

The Colorado HIV/AIDS Strategy

2017 - 2021



A Statewide Collaborative Plan for HIV Prevention and Care Developed by the
Colorado Alliance for HIV Prevention, Treatment & Care (CDC & Part B Planning Group)
Colorado Department of Public Health & Environment (CDC & Part B Grantee)
Denver Office of HIV Resources (Part A Grantee)
Denver TGA HIV Resources Planning Council (Part A Planning Group)

This plan was developed to meet the requirements for an
integrated HIV care and prevention plan as described in the
CDC and HRSA Integrated HIV Prevention and Care Plan Guidance for CY 2017 - 2021,
Sections II - IV

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Chapter 1 - Letters of Concurrence from the Part A and Part B Planning Groups and Acknowledgements

Part A Letter of Concurrence



September 13, 2016

Steven R. Young, MSPH, Director
HRSA, HIV/AIDS Bureau,
Division of Metropolitan HIV/AIDS Programs
5600 Fishers Lane,
Rockville, MD 20857-1750

Reference: Colorado Integrated HIV Prevention and Care Plan/Colorado HIV/AIDS Strategy

Dear Mr. Young:

The Denver HIV Resources Planning Council (DHRPC) concurs with the submission of the Colorado HIV/AIDS Strategy (COHAS) as the integrated HIV prevention and care plan by the Denver Office of HIV Resources (DOHR) and the Colorado Department of Public Health and Environment (CDPHE). COHAS was written in response to guidance set forth for health departments and HIV planning groups funded by the CDC's Division of HIV/AIDS Prevention and HRSA's HIV/AIDS Bureau. COHAS is a joint HIV prevention and care plan, applicable to the Denver Transitional Grant Area (TGA) and the State of Colorado.

DHRPC reviewed COHAS prior to submission to CDC and HRSA to verify that: programmatic activities and resources are allocated to disproportionately affected populations and geographical areas that bear the greatest HIV burden; the plan fulfills requirements put forth by the Ryan White HIV/AIDS Program legislation and program guidance; the plan development process was consistent with HRSA/CDC integrated HIV prevention and care planning guidance; and content addresses the needs of people living with HIV living in the Denver TGA.

The inclusion of at-risk groups and people living with HIV in decisions that impact them is at the center of HIV prevention and care planning and service delivery. To address this, planning processes included representatives of varying races, ethnicities, genders, sexual orientations, ages, and other characteristics reflecting the experiences and expertise of those impacted by HIV in the jurisdiction. Multiple steps were taken to ensure that the integrated planning process was open and accessible to stakeholders. CDPHE, DOHR, DHRPC and Alliance agreed upon a process for plan development with multiple "on ramps" for people living with HIV, community members, Alliance members, CDPHE staff, DHRPC members, and DOHR staff. CDPHE staff drafted individual chapters which were posted on Google docs and distributed via email and handouts at meetings. Chapter edits between meetings were accepted, as well. Meetings to review/revise chapters were held twice per month: during the day at Alliance meetings and in the evening hosted by DHRPC. Meetings were available via conference call and Adobe Connect. A well-respected facilitator, with extensive experience in HIV planning facilitated meetings. Updates on Plan chapters were given at the June DHRPC meeting. Monthly integrated planning meeting participation ranged from 10-13 DHRPC members and of these,

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five to seven were people living with HIV. Guests attended from local health departments, community based organizations and family members of people living with HIV.

CDPHE staff drafted each chapter and presented it at the two monthly meetings. Chapters correspond to the Colorado Model for HIV Prevention and Care, previously used in COHAS. Each meeting included a discussion of the chapter and edits were graciously accepted by CDPHE. Chapters were updated to reflect edits identified in the meeting. If additional data was requested by stakeholders, CDPHE staff conducted further analysis and presented findings to attendees at subsequent meetings and in later chapter drafts posted for review.

On August 22, 2016, DOHR sent a letter to DHRPC verifying that COHAS meets the criteria outlined by HRSA and CDC and recommending DHRPC's support of COHAS via a letter of support.

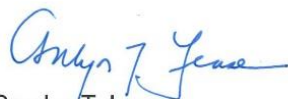
The final draft plan was distributed to DHRPC members and posted on the website six days before the vote along with a guide to the Plan development process, and criteria to evaluate the plan for concurrence, concurrence with reservations or non-concurrence. Integrated Planning Committee members volunteered to present chapters to the full DHRPC membership at the September 1st meeting. CDPHE staff were on hand to answer questions. Letters of concurrence, concurrence with reservations and non-concurrence were drafted for consideration by DHRPC members and sent out prior to the meeting. The Plan was unanimously approved.

The DHRPC will continue to collaborate and coordinate planning processes with DOHR, CDPHE and the Alliance. Examples include: conducting joint prevention and care needs assessments and resource inventories; aligning metrics and sharing data to monitor progress towards joint goals; conducting joint meetings or trainings; DHRPC member participation in Alliance meetings and Alliance member participation in DHRPC meetings; advocating for joint positions and supporting one another to improve systems performance across jurisdictions to meet the needs of people at-risk for, or living with HIV.

Our signatures confirm the concurrence of the DHRPC with the integrated HIV prevention and care plan contained in the COHAS.

If you need further information regarding this letter, please contact Jean Finn, DHRPC's Program Administrator at 720.865.5503 or jean.finn@denvergov.org.

Sincerely,



Carolyn T. Lease
DHRPC Co-Chair



Philip Doyle
DHRPC Co-Chair

C: Anthony Stamper, MPA, MURP
Jean Finn, RN
Lisa Straight, MA

Part B Letter of Concurrence



Dedicated to protecting and improving the health and environment of the people of Colorado

Part B Letter of Concurrence

Melissa Thomas-Proctor, CDC Project Officer
CAPT Kathleen Edelman, HRSA Project Officer

Dear Ms. Thomas-Proctor and CAPT Edelman:

The Colorado Alliance for HIV Prevention, Treatment and Care (the state's planning group for both CDC HIV prevention and HRSA Ryan White Part B) concurs with the following submission by the Colorado Department of Public Health and Environment (CDPHE) in response to the guidance set forth for health departments and HIV planning groups funded by CDC's Division of HIV/AIDS Prevention (DHAP) and HRSA's HIV/AIDS Bureau (HAB) for the development of an Integrated HIV Prevention and Care Plan.

The Colorado Alliance for HIV Prevention, Treatment and Care has reviewed the Integrated HIV Prevention and Care Plan submission to the CDC and HRSA (known locally as the Colorado HIV AIDS Strategy or COHAS) to verify that it describes how programmatic activities and resources are being allocated to the most disproportionately affected populations and geographic areas that bear the greatest burden of HIV disease. The Alliance concurs that the Colorado HIV AIDS Strategy submission fulfills the requirements for an integrated HIV prevention and care plan put forth by the Funding Opportunity Announcement PS 12-1201 and the Ryan White HIV/AIDS Program legislation and program guidance.

The Colorado Department of Health and Environment (CDPHE), the Denver Office of HIV Resources (DOHR), the Denver HIV Resources Planning Council (DHRPC), and the Colorado Alliance for HIV Prevention, Treatment and Care agreed upon a process for plan development with multiple ways to engage communities, people living with HIV, those at substantial risk of acquiring HIV infection, and other impacted population groups. Meetings were well attended by Alliance members, CDPHE staff, DHRPC members, and DOHR staff, and the process ensured that the HIV prevention and care activities included in COHAS would be responsive to the needs of Coloradans living with HIV/AIDS or at highest risk. Key features of the process were as follows:

1. Meeting announcements were posted on the CDPHE and DHRPC online community calendars.
2. Meeting announcements were distributed electronically through a variety of list serves reaching more than 200 individuals and agencies.
3. Meeting materials were posted on Google docs and distributed via email and hard copies made available at all meetings.
4. Meetings to review and revise the chapters were held twice per month from April through August: one meeting taking place during business hours, and the other taking place in the evening hours.

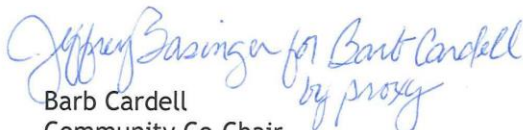
5. Meetings were available via conference call and Adobe Connect.
6. A well-respected facilitator, with extensive experience in HIV care planning, was brought on to facilitate meetings so all voices could be heard.

Individuals representing communities directly impacted by HIV assisted in the development of the objectives, strategies, activities, and performance indicators reflected in the plan. Many attended all of the ten meetings called specifically to develop the plan. Drafts of the plan were provided in advance. Participants came to these meetings prepared, having read the draft, and ready to make recommendations to strength it.

This process involved an unprecedented level of collaboration between Ryan White Part A and Part B. Moving forward, the plan is to maintain this strong collaboration as we monitor the implementation of COHAS and make adjustments as needed to continuously improve the planning and implementation of high-quality, effective, and responsive prevention, care, and treatment programming.

The signatures below confirm the concurrence of the Alliance with the Colorado HIV AIDS Strategy.

