	Detailed and sophisticated knowledge exists about prevalence, causes, and consequences. Effective evaluation guides new directions. Model is applied to other issues.

Figure 2: Community Readiness Assessment Results



Results

The Community Readiness Assessment results reveal that the overall readiness level of El Paso County to address prescription opioid misuse and heroin use is a Three, the Vague Awareness readiness stage (See tables 1 and 2).

Dimension	Readiness Level	Readiness Stage
Community Efforts	7	Stabilization
Community Knowledge of the Efforts	3.2125	Vague Awareness
Community Leadership	3.725	Vague Awareness
Community Climate	3.04375	Vague Awareness
Community Knowledge of the Issue	3.75	Vague Awareness
Resources Related to the Issue	3.75	Vague Awareness
Community Related Data	4.8125	Preplanning
AVERAGE	**3.66**	**Vague Awareness**

FINDINGS BY DIMENSION

Overall findings varied by dimension. *Community efforts* scored the highest with a readiness level of 7 and a readiness stage of "Stabilization" and *community climate* scored the lowest with a readiness level of 3.04375 and a readiness stage of "Vague Awareness." For a more detailed description of these scores, please refer to Appendix A.

Community Efforts

Readiness Score: 7

Readiness Level: Stabilization-Local efforts have been running for several years and are expected to run indefinitely.

El Paso County scored the highest on readiness related to community efforts. In El Paso County, prevention, intervention and treatment work is happening. However, it appears key informants are only aware of efforts in which they are directly involved. For those not directly engaged in prescription opioid misuse and heroin use prevention, intervention and treatment efforts there is limited knowledge of actual efforts, but it is assumed that efforts are happening in the community which accounts for the higher score in this area. Key informants aware of efforts spoke of a variety of strategies and programs including the Coalition for Prevention, Addiction and Recovery (CPAR) for which Community Health Partnership (CHP) serves as the backbone organization; specific work groups affiliated with CPAR, such as the Public Awareness Workgroup, Public Safety Workgroup, Provider Education workgroup, and Affected Families and Friends Workgroup; provider education opportunities being provided by the El Paso County Public Health Department; Veterans Administration (VA) programs available for military and family members; and were able to specifically name several organizations and resources available

that are addressing this issue in the community (and noted in the "Resources Related to the Issue" section).

Community Knowledge of Efforts

Readiness Score: 3.2125

Readiness Level: Vague Awareness – Some members of the community have heard about efforts, but the extent of their knowledge is limited

The knowledge of community efforts ranges from high to low, but overall, key informants believe there to be a low level of community awareness of prescription opioid misuse and heroin use prevention, intervention and treatment efforts. Those directly engaged in efforts have the highest level of knowledge along with affected family members and friends. In general, prescription opioid misuse and heroin use is not a common topic of conversation in El Paso County and consequently community members do not know of existing efforts unless they are impacted personally in some way. The people who do know are usually in the know because of their work and/or passion for the health and wellness of the community, through word of mouth, through someone who has been in a program, by being involved with DHS, or by being involved with a caseworker or counselor.

Several key informants stated that the obstacles to people seeking out help and participating in existing efforts was related to the "stigma" around this issue and that reducing stigma would have to be addressed in order to have more people seek help for themselves and their family members. In addition to stigma, other obstacles to individuals participating in these efforts includes their own lack of money, lack of resources and funding and in the community, lack of access to care, and lack of skilled addictions specialists available.

Community members learn about current efforts through national and local media, web-based news, word of mouth, going to awareness events and fundraisers, organizational communications, referrals and networking.

Community Leadership / Political Will

Readiness Score: 3.725

Readiness Level: Vague Awareness – Leaders recognize the need to do something regarding this issue; offer only verbal support.

Not all key informants have knowledge of community leadership and political will. Thoughts on leadership and political will ranged from favorable to a feeling that leadership is not doing nearly enough.

Most key informants interviewed stated a belief that leaders at least passively support efforts without necessarily being active in that support. They participate when invited to do so, but are not initiating efforts by looking for resources or expanding services outside of what CPAR is initiating.

Mayor John Suthers has shown his support for addressing this issue by speaking publicly about it. Some City Council members have also expressed concern and are supportive of efforts in the community to address the issue. Evans Army Hospital at Fort Carson, the El Paso County Health Department, and the

Department of Human Services, the El Paso County Sheriff, the jails, the courts, the hospitals and Aspenpointe were also named as having supportive leadership in addressing this issue. The Chief of Police and Chief of Fire Department have provided verbal and public support for efforts as well as allocated budgetary resources. Some key informants expressed belief that:

> "County, state and local government are now working with each other to leverage what they can to try to get ahead of the issue."

Community Climate

Readiness Score: 3.04375

Readiness Level: Vague Awareness – Community climate is neutral, disinterested, or believes that this issue does not affect the community as a whole

Most key informants ranked this issue as a very high priority to address due to the fact that people are dying as a result of it. The law enforcement, public safety and healthcare community hold it as a high priority, and understand that it is related to other criminal activity in addition to people dying. The general public are not perceived to be as concerned about the issue.

The overall sentiment of key informants in El Paso County is that people are not interested or engaged in this issue unless they have been personally affected by it in some way. There is a sense of "willful blindness" around this issue if you, a family member or friend are not directly impacted by it. The average community member may not feel like it is their responsibility to do anything to help with the issue.

> "Many people in the community believe it is an individual level issue not a community level issue." "They acknowledge it and understand it's an issue but they don't want to deal with it."

It is also questionable how much overall community support would exist for expanding efforts in the community to address this issue. There was an overall concern stated by key informants that community members and leadership may not want to use resources to address this issue because "there are not a lot of resources available and they don't want to pay for it". One key informant stated that this is a conservative community that leans toward minimal government involvement.

Community Knowledge About the Issue

Readiness Score: 3.75

Readiness Level: Vague Awareness – A few people in the community recognize that some people here may be affected by this issue.

The level of community knowledge around prescription opioid misuse and heroin use varies. Engaged professionals, individuals who are addicted and families who have been affected know more than community members who have not been personally impacted by the issue. Key informants spoke of community members putting "blinders on" and ignoring the issue if it doesn't directly impact them. One key information stated, "I think that people are aware that there is a growing problem, but they are not

well informed about the specifics" when referring to the general level of community knowledge. There seems to be a lack of communication about the issue and/or a lot of miscommunication.

Key informants made the following statements:

- "I don't think that the general public is aware of the depth of the problem."
- "The vast majority of people don't believe that you can become dangerously addicted to prescription medicines and that they are just as dangerous as illicit narcotics like heroin."
- "The misconception about addiction in general is that people can just stop, and that the issue has to do with willpower and not an actual disease process."
- "The information is readily available if you are looking for it, but unless you are specifically looking for ways to address the issue, you may not be exposed to the information."
- "People don't want to know about it-if they aren't living it, they don't care."
- "People learn about the issue through national campaigns, newspaper articles, radio, TV, brochures, posters and word of mouth."

Community Resources Related to the Issue

Readiness Score: 3.75

Readiness Level: Community is not sure what it would take, or where the resources would come from to initiate efforts

In El Paso County there is the general assumption that these resources exist to reduce the impacts of prescription opioid misuse and heroin use. Some key informants specifically spoke of efforts supported by Community Health Partnership (CPAR and Project Detour); efforts through local hospitals, The Veterans Administration, healthcare and behavioral healthcare providers; DHS; El Paso County Public Health; AA and NA Support Groups; Kinship Support Groups that cater to the population of grandparents who are caring for their grandchildren due to drug use by the parent(s) of the children; through law enforcement and public safety; and through the judicial system. Several of the key informants were engaged in some form of prevention, intervention or treatment effort and spoke positively about those initiatives.

On the contrary, a few key informants shared a belief that there are not adequate resources in the community and that accessing these resources can be particularly challenging without financial resources for private pay or involvement with DHS and/or the judicial system. Concern was expressed that there are currently not enough skilled clinicians to handle the caseload.

Other resources mentioned include:

- Enforcement and investigation efforts in the county to address the issue, intervene and impact the drug market in El Paso County.
- The Drug Task Force is working to better recognize and respond to the epidemic.
- Grants have been written to private foundations such as the Colorado Health Foundation in order to build capacity to address this issue in El Paso County.
- Community members learn about resources available through local media (TV and radio) and advertisements, web-based news, word of mouth, going to awareness events and fundraisers, referrals and networking.

Community Related Data

Readiness Score: 4.8125

Readiness Level: Preplanning- Types of information needed and possible sources have been identified

CHP Staff and the CPAR Data Workgroup are actively conducting a Community Needs Assessment. CPAR Coalition Members and partnering organizations are contributing data to this overall data collection process as requested. Data is also being collected and contributed by the El Paso County Public Health Department.

Key informants were not specifically asked about community data beyond what was mentioned in their answers around other dimensions being measured. National data is reported in the media, but not much local data has been reported to date.

Conclusions & Recommendations

The Coalition for Prevention, Addiction and Recovery (CPAR) is off to a strong start in their efforts. With funding and a strong coalition, taking the following recommendations into consideration may further strengthen the efforts of the Coalition.

A common sentiment expressed by many of the key informants is that many people in the community believe this is an individual level issue, not a community level issue. Some also commented that they did not feel like the general public is aware of the depth of the problem. People are more likely to be concerned and involved in raising awareness of the issue and trying to prevent it if they have been personally impacted by use/misuse and/or addiction themselves or with a friend or family member. Community leaders want to present the image that El Paso County is a wonderful place to live and a great place to visit. Negative publicity about the impacts of prescription opioid misuse and heroin use could tarnish that image. While some resources and efforts do currently exist, more are needed to address and impact this issue effectively over time.

OMNI recommends that CPAR work first to raise the levels of readiness in the dimensions that received the lowest scores: Community Climate and Community Knowledge of Efforts. Since Community Leadership, Community Knowledge of the Issue, and Resources Related to the Issue all scored in the

3.725-3.75 range, increasing readiness in these dimensions can also be worked on simultaneously. In working to raise readiness levels, you will likely be working to change awareness, knowledge, attitudes, and norms. Planning strategically for doing this by setting goals and objectives to be accomplished over the next 3-5 years will be important. The following are our key recommendations:

- *Reducing stigma would need be addressed in order to encourage more people seek help for themselves and their family members.*
- *Coordinate with existing efforts that have traction. Partner with these efforts to ensure that they align well with best practices in prevention, intervention and treatment and are achieving the desired outcomes.*
- *Identify and share current data and information available on this issue. This information is critical to present to community members and raise their awareness through objective, locally informed, information. The Tri-Ethnic Center for Prevention Research, located at Colorado State University suggest paying special attention to, targeting the right audience; the type of message; connections and relationships; and communicating the message. Some examples of how to present information include:*
    - *Universal substance use prevention information/curriculum for children and adolescents in schools*
    - *Hosting community forums, events and/or trainings for anyone who wants to attend, at churches, schools, community centers, and other locations where community members gather*
    - *Hosting provider education opportunities*
    - *Utilizing communications methods listed below*

There are also a variety of methods of communication to consider to help implement the key recommendations and build your community readiness, including:

One-on-one visits and meetings with community leaders and members
Visit existing and established Small groups, especially unrelated casual groups or groups already meeting and hosted by a partner organization
Traditional media, such as posters, billboards, TV and radio
Social media, such as Facebook and Twitter, especially people posting and sharing from their own accounts, not just your organization posting from it's account. Get individuals in your social network excited and solicit their support – be creative! Give them ideas and information that they can post on their Facebook page or other outlets.

Collect stories of local people who have been affected by this issue in this community and find creative ways to disseminate these.
Present information at local community events and unrelated community groups. Don't rely on just facts. Use visuals and stories.
Post flyers, posters, and billboards.
Begin to initiate your own events (e.g., potlucks) to present information on this issue. But they must be fun or have other benefits to potential attendees.
Publish editorials and articles in newspapers and on other media with general information but always relate the information to the local situation.

Prevention, intervention and treatment work is already happening in El Paso County and it will be important work to ensure that efforts in the community are well coordinated and accessible to those in need. By increased coordination and focusing on common risk and protective factors, these efforts can leverage their individual efforts and increase their impact on positive community change. Given a lower level of community readiness in El Paso County, the Coalition should make every effort to partner with community leaders to further strengthen the community's efforts. Finally, given the results of this assessment, it is imperative that future strategies align well with El Paso County's level of community readiness. El Paso County will continue to be a community that proactively seeks responses and solutions for individuals and families impacted by prescription opioid misuse and heroin use.

Appendix A

Community Readiness Scoring Matrix

Rating	Community Efforts	Community Knowledge of Efforts	Community Leadership/ Political Will	Community Climate	Community Knowledge About Issue	Community Resources	Community-Related Data
1= No Awareness	No awareness of the need for efforts to address this issue	Community has no knowledge of need for efforts to address this issue	Leadership has no recognition of this issue	Prevailing attitude is "there's not a problem related to this issue"	Not viewed as an issue	There is no awareness of the need for resources to deal with this issue	Not collected
2 = Denial	No efforts addressing this issue	Community has no knowledge about efforts addressing this issue	Leadership believes that this is not an issue in their community	The prevailing attitude is "there's nothing we can do" or "only 'those' people do that"	No knowledge about this issue	No resources available for dealing with this issue	Data collected are perceived to be inaccurate
3 = Vague Awareness	A few individuals in the community recognize need to for some type of effort, but there is no immediate motivation	Some members of the community have heard about efforts, but the extent of their knowledge is limited	Leaders recognize the need to do something regarding this issue; offer only verbal support	Community climate is neutral, disinterested, or believes that this issue does not affect the community as a whole	A few in the community recognize that some people here may be affected by this issue	Community is not sure what it would take, or where the resources would come from to initiate efforts	Some anecdotal data collected
4 = Preplanning	Some community members have met and have begun a discussion of developing community efforts	Some members of the community are beginning to seek knowledge about efforts in their own, or similar communities	Leaders are trying to get something started; a meeting has been held to discuss this issue	The attitude in the community is now beginning to reflect interest in this issue.	Some community members recognize that this issue occurs locally, but information about this issue is lacking	Some in the community know what resources are available to deal with this issue	Types of information needed and possible sources have been identified
5 = Buy-in Direct Impact Planning	Efforts (programs/ activities) are being planned by the community	Some members of the community have basic knowledge about local efforts (i.e. purpose)	Leaders are part of a committee(s) and are meeting regularly to consider alternatives and make plans	The attitude in the community is "this is our problem" and they have modest support for efforts	Community members know that this issue occurs locally and general information about this issue is available	Some in the community are aware of available resources and a proposal has been prepared or submitted	Specific information needed has been identified; working with sources to create a data plan
6 = Initiation of work	Efforts (programs/ activities) have been implemented by the local community	An increasing number of community members have knowledge of local efforts and are trying to increase the knowledge of the general community	Leaders support implementation efforts and may be enthusiastic because they are not yet aware of the limitations or problems	The attitude in the community is "this is our responsibility" and now has modest involvement in the efforts	A majority of community members know that this issue occurs locally and there is enough information about this issue to do something	Resources have been obtained from grant funds or outside funds; Programs or activities are time limited	Implement data plan and review data, make improvements; Have conducted gaps analysis to compare risk/needs to resources
7 = Stabilization Positive outcomes	Local efforts have been running for several years and are expected to run indefinitely, no specific planning for other efforts	There is evidence that the community has specific knowledge of local efforts including contact persons, training of staff, clients involved, etc.	Leaders support continuing basic efforts and are considering resources available for self-sufficiency	The majority of the community generally supports programs, activities, or policies. "We have taken responsibility"	Community members have knowledge of, and access to, detailed information about local prevalence	A considerable part of support of on-going efforts are from local sources that will provide continuous support; additional resources are being sought	Data are used to develop a strategic plan; have used multiple validated sources to document need
8 = Confirmation & expansion	Several different local efforts are in place, reaching a wide range of people; new efforts are being developed based on feedback	There is considerable community knowledge about different community efforts, as well as the level of program effectiveness	Leaders support expanding/ improving efforts through active participation in the expansion or improvement	The general community is strongly supporting of the need for efforts; participation level is high	Community members have knowledge about prevalence, causes, risk factors, and consequences	Diversified resources and funds are secured and efforts are expected to be permanent; there is additional support for further efforts	Additional validated data has been identified and attained (containing more information or more depth)
9 = Professionalization	Evaluation plans are routinely used to test effectiveness of local efforts, wide range of people. New efforts are being developed	Community has knowledge of program evaluation data on how well the different local efforts are working, and their benefits and limitations	Leaders from all sectors of the community are directly involved in sustaining and improving the efforts	All of the community is highly supportive, and community members are actively involved in improving efforts and demand accountability	Community members have detailed information about this issue as well as information about the effectiveness of local programs	There is continuous and secure support for programs; evaluation is routinely completed; substantial resources for trying new efforts	Data collection and reporting is part of routine for community; regular, consistent data collection and reporting occurs

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Appendix D
Cost Benefit Analysis Report

Comparative Cost-Benefit Analysis of the Potential Impact of Five Opioid Use Disorder Interventions in the Colorado Springs, Colorado Metropolitan Statistical Area

Thomas Wilson, PhD, DrPH

Melissa Ugianskis, MPH

January 3, 2018

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Acknowledgement

Special thanks to Mary Steiner, RN of Community Health Partnership (CHP) for her advice, counsel, humor, and expert knowledge about the opioid crisis in Colorado and nationwide. Also, thanks to Amy Vargo of CHP for providing data on waivered providers and opioid use rates among Medicaid beneficiaries.

Executive Summary

Community Heath Partnership (CHP) organized the "Coalition for Prevention, Addiction Education and Recovery" (CPAR) and generated a list of numerous interventions to address the opioid crisis in Colorado Springs.

The given interventions were reduced to these five: 1) Medication-Assisted Treatment (MAT) to treat those addicted to opioids; 2) Naloxone to treat overdoses; 3) Physician Education regarding alternatives to opioids and prescribing practices; 4) Needle Exchange Programs (NEP) for those engaged in injections; and 5) Community Education for the entire Colorado Springs Metropolitan Statistical Area (CSMSA). These interventions were collectively chosen, in part, because they addressed all three components of the broadly conceived 'Prevention' model. Primary interventions, such as Community Education and Provider Education were designed to prevent inappropriate opioid use. Secondary interventions (i.e. MAT & Needle Exchange) were designed to prevent opioid abuse through treatment; while tertiary preventions (i.e. Naloxone) were designed to prevent death from opioid overdose.

The most effective intervention (without regard to cost) was, by far, Medication-Assisted Treatment (MAT). However, due to the cost of implementing MAT, the cost benefit ratio (CB ratio) for the short –term financial benefit (reduction of emergency room and inpatient utilization) of MAT was negative (CB ratio = 0.25). The most cost effective of the five interventions were the two interventions directly related to prevention and the one related to harm reduction: Community Education (CB ratio = 9.69); Provider Education (CB ratio = 1.06) and Needle Exchange (CB = 8.91). When taking into account the full range of potential lives saved - using financial estimates related to Quality Adjusted Life Years (QALY) - all interventions had a positive CB ratio, ranked as follows: Community Education (CB ratio = 115.26); Needle Exchange Program (CB ratio = 106.10); Naloxone (CB ratio = 77.68); Provider Education (CB ratio = 12.58) and Medication-Assisted Treatment (CB ratio = 2.96). The lifetime

benefits of these strategies to the community also involves societal benefits (e.g. increased productivity and reduced law enforcement activities) that go beyond the economic value of years of life saved.

With limited resources, we recommend implementing the two prevention programs in the immediate future as they impact both short-term and long-term goals. We also recommend implementing a Naloxone program as it has long-term value in terms of the QALY-based metrics and a Needle Exchange Program based on the estimated cost-benefit and long-term value. The unfortunate consequence of these recommendations is that those currently living with an opioid addiction are not targeted effectively. It is the opinion of the authors that significant external resources will be needed to effectively implement MAT. However, if implemented in a model that has MAT at its core with care coordination to community related services and psychosocial counseling, such as the Hub and Spoke model used in Vermont; it could be an ideal strategy. Finally, we recommend further research in the form of a scientific survey to assess the community's receptiveness to these ideas.

Introduction

For all of the recent news of the opioid epidemic, it is important to remember that this opioid crisis, now deemed a "public health emergency"[1] by the Trump administration has been slowly developing over several years. A look into the history of opioids reveals a country struggling with its addictive forces since the early 1900s, but a particular surge and upward trend that began in the early 1990s has caught the country's attention. Not related to any war, as has been seen in the past, this surge appears to have begun in large part as a result of an intense marketing campaign by pharmaceutical manufacturing companies to change practitioner prescribing habits.[2] As states around the country grapple to respond to this epidemic, the history of how it began has become influential in developing a response plan. Multiple intervention strategies have been tried throughout the country with various states beginning at different points. Where the community begins addressing this crisis is based upon

their own needs and resources. Understanding the gaps, as well as the resources and the potential costs and benefits are critical to determining the best approach for each community.

In recognition of the mounting threat that opioid use disorder poses to the greater Colorado Springs Metropolitan Area (CSMSA), Community Health Partnership (CHP) came together with stakeholders to develop a response plan to address this growing epidemic. It is important to note that El Paso County makes up more than 96% of the CSMSA. In March of 2016, CHP held a community meeting to form a coalition made up of leaders in the community from various sectors including health care, public health, academia, the military, law enforcement, local school districts, the judicial system, non-profit agencies as well as local dentists and veterinarians.[3] This cross-collaborative team, known as CPAR (the Coalition for Prevention, Addiction Education and Recovery) was broken down into four smaller work groups, each with a different focus area: Public Safety, Access to Treatment, Public Awareness and Provider Education.[3] These four workgroups convened on a regular basis to elicit the expertise of their various members and devise a strategy specific to the community that would meet their individual goals. The results of those groups were made into a table (see Appendix) and submitted as background for a detailed cost benefit analysis and community readiness assessment. To that end, and as part of the Community Readiness Assessment, CHP received a grant from the Colorado Health Foundation to work at identifying current gaps as well as strengths and potential obstacles in order to identify interventions that appropriately matched the needs specific to the community. In addition to assessing the needs and opportunities through a SWOT analysis (see larger report), CHP commissioned Trajectory® Healthcare, LLC (Trajectory) to help explore the potential costs and benefits of selected interventions aimed at addressing the opioid problem in the Colorado Springs Metropolitan Statistical Area (CSMSA). A review of the literature, with research into best practices as well as the analysis of opioid related trends were combined with a series of local, confidential stakeholder interviews to provide the basis with which to move forward. This accumulation of evidence was used as the basis in a

targeted reduction of the interventions listed by CPAR to just five interventions and the evidence-based cost benefit analysis of those five interventions. CHP followed up with a series of community readiness interviews separately (see larger report).

The CBA was undertaken by the Cost-Benefit Analytic Team (CBAT) of Trajectory with the principal investigators, Thomas Wilson, PhD, DrPH and Melissa Ugianskis, MPH. This team, in conjunction with CHP, divided the cost benefit analysis project into two broad tasks 1) a reduction to five intervention strategies based on a review of the literature review and local interviews and 2) a cost benefit analysis to be completed over the course of several months. Following the completion of a preliminary draft, the project was extended to include a written analysis of the potential societal impact of the opioid crisis.

Methods

Task 1 was to help CHP reduce the initial intervention table to five recommended strategies. This involved interviewing local stakeholders to better understand the community's perception of the opioid abuse problems and potential impact of selected strategies. It also involved introducing to CHP the public health philosophy broadly called the prevention strategy: Primary prevention, Secondary prevention, and Tertiary prevention.[4] This strategy is specific to the central problem, which in this case is opioid abuse. Thus, primary prevention would be directed to preventing inappropriate use of opioids, secondary prevention would be related to screening and treating people for opioid abuse; and tertiary prevention would be preventing the consequence of opioid abuse. Under this prevention umbrella, the CHP team was able to classify the numerous interventions into these three buckets. From that exercise and the input from the interviews, five interventions were classified as being beneficial for the cost benefit analysis, as together, they were able to fill all three prevention buckets.

Task 2 was to conduct a cost benefit analysis of the five recommended strategies. This included research on estimating the population size and population segments in the Colorado Springs

Metropolitan Statistical Area (CSMSA) and exploring the literature on the opioid crisis nationwide and in Colorado, including an estimated number of opioid overdose deaths, an estimated number of those abusing opioids, and an estimated number of people using opioids (See Figure 4, the 'Iceberg Opioid Model'). In examining the trend of opioid deaths over the past few years, projections were made assuming the past trends would continue (See Figure 3: Opioid Death Trends).

Given that the interventions focused on different parts of the population as represented by the primary, secondary and tertiary prevention philosophy, a literature review was conducted to estimate a) which primary sub-population was targeted; b) what the estimated benefit of each intervention was on the appropriate sub-populations and c) the estimated benefit of each intervention. All of the estimated benefits were based on the most recent and applicable values found in literature. The benefits were estimated based on the short-term value (reduction of emergency visits and inpatient stays) and the longer-term value of the economic value of a year of life saved due to the prevention strategies. In addition, societal benefits overall were researched to estimate the areas of society that these prevention-based strategies would most impact.

Results

Task 1 Results: Categorization Principles

Table 1: Categorization of the Five Interventions into Primary, Secondary and Tertiary Prevention

	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
Primary Prevention			X		X
Secondary Prevention	X			X	
Tertiary Prevention		X			

Table 1 illustrates that intervention #1 Treatment (MAT) is clearly in the secondary prevention bucket as it directly is designed to treat opioid abuse to prevent the person from further harm, such as an overdose. Needle Exchange is considered secondary prevention as those involved in this activity will be less likely to experience the poor outcomes of dirty needles and more likely to engage in treatment. Naloxone (intervention #2) is designated as a tertiary prevention activity, as it "prevents" death by an intervention designed to save lives. Community Education (#5) is designed as a primary prevention activity; as is Provider Education (#3) – this is outside of treatment and is primarily concerned with reducing the duration of prescribed opioid therapies as well as offering alternatives to opioids, when appropriate. The assumption here is that if intervention #1 for treatment (i.e. MAT) is not implemented fully, then the existing infrastructure will be able to support interventions #2 - #5.

Task 1 Results: Summary of Local Confidential Interviews

During the research phase of the cost benefit analysis, a small number of local interviews were conducted with key stakeholders in the CSMSA.[5] This convenience sampling of interviews was for background research only and it was agreed to keep the names confidential. The areas of expertise included law enforcement, emergency response, primary care and behavioral health. The results of the six local interviews are summarized below.

The number one response from the interviews in terms of the biggest need for the Colorado Springs area was a low-barrier, tiered facility to take and treat addicted persons. Quotes from respondents in the behavioral health field included, "There really, really is such a huge need for detox here" and "we desperately need an all-payer access to in-patient treatment, including Medicaid." Another respondent from primary care, offered this response to the query of what facilities are available in El Paso County to deal with detox and treatment, "Nothing. We just don't have adequate resources here to deal with detox, or addiction - no viable, accessible long-term therapy. I don't think that there are resources here available to the public, particularly those with a lower income." When asked why a

stand-alone facility dedicated only to substance use disorder was needed, one behavioral health professional said that it would be unsafe for the public at large to be treated in the same space as those who are treated for addiction.

As a follow up, when asked about the system currently in place that offers a social detox setting, all of the respondents (6/6) felt that the current options were inadequate for the needs of the area. One response that was echoed in tone throughout the interviews was, "What we need here is a medical detox. We need a facility that is low-barrier – at least, initially – then there needs to be in-patient, as well as out-patient treatment, work with peers, etc. And a medical component, now that is essential." Another respondent echoed the sentiment on medical care in describing how fear is a big barrier to seeking help at the current out-patient facilities. "Fear is a huge barrier for social detox. Patients worry about the lack of medical oversight – they do – they worry about having seizures – they worry about dying – they worry about not having a safe place to be so vulnerable." Those with a background in emergency response revealed that, although hospitals offer medical oversight, they were not safe or secure places to take addicted persons. They pointed out that dealers, friends, etc. can walk into and out of hospitals without question and that addicted individuals will even break into sharps containers to get the unused drugs left in old, used needles.