September 14, 2016


Barb Cardell
Community Co-Chair
Colorado Alliance for HIV Prevention,
Treatment and Care


Melanie Mattson
Health Department Co-Chair
Chief of the STI/HIV/Viral Hepatitis Branch
Colorado Department of Public Health &
Environment

Acknowledgements

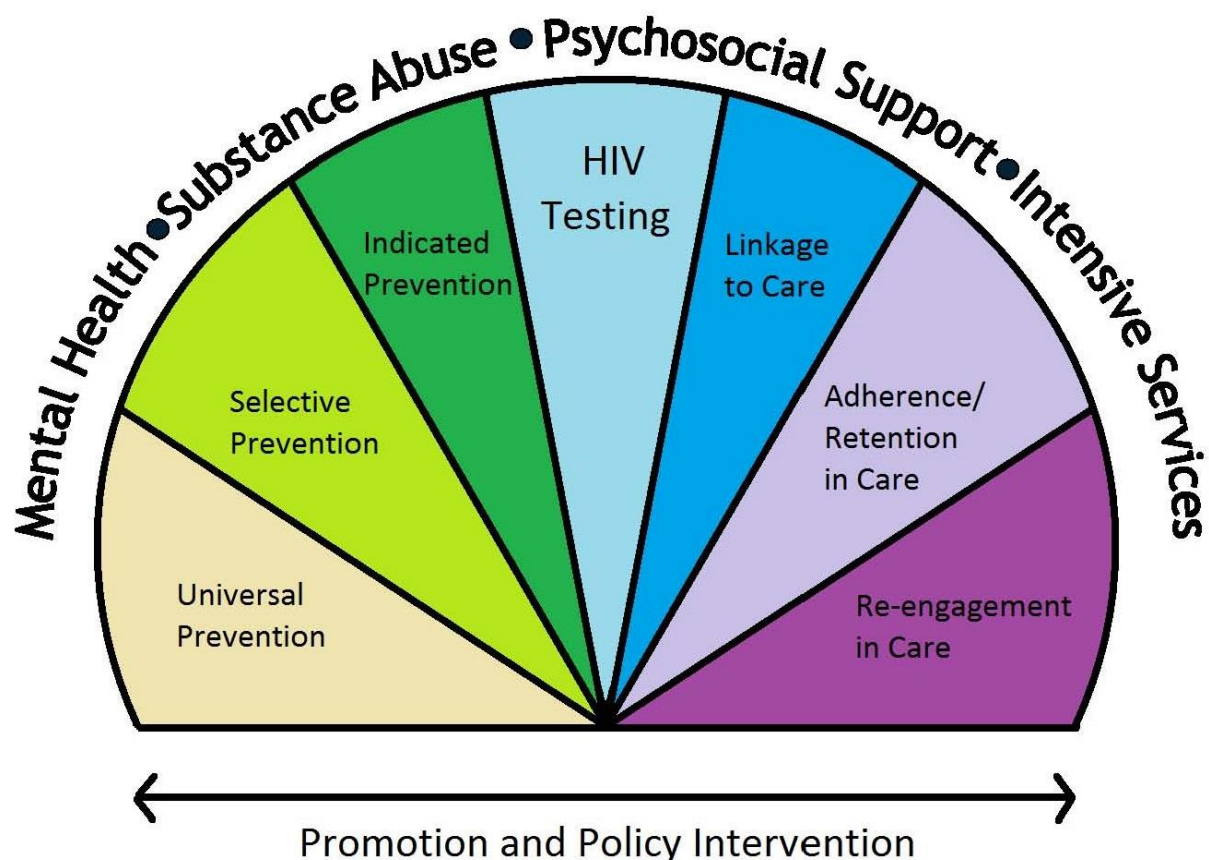
The 2017-2021 Colorado HIV AIDS Strategy could not have been written without the support of many people who generously lent their time and talents to the effort. We gratefully acknowledge the contributions of the following people.

Alexis	Adams	Steven	Johnson, MD
Karen	Artell	Rebecca	Jordon-Yehle
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Chapter 2 - Introduction

The Colorado HIV AIDS Strategy (COHAS) represents a major step forward by the Colorado Department of Public Health and Environment (CDPHE) and community partners to integrate the full spectrum of efforts to prevent HIV and to provide care and treatment for people living with HIV or AIDS (PLWHA). The overall framework of COHAS is depicted visually in Figure 2.1, below, which is based on a model first developed by the U.S. Institute of Medicine (IOM) for behavioral health services.¹

Figure 2.1 - The Colorado Model for HIV Prevention and Care, Based on a Behavioral Health Services Model from the U.S. Institute of Medicine



As shown on the left side of this figure, effective HIV prevention requires well-designed, evidence-based strategies and interventions at three levels: universal (for the general population), selective (for groups at higher than average risk), and indicated (for individual people with enhanced risk factors and experiencing “critical events”). Moving to the right on

¹ This model is based on the “IOM Protractor Model” that was developed in the context of behavioral health services. More information on the IOM model is available at <http://www.cars-rp.org/publications/Prevention%20Tactics/PT8.13.06.pdf>

the spectrum, our hope is that future HIV infections will be rare, but when they occur, our goal is to provide the means by which people can be informed of their HIV serostatus as early as possible after infection. The next step, linkage to care, is also considered successful when it occurs as promptly as possible following diagnosis and results in a person having access to services they need to initiate care and treatment. The next step, adherence to and retention in care, is deemed successful when it is long term and sustained. When there are lapses in care, the strategies for re-engagement in care become important.

Underlying this entire model are two sets of foundational strategies, which support and promote the success of the other strategies. The first set is Promotion and Policy Interventions, which seek to create a generally more supportive environment for service delivery and community action. The second set is mental health, substance use, psychosocial support, and intensive services for people experiencing critical events. It is certain that those who provide prevention, HIV diagnoses, linkage to care, retention/adherence, and re-engagement will encounter clients with these often challenging additional issues and will need a variety of specialized resources to respond effectively to such client needs.

The chapters of COHAS proceed from this model. Chapter 3 covers universal, selective, and indicated prevention as well as policy and promotion interventions. Chapter 4 covers HIV testing. Chapter 5 covers both linkage to care and re-engagement in care. Chapter 6 covers adherence to and retention in care. Chapter 7 covers mental health, substance use, and psychosocial support services. Chapter 8 covers intensive services for people who are experiencing critical events. Each COHAS chapter begins with a depiction of The Colorado Model with the portion or portions of the model covered in that chapter highlighted.

COHAS contains the required elements described in the *CDC and HRSA Integrated HIV Prevention and Care Plan Guidance for CY 2017 - 2021*. Chapters 3 to 8 are built around the goals from the National HIV AIDS Strategy (NHAS) that are related to each chapter. Beneath each NHAS goal are one or more objectives, and beneath each objective are multiple activities with a listing of responsible parties and timelines. These chapters include a resource chart, showing the available funding sources to support each activity. Finally, these chapters include summaries of identified challenges and barriers as well as data excerpted from the Statewide Coordinated Statement of Need that documents and justifies the chapter's numeric goals.

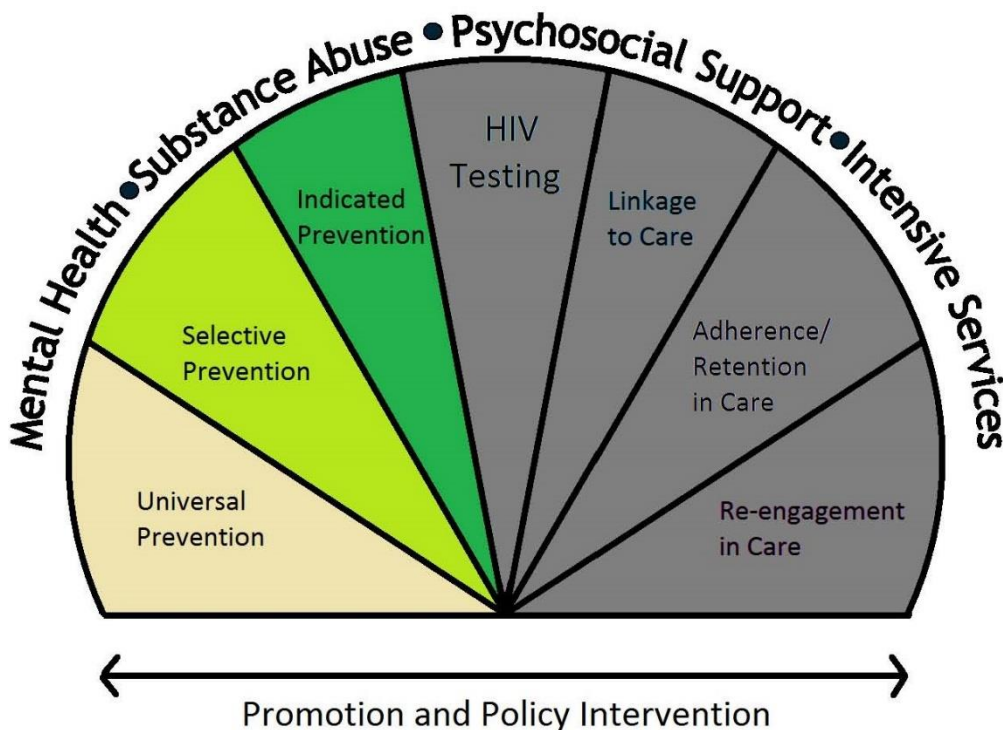
COHAS is meant to be both practical and aspirational. For some areas of the plan, there are currently sufficient resources to deliver the strategies and interventions. For other areas of the plan, CDPHE and the larger community must come together to identify the needed resources so the vision of COHAS can become a reality.

At its best, a document like COHAS is an opportunity for the full group of stakeholders - CDPHE, funded contractors, community members, and other concerned parties - to come together for a frank appraisal of what has been accomplished, what remains to be done, and how we can come together to do what is best for all of Colorado. As we enter this era of

expanded healthcare and treatment as prevention, there are many exciting opportunities that many thought impossible just a few years ago. There are also very difficult decisions to be made, but we have found the will and commonality of purpose to make difficult decisions in the past. We owe nothing less to our friends, neighbors, partners, and family who face HIV each day with courage, and those we have lost to HIV but keep alive in our memories.

Chapter 3 - Universal, Selective, and Indicated Prevention and Policy and Promotion Interventions

Overview



This COHAS chapter focuses on the first four elements of the Colorado Model for HIV Prevention and Care (universal prevention; selective prevention; indicated prevention; and promotion and policy).