The need for prevention in terms of education / understanding came in as the second highest need among the interviewees. One respondent's commentary on the subject began, "we [the community] need to understand that this is not a one-time thing. This isn't just an overdose then detox and rehab. It is cyclical. Addiction is a chronic disease. It is forever, and we, as a society – our community – need to start treating it like that. This is not a one-time quick fix. As much as we [the community] are dealing with which post-addiction plan we implement, we have got to get up-stream in terms of prevention."

None of the respondents felt that the approach to adequately addressing the opioid epidemic could be achieved through just one intervention. They all felt that there needed to be more than one approach run in coordination with one another, concurrently. One interviewee explored the idea of including housing within the community response plan, "I don't think that it can be an either-or approach. We have to tackle prevention at the same time that we tackle detox, housing, recovery, etc." Another respondent said that while national backing might be needed, any approach taken should be coupled with a behavioral health component, as many patients with substance use disorder also identify with a trauma of some sort in their past.

Some of those familiar with emergency response said that the current method of dealing with addiction in the Colorado Springs area is referred to as "Treat – Street – Repeat." This seemingly endless cycle is viewed within that community as a highly ineffective and frustrating cycle within which to be caught. They all say that they have patients that they see who repeatedly overdose – "time and time again," sometimes within days of each other – and they wonder aloud what would happen if they were "treated correctly" the first time. These professionals said that they have often heard that the costs of an in-patient facility are way too high. One respondent said that the cost is certainly an issue and they agree that it would likely be very expensive, but wonder if people know how much is being spent on multiple ambulance rides over and over again, coupled with the costs of the emergency room and the transport to the social detox, only to start the process over again with the same patient within days. Two of the interviewees said that they realized that all of their testimony is based solely on experience - on anecdotal evidence and thought that there would be much more power behind their testimony if it was supported by data. They felt that the administration of Naloxone (Narcan), for instance, should be tracked better, saying "the data collection of Narcan here is very weak, I don't think we are really tracking it at all."

The third most commonly cited barrier to properly treating opioid addiction in Colorado Springs, according to local interview data, is community support. One respondent said, "There is a different philosophy here. They [the community members and representatives] feel that a lot of the harm reduction and medication treatments are endorsing criminal activities." That was then followed up with, "the cure to that is community education." The feeling from some of the interviewees is that educating the doctors is good, but doing it without educating the community would be useless. "They [the community members and representatives] need to know that property crime goes up with heroin use, thefts go up with addiction, then there's the court costs, police response, the medical costs we already talked about, and the human equation – if we do nothing or just continue doing this – what is it costing us?" It was then further noted that, "The people with the power to make real changes need to be at the table." "We can have meeting after meeting on the problem, but until we can get those in the power or position to make the call to move on it, we are spinning our wheels." "There needs to be a huge investment in education and real data collection and less denial." The belief is that community education will lead to a recognition of the problem, rather than what is termed as a "willful denial and even an arrogance within the community" as respondents believe that Colorado Springs and surrounding areas have a "not in my town" mentality when it comes to drug abuse. One of the respondents said that the community education really needs to "bring it home" for people – to "make it personal" if there is any chance of gaining their support. Another said that in order for any community education to work, "we need to show a proof of concept – show what is working [and] then show how it can work here."

The takeaway from the interviews was a need for a specific, designated space to take addicted persons to treat them, all the way from detox through recovery. This facility, it was suggested, should be a low-barrier, tiered operation with medical oversight and integrated behavioral health. It was also noted that prevention through education was of primary importance, with both practitioners and community members believing there is a need for more education than is currently available. It was

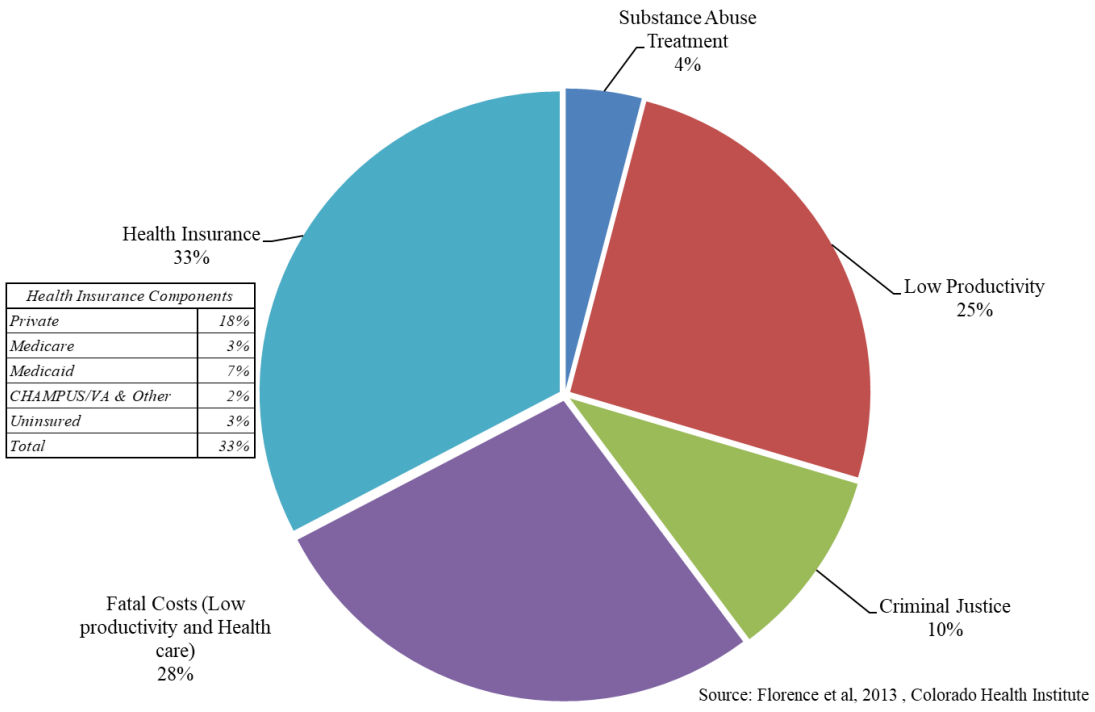
communicated by most of the respondents that, while the Colorado Springs community may not yet be ready to get behind a treatment facility, with proper education and communication; there was still a good possibility of finding that common ground well as community support.

Task 1 Results: Brief Summary of Literature

Societal Impact on Community

The societal cost of opioid addiction can be crippling to a community.[6] In 2015, the cost of substance abuse was determined to be over $700 billion/year.[7,8] Opioids alone were estimated to have killed over 33,000 people in 2015 and cost the United States an estimated $504 billion, according to the 2017 report issued by the Council of Economic Advisers (CEA) to the White House.[9] This cost reflects adjustments for the underreporting of opioid fatalities, includes deaths attributed to heroin, and includes the related non-fatal costs. With approximately 2.4 million Americans struggling with opioid use disorder across the country and overdose deaths in Colorado on the rise, there is a need to look at how these costs break down.[7,9,10]

Figure 1: Distribution of the Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence



Source: Florence et al, 2013 , Colorado Health Institute

When looking at the cost to the system of prescription opioid abuse in Figure 1 (above), it is important to note that treatment for addiction makes up about 4% of the total costs.[7] Lost productivity makes up 26%, criminal justice about 10% and the costs of fatalities make up approximately 27%.[7]

While the costs of MAT are high, they still pale in comparison to the annual cost of incarceration in Colorado, which is approximately $30,374 per inmate per year.[11] While incarceration costs are high, it is interesting to note that the Federal Bureau of Prisons data from September 2017 indicates that over 46% of all those incarcerated are there for a "direct drug offense."[12] Unfortunately, these losses to the community don't stop there. Data shows that they continue well after an inmate has been released. Following release and reintegration into society, former inmates earn approximately 40% less than individuals who have never been incarcerated.[13] With over half of the inmates (54%) having children under the age of 17, the impact continues to affect the community through subsequent generations.[12,13] There is, however, some good news for interrupting the generational impact of substance use disorder through education. Studies indicate that a properly implemented school prevention program could initiate a decline in 1.5 million youth nationwide and delay onset for a mean of two years.[14] In addition to the education intervention for students, medication-assisted treatment has been shown to reduce incarceration costs and recidivism, as well as drug overdose deaths after release.[15]

Impact of Opioid Epidemic on Public Health

Blood Borne Disease

Another one of the unintended consequences of opioid use is the possibility of an increased spread of blood borne disease throughout the community, as a result of the rise in injectable opioids. Scott County, Indiana is one such example of the rapid spread that disease can take. For reference, Scott County Indiana is roughly the size of Teller County Colorado with a population of approximately 23,000 people.[16,17]

At the outset of 2015, the state of Indiana began investigating the alarmingly high and unusual outbreak of human immunodeficiency virus (HIV) in Scott County, Indiana. It had been typical to see no more than five cases per year in this county of Indiana, yet by this point in January, eleven had been confirmed. By November of that year, 181 people had been diagnosed with HIV.[18] The Indiana State Department of Health (ISDH) and others were able to link the majority of the cases to the sharing of needles that were primarily used for oxymorphone.[18,19] Oxymorphone is a prescription extended-release opioid that was being injected by between one and six people at any one time, with the number of injection times ranging from four to fourteen each day.[19] By March 26th of 2015, a public health emergency was declared in the state by executive order and an incident command center was established. With the recognition of the connection between the opioid injection drug use (IDU) and blood borne disease, one of the major responses was to implement Needle Exchange Programs (NEP) within the community. Needle Exchange Programs are a harm reduction strategy to reduce the sharing of needles, and ultimately interrupt and reduce the transmission of HIV and Hepatitis C viruses. This outbreak in a small American community, with no history of HIV infection, became a wakeup call for many counties across America of the potential impact to the health of the community at large of an unaddressed opioid epidemic in the making.

The Centers for Disease Control and Prevention (CDC) estimates that in 2013, 3,096 cases of HIV infection were directly attributable to intravenous drug use.[20] In addition, they stipulate that 50-90% of those diagnosed with HIV are also co-infected with Hepatitis C Virus.[20]

The CDC reports that the positive health impact and the cost effectiveness of Needle Exchange Programs can be significant. Their review of the available studies found decreases in "HIV prevalence from 50% to 17%"[20] and a return on investment (ROI) of $7.58 for every dollar invested nationally.[20] The CDC also reports on a study that tracked new HIV cases in the years since the ban on needle

exchange in the District of Columbia was lifted. That study reported a 70% decrease within their intravenous drug use population of newly reported cases of HIV.[20]

The correlation between the opioid epidemic and the spread of blood borne infection to the community at large is becoming so well known that national organizations are advocating for Needle Exchange Programs as a matter of urgency for public health and wellness. AIDS United is recommending MAT and Needle Exchange Programs as evidence-based interventions that help to stop the spread of the HIV infection and provide much needed resources for those already diagnosed.[21] The American Civil Liberties Union (ACLU) is also a vocal proponent of Needle Exchange Programs as a means of public safety, reporting that over half of childhood HIV diagnoses are the result of the parent's intravenous drug use and that Needle Exchange Program participants are five times more likely to enter drug treatment than those who had never taken part in a Needle Exchange Program.[22]

Incidental Exposure

The American Association of Poison Control Centers defines exposure as an accidental or suspected contact with a particular substance.[23] This contact could be through inhalation, absorption, ingestion, injection, etc. Reports of incidental exposure in the state of Colorado and across the country are on the rise.[24] Exposures to fentanyl, heroin and even prescription opioid pills can cause overdose and death, depending on the amount and type of exposure, as well as the individual exposed. Nationally, heroin exposure calls have increased from 3,152 in 2011 to 5,697 in 2015.[24] Colorado alone saw a 60% increase from 2011 to 2015 in the number of reported heroin exposures.[24]

One of the major sources of incidental heroin exposure is the discovery of used needles in public places. Across the country, there are recorded cases of dirty needles found in parks, schools, yards, libraries, beaches, busses and other public places.[25–28] To research the anecdotal reports of dirty needles, researchers studied two major cities in the United States: San Francisco, California and Miami, Florida.

San Francisco was chosen because it has functioning Needle Exchange Programs aimed at curtailing the spread of disease through dirty needles. Miami, on the other hand, was used as a comparison city that did not have active Needle Exchange Programs in place. The tests were conducted one year apart (2008 and 2009) using visual inspections, walkthroughs and interview data from intravenous drug users (IDU). The visual inspections were based on grids using 1000 census blocks in each city. Results revealed 44 needles found per census block in San Francisco, as compared to 371 needles per census block in Miami, where no Needle Exchange Programs existed.[29]

Possible Models for the Delivery of MAT

Opioid treatment care models of care are typically divided into two broad categories in the available research, practice-based and system-based, or what the American Association for the Treatment of Opioid Dependence (AATOD) refers to as top-down and bottom-up systems.[30,31] Practice-based models are typically decentralized, with office based treatment for dependency, while system-based (top-down) models tend to have a central specialized treatment facility that coordinates all surrounding, affiliated care services.[30,31] In the bottom-up Office-Based Opioid Treatment (OBOT) models, practitioners who complete the necessary training are able to obtain a waiver to dispense the appropriate medication and therapy, with the coordination of any follow up care often falling to their staff.[31] Chou et. al points out that these physicians' offices often try to designate one specific staffer to run the follow up and try to be the "glue" that holds the coordination of services together.[31]

Despite the overall broad distinctions, models of care for MAT are implemented in diverse and sometimes "overlapping" ways across the country.[31] Coordinated care models that have a central, tiered medical home to facilitate the various and complex needs of the individual are set forth as a standard in evidence-based care for opioid dependency.[30] A reason for this may be that top-down models may be better equipped to handle the complexities that often accompany substance use disorder such as supportive housing, counseling and medical care, while individual providers of MAT may find it

difficult to control the "broad and complex" set of needs that often accompany severe opioid use dependency.[30] As the top-down approach is not always an option, several variations on the theme of coordination have sprung up. One such model is the CoOP (Collaborative Opioid Prescribing) model that was developed at Johns Hopkins Hospital as a method of care coordination using a bottom-up approach.[30] In this approach, care is coordinated to include services such as family counseling, vocational assistance, etc. as needed through "ongoing telephonic and electronic communication" between the opioid treatment program and the office based provider.[30,31]

While there are numerous variations of the centralized and decentralized models, some models are designed to address a specific need, such as pregnancy, HIV, a rural locale, home health, as well as hospital-based or an emergency department initiation.[31,32]

Regardless of the method chosen, research indicates that, in order for MAT to be successful, the system needs to coordinate MAT prescribing physicians, primary care, psychiatric care, pain management and specialty services with payers and social services.[10,30,31]

It is interesting to note that one of the states studied, Vermont, began implementing MAT with a decentralized, office based model, then switched to a top-down centralized approach. A brief look into that progression follows.