Universal Interventions

These interventions are delivered to broad populations without consideration of individual differences in risk for HIV. They address the general public or a segment of the entire population with average or less than average probability of becoming infected with HIV. Universal interventions also reach people at higher levels of risk, but these interventions are not tailored specifically for higher risk populations.

Selective Interventions

These interventions address specific sub-populations whose HIV-related risk is significantly higher than average, either imminently or over a lifetime. They are delivered to sub-groups of individuals identified on the basis of their membership in a group that has an elevated risk for becoming infected with HIV or transmitting HIV to others.

Indicated Interventions

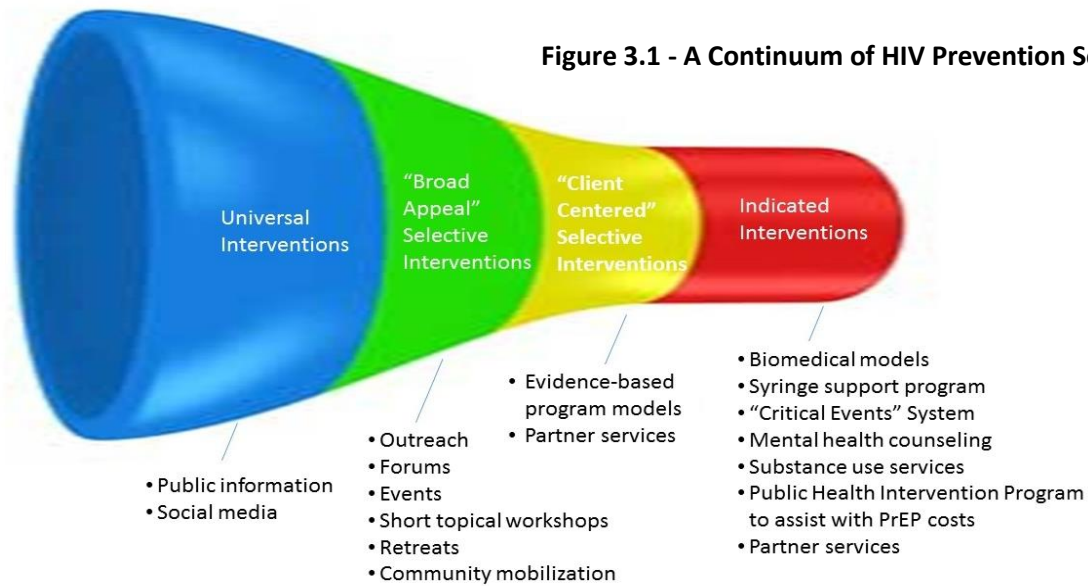
These interventions address specific individuals who have known, identified risk factors that enhance the risk of negative HIV outcomes (such as HIV transmission, lack of access to health care, and not achieving viral suppression). These risk factors include history of trauma and stigma, co-occurring mental health or substance use problems, poverty, homelessness, and general lack of health-promoting psychosocial support.

Matching the intensity of the intervention to the intensity of the need

Another way to depict the continuum of HIV prevention interventions, and the interaction between them, is shown in Figure 3.1. At the left side of this “funnel” are very broad strategies that deliver messages to large groups of people, including the general public. If designed effectively, such “universal” strategies generate prevention benefit; some people will change if they receive accurate information, from a credible source, along with motivational messages. In other cases, the broad messages lead people with higher risks to seek out more intensive support. The next stage, “broad appeal selective interventions,” are designed to be easy to access and require minimal commitment of time and effort for participants. Again, for some people, these “broad appeal” interventions are sufficiently intense to be protective; for other people, such interventions are just an “entry point” to more intensive services that better match their needs. An example would be a man attending a forum on gay health that helps him to recognize his challenges around social isolation. The forum motivates him to enroll in a program to build relationship skills. Another example would be a woman attending an event on family health where she completes a self-assessment on alcohol use and decides to make an appointment for one-on-one counseling about treatment options. As with previous stages in the “funnel,” evidence based behavioral programs might be sufficient to be protective for some, but fail to meet the needs of a smaller subset of attendees. Continuing the example, the man with social isolation issues might meet one-on-one with a prevention counselor, screen positive for depression, recognize how this condition is driving his HIV risk, and decide to seek depression treatment and HIV pre-exposure prophylaxis. The woman with alcohol issues might similarly recognize the connection between her drinking and her ongoing risk and decide to seek help to prevent her progression to alcoholism. For participants such as these, there is a transition to the most intensive “indicated” interventions, such as biomedical models and clinical services.

Typically, there is a screening process that helps match participants to the level of service that best matches their need, regardless of their “entry point” in the HIV prevention system. Some participants may move linearly from one stage to another, as in the examples; other participants may immediately recognize their need for an indicated intervention and go directly to the type of service that meets that need. For example, a PWID may go directly to a syringe support program or a sexually active MSM may read an advertisement about PrEP and go directly to a prescriber.

Figure 3.1 - A Continuum of HIV Prevention Services



Promotion and Policy Interventions

These interventions are designed to create environments and conditions that support health and the ability of individuals to withstand challenges. Promotion and policy interventions also reinforce the entire continuum of HIV prevention, treatment, and care services.

NHAS Goal 1: Reduce new HIV infections

Objective 1: Support broad-based policies and promotional efforts that advance sexual health and address stigma experienced by people living with or at risk of HIV or AIDS.

Strategy 1: Participate in policy and promotional efforts that contextualize HIV issues, emphasize sexual wellness, focus on positive and respectful relationships, acknowledge the impact of sexuality on health, and take a syndemic² approach to prevention.³

² A “syndemic” is defined by CDC as: “Two or more afflictions, interacting synergistically, contributing to excess burden of disease in a population. The spread and persistence of mutually reinforcing health problems are typically found in communities with unfavorable living conditions (e.g., economic hardship, deteriorated infrastructure, social disruption, institutionalized racism, inadequate health care, etc.)” CDC syndemic information is available at [http://www2.cdc.gov/syndemics/PPT/Syndemics%20Seminar%20NCCDPHP%20071802%20\(web\).ppt](http://www2.cdc.gov/syndemics/PPT/Syndemics%20Seminar%20NCCDPHP%20071802%20(web).ppt)

³ These five principles are based on a sexual health framework that appears in Ivanovich, M, Fenton, K, and Douglas, J M. Considerations for National Public Health Leadership in Advancing Sexual Health. (2013) *Public Health Reports*. Supplement 1 / Volume 128, p. 106. This framework is further described on page 34 in this chapter.

Activities/Interventions

- 1-1-a Seek out collaboration with other groups that are supportive of sexual wellness.
Responsible Parties: ICP Program, PCC Unit
Timeline: Q1 2017 - Q4 2021
- 1-1-b Advocate for changes in school policies and practices that lead to sexual wellness and comprehensive sex education, in collaboration with other groups committed to this outcome, including Colorado Youth Matters, Colorado Youth for a Change, Connect-2-Protect, and the Sexual Health Work Group at CDPHE.
Responsible Parties: ICP Program, PCC Unit
Timeline: Q1 2017 - Q4 2021
- 1-1-c Utilize the five principles of the sexual health framework to evaluate and select curricula, protocols, and other approaches being implemented with funding from the STI/HIV/Viral Hepatitis Branch at CDPHE.
Responsible Parties: Contract Monitoring Unit, Capacity Building Unit.
Timeline: Q1 2017 - Q4 2021

Strategy 2: Participate in policy and promotional efforts that address stigma around HIV infection and the broader stigma associated with drug use and sexual expression.

Activities/Interventions

- 1-2-a Focus policy and promotional efforts around actionable drivers and facilitators of HIV stigma and the intersecting stigmas for HIV positive status and socially discredited behaviors and characteristics, as articulated in the UNAIDS “Framework for Reducing HIV Stigma and Discrimination.”⁴
Responsible Parties: ICP Program, PCC Unit
Timeline: Q1 2017 - Q4 2021
- 1-2-b Seek out collaboration with other groups that share current or potential interests around mitigating stigma around HIV, drug use, and sexual expression.
Responsible Parties: ICP Program, PCC Unit
Timeline: Q1 2017 - Q4 2021

Objective 2: Provide universal HIV prevention strategies for the general population in Colorado, which will impart factual information, generate support, reduce stigma, make HIV screening routine, and facilitate access to further information and services.

Strategy 1: Encourage health care providers to routinely offer HIV-related preventive services to every patient, consistent with the A and B recommendations of the USPSTF.

⁴ The UNAIDS “Framework for Reducing HIV Stigma and Discrimination” is described in detail on page 36.

Activities/Interventions

1-1-a Utilize data from Medicaid and the All Payers Claims Database to gauge how commonly the following USPSTF recommended services are offered to patients: Chlamydia and gonorrhea screening for sexually active women age 24 and older; intensive behavioral counseling for all sexually active adolescents and for adults who are at increased risk for sexually transmitted infections; screening for syphilis infection in persons who are at increased risk for infection; HIV screening in adolescents and adults ages 15 to 65 years.⁵

Responsible Parties: Surveillance Program, ICP Program, PCC Unit.

Timeline: Q1 2017 - Q4 2021

1-1-b Partner with medical societies, providers of health coverage, and public benefit plans (such as Medicaid) to increase the number of Coloradans receiving the USPSTF recommended services as described in 1-1-a.

Responsible Parties: ICP Program, PCC Unit

Timeline: Q1 2017 - Q4 2021

Strategy 2: Ensure that condoms are available and free of cost at sites throughout the state.

Activities/Interventions

1-2-a Provide condoms and risk reduction materials at sites accessible to the general public such as mental health centers, STD clinics, substance use treatment providers, schools, parks, recreation centers, businesses, and homeless shelters. Promote and support the “CondomFinder” application to the general public.

Responsible Parties: ICP Program, CDPHE contractors, other community partners

Timeline: Q1 2017 - Q4 2021

Strategy 3: Provide outreach and public information interventions, which will include access to additional information and referrals as requested by telephone, internet, or in-person.

Activities/Interventions

1-3-a Support at least one public information campaign per year. Ensure that this information is factual, motivational, and inclusive (available in multiple languages, delivered through multiple methods, etc.). All public information campaigns will include an internet or phone option for people to receive additional services, including access to selective and intensive HIV prevention interventions (PrEP or syringe access services, specifically).

Responsible Parties: ICP Program, PCC Unit

Timeline: Q1 2017 - Q4 2021

⁵ The USPSTF recommendations are available at <http://www.uspreventiveservicestaskforce.org/Page/Name/uspstf-a-and-b-recommendations/>

1-3-b Partner with other agencies that offer public information related to sexual health and HIV prevention, including federal agencies, pharmaceutical manufacturers, and community based agencies.

Responsible Parties: ICP Program, PCC Unit

Timeline: Q1 2017 - Q4 2021

1-3-c Offer an “HIV resource and referral” service, both online and by telephone, that is widely advertised throughout the state. Ensure that this service is linguistically and culturally proficient and staffed by people who can accurately triage HIV-related needs and link participants to available services that best meet identified needs.

Responsible Parties: ICP Program, funded contractors

Timeline: Q1 2017 - Q4 2021

Targets

Table 3.1 - Participants to be Reached by Universal Interventions

Risk Groups	Number of Participants
MSM (lower risk)	11,976
MSM (moderate risk)	8,756
MSM (highest risk)	2,321
PWID (lower risk)	3,723
PWID (moderate risk)	3,577
PWID (highest risk)	1,657
HRH (lower risk)	38,279
HRH (moderate risk)	3,535
HRH (highest risk)	266

See page 49 for an overview table of all numeric targets

Objective 3: Provide selective HIV prevention strategies for people whose HIV-related risk is significantly higher than average, consistent with sexual health and harm reduction frameworks, as part of a continuum of HIV prevention services.

Strategy 1: Provide broad-based selective interventions that are relevant, motivational, culturally tailored, and highly accessible in order to maximize participation by people at enhanced HIV risk.

Activities/Interventions

1-1-a Conduct marketing and outreach targeted to MSM, PWID, and high risk heterosexuals. Ensure that this information is factual, motivational, and inclusive (available in multiple languages, delivered through multiple methods, etc.). All public information campaigns will include an internet or phone option for people to receive additional services, including access to selective and intensive HIV prevention interventions (PrEP or syringe access services, specifically).

Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

1-1-b Conduct forums, events, workshops, and other broad-based selective interventions. At a minimum, these interventions must present factual HIV information and educate participants on behavioral and biomedical options that lessen sexual risk, enhance sexual health, and/or reduce harm associated with injection drug use. Ensure that these opportunities are motivational, highly accessible, and culturally attuned to the specific population of MSM, PWID, or high risk heterosexuals who are the intended beneficiaries.

Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

1-1-c Distribute condoms and other sexual risk-reduction materials to participants in broad-based selective interventions.

Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

1-1-d Provide opportunities for all participants in broad-based selective interventions to realistically gauge their risk of HIV infection and psychosocial factors that are highly associated with HIV risk (including, but not limited to, substance use, depression, trauma, and lack of psychosocial support). This could include self-assessments and facilitated discussions during intervention sessions.

Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

1-1-e Provide opportunities for all participants in broad-based selective interventions to access more intensive services that match their needs. The preferred mode is immediate access to a counselor that is skilled in motivational interviewing, navigating care systems, and providing specific referrals; acceptable alternatives include follow up appointments or written referrals to other community partners.

Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

Targets

Table 3.2 - Number of Participants That Will Receive Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions (per year)

Risk Groups	Number of Participants
MSM (moderate risk)	7,904
MSM (highest risk)	5,149
PWID (lower risk)	3,723
PWID (moderate risk)	3,577
PWID (highest risk)	1,657
HRH (moderate risk)	1,888
HRH (highest risk)	266

See page 49 for an overview table of all numeric targets

Strategy 2: Provide client-centered selective interventions at the individual and group level, utilizing evidence-based models, and tailored to the specific needs of people at enhanced HIV risk.

Activities/Interventions

- 1-2-a Deliver client-centered selective interventions for MSM, PWID, and high risk heterosexuals at the individual and group level. All such selective interventions must demonstrate consistency with a program model that has proven effective in lowering HIV risk⁶ and must be culturally attuned to the specific population of MSM, PWID, or high risk heterosexuals who are the intended beneficiaries.
Responsible Parties: ICP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

- 1-2-b In conjunction with the delivery of partner services, deliver client-centered, one-on-one selective interventions for people who are in the sexual or needle-sharing networks of PLWHA.
Responsible Parties: ICP Program, CBP program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

- 1-2-c Distribute condoms and other sexual risk-reduction materials to participants in client-centered selective interventions.
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

- 1-2-d Provide opportunities for all participants in client-centered selective interventions to gauge their risk of HIV infection and psychosocial factors that are highly associated with HIV risk (including, but not limited to, substance use, depression, trauma, lack of psychosocial support, and potential eligibility for Critical Events assistance). This could include self-assessments and facilitated discussions during intervention sessions.
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

- 1-2-e Provide opportunities for all participants in client-centered selective interventions to access more intensive services that match their needs, including PrEP-related services.⁷ The preferred mode is immediate access to a service navigator that is skilled in motivational interviewing, navigating care systems, and providing specific referrals; acceptable alternatives include follow up appointments or written referrals to other community partners.
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

⁶ “Proven effectiveness” may include research published in juried journals or multiple years of local evaluation. It also includes PrEP education.

⁷ See Objective 4, below.

Targets

Table 3.3 - Number of Participants That Will Receive Client-Centered Group or Individual Selective Interventions (per year)

Risk Groups	Number of Participants
MSM (moderate risk)	1,186
MSM (highest risk)	1,500
PWID (lower risk)	1,862
PWID (moderate risk)	2,325
PWID (highest risk)	1,657
HRH (moderate risk)	283
HRH (highest risk)	266

See page 49 for an overview table of all numeric targets

Objective 4: Provide indicated HIV prevention strategies for people who are at imminent risk of acquiring HIV, consistent with sexual health and harm reduction frameworks, as part of a continuum of HIV prevention services.

Strategy 1: Provide intensive, one-on-one PrEP-related services for people who meet screening criteria for sexual risk or when there is a risk of perinatal HIV transmission.

Activities/Interventions

- 1-1-a Provide PrEP screening and navigation services for MSM and high risk heterosexuals, which includes PrEP education, referrals to prescribers, and assistance with the costs of PrEP (enrollment in health coverage, accessing pharmacy assistance programs, and utilizing PHIP at CDPHE for remaining costs).
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021
- 1-1-b Provide PrEP retention services for MSM and high risk heterosexuals, which includes PrEP education, screening and navigation, assessment of needs, development of a retention plan, adherence counseling, screening and referral for behavioral health and other psychosocial needs, and a transition plan when PrEP is discontinued.
Responsible Parties: ICP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021
- 1-1-c Facilitate client access to PrEP by building a database of identified PrEP prescribers, recruiting new prescribers, and training prescribers to provide PrEP clinical services in a sexual health framework. To be placed in the database, prescribers must demonstrate the willingness and capacity to provide PrEP in a sexual health framework.

Responsible Parties: ICP Program, ECB Unit, funded contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

1-1-d Collaborate with the HRSA Ryan White Part D grantee to address perinatal infection, in collaboration with labor and delivery departments in hospitals statewide.

Responsible Parties: Surveillance Program, Children’s Hospital Immunodeficiency Program (CHIP), labor and delivery departments, other community partners.

Timeline: Q1 2017 - Q4 2021

1-1-e Inventory the capacity of the mental health and substance use services systems to serve the needs of people at highest risk of acquiring HIV. Include the facilitators and drivers of stigma within these systems.

Responsible Parties: PCC Unit, other community partners.

Timeline: Q1 2017 - Q4 2021

Targets

Table 3.4 - Number of MSM and HRH Participants That Will Receive Indicated Interventions (per year)

Risk Groups	Number of Participants
MSM (moderate risk)	119
MSM (highest risk)	851
HRH (moderate risk)	14
HRH (highest risk)	266

See page 49 for an overview table of all numeric targets

Strategy 2: Provide biomedical interventions for people who meet screening criteria for injection risk.

Activities/Interventions

1-2-a Facilitate access to biomedical equipment and supplies that reduce the harm associated with drug injection, including syringes, needles, wound care, overdose prevention medications (naloxone), PrEP, and materials used to prepare and share injectable drugs.

Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

1-2-b Provide or refer participants to services that manage or lessen injection drug use, including treatment readiness, navigation of treatment options, medication assisted therapy, support for sustained changes, and managing fluctuating use over the long term. Consistent with an overall harm reduction approach, client readiness and preferences are key to the success of all such services.

Responsible Parties: ICP Program, funded contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

- 1-2-c Provide or refer participants to health care enrollment and navigation services which include coverage for highest priority client concerns, including high quality drug treatment, wound care, overdose prevention, costs of pre-exposure prophylaxis, and treatment-related case management.
Responsible Parties: ICP Program, funded contractors, medical providers, substance use treatment providers, other community partners.
Timeline: Q1 2017 - Q4 2021
- 1-2-d Provide or refer participants to psychosocial support or crisis management services tailored to the needs of PWID. Such services include transportation, emergency financial, housing, and employment assistance.
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

Target populations

Table 3.5 - Number of PWID Participants That Will Receive Indicated Interventions (per year)

Risk Groups	Number of Participants
PWID (lower risk)	1,862
PWID (moderate risk)	2,325
PWID (highest risk)	1,657

See page 49 for an overview table of all numeric targets

Strategy 3: Develop and implement a CDPHE-supported HIV post-exposure prophylaxis (nPEP) program for people who have experienced a high-risk exposure to HIV within the window period of effectiveness.