One State's Move from a Decentralized to a Centralized Model

Vermont Hub and Spoke Model

When MAT first began in Vermont, it was implemented through a decentralized, practice-based model that changed over time into a system-based one, which is now referred to as the Hub and Spoke Model. Because Vermont, according to the National Safety Council, is one of only four states in the country making progress in the fight against opioids, what follows is a deeper look into how and why the treatment for opioid use disorder has changed over time .[33]

Initially, MAT of any kind was not even available in Vermont.[34] Soon after passage of Vermont Senate Bill 303 in 2000, which allowed treatment with Methadone, the first opioid treatment facility opened.[34] In the years following, many office-based MAT treatment programs opened and began to treat small numbers of patients at a time.[34] Despite Medicaid coverage of Buprenorphine as well as incentives and education for office based treatment options, the numbers of patients treated remained low while the numbers of patients needing treatment remained high. Barriers to full implementation cited include logistics, reimbursement, lack of support for providers – especially in dealing with complex medical patients and a lack of psychosocial services open and available to complete the treatment.[34] Waitlists to receive access to an medically assisted opioid treatment program grew to almost a two year wait.[34]

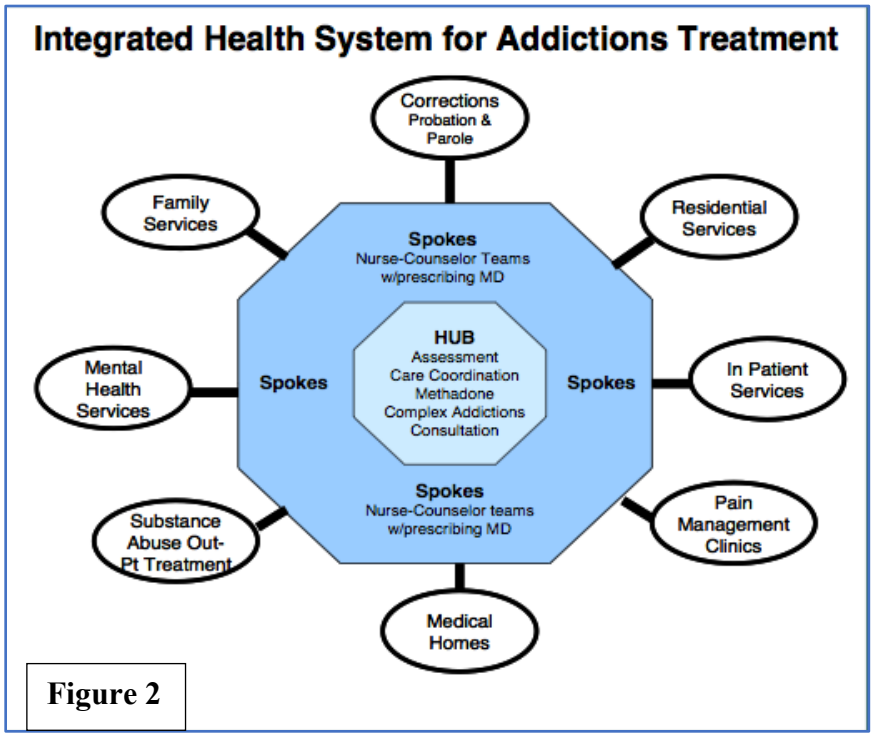


Figure 2

Source: Vermont Department of Health, 2016

In order to break down these barriers, in 2013, Vermont implemented what is referred to as the Hub and Spoke Model. This model is based around a center specializing in opioid use disorder that can handle complex cases (the hub) surrounded by a network of physicians of all specialties, hospitals, substance abuse outpatient facilities, jails, behavioral health services and others (the spokes). The hubs are staffed with board certified addiction specialists, appropriately trained medical staff as well as care coordination team members.[35,36] Movement to and from the hub goes both

ways, but hub to spoke is the main goal. Once a patient arrives at the hub facility, they are evaluated and placed in the most appropriate place to cater to their individual needs. That may be the hub for in patient medication-assisted treatment or it could be one of the spokes. In this way, emergency services, hospitals, mental health or community programs all have one place to take a patient struggling with opioid use disorder. Once care in the hub has stabilized, patients are transferred to the most appropriate spoke to meet their ongoing needs, all with the assistance of care coordination.[37] Occasionally, physicians may return patients who need it back to the hub. These patients are "prioritized" to ensure the patient and referring physician feel supported in the treatment of this complex disease.[34] Spokes within the model receive ongoing consultation and education as needed.

While the results of this model in Vermont reveal that the numbers of drug related deaths go up and down, there are signs of promise with a change to this design. In 2013, the same year the Hub and Spoke Model was initiated, prescription opioid related deaths were at 45.[38] Two years after that, in 2015, it was 32.[38] The number of heroin deaths went from nine in 2012 to over double that in 2013 and then to 34 in 2014. A break in this steep rise began to show in 2015 when the heroin related deaths held steady at 34. The Vermont Department of Health cites the National Survey on Drug Use and Health to reveal that overdose deaths in Vermont went down from 2012/2013 to 2013/2014 as did non-medical use of prescription pain relievers.[38] Adoption of the Hub and Spoke Model has resulted in a 50% increase in patients served per waivered practitioner and Vermont now has the "highest capacity for treating opioid use disorders" in the United States.[34] Vermont's change to a model of combining prevention and care coordination with medication-assisted treatment and recovery opportunities has also been touted by the American Association for the Treatment of Opioid Dependence as a model method of delivery for the treatment of opioid use disorder.[30] The AATOD writes that, "coordinated care models [such as the Hub and Spoke Model] better address treating patients' multiple needs, including infectious disease and psychiatric comorbidity."[30]

Task 1 Results: The Five Interventions

Based on the reviewed research and local interviews, the following five opioid use disorder interventions were chosen for a detailed, comparative cost-benefit analysis based on the CSMSA.

#1: Medication Assisted Treatment, or MAT, (referred to as "Treatment" in the tables) is a "clinically proven approach that combines medication and social support services" for the treatment of substance use disorders.[39] The three types of medication that are reviewed and currently federally approved to treat patients with an existing opioid addiction include Methadone, Buprenorphine and Naltrexone. These medications, when used in conjunction with properly implemented counseling and behavioral health therapies, have been found to be effective in the treatment of substance use disorder, decreasing the risk of relapse, prevention of overdose, as well as the reduction of HIV high risk behaviors in opioid-addicted patients.[40,41]

MAT requires waivers for physicians to prescribe these medications, so the cost of physician education is factored into the following analysis. The three types of medication used for medication-assisted treatment are used and administered differently. Methadone can be ingested as a liquid, tablet or wafer, and is taken on a daily basis. Buprenorphine, if taken orally as a tablet or dissolving strip, is taken daily as well; but if it is administered as an implant, the implant is good for six months.[39] Naltrexone, however, is not an opioid medication and is taken either by tablet daily, once a patient has gone through the withdrawal process, or by monthly injection.[39]

#2: Naloxone is a Food and Drug Administration (FDA) approved medication for the treatment of opioid overdose. It is an opioid antagonist and works by blocking the opioid receptor sites in the body.[10,42] Naloxone can either be given by intranasal spray, or it can be formulated for injection into the vein, muscle or under the skin. Although Naloxone can be used for certain longer-term substance use disorder treatments, its individual use in this analysis is recommended and evaluated for the use of stopping an in-progress, emergency overdose.

As an opioid overdose can cause the depression of an individual's central nervous system as well as their respiratory system, research indicates that Naloxone can be a powerful and relatively easy-to-administer way to save countless lives.[42] With minimal education, lay community personnel and family members of those who are at risk of an overdose can be trained to administer Naloxone, thus saving the person's life as they await emergency services.[42,43,44]

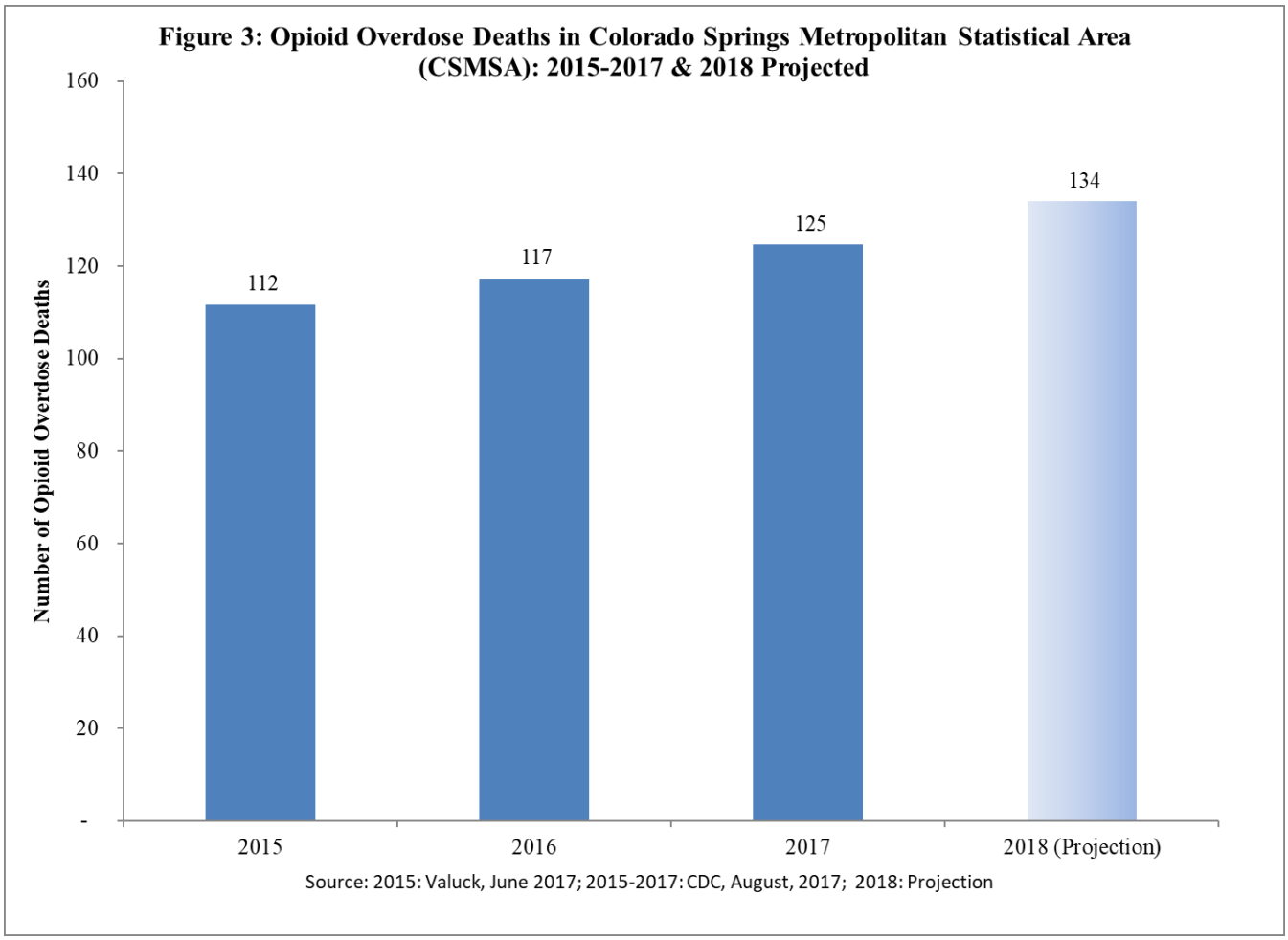
#3: Provider Education is one of the goals put forth by the Food and Drug Administration (FDA) and Health and Human Services strategic opioid response, citing the 12.5 million people misusing opioids in 2015. The goal, as described in outreach, is to "empower the public, patients and providers through education and awareness."[45,46] The Centers for Disease Control and Prevention (CDC) has issued opioid prescribing guidelines for practitioners that focus on the conditions under which to prescribe or not prescribe, as well as how to recognize the signs of addiction through the use of prescription drug monitoring programs.[32]

#4: Needle Exchange Programs (NEP) are included as a best practice for harm reduction in preventing the spread of disease and opioid response, as recommended by the CDC, World Health Organization (WHO) and Department of Health and Human Services (HHS).[47–49] The CDC has funds available and provides guidelines on which Needle Exchange Program activities are best.[50] While there are multiple ways to implement a Needle Exchange Program, the basic idea is to provide sterile needles at little or no cost to those suffering from substance use disorder, while facilitating the safe disposal of used needles and providing information on available treatment.

According to a 2014 study published in the International Journal of Drug Policy, ecological data examined from over 81 cities worldwide revealed that HIV prevalence went up by a mean of 5.9% in cities where there was no Needle Exchange Program in place, but went down by 5.8% in the 29 cities with functioning NEPs.[51] It is important to note that while trends and other possible confounding factors may affect this data, this demonstrates evidence of NEP efficacy.

#5: Community Intervention and Education through mass media is designed to raise community awareness of the opioid epidemic and alert them to the signs and symptoms leading to an opioid use disorder. It will make them aware of how and where to take an individual who needs help for an acute overdose and / or treatment for an on-going addiction. Free educational materials can be made available to the public with contact information for local access to specialists while answering concerns and questions relating to overdose, addiction, withdrawal and support. The intent of a mass marketing campaign is to educate, familiarize and make the community comfortable enough to support and encourage the recovery of the community, while dispelling stigma. This intervention is intended to be used in conjunction with the other intervention strategies.

Task 2 Results: Actual and Projected Trends Over Time in Opioid Deaths, CSMSA



The estimates[52] for 2015-2017 in Figure 3 are based on Colorado state estimates (per references cited in the figure) and then adjusted for the population of the CSMSA as a percentage of the entire population of Colorado. The percent difference between 2015 and 2016 (~5.1%) was then calculated, as well as the percent difference between 2016 and 2017 (~6.2%). The difference between the two results was then calculated (~1.1%). That value was then added to the percent difference found in 2017 to come up with the 2018 estimate = ~6.2+~1.1 = 7.4 (rounding error can explain the discrepancy). The 2018 estimate was the 2017 estimate multiplied by 1.074.