Activities/Interventions

- 1-3-a CDPHE will convene a stakeholder group of clinicians, prevention providers, and community members to review CDC guidelines, published research, and anecdotal data regarding criteria for recommending nPEP and strategies to expedite access to nPEP within the window period of effectiveness. This group will develop recommendations to CDPHE regarding nPEP interventions that should be supported with CDPHE resources and eligibility criteria for such interventions.
Responsible Parties: PCC Unit, medical providers, prevention providers, community members, other interested stakeholders.
Timeline: Q1 2017 - Q2 2017
- 1-3-b CDPHE will implement the recommendations developed by the nPEP stakeholder process.
Responsible Parties: ICP Program, CBP Program, Surveillance Program, Capacity Building Unit, medical providers, other community agencies and partners associated with nPEP.
Timeline: Q3 2017 - Q4 2021

Strategy 4: Address the syndemic factors that drive HIV risk.

Activities/Interventions

1-4-a As described in more detail in Chapter 8, provide intensive support for highest risk HIV negative people who are experiencing “critical life events” and who could benefit from short-term, intensive services, leading to self-sufficiency.
Responsible Parties: ICP Program, CBP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

1-4-b In the context of the delivery of partner services, assure that people who are in the needle sharing or sexual networks of PLWHA have an opportunity to receive HIV testing and, if testing HIV negative, receive facilitated access to additional services that address the syndemic factors that drive HIV risk. This will include linkage to selective and indicated prevention services, such as PrEP and nPEP, PHIP, syringe access, and “critical events” services, as appropriate.
Responsible Parties: CBP Program
Timeline: Q1 2017 - Q4 2021

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: Ensure that HIV prevention efforts are prioritized for populations that are disproportionately affected by HIV.

Strategy 1: Ensure that selective HIV prevention interventions match the distribution of the epidemic in terms of geography, risk group, race/ethnicity, age, and gender.

Activities/Interventions

3-1-a Prioritize funding for contractors that demonstrate proficiency in serving communities disproportionately affected by HIV in terms of risk group, race/ethnicity, age, and gender.
Responsible Parties: ICP Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

3-1-b Ensure that the distribution of funding for selective interventions is consistent with epidemiologic data in terms of geography, risk group, race/ethnicity, age, and gender.
Responsible Parties: ICP Program, Surveillance Program, funded contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

Target populations

Table 3.6 - Selective Intervention Targets for MSM

			People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions
	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	13,053	2,686
Geographic Targets				
Denver TGA	75%	80%	9,790	2,015
Rest of Colorado	25%	20%	3,263	672
Race/Ethnicity Targets				
Black	10%	10%	1,305	269
Hispanic	31%	19%	4,046	833
Age Group Target				
15-19	3%	0%	392	81
20-24	24%	2%	3,133	645
25-29	20%	5%	2,611	537
30-34	16%	7%	2,088	430
35-39	12%	8%	1,566	322
40-44	7%	9%	914	188
45-49	7%	14%	914	188
50-54	8%	20%	1,044	215
55-59	2%	15%	261	54
60-64	1%	11%	131	27
>65	0%	9%	52	11

Table 3.7 - Selective Intervention Targets for PWID

			People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions
	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	8,958	3,982
Geographic Targets				
Denver TGA	50%	67%	4,479	1,991
Rest of Colorado	50%	33%	4,479	1,991
Gender Targets				
Male	67%	65%	6,002	2,668
Female	33%	35%	2,956	1,314
Race/Ethnicity Targets				
Black	17%	23%	1,523	677
Hispanic	33%	22%	2,956	1,314
Age Group Targets				
<20	0%	0%	90	40
20-29	0%	1%	179	80
30-39	33%	8%	2,867	1,275
40-49	33%	27%	2,867	1,275
50-59	17%	42%	1,477	657
>60	17%	22%	1,477	657

Table 3.8 - Selective Intervention Targets for High Risk Heterosexuals

HETEROSEXUAL		2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions
				2,154	549
Geographic Targets					
Denver TGA		67%	71%	1,443	368
Rest of Colorado		33%	29%	711	181
Gender Targets					
Male		5%	33%	108	27
Female		95%	67%	2,046	522
Race/Ethnicity Targets					
Black		29%	42%	625	159
Hispanic		33%	21%	711	181
Age Group Targets					
13-19		0%	<1%	22	5
20-24		10%	1%	170	43
25-29		14%	4%	238	61
30-34		14%	7%	238	61
35-39		28%	13%	476	121
40-44		14%	14%	238	61
45-49		10%	19%	170	43
50-54		0%	16%	215	55
55-59		10%	12%	170	43
60-64		0%	7%	108	27
>65		0%	7%	108	27

Strategy 2: Ensure that indicated HIV prevention interventions match the distribution of the epidemic in terms of geography, risk group, race/ethnicity, age, and gender.

Activities/Interventions

3-2-a Prioritize funding for contractors that demonstrate proficiency in serving communities disproportionately affected by HIV in terms of risk group, race/ethnicity, age, and gender.
 Responsible Parties: ICP Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

- 3-2-b Ensure that the distribution of funding for indicated interventions is consistent with epidemiologic data in terms of geography, risk group, race/ethnicity, age, and gender.
 Responsible Parties: ICP Program, Surveillance Program, funded contractors, other community partners.
 Timeline: Q1 2017 - Q4 2021

Target populations

Table 3.9 - Indicated Intervention Targets for MSM

			People Receiving Indicated Interventions
MSM	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	970
Geographic Targets			
Denver TGA	75%	80%	728
Rest of Colorado	25%	20%	243
Race/Ethnicity Targets			
Black	10%	10%	97
Hispanic	31%	19%	301
Age Group Target			
15-19	3%	0%	29
20-24	24%	2%	233
25-29	20%	5%	194
30-34	16%	7%	155
35-39	12%	8%	116
40-44	7%	9%	68
45-49	7%	14%	68
50-54	8%	20%	78
55-59	2%	15%	19
60-64	1%	11%	10
>65	0%	9%	4

Table 3.10 - Indicated Intervention Targets for PWID

PWID		2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	People Receiving Indicated Interventions
				3,982
Geographic Targets				
Denver TGA		50%	67%	1,991
Rest of Colorado		50%	33%	1,991
Gender Targets				
Male		67%	65%	2,668
Female		33%	35%	1,314
Race/Ethnicity Targets				
Black		17%	23%	677
Hispanic		33%	22%	1,314
Age Group Targets				
<20		0%	0%	40
20-29		0%	1%	80
30-39		33%	8%	1,275
40-49		33%	27%	1,275
50-59		17%	42%	657
>60		17%	22%	657

Table 3.11 - Indicated Intervention Targets for High Risk Heterosexuals

HETEROSEXUAL		2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	People Receiving Indicated Interventions
				348
Geographic Targets				
Denver TGA		67%	71%	188
Rest of Colorado		33%	29%	92
Gender Targets				
Male		5%	33%	14
Female		95%	67%	266
Race/Ethnicity Targets				
Black		29%	42%	81
Hispanic		33%	21%	92
Age Group Targets				
13-19		0%	<1%	3
20-24		10%	1%	22
25-29		14%	4%	31
30-34		14%	7%	31
35-39		28%	13%	62
40-44		14%	14%	31
45-49		10%	19%	22
50-54		0%	16%	28
55-59		10%	12%	22
60-64		0%	7%	14
>65		0%	7%	14

Resources

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Standard Rebate	Suppl Rebate	Tobacco MSA	Health Coverage
Goal 1, Objective 1								
1-1-a Seek out collaboration around sexual wellness	X	X	X	X		X		
1-1-b Advocate for school policies and practices that lead to sexual wellness	X	X		X		X		
1-1-c Utilize the five principles of the sexual health framework	X	X	X	X		X		
1-2-a Policy and promotional efforts around actionable drivers and facilitators of HIV stigma	X	X	X	X		X		
1-2-b Seek out collaboration around mitigating stigma	X	X	X	X		X		
Goal 1, Objective 2								
1-1-a Gauge how the USPSTF recommended services are offered to patients	X	X	X	X	X	X		
1-1-b Increase the delivery of the USPSTF recommended services	X			X	X	X	X	X
1-2-a Provide condoms and risk reduction materials for general public	X	X						
1-3-a Support at least one public information campaign per year	X	X	X					
1-3-b Partner to offer public information related to sexual health	X	X	X					
1-3-c Offer an “HIV resource and referral” service	X	X	X	X	X	X	X	

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Standard Rebate	Suppl Rebate	Tobacco MSA	Health Coverage
Goal 1, Objective 3								
1-1-a Conduct targeted marketing and outreach	X	X	X					
1-1-b Conduct broad-based selective interventions	X	X	X					
1-1-c Distribute condoms and other sexual risk-reduction materials	X	X						
1-1-d Provide opportunity in broad-based interventions to assess risk of HIV infection and psychosocial factors highly associated with HIV risk	X	X	X			X		
1-1-d Provide opportunities for all participants in broad-based selective interventions to access more intensive services	X	X	X			X	X	
1-2-a Deliver client-centered selective interventions	X	X	X					
1-2-b Deliver client-centered, one-on-one selective interventions as part of partner services	X	X	X			X		
1-2-c Distribute condoms and other sexual risk-reduction materials	X	X						
1-2-d Provide opportunity in client-centered interventions to assess risk of HIV infection and psychosocial factors highly associated with HIV risk	X	X	X			X	X	
1-2-e Provide opportunities for all participants in broad-based selective interventions to access more intensive services	X	X	X			X	X	
Goal 1, Objective 4								
1-1-a Provide PrEP screening and navigation services	X	X	X					
1-1-b Provide PrEP retention services	X	X	X					
1-1-c Facilitate client access to PrEP prescribers	X	X	X			X	X	X
1-1-d Collaborate to prevent perinatal infection	X	X		X	X	X	X	X
1-2-a Facilitate access to biomedical equipment and supplies for PWID	X						X	

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Standard Rebate	Suppl Rebate	Tobacco MSA	Health Coverage
1-2-b Provide or refer participants to services that manage or lessen injection drug use	X	X	X			X	X	X
1-2-c Provide or refer participants to health care enrollment and navigation services	X	X	X			X	X	
1-2-d Provide or refer participants to psychosocial support or crisis management services	X	X	X					
1-3-a Convene a stakeholder group around nPEP		X				X	X	
1-3-b Implement the recommendations developed by the nPEP stakeholder process	X	X				X	X	X
1-4-a Provide intensive support for highest risk HIV negative people who are experiencing “critical life events”	X	X				X	X	X
1-4-b As part of partner services, offer HIV testing and access to additional services		X		X	X	X	X	
Goal 3								
3-1-a Prioritize selective intervention funding for contractors that demonstrate proficiency in serving communities disproportionately affected by HIV	X	X	X					
3-1-b Ensure that the distribution of selective intervention funding for selective interventions is consistent with epidemiologic data	X	X	X					
3-2-a Prioritize indicated intervention funding for contractors that demonstrate proficiency in serving communities disproportionately affected by HIV	X	X	X					
3-2-b Ensure that the distribution of funding for indicated interventions is consistent with epidemiologic data	X	X	X					

Metrics needed to monitor the progress of HIV prevention

Goal 1

Metric 1.1 Annual number of new infections

Metric 1.2 Rate of perinatally acquired pediatric HIV cases

Metric 1.3 Proportion of MSM who report unprotected anal intercourse during their last sexual encounter with a partner of discordant or unknown HIV status. PrEP is considered “protection.”⁸

Metric 1.4 Proportion of PWID who report risky sexual or drug using behavior.

Goal 3

Metric 3.1 Annual number of new infections, broken down by risk, age, race/ethnicity, geography

Metric 3.2 Rate of perinatally acquired pediatric HIV cases, broken down by race/ethnicity and geography

Metric 3.3 Proportion of MSM who report unprotected anal intercourse during their last sexual encounter with a partner of discordant or unknown HIV status, broken down by age, race/ethnicity, geography. PrEP is considered “protection.”

Metric 3.4 Proportion of PWID who report risky sexual or drug using behavior, broken down by age, race/ethnicity, geography

⁸ This measure will be evolving to accommodate PrEP. Specifically, there should be a measurement of people who have partners who are living with HIV or AIDS but virally suppressed.

Challenges or barriers related to reducing new HIV infections and reducing HIV-related disparities

Sexual Health Framework for HIV Prevention

HIV prevention models arose during a time of public health crisis; when HIV was first identified, the overriding priority was to prevent transmission of a virus that was devastating communities. The early emphasis was almost exclusively on individual characteristics: improving individual knowledge about HIV, motivating safer sexual and needle sharing behaviors, building client negotiation and disclosure skills, and managing relational and behavioral factors that were not supportive of HIV prevention. However, in the ensuing decades, it has become clear that broader based, longer term strategies are needed to prevent HIV, and that HIV has much in common with similar health concerns such as STI and other unintended consequences of sex. This has led many public health leaders to advocate for a comprehensive sexual health approach that enhances and supports HIV prevention efforts by focusing more broadly on the characteristics of sexual health and well-being: emotional and mental well-being, healthy relationships, reproductive health, disease avoidance, and violence avoidance. A socio-ecological model of sexual health is depicted in Figure 3.2, emphasizing that sexual health is a product of societal and community context, relationships, and individual characteristics.⁹ However, moving toward this sexual health model has been incremental; there is “inertia” that discourages innovation from the original “crisis oriented” approach, which is reinforced by long-standing policies and laws, including provisions in federal law that ban the use of federal funding for materials that “promote or encourage, directly or indirectly” any sexual behavior.

Figure 3.2 appears on page 33.

⁹ Ivanovich, M, Fenton, K, and Douglas, J M. Considerations for National Public Health Leadership in Advancing Sexual Health. (2013) *Public Health Reports*. 2013 Supplement 1 / Volume 128, p. 106.
Colorado HIV AIDS Strategy 2017 – 2021 v092316

Figure 3.2 - Determinants of sexual health: a social-ecological model that addresses the impact of individual characteristics, relationships, the community and societal context on sexual health

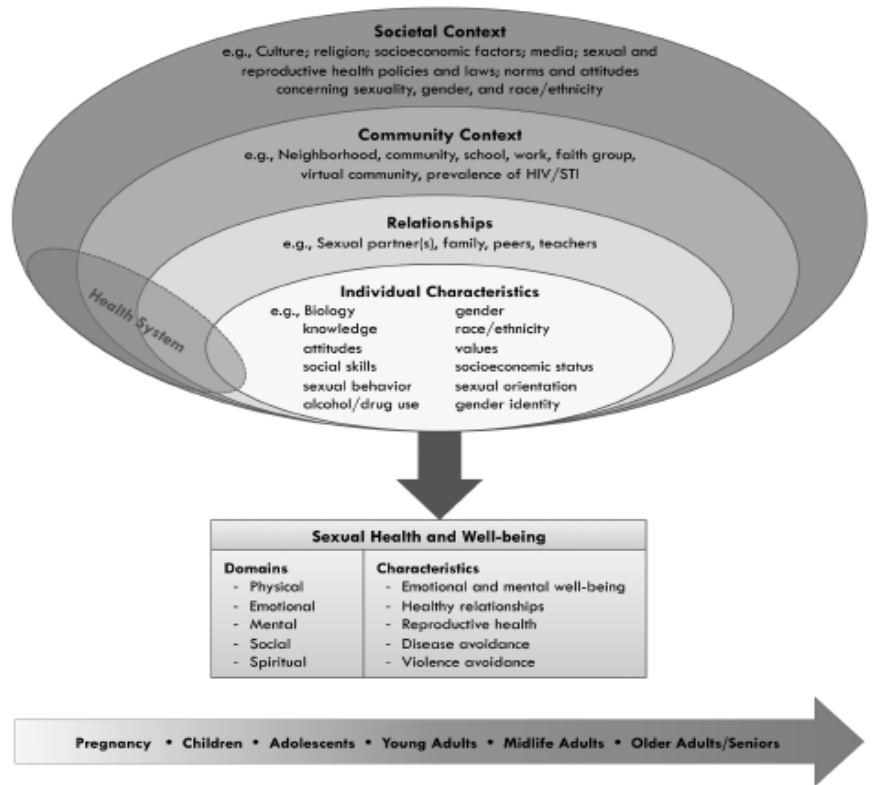


Figure 3.3 – A sexual health framework designed to emphasize the importance of health promotion to support public health disease control and prevention activities.



In 2013, officials from the U.S. Centers for Disease Control and Prevention and other leaders in public health proposed an alternative framework to promote sexual health, which is shown in Figure 3.3. This framework was put forth not as a program, per se, but as an approach to enhance other, more focused efforts by emphasizing five principles, which are described by the authors as follows:

1. *Contextualize the issues.* Within a sexual health framework, disease control and prevention remains the central public health focus. However, such efforts can be strengthened by encouraging a broader perspective that considers the complex factors at the individual, relational, community, and societal levels that influence individual, community, and national sexual health outcomes.
2. *Emphasize wellness.* Because sexual health is more than the absence of disease, improving sexual health requires a holistic approach that incorporates the physical, emotional, mental, social, and spiritual aspects of sexuality. Within a sexual health framework, the core focus on disease outcomes is complemented by a more holistic approach to human health, which can be readily incorporated into the emerging prevention and wellness agenda and can help combat the silence and stigma that commonly accompanies this area of health.
3. *Focus on positive and respectful relationships.* Explicitly acknowledging the importance of respectful relationships for sexual health can provide common ground for action to protect and improve health. Positive and respectful relationships of various types (e.g., parent-child, intimate partner, and peer) have been shown to be protective factors for multiple health issues, making healthy relationships essential for human development and overall wellness.
4. *Acknowledge the impact of sexuality on health.* A sexual health framework acknowledges the impact of sexuality on human health. Research suggests that sexual expression has various health benefits, including positive physical health and well-being;

healthy reproductive outcomes; pain management and physical relaxation; and psychological, emotional, social, and spiritual health. Understanding and articulating the components of sexual health as essential aspects of overall health strengthens the inclusion of disease prevention, reproductive health, violence prevention, and other components into a broader wellness frame.

5. *Take a syndemic approach to prevention.* A sexual health framework enables a syndemic approach to prevention that considers connections among a variety of health-related problems when developing public health responses. This inclusive approach has the potential to strengthen collaboration and communication among staff who provide a variety of different services in diverse programs, thus helping break down divisions among public health programs and partners that address sexual health.