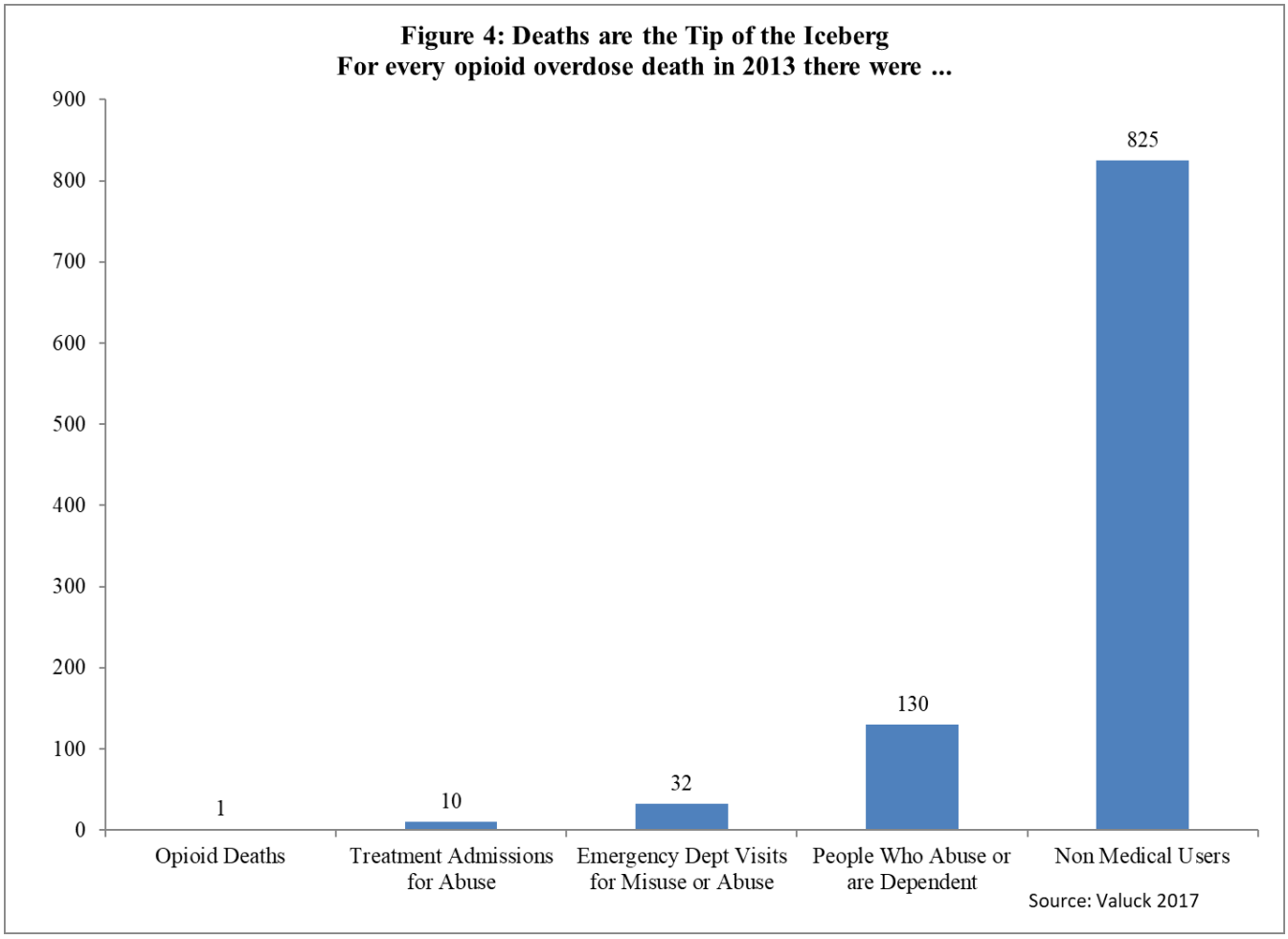


Figure 4 shows that for every single opioid death, there are 10 cases of "Treatment Admissions for Abuse," 32 "Emergency Department Visits for Misuse or Abuse," 130 "People Who Abuse or Are

Dependent," and 824 cases of "Non-Medical Users." The CBA conducted below is based on these ratios, and founded upon the estimated number of opioid deaths in 2017. This chart is derived from the 'Iceberg Opioid Model' cited in Valuck (2017) and is used as the basis for the population segments in the cost-benefit analysis.[52]

Table 2: Summary Table of Interventions and Primary (P) and Secondary(S) Populations Impacted

Populations		Interventions					
Sub-Population Description[i]	Est. N in 2017	No Intervention (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community / Media Education (#5)
CSMSA[ii]	712,327						P
All Rx Opioid Users[iii]	189,863				P		S
Non-Medical Users	102,885				S		S
People Who Abuse or Are Dependent	16,212		P		S	P	S
ER Department Visits for Misuse or Abuse	3,991		S		S	S	S
Treatment Admissions for Abuse	1,247		S		S	S	S
Opioid Overdose Deaths	125		S	P	S	S	S

Table 2 shows the sub-population where it is hypothesized that the primary ("P") impact begins. It is also assumed that all sub-populations, marked "S" for secondary, will be impacted. The sub-populations will first be described, and then the allocation of "P" and "S" are assigned to each intervention.

The estimated number of individual in Colorado Springs Metropolitan Statistical Area that are in each of the categories are based on numbers from the 'Iceberg Opioid Model' (see Figure 3 above). The foundation of these numbers is based on the estimated number of opioid deaths in 2017, which are

n=125. Once established, the following ratios from that model are incorporated as follows. For each one (1) "Opioid Overdose Death," there are 10 "Treatments Admissions for Abuse," 32 "ER Department Visits For Misuse Or Abuse," 130 individuals who "Abuse Or Are Dependent" and 825 "Non-Medical Users."[52] The sources for the other two sub-populations – "Rx Opioid Users" and "CSMSA" - are described by the endnotes in the table.

For intervention #1 ("Treatment" / MAT), it is the people who abuse or are dependent that will experience the primary impact, while all sub-populations below it will experience a secondary impact. For intervention #2 (Naloxone), it is only the last sub-population; for intervention #3 (Provider Education) the primary impact starts with "All Rx Opioid Users" and cascades down to all of the other sub-groups. For Needle Exchange (#4) the principal group impacted is "People Who Abuse or are Dependent" and for intervention #5 (Community Education), all groups are impacted, starting with the entire CSMSA population.

Table 3: Projected Impact of No Intervention

Sub-Population Description	Est. N in 2017	Projected n in 2018 Based on "No Intervention" (#0)"
CSMSA	712,327	749,845
All Rx Opioid Users	189,863	199,863
Non-Medical Users	102,885	110,514
People Who Abuse or Are Dependent	16,212	17,414
ER Department Visits for Misuse or Abuse	3,991	4,287
Treatment Admissions for Abuse	1,247	1,340
Opioid Overdose Deaths	125	134

Table 3 shows the projections of the 2017 numbers into 2018. These numbers are projected based on the estimated number of opioids deaths – the foundation of the table – that are expected in 2018 based on the trend line established in the years 2015, 2016, and 2017 (see Figure 3), for an increase of 7.4%. The numbers for the sub-populations were based on the opioid death data from 2017 multiplied from the numbers in the 'Iceberg Opioid Model': For each one "Opioid Overdose Death," there are ten "Treatment Admissions for Abuse," 32 "ER Department Visits for Misuse or Abuse," 130 individuals who "Abuse or Are Dependent" and 825 "Non-Medical Users." The methods used for the other two populations – "Rx Opioid Users" and "CSMSA" – were based on the ratio of the number of "Rx Opioid Users" to the number of "Non-Medical Users" from 2017, minus a 2% reduction in Rx opioid prescriptions[iv] and the ratio number in the "CSMSA" sub-population to the number (n) the "Rx Opioid" user subpopulations.

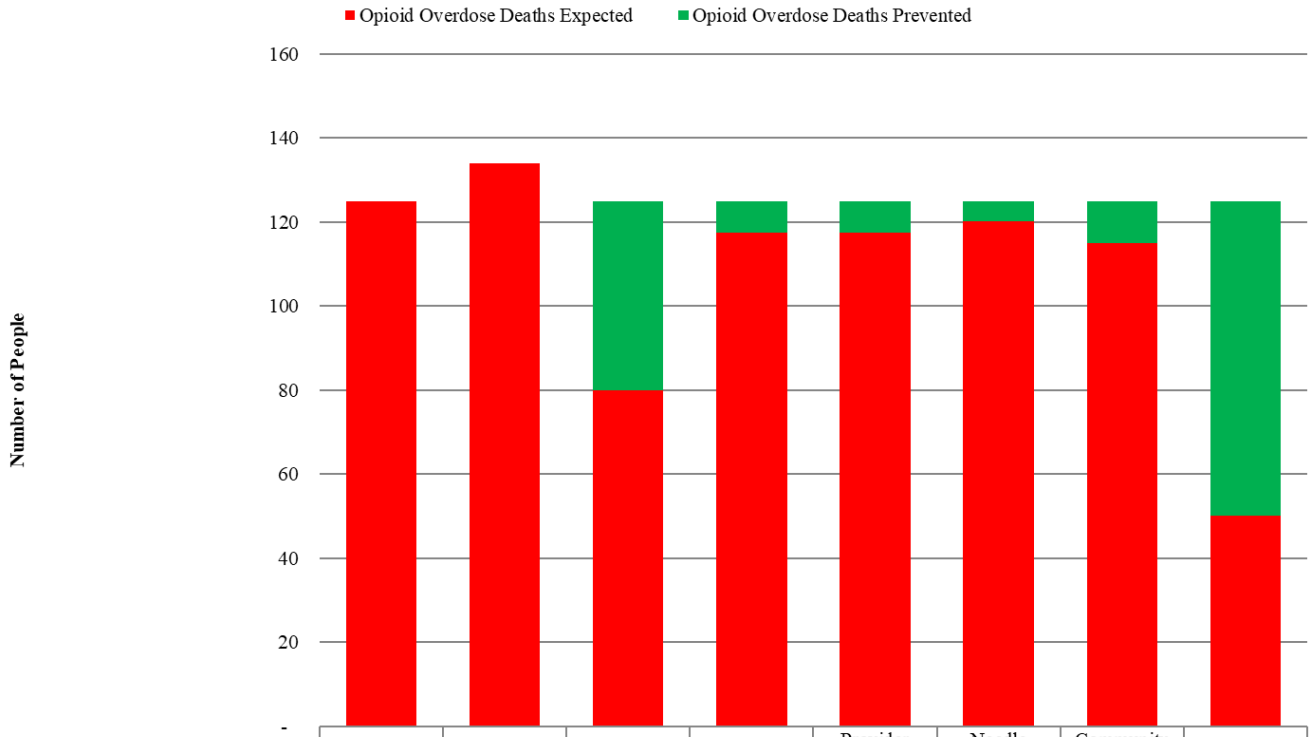
Table 4: Projected Impact of the Five Interventions						
		The Five Interventions				
Sub-Population	Est. N in 2017	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
	Expected Impact	36.00%[v]	6.00%[vi]	6.01%[vii]	16.00%[viii ix x]	8.0%[xi]
		Total Impacted				
CSMSA	712,327					58,586
All Rx Opioid Users	189,863			11,411		15,189
Non-Medical Users	102,885			6,183		8,231
People Who Abuse or Are Dependent	16,212	5,836		974	623	1,297
ER Department Visits for Misuse or Abuse	3,991	1,437		240	153	319
Treatment Admissions for Abuse	1,247	449		75	48	100
Opioid Overdose Deaths	125	45	8	8	5	10

This table (#4) is based on projections from 2017 as if these interventions occurred. The key to the table is the expected impact line which includes references. These endnotes should be accessed to fully understand the methods behind each estimate, some of which are quite complex. Essentially, from extensive literature reviewed, we expect a 36% impact from intervention #1 ("Treatment" / MAT). This is based on the proportion of opioid addicted cases that will have a successful outcome with full treatment, partial treatment, and no treatment. There is a 6% impact for intervention #2 (Naloxone) based on the number of overdose deaths prevented with Naloxone distribution. A 6.01% impact is anticipated for intervention #3 (Provider Education) based on data showing the impact of "external pressure" on the increase in opioid prescriptions per year, where we assumed a similar decline using

opposing “external pressure” on physicians through new guidelines and education - this time to reduce, rather than increase, opioid prescriptions. There is a 16% impact for intervention #4 (Needle Exchange Program) based on the number of heroin users who get help for addiction and an 8% impact for intervention #5 (Community Education) based on an analogous model related to smoking cessation programs exposed to the media. Per table 2, the impact for each intervention begins on the Primary (“P”) population and cascades through all subsequent “S” (secondary) populations. These impacts are depicted visually in Figures 5-11.

Figures 5-11 show the potential benefit of each intervention on each of the subpopulations, plus the impact of all interventions (the “additive” model). Each figure also shows the current situation and the projected distribution of each subpopulation to 2018. The impact assessments are, per agreement with CHP, based on the 2017 populations.

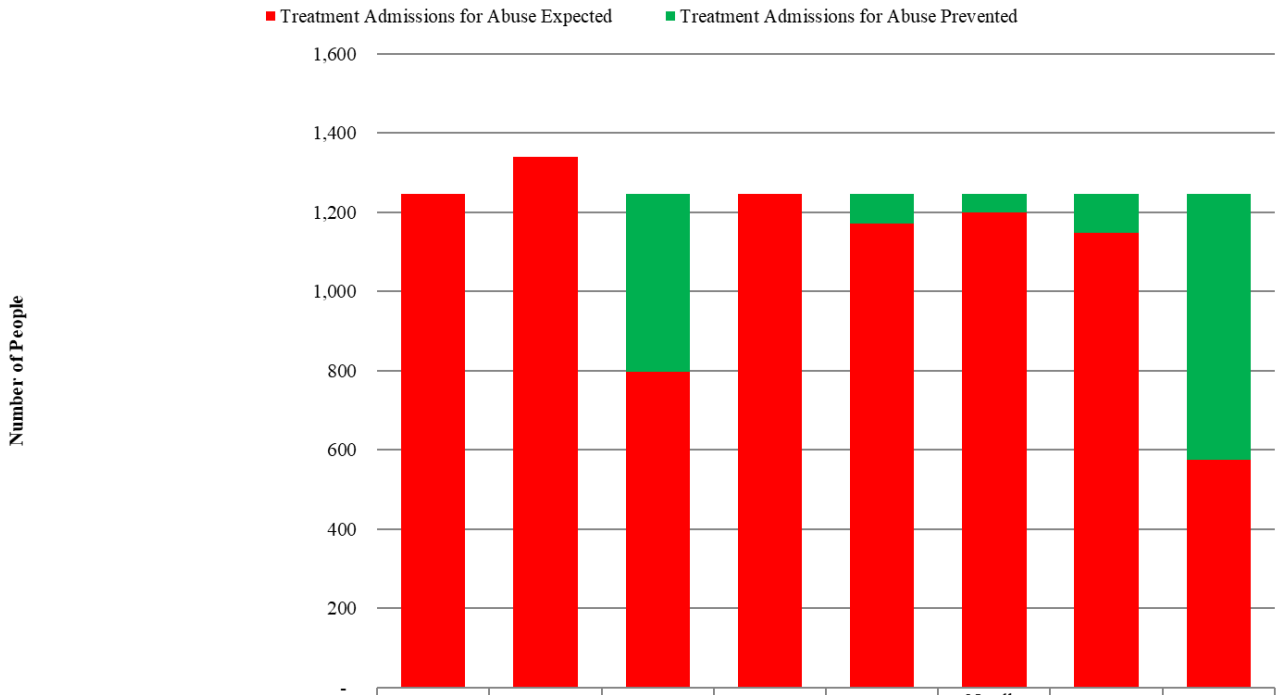
Figure 5: Estimated # of People in "Opioid Overdose Deaths" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
Opioid Overdose Deaths Prevented	0	-	45	8	8	5	10	75
Opioid Overdose Deaths Expected	125	134	80	118	117	120	115	50

In Figure 5 the data shows the estimated number of people in the "Opioid Overdose Deaths" sub-population that are expected and prevented by targeted scenarios. This group is impacted by all five interventions with the largest impact from intervention #1 (“Treatment” / MAT).

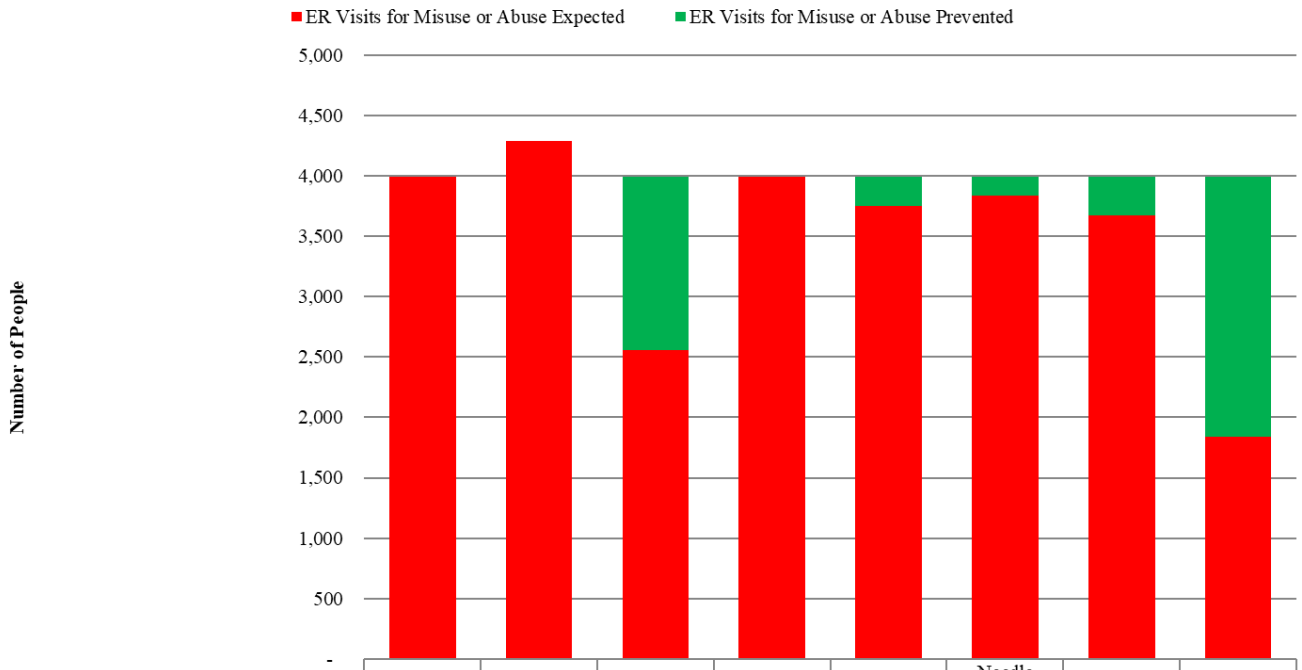
Figure 6: Estimated # of People in "Treatment Admissions for Abuse" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
Treatment Admissions for Abuse Prevented	0	-	449	-	75	48	100	672
Treatment Admissions for Abuse Expected	1,247	1,340	798	1,247	1,172	1,199	1,147	575

In Figure 6 the data shows the estimated number of people in the "Treatment Admissions for Abuse" sub-population that are expected and prevented by targeted scenarios. This group is impacted by four of the five interventions, those targeted for overdose treatment, intervention #4 (Naloxone) do not impact this population; the largest impact is from intervention #1 (“Treatment” / MAT).

Figure 7: Estimated # of People in "ER Department Visits for Misuse or Abuse" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
ER Visits for Misuse or Abuse Prevented	0	-	1,437	-	240	153	319	2,149
ER Visits for Misuse or Abuse Expected	3,991	4,287	2,554	3,991	3,751	3,838	3,672	1,842

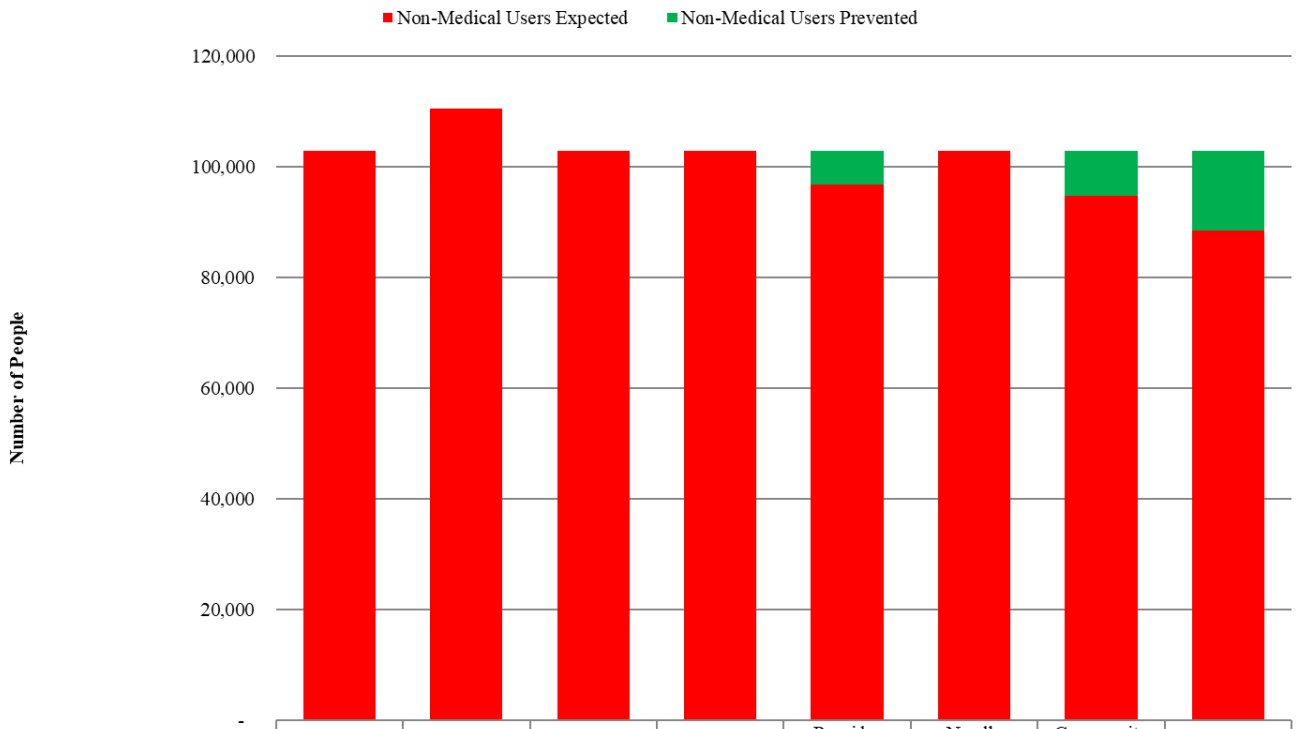
In Figure 7 the data shows the estimated number of people in the "ER Department Visits for Misuse or Abuse" sub-population that are expected and prevented by targeted scenarios. This group is impacted by four of the five interventions, those targeted for overdose treatment, intervention #4 (Naloxone) do not impact this population; the largest impact is from intervention #1 ("Treatment" / MAT).

Figure 8: Estimated # of People in "Abuse or are Dependent" Sub-Population Expected and Prevented by Targeted Scenarios

	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
People Who Abuse or are Dependent Prevented	0	-	5,836	-	974	623	1,297	8,730
People Who Abuse or are Dependent Expected	16,212	17,414	10,376	16,212	15,238	15,589	14,915	7,482

In Figure 8, the data shows the estimated number of people in the "Abuse or are Dependent" sub-population that are expected and prevented by targeted scenarios. This group is impacted by four of the five interventions; those targeted for overdose, intervention #4 (Naloxone) do not impact this population. The largest impact is again from intervention #1 ("Treatment" / MAT).

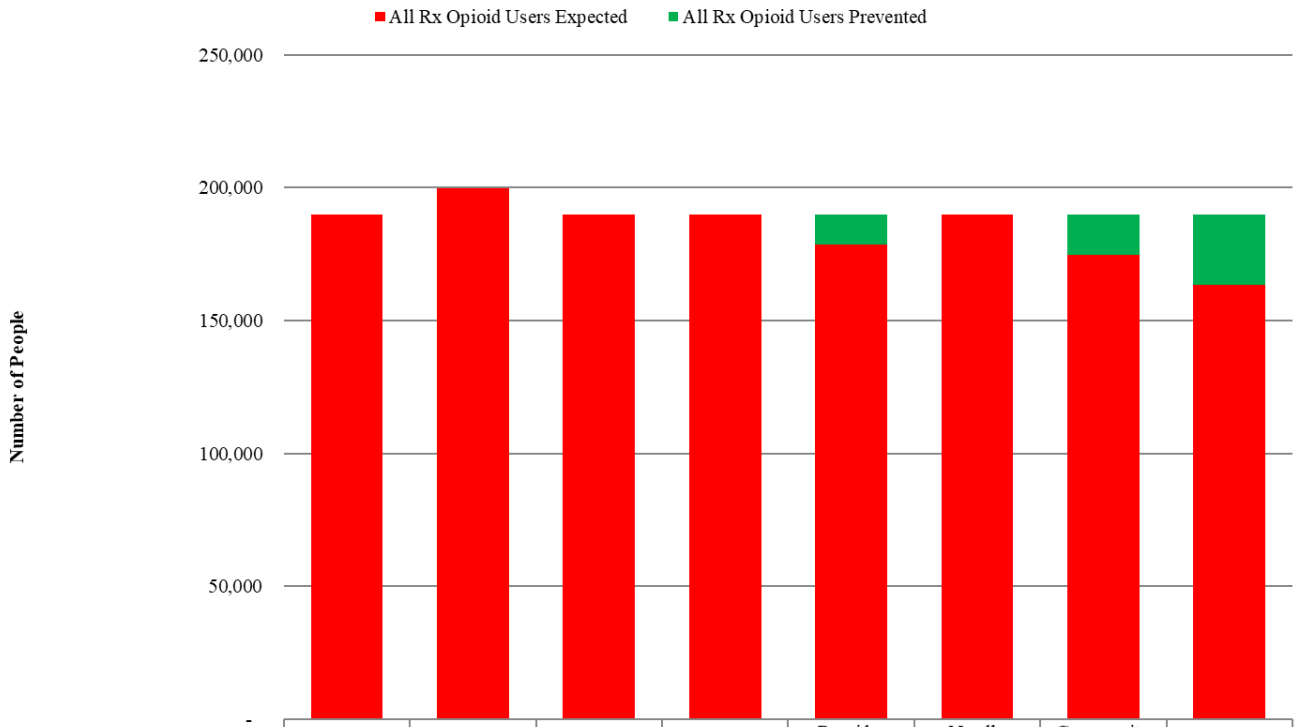
Figure 9: Estimated # of People in "Non Medical Users" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
Non-Medical Users Prevented	0	(7,629)	-	-	6,183	-	8,231	14,414
Non-Medical Users Expected	102,885	110,514	102,885	102,885	96,702	102,885	94,654	88,471

In Figure 9 the data shows how the estimated "Non-Medical Users" sub-population is expected and prevented by targeted scenarios. This group is only impacted by the two interventions that are not specifically directed to current opioid users, intervention #3 (Provider Education) and intervention #5 (Community Education).