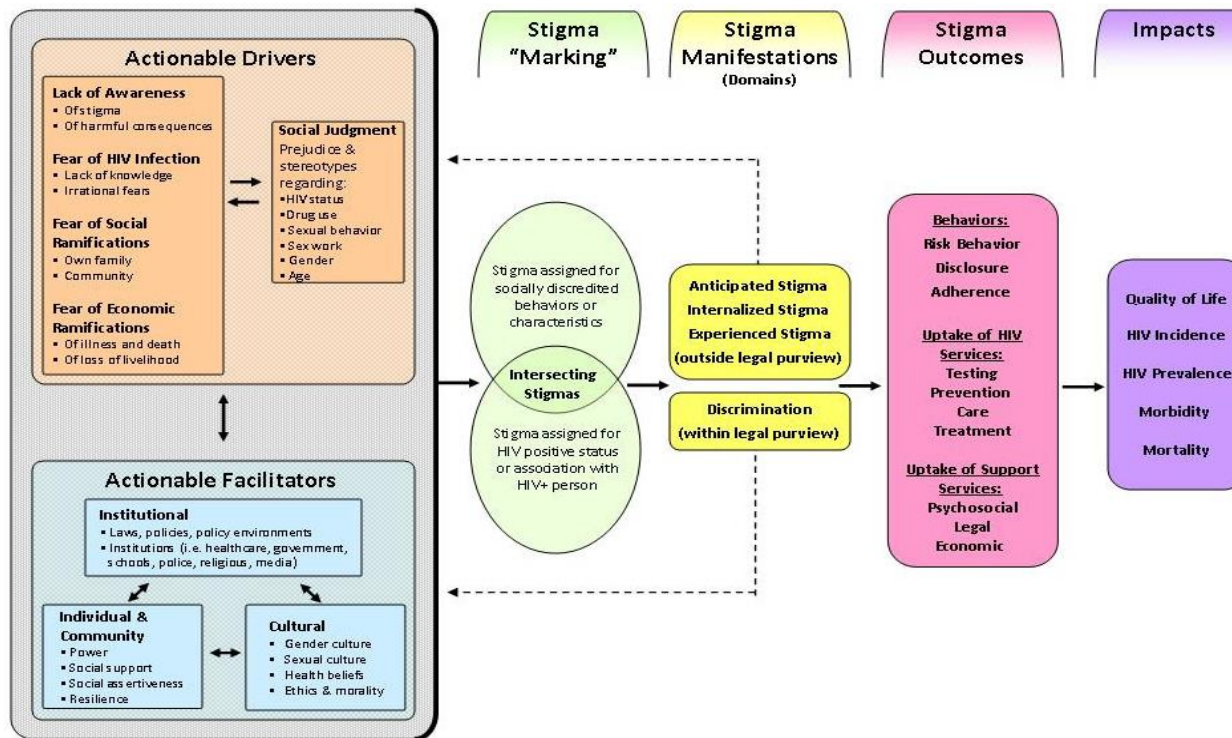
Stigma

Stigma is highly associated with HIV risk and strongly influences the success or failure of HIV prevention efforts. UNAIDS has published a framework for understanding and addressing stigma that summarizes the outcome and impact of stigma. Specifically, higher rates of risk behaviors, less disclosure of HIV positive serostatus, and poorer adherence to HIV medications are associated with stigma. In terms of HIV prevention service, stigma leads to delayed HIV testing, lower utilization of prevention services, and reluctance to access or remain in care and treatment. Support services (psychosocial, legal, and economic) are also less likely to be accessed due to stigma. This leads to major impacts: lower quality of life, higher incidence and prevalence of HIV, and higher instances of avoidable morbidity and mortality.¹⁰

The UNAIDS Framework (Figure 3.4) appears on page 36.

¹⁰ UNAIDS, available at http://www.ohchr.org/Documents/Issues/Water/ContributionsStigma/others/UNAIDS1_Stangl_et_al-Conceptual_Frameworkfor_HIV-relatedStigma.pdf

Figure 3.4 – Reducing HIV Stigma and Discrimination: A Framework for Program Implementation and Measurement from UNAIDS



The Colorado HIV Prevention Needs Assessment (CHPNA)¹¹ included survey data from both urban and rural Coloradans regarding stigma, particularly the stigma experienced by people who identify as gay or bisexual. Experiences of stigma were very high among survey respondents, particularly around verbal abuse and unfair treatment. The survey results are shown in Table 3.12, and further findings from the CHPNA are discussed later in this chapter.

Table 3.12 - Responses to Stigma Questions from CHPNA

Responses from Adams, Arapahoe, Denver, Douglas and Jefferson counties	MSM	PWID	Het	MSM- PWID ¹²
	N(%)	N(%)	N(%)	N (%)
Total Respondents who Identify as Gay or Bisexual	483 (93%)	38 (8%)	41 (7%)	32 (75%)
Gay Identified: Experienced verbal abuse	174 (36%)	4 (11%)	1 (2%)	21 (66%)
Gay Identified: Experienced poor service	87 (18%)	2 (5%)	1 (2%)	13 (41%)
Gay Identified: Treated unfairly at school or work	71 (15%)	3 (8%)	0	9 (28%)
Gay Identified: Denied or given lower quality health care	14 (3%)	1 (3%)	1 (2%)	5 (16%)
Gay Identified: Attacked or Injured	37 (8%)	4 (11%)	1 (2%)	7 (22%)
Responses from the Rest of Colorado				
Total Respondents who Identify as Gay or Bisexual	11 (100%)	0	3 (18%)	4 (100%)
Gay Identified: Experienced verbal abuse	3 (27%)	10	1 (6%)	2 (50%)
Gay Identified: Experienced poor service	2 (18%)	0	0	2 (50%)
Gay Identified: Treated unfairly at school or work	0	0	0	0
Gay Identified: Denied or given lower quality health care	1 (9%)	0	0	2 (50%)
Gay Identified: Attacked or Injured	1 (9%)	0	0	0

¹¹ CHPNA included multiple data sets, including data collected as part of the National HIV Behavioral Surveillance Survey conducted in the Denver area. Colorado repeated many of the NHBS questions in a survey of residents outside Denver.

¹² This data is from respondents in the PWID cycle who also reported MSM sexual behavior.

Transgender Coloradans¹³

Nationally, the effects of social and economic marginalization of transgender people in America has resulted in higher rates of HIV infection, smoking, drug and alcohol use, and suicide attempts than the general population. For this already at-risk community, seeking regular health-care services is vital, and yet transgender people's ability to seek care is impacted by being refused services and having to teach medical providers about the needs of transgender patients. Also, because they fear discrimination or because they cannot afford it, transgender Coloradan's often delay or avoid medical care.

Detail findings from the One Colorado report are as follows:

- Despite being at increased risk, only 37 percent of transgender persons have received an HIV test in the last year, and only 30 percent have received an STD screening.
- Transgender Coloradans report experiencing depression, social isolation, lack of companionship, and feeling left out and hopeless at rates that are much greater than the overall LGB population.
- The top priority of transgender respondents for improving the health and wellness of LGBT Coloradans is training for health providers, health professional students, and mental health professionals.
- Compared to the overall LGBT respondents in the One Colorado survey, fewer transgender people have a college degree and more had annual incomes less than \$35,000. Sixteen percent were unemployed.
- Not one transgender respondent said that they had access to everything they needed to be healthy.
- Sixty-one percent of transgender respondents reported that their gender identity or expression had stopped them from seeking services, as compared to eleven percent of overall respondents.
- Four in ten transgender respondents reported lack of adequate or affordable housing as a problem in seeking health care services.
- Twice as many transgender people compared to respondents as a whole disagree that they have sufficient choice and access to LGBT-friendly providers.
- Nearly 9 out of every 10 transgender-identified respondents reported a community fear/dislike of LGBT persons to be a problem when receiving health care services.

Additional findings from the National Transgender Discrimination Survey Report on Health and Health Care¹⁴, which involved 7,000 national respondents, are relevant to COHAS:

- Nineteen percent of transgender individuals were REFUSED care and the number increases for transgender individuals of color.
- Twenty-eight percent reported that they had experienced harassment in a medical setting and two percent reported an experience of violence in a medical setting.
- Engaging in sex work for income clearly was a major risk factor for study

¹³ One Colorado Education Fund (2012). *Invisible: The State of LGBT Health in Colorado*.

¹⁴ Available at

http://www.thetaskforce.org/static_html/downloads/resources_and_tools/ntds_report_on_health.pdf

participants, with 61 percent of those who reported HIV infection in their sample having engaged in sex work.

- Ninety-one percent of those who reported being HIV positive identified as either MTF or gender non-conforming on the male-to-female spectrum. The reported rate of HIV infection for the MTF transgender respondents was 3.76 percent. The reported rate of HIV infection for FTM respondents was 0.48 percent, lower than the national average.
- The following factors were associated with HIV positivity among the respondents: Lacking a high-school diploma (13.49%); income below \$10,000 a year (6.40%); having lost a job due to bias (4.59%); being unemployed (4.67%).
- Eight percent of the sample reported that they did not know their HIV status.
- Transgender women are disproportionately at risk for HIV as compared to transgender men. The reported rate of HIV infection for the MTF transgender respondents was 3.76 percent. The reported rate of HIV infection for FTM respondents was 0.48 percent, lower than the overall U.S. average rate of 0.6 percent.

Coinfection with Hepatitis C

In early 2014, the HIV/AIDS and HCV disease registries were compared and identified 1,102 HIV/HCV co-infected individuals. Of the 1,102 identified cases, 85 percent were male; 15 percent female. Sixty-one percent were White, 20 percent Hispanic/Latino, and 16 percent Black/African American. American Indian/Alaskan Native and Asian Pacific Islander were all less than 1 percent of reported cases. Risk factors identified through the STI/HIV/VH Branch included 34 percent MSM, 28 percent PWID, 25 percent MSM/PWID, and 7 percent heterosexual. Risks including transfusion, hemophilia, pediatric, and no identified risk (NIR) accounted for the remaining cases. The majority of the 1,102 HIV/HCV co-infections were found in individuals 45-54 (46%) years of age, followed by 55-64 (24%) year olds. The following age groups account for the remaining cases, 35-44 (20%), 65+ (3%), 25-34 (6%) and 20 - 24 (<1%).