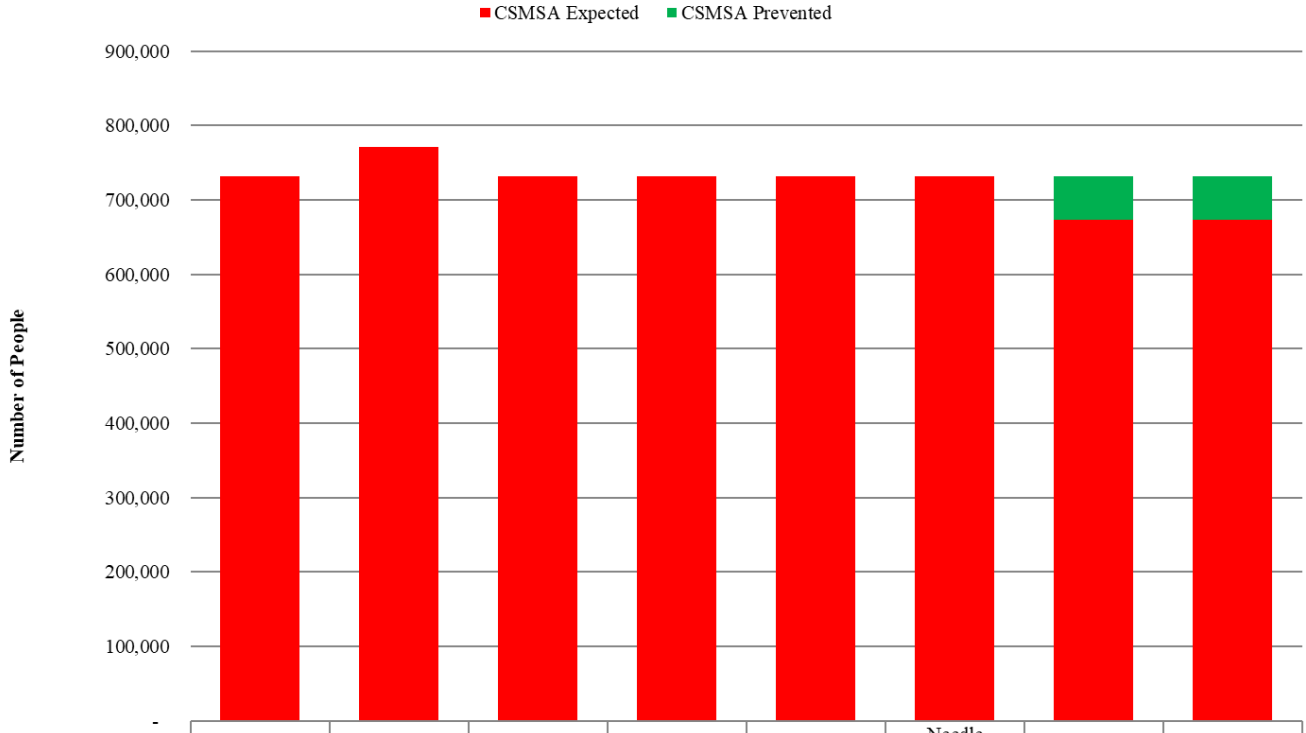
Figure 10: Estimated # of People in "Rx Opioid Users" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
All Rx Opioid Users Prevented	0	(10,000)	-	-	11,411	-	15,189	26,600
All Rx Opioid Users Expected	189,863	199,863	189,863	189,863	178,452	189,863	174,674	163,263

Figure 10 illustrates the estimated number of people in "Rx Opioid Users" sub-population that are expected and prevented by targeted scenarios. This group is only impacted by the two interventions that are not specifically directed to current opioid users, intervention #3 (Provider Education) and intervention #5 (Community Education).

Figure 11: Estimated # of People in "CSMSA" Sub-Population Expected and Prevented by Targeted Scenarios



	Status quo	Projected (#0)	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)	All: #1-#5 (additive)
CSMSA Prevented	0	(38,571)	-	-	-	-	58,586	58,586
CSMSA Expected	732,327	770,898	732,327	732,327	732,327	732,327	673,741	673,741

In Figure 11 the estimated number of people in the "CSMSA" sub-population are shown as expected and prevented by targeted scenarios. This group is only impacted by the one intervention, intervention #5 (Community Education).

Table 5: Estimated Cost of the Interventions					
	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4) [xii]	Community Education (#5) [xiii]
Number of Units	35 [xiv]	1,716 [xv]	15,840 [xvi]	4,021	154,000,[xvii]
Cost Per Unit Per Year	$100,000[xviii]	$100	$67	$20	NA
Total Cost Per Year	$3,502,123	$171,612	$1,061,280	$80,413	$154,000
Cost Per Unit Training	$196 [xix]				
Total Cost Per Year Training	$6,851				
Total Cost Per Year (Leasing Building[xx])	$400,000				
Total Cost Per Unit (MAT)	$2,796[xxi]				
Cost Per Year MAT	$23,117,664				
Total Costs & Rank	$27,026,638 (Rank #1)	$171,612 (Rank #3)	$1,061,280 (Rank #2)	$80,413 (Rank #5)	$154,000 (Rank #4)

The bottom line of Table 5 is in fact, the bottom line. It reveals the cost estimates for each intervention, the details of how those are calculated are listed in the extensive end notes. Intervention #1 ("Treatment" / MAT) is the most expensive at over $27M per year. This amount is based on several factors: 1) on the number of providers that currently have a waiver to conduct MAT; 2) on treatment for a specific number of people; 3) on an estimated number needed to treat all opioid addicted individuals in CSMSA (the latter includes training) and 4) the estimated cost of leasing facilities to treat these people, plus the estimated cost of treatment and its duration (the most expensive part of this intervention). Provider Education (intervention #3) costs around $1M per year; Naloxone (#2) and Community Education (#5) are estimated to be $182K and $154K respectively. The least expensive is intervention #4 (Needle Exchange Program) which comes in at around $80K, this is assuming that if a new method of treatment (i.e. a MAT model) is not undertaken, then the existing infrastructure will be able to support the other interventions.

Table 6: Estimated Benefit of Intervention Based on Reduced Emergency Room and In-Patient Hospital Stays						
	Unit Cost	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
Est. Benefit of Intervention on ER[xxii]	$1,423	$2,044,509	$0	$341,319	$218,081	$454,335
Est. Benefit of Intervention on IP [xxiii] Hospital	$10,400	$4,668,768	$0	$779,425	$498,002	$1,037,504
Total Direct Benefit & Rank	NA	$6,713,277 (Rank #1)	$0 (Rank #5)	$1,120,744 (Rank #3)	$716,083 (Rank #4)	$1,491,839 (Rank #2)

Table 6 shows the estimated benefit for each intervention based on the expected costs of an emergency room visit and an inpatient stay – the estimated cost of these are based on the references cited in the endnotes. The interventions are ranked from most benefit to least benefit: Treatment (with an over $6M benefit) Community Education ($1.5M benefit), Provider Education ($1.2M benefit), Needle Exchange Program ($700K), and Naloxone ($0K). These benefits are calculated at one event per person per year.

Table 7: Estimated Benefit of Intervention: Savings Based on Economic Value of QALY from Prevented Deaths						
	Unit cost	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
Value of Life Saved In QALYS[xxiv] Per Year of Life Saved	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Number of Years Expected to Be Lost to Overdose [xxv]	35.55	35.55	35.55	35.55	35.55	35.50
Total Value		$1,777,500	$1,777,500	$1,777,500	$1,777,500	$1,775,000
Lives Saved (From Table Above)		45	8	8	5	10
Total QALY Benefit & Rank		$79,987,500 Rank #1	$13,331,250 Rank #4	$13,353,469 Rank #3	$8,532,000 Rank #5	$17,750,000 Rank #2

Table 7 shows the estimated life-long benefit of preventing opioid deaths based on the expected number of years of life saved multiplied by the estimated value of each year of life valued at $50K. Treatment is ranked #1 ($80M), followed by Community Education ($18M), Provider Education ($13M), Naloxone ($13M), and the Needle Exchange Program ($8.5M).

Table 8: Benefits Based on Societal Value (Constructed from Proportion of Benefits Attributed to Each Intervention in QALY						
Category of Societal Benefit	Attributed benefit [xxvi]	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
Substance Abuse Treatment	4%	2.6%	0.4%	0.4%	0.3%	0.6%
Low Productivity	6%	3.9%	0.6%	0.6%	0.4%	0.9%
Criminal Justice	10%	6.3%	1.0%	1.0%	0.7%	1.4%
Fatal Costs (Low Productivity and Health Care)	27%	16.5%	2.7%	2.8%	1.8%	3.7%
Health Insurance	32%	19.5%	3.2%	3.3%	2.1%	4.3%
Estimated Impact (Based on Percent Attributed for Each Intervention to QALY Benefit)	100%	60.2%	10.0%	10.0%	6.4%	13.4%

Table 8 shows the estimated benefit by each intervention based on the data in Figure 1. The attribution to each intervention is based on adding the total QALY benefit per intervention and calculating the percent of that economic benefit attributed to each intervention. This is indicated in the last line of the table: 60% to Treatment / MAT, 10% to Naloxone, 10% to Provider Education, 6.54% to Needle Exchange Program and 13.4% to Community Education. The components of that total value are then attributed to each of the components of the societal benefit, substance abuse treatment, low productivity, criminal justice, fatal costs (low productivity and health care), and health insurance.

Table 9: Cost Benefit Analysis					
	Treatment (#1)	Naloxone (#2)	Provider Education (#3)	Needle Exchange Program (#4)	Community Education (#5)
Cost-Benefit Ratio and Rank (Based on Lower ER and Lower Inpatient Hospital Costs Only)	0.25 (Rank #4)	0.00 (Rank #5)	1.06 (Rank #3)	8.91 (Rank #2)	9.69 (Rank #1)
QALY Cost Benefit and Rank*	2.96 (Rank #5)	77.68 (Rank #3)	12.58 (Rank #4)	106.10 (Rank #2)	115.26 (Rank #1)
**Societal benefit estimates per year based on QALY benefit and societal benefits (from Table 5).*	*60.2% (Rank #1)*	*10.03% (Rank #4)*	*10.04% (Rank #3)*	*6.4% (Rank #5)*	*13.4% (Rank #2)*

Table 9 shows the estimated short-term cost-benefit (reduced emergency room and inpatient stays) and long-term cost-benefit where the cost is one year, while the benefit is a potential life span (based upon economic value of years of life saved). The best "value" in the short-term is Community Education[xxvii] because for every dollar spent, the model estimated $9.69 was returned. The second best, in terms of "value," was the needle exchange with $8.91 returned for each dollar. The other intervention with a short-term benefit was Provider Education, where $1.00 investment returned $1.06. The intervention that had an overwhelming benefit – treatment / MAT– was ranked #4 where for every $1 spent, only $0.25 was returned. When a long-term benefit – the economic value of years of life saved – is considered, all interventions return with a positive cost-benefit ratio and rank as follows. Community Education is #1, Naloxone is #2, Provider Education is #3, Treatment is #4, and Needle Exchange is #5. The table also shows the overall societal benefits based on QALY alone (without consideration of costs).

Discussion and Conclusion

The rank order of the short term (1 year) cost-benefit analysis where the benefit was calculated as only reduced ER visit and IP stays is as follows: Community Education, Needle Exchange Program, Provider Education, Treatment, and Naloxone. The only three interventions with a positive cost – benefit were Community Education, where one dollar invested could yield a return of $9.10; needle exchange where one dollar returns $8.91 (with the assumption that if a new method of treatment, i.e. MAT is not undertaken fully, then the existing infrastructure will be able to support interventions #2 - #5) and Provider Education where one dollar invested could yield a return of $1.10. All other interventions had a negative cost-benefit. For example, "treatment" (MAT) results show that an investment of $1.00 would yield a return of $0.25, and Naloxone (as it does not necessarily directly reduce the emergency department or inpatient hospital stays) was $0.00.

However, with the value of saving a life and using the estimated economic value of each year saved, all five interventions had a positive cost –benefit. The rank order of the cost benefit was as follows: Community Education came in at number one (for each dollar invested, the life time value is calculated to be $115.26), then came the Needle Exchange Program ($1 led to a return of $106.10), Naloxone ($1 led to a return of $73.13), Provider Education ($1 led to a return of $12.58) and Treatment / MAT ($1 led to a return of $2.96).

Please note that these CBAs assume that if intervention #1, Treatment (MAT), is not fully implemented, all other interventions would be done using existing infrastructure. These long-term results are impressive, but when broadly considering all societal and economic benefits across all interventions, including health insurance, cost associated with a fatality (low productivity and health care), criminal justice, low productivity, and substance abuse programs; the impact to society, long-term, of the interventions is considerable.

However, as resources are limited, the most cost effective short term and long-term value can be summarized by the tried and true statement, “Prevention is the best cure.”

Influencing the community through the lens of primary prevention via media and by the providers prescribing alternatives to opioids for pain relief and to administer doses of opioid for shorter durations when there is not an alternative is the most cost-effective strategy. The weakness of this strategy is that it does nothing to help those who are currently addicted. As we have seen, the most effective strategy of those addicted is treatment, specifically Medication Assisted Treatment (MAT), a secondary prevention strategy. This research has shown, however, that this is very expensive, and the CBA only included the cost of treatment, and did not include the of the full cost of implementation of MAT in a centralized model, such as the Hub and Spoke, which would include psychosocial support, inpatient rehabilitation and a fully supportive community.

In addition, the early indications we have from our stakeholder interviews suggest the current “de-centralized” model of care where certified providers are distributed throughout the Colorado Springs Metropolitan Statistical Area may not be the most effective or sustainable model.

Obviously, a strategy of tackling head-on those addicted will require external funding to implement all five interventions in the order of the long-term CBA. However, we recommend that an initial funding request should be initiated for a scientific survey to better understand the cultural background necessary to support a fully-operational hub-spoke model, which would incorporate all five interventions.

End Notes

[i]Unless otherwise specified these classifications are from: Valuck, R. *Prescription Drug Abuse in Colorado: A Coordinated, Statewide Response to an Emerging Public Health Problem*. 2017.

[ii] From: Colorado Springs Metropolitan Statistical Area in USA Population. 2016. https://www.citypopulation.de/php/usa-metro.php?cid=17820. El Paso County makes up over 96.6% of the CSMSA (688,284 / 712,327). The remainder of which is located in Teller County.

[iii] From Colorado Prescription Drug Profile, 2015. Number of unique opioid uses in State, multiplied by the percent estimated to be in Colorado Springs (based on population size) https://www.colorado.gov/pacific/sites/default/files/PW_ISVP_Colorado%20Rx%20Drug%20Data%20Profile.pdf.

[iv] The ~2 % based on drop in opioid prescriptions is based on drop from 2015 to 2016: From Colorado Prescription Drug Profile, 2015. Table 1: Characteristics of Controlled Substance Prescriptions Dispensed, Colorado, 2014-2016. https://www.colorado.gov/pacific/sites/default/files/PW_ISVP_Colorado%20Rx%20Drug%20Data%20Profile.pdf.

[v] Justification for MAT (Intervention 1) calculations: "Results indicate that only 36% of clients entering substance use disorders treatment reported abstinence at successful discharge." Based on: Frimpong, Jemima; Guerrero, Erick G; Kong, Yinfei Kim, Tina. Abstinence at Successful Discharge in Publicly Funded Addiction Health Services. The Journal of Behavioral Health Services & Research; New York Vol. 43, Iss. 4, (Oct 2016): 661-675. This 36% is consistent with general rule of thumb: "1/3 of patients take all their medicine, 1/3 take some, 1/3 don't take any at all (Rx prescription never filled)" Hayes, R.B. NCPIE Prescription Month, October 1989. We used 36% for successful treatment, 30% for unsuccessful treatment; and 33% for no treatment.

[vi] Justification for Naloxone (Intervention 2) calculations "In the probabilistic analysis, 6% of overdose deaths were prevented with naloxone distribution; 1death was prevented for every 227 naloxone kits" http://prescribetoprevent.org/wp-content/uploads/Coffin_Cost-effectiveness-article.pdf.

[vii] CDC recently distributed recommendation for this; but no cost benefit analyses has been published or found. Justification for Provider Education (intervention #3): Big Pharma began videos and heavy promotion campaign in 1998_ Year of Oxycotin ads. CNN Health. *Opioid History: From Wonder Drug to Abuse Epidemic*. 2016. http://www.cnn.com/2016/05/12/health/opioid-addiction-history/index.html. Note: We used year 2014, when it started dropping, as an indicator of external pressure to slow Rx prescribing. See below: Source: IMS Health, Vector One: National, years 1991-1996, Data Extracted 2011. IMS Health, National Prescription Audit, years 1997-2013, Data Extracted 2014.
We used the average from 1998 to 2011 for estimated impact of provide education as calculated below:

Year	Rx (in M)	Absolute difference	Percent Difference
1998	105	8	8.25%
1999	116	11	10.48%
2000	126	10	8.62%
2001	138	12	9.52%
2002	142	4	2.90%
2003	149	7	4.93%
2004	155	6	4.03%
2005	163	8	5.16%
2006	174	11	6.75%
2007	184	10	5.75%
2008	196	12	6.52%

2009	202	6	3.06%
2010	210	8	3.96%
2011	219	9	4.29%
2012	217	-2	-0.91%
2013	207	-10	-4.61%

Average 1998-2011	Min	Max
6.01%	2.90%	10.48%

We are using the average increase in Rx for opioids from 1998 to 2013 as an estimate of the impact of Provider Education campaign when a campaign was directed to changing provider practices; we assume the new effort to reverse these trends will be comparable (It could be as high as 10.5%).
Also, the 10% # may be justified as well: in the reference below: 2,450 providers received opioid related education with a ten percent reduction in opioid prescribing in family medicine. Clients reported that 50% of the time- prescribers discussed risks, storage, and proper disposal of opioids. From: Utah State Legislature. Issue Brief: Budget Deep-Dive into Opioid Outreach Efforts. 2017. https://le.utah.gov/interim/2017/pdf/00002833.pdf).

[viii] We assume that 24.8 % of abusers are heroin, thus 0.248 * 16,212 are heroin users or 4,021 based on Colorado Prescription Drug Profile, 2015. Figure 7: Age-Adjusted Heroin Related Overdose Death Rates by Health Statistics Region, Colorado, 2013-2015.

[ix] Justification for NEP (Intervention 4) calculations – assume all heroin uses use the needle exchange service and 16% will get treatment for addiction, based on this reference: (https://www.ncbi.nlm.nih.gov/pubmed/11027894).

[x] This study reveals a return on investment of between $1.30 and $5.50 for every dollar spent on Needle Exchange Programs in Australia over a ten-year period. Wilson, David P; Braedon, Donald; Shattock, Andrew; Wilson, D; Fraser-Hurt N. The cost-effectiveness of harm reduction. *Int J Drug Policy*. 2015;26:S5-S11. doi:10.1016/J.DRUGPO.2014.11.007.

[xi] Justification for Community Education (Intervention 5). We looked at early tobacco cessation programs: Flay BR. Mass media and smoking cessation: a critical review. Am J Public Health 1987; 77:153-60. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1646843/pdf/amjph00253-0021.pdf This article shows 7/100 of controls (smokers) stopped smoking while 15/100 of "media" exposed individuals (smokers) stopped smoking. We used the net impact of 8/100 or 8% from mass media. Flay BR. Mass media and smoking cessation: a critical review. Am J Public Health 1987; 77:153-60. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1646843/pdf/amjph00253-0021.pdf.

[xii] It costs an average sized city about $160,000 to run a Needle Exchange Program (NEP), equaling about $20 per user per year, whereas one syringe-infected AIDS patient will require upwards of $120,000 per year in public health expenditures. ACLU. *Needle Exchange Programs Promote Public Safety*. 2017. https://www.aclu.org/fact-sheet/needle-exchange-programs-promote-public-safety#11.

[xiii] Utah State Legislature. *Issue Brief: Budget Deep-Dive Into Opioid Outreach Efforts*. 2017. https://le.utah.gov/interim/2017/pdf/00002833.pdf.

[xiv] Treatment Intervention-Waivered providers needed: Need 1 waivered provider per each of 275 addicted persons which is 16,212. SAMHSA. *Understanding the Final Rule for a Patient Limit of 275*. 2016. https://www.samhsa.gov/sites/default/files/programs_campaigns/medication_assisted/understanding-patient-limit275.pdf.

[xv] Narcan intervention costs: 6% of overdose deaths were prevented with naloxone distribution. 1 death was prevented for every 227 naloxone kits distributed. There are 125 deaths, therefore at 6% prevention, we expect the

prevention of 7.5 deaths. This program would require 7.5 * 227 kits=1716 kits. Based on: Coffin P, Sullivan S. Cost-Effectiveness of Distributing Naloxone to Heroin Users for Lay Overdose Reversal. 2014. http://prescribetoprevent.org/wp-content/uploads/Coffin_Cost-effectiveness-article.pdf.

[xvi]Estimated number of health care providers in Colorado Springs Colorado is based on: Bureau of Labor Statistics. Occupational Employment, Metropolitan and non-metro population and wage estimate. May 2016. https://www.bls.gov/oes/current/oes290000.htm.

[xvii] Community Media costs are based on: Utah State Legislature. *Issue Brief: Budget Deep-Dive Into Opioid Outreach Efforts*. 2017. https://le.utah.gov/interim/2017/pdf/00002833.pdf Media cost were $154,000 (included TV commercials, Facebook, Instagram, YouTube, Digital Banner Ads, Highway Billboards, brochures for medical offices, posters for practitioners and pharmacies, warning stickers for Rx bottles.
Note: CDC has free previously designed campaign resources and materials free of charge, like radio spots, bill board and online ads, etc. Centers for Disease Control and Prevention. *Rx Awareness*. 2017. https://www.cdc.gov/rxawareness/.

[xviii] We estimated $100K per year for this estimate a bit below the 10/17 median estimate of $102,426. https://www1.salary.com/Nurse-Practitioner-Salary.html.

[xix] Cost of Waiver: American Academy of Addiction Psychiatry. *Buprenorphine Waiver Training*. 2017. https://www.aaap.org/education-training/buprenorphine/.

[xx] Facility costs: Rental: $546,669 – calculated from Colorado Springs lease pricing and HJR. Based on: O'Connell, S. Children, Families, Health, and Human Services Interim Committee. *HJR 16: State-Operated Institutions Building and Operating a 16-Bed Inpatient Facility*. 2014. http://leg.mt.gov/content/Committees/Interim/2013-2014/Children-Family/Committee-Topics/HJR16/hjr16-building-operating-16-bed-facilities-may2014.pdf.

[xxi] Cost of Treatment: This was based on the fact that (1/3 do not get treatment, 30% do partial treatment, and 36% finish treatment). Therefore 2/3 get treatment or 16,212 * .66 = 10,699 or 234.33/month or $2.5 m dollars. Based on: Jones ES, Moore BA, Sindelar JL, et. al. *Cost Analysis of Clinic and Office-based Treatment of Opioid Dependence: Results with Methadone and Buprenorphine in Clinically Stable Patients. Drug and alcohol dependence*. 2009. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2646001/.
The average duration of treatment is 12 months based on The Pew Charitable Trust. *Medication-Assisted Treatment Improves Outcomes for Patients with Opioid Use Disorder*. 2016. http://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2016/11/medication-assisted-treatment-improves-outcomes-for-patients-with-opioid-use-disorder; therefore, a full treatment for 12 months would be $2796 if for 36% of the people. It is assumed those with partial response, 30% will only take treatment for 1/2 time or 6 months, or $2,796/2=$1,398.

[xxii] Average cost of Emergency Room (ER) stay is $1423. Based on: Agency for Healthcare Research and Quality. Table 6: Emergency Room Services-Median and Mean Expenses per Person with Expense and Distribution of Expenses by Source of Payment: United States, 2013 Facility and SBD Expenses. 2013. https://meps.ahrq.gov/mepsweb/data_stats/tables_compendia_hh_interactive.jsp?_SERVICE=MEPSSocket0&_PROGRAM=MEPSPGM.TC.SAS&File=HCFY2013&Table=HCFY2013_PLEXP_E&VAR1=AGE&VAR2=SEX&VAR3=RACETH5C&VAR4=INSURCOV&VAR5=POVCAT13&VAR6=REGION&VAR7=HEALTH&VARO1=4+17+44.

[xxiii] The average hospital inpatient (IP) stay costs were $10,400 in 2012, a number we have used. Moore B, Levit K, and Elixhauser A. *Costs for Hospital Stays in the United States, 2012 Table 1*. Healthcare Cost and Utilization Project.2014. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb181-Hospital-Costs-United-States-2012.pdf.

[xxiv] We estimated $50K per year of QALY, Based on Braithwaite RS, Meltzer DO, King JT Jr, Leslie D, Roberts MS. *What does the value of modern medicine say about the $50,000 per quality-adjusted life-year decision rule?* Med Care. 2008. https://insights.ovid.com/pubmed?pmid=18362813
There is some disagreement regarding this as can be seen in: Neumann PJ, Cohen JT, and Weinstein MC. *Updating Cost-Effectiveness — The Curious Resilience of the $50,000-per-QALY Threshold.* Perspective. New England Journal of Medicine. 2014. http://www3.med.unipmn.it/papers/2014/NEJM/2014-08-28_nejm/nejmp1405158.pdf .

[xxv] We estimate years lost to overdose is 41.7 for males (life expectancy 76.4) = 34.7 years lost. 44.8 for females; life expectancy 81.2 = 36.4 years lost. Average: 35.55 years. Based on: Project Know: Understanding Addiction. *Cutting it Short*. 2017. https://www.projectknow.com/discover/cutting-it-short/.

[xxvi] Based on Florence et al, 2013, Colorado Health Institute and attributed value from total QALY dollars above (QALY benefits were totaled across all intervention and the percent attributed to each was calculated and applied here).

[xxvii] We are only looking at Community Education broadly, but adding school education into the mix could also be very effective. Properly implemented school programs could initiate a decline of 1.5 million youth and delay onset for a mean of two years. This delay in onset translates to a reduction in problems later in life (Grant & Dawson, 1997; Lynskey et al., 2003). Substance Abuse Prevention Dollars and Cents: A Cost-Benefit Analysis.; 2008. https://www.samhsa.gov/sites/default/files/cost-benefits-prevention.pdf. Accessed November 28, 2017.

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Appendix

Initial Intervention Recommendations from CPAR to Address the Opioid Epidemic, September 27, 2016

ACCESS TO TREATMENT	COMMUNITY EDUCATION	PROVIDER EDUCATION	PUBLIC SAFETY
Recommendations to help those who have a substance use disorder access appropriate care:	Recommendations to reduce the opioid addiction problem:	Recommendations to ensure providers are knowledgeable about safe and effective pain management:	Recommendations to increase public safety as it relates to opioid/prescription drug abuse:
# 1 TRANSPORTATION	# 1 EARLY INTERVENTION	#1 SHARED COMMUNITY PHILOSOPHY OF EVIDENCE-BASED TREATMENT OF PAIN	# 1 COMMUNITY EDUCATION
> Decrease barriers to transportation through resources that are available within 24 hours notification.	> School-based curriculum > Education regarding grieving to support development of resilience in children > Policy changes to support universal education in schools > Patient education regarding appropriate use of opioids following surgery and treatment of acute pain.	> Provider Education - screening for risk of substance use disorder, alternative practices for pain treatment, bridge primary care and behavioral health, use of prescription drug monitoring program, systemic change, i.e., sole provider when patient is a super-utilizer, opioid prescribing guidelines. > Patient education - side effects, alternatives to manage pain, proper disposal, storage and consistent messages. > Multi-disciplinary team approach - link behavioral health and primary health care coordination, communication between primary care and pain management clinics . > Alternative treatments - integrated care, i.e., acupuncture, massage therapy.	> Community awareness that problem does exist > Naloxone training
# 2 INCREASE TREATMENT OPTIONS			# 2 COLLABORATION
> Same day intake/intervention > In-patient treatment > Expand CARES and CRT programs			> Colorado Consortium for Prescription Drug Abuse > Opioid coalitions starting in Colorado and Colorado Springs
# 2a EDUCATION	# 2 COMPREHENSIVE EDUCATION		# 3 MED ASSISTED TREATMENT AND REVERSAL
> Single entry point to access information about available resources > Consistent messaging to patients.	> Educate students > Educate parents and teachers > Educate users > Educate providers > Community education		> Narcan availability > Availability of methadone, buprenorphine > Adequately trained staff to refer and/or provide treatment. Preference is at point of service.
# 2b PEER SUPPORT			# 4 NEEDLE EXCHANGE PROGRAM
> Peer substance use disorder support groups			> Needle exchange program that links people to resources: Mental Health and Treatment

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