Syringe Exchange in Colorado

In 2010, Colorado passed legislation to allow Clean Syringe Exchange Programs. Colorado joined 35 states and 60 countries in implementing this best-practice intervention for PWID. Colorado's syringe access programs provide tools, resources, and education to PWID to protect themselves and their communities through safer injection practices and harm reduction methods. Complex problems of social stigma, homelessness, unemployment, limited society reintegration after incarceration, poor physical/mental health, and unresolved historical trauma are all factors that contribute to ongoing substance use.

Having unprotected sex and sharing used needles to inject drugs are the two most common ways of spreading both HIV and HCV. In addition to reducing risks for disease transmission, sterile syringe access programs facilitate greater access to drug treatment, on demand testing for HIV/HCV, and an ongoing opportunity for health education pertinent to PWID. These programs also serve as a crucial entry point into medical care, detox and rehabilitation, and mental health treatment.

Syndemics: HIV, Substance Use, and Mental Health Issues

Mental health and substance use issues are also highly associated with HIV risk. According to a 2010 study, HIV positive patients with co-morbid psychiatric and substance disorders reported multiple sex partners most frequently, while substance dependence contributed to irregular condom use and PWID. Analysis by substance use subgroup (no dependence, alcohol dependence only, drug dependence only, co-morbid alcohol, and drug dependence) showed that alcohol dependence contributed to having multiple sex partners, while alcohol and drug dependence both contributed to irregular condom use.¹⁵ Another study found that HIV risk among MSM increases with both frequency of substance use and the numbers of substances used. For methamphetamine and cocaine, weekly users had higher odds of unprotected anal sex with HIV-positive or unknown status partners (SDUAI) than episodic users, who were in turn at higher risk than non-users. Similarly, the odds of SDUAI increased across categories of the number of substances reported. For poppers, weekly and episodic use were similar, but both carried higher risk than non-use. Finally, heavy alcohol users were more likely to report SDUAI than the moderate users.¹⁶ In terms of more severe mental illness, a 2014 study showed that patients with Borderline Personality Disorder were more likely to have multiple sexual partners and to use condoms irregularly. Trends for multiple sex partners also were observed among patients with antisocial and depressive personality traits/disorders. Antisocial patients also were more likely to be current PWID.¹⁷

There is increasing recognition of the association of sexual risk behaviors with a syndemic, or a mutually reinforcing set of conditions, including childhood sexual abuse (CSA), depression, substance use, violence, and financial hardship. This is particularly true for women. A 2016 study analyzed baseline data from a cohort of women with and at-risk for HIV (N = 620; 52 percent HIV+) using Poisson regression to assess evidence for additive, independent and interactive effects among syndemic conditions in relation to reported sexual risk behaviors (e.g., unprotected and transactional sex) over the past 6 months, controlling for age and HIV status. The number of syndemic conditions was incrementally associated with more sexual risk behaviors. For example, women with all five syndemic conditions reported 72 percent more engagement in risk behaviors over 6 months, as compared to women without any syndemic conditions. Compared to women with no syndemic conditions, women with three syndemic conditions reported 34 percent more, and women with one syndemic condition reported 13 percent more engagement in risk behaviors. Using substances in the past 6 months, reporting CSA, and experiencing violence as an adult were independently associated with 49 percent, 12 percent, and 8 percent more engagement in risk behaviors, respectively compared to women without these conditions. Using substances and experiencing violence

¹⁵ Neville, H. and D. L. Haller (2010). "Psychopathology and transmission risk behaviors in patients with HIV/AIDS." *AIDS Care* 22(10): 1259-1268.

¹⁶Santos GM, Coffin PO, Das M, Matheson T, DeMicco E, Raiford JL, Vittinghoff E, Dille JW, Colfax G, Herbst JH. (2013). "Dose-response associations between number and frequency of substance use and high-risk sexual behaviors among HIV-negative substance-using men who have sex with men (SUMSM) in San Francisco." *J Acquir Immune Defic Syndr.* 2013 Aug 1;63(4):540-4. doi:10.1097/QAI.0b013e318293f10b.

¹⁷ Neville, H. and D. L. Haller (2012). "Relationship of axis II pathology to sex- and drug-related risk behaviors among patients in HIV primary care." *AIDS Care* 24(6): 763-768

was associated with 27 percent more engagement in risk behaviors. These associations were not moderated by HIV status.¹⁸

The Colorado HIV Prevention Needs Assessment (CHPNA) included survey response data that specifically addressed substance use among MSM, PWID, and high risk heterosexuals. Survey responses to these questions are summarized in Table 3.13. Rates of illegal drug use shown in the survey responses were far in excess of national averages, especially among MSM who also inject drugs. Further CHPNA findings are summarized later in this chapter.

Table 3.13 - Summary of CHPNA Survey Data Regarding Substance Use.

Responses from Adams, Arapahoe, Denver, Douglas and Jefferson counties	MSM	PWID	HRH	MSM-PWID
	N(%)	N(%)	N(%)	N (%)
Non-Injection Drug Use				
Non-prescription drug use in last 12 months	356 (68%)	364 (81%)	363 (55%)	43 (100%)
Marijuana	305 (86%)	292 (80%)	315 (87%)	40 (89%)
Crystal meth	50 (14%)	170 (47%)	71 (20%)	39 (87%)
Crack cocaine	32 (9%)	189 (52%)	104 (29%)	21 (47%)
Powdered cocaine (smoked or snorted)	124 (35%)	169 (46%)	120 (33%)	25 (56%)
Downers (Valium, Ativan, Xanax)	37 (10%)	175 (48%)	40 (11%)	25 (56%)
Painkillers (Oxycontin, Vicodin, Percocet)	61 (17%)	203 (56%)	95 (26%)	26 (58%)
Hallucinogens (LSD, mushrooms)	65 (18%)	80 (22%)	38 (10%)	15 (33%)
X or Ecstasy	70 (20%)	64 (18%)	47 (13 %)	15 (33%)
Heroin (smoked or snorted)	6 (2%)	148 (41%)	19 (5%)	14 (31%)
Poppers (amyl nitrate)	150 (42%)	0	0	0
GHB	13(4%)	0	0	0
Special K (ketamine)	11(3%)	0	0	0

¹⁸ W Batchelder, A, Lounsbury DW, Palma A, Carrico A, Pachankis J, Schoenbaum E, Gonzalez JS. Importance of substance use and violence in psychosocial syndemics among women with and at-risk for HIV. AIDS Care. (2016) Apr 25:1-5.

Responses from Adams, Arapahoe, Denver, Douglas and Jefferson counties	MSM N(%)	PWID N(%)	HRH N(%)	MSM- PWID N (%)	
Total people who report using non-injection, non-prescription drugs		356	364	363	43
Rest of Colorado					
Responses from the Rest of Colorado	MSM N(%)	PWID N(%)	HRH N(%)	MSM- PWID N (%)	
Non-Injection Drug Use					
Non-prescription drug use in last 12 months	9 (81%)	16 (100%)	12 (71%)	4 (100%)	
Marijuana	5	14	7	3	
Crystal meth	0	5 (31%)	3 (25%)	2 (50%)	
Crack cocaine	0	5	1	0	
Powdered cocaine (smoked or snorted)	3 (33%)	10 (63%)	3 (25%)	2 (50%)	
Downers (Valium, Ativan, Xanax)	1 (11%)	4 (25%)	1 (8%)	0	
Painkillers (Oxycontin, Vicodin, Percocet)	1 (11%)	5 (31%)	3 (25%)	0	
Hallucinogens (LSD, mushrooms)	0	6 (38%)	4 (33%)	0	
X or Ecstasy	1 (11%)	4 (25%)	0	0	
Heroin (smoked or snorted)	0	7 (44%)	1 (8%)	0	
Poppers (amyl nitrate)	2 (22%)	3 (19%)	0	0	
GHB	0	2 (13%)	0	0	
Special K (ketamine)	1 (11%)	3 (19%)	0	0	
Total people who report using non-injection, non-prescription drugs	9	16	12	4	

Data Used to Determine the Goals and Metrics

The Colorado HIV Prevention Needs Assessment (CHPNA)

CHPNA brought together multiple data sets to assess statewide HIV prevention needs. Specifically, CHPNA incorporated data from the Denver area National HIV Behavioral Surveillance System (NHBS) survey cycles from 2011 to 2015, identical questions utilized by CDPHE to survey non-Denver residents in 2016, CDPHE prevention monitoring and evaluation data from 2013 to 2015, a 2016 CDPHE electronic survey conducted with PWID, and data from the Colorado Health Institute on drug use in Colorado counties.

Tables 3.14 through 3.17 summarize CHPNA data, and this data was used to develop the numeric targets for selective and indicated prevention.

Table 3.14 - Responses from Adams, Arapahoe, Denver, Douglas and Jefferson County Residents Regarding Risk Behaviors

	MSM	PWID		Heterosexual		MSM-PWID
		Male	Female	Male	Female	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Sex without a condom	313 (60%)	247 (75%)	84 (70%)	266 (96%)	282 (94%)	37 (86%)
Sex with 4 or more people in the past 12 months	266 (44%)	67 (20%)	24 (20%)	75 (27%)	39 (13%)	31 (54%)
Sex without a condom with a person whose HIV status was Unknown	36 (7%)	104 (32%)	31 (26%)	89 (32%)	98 (33%)	10 (23%)
Sex without a condom with a person who was HIV positive	6 (1%)	5 (2%)	3 (2%)	0	2 (<1%)	2 (5%)
Sex while under the influence of drugs	192 (37%)	215 (65%)	62 (52%)	139 (50%)	94 (31%)	39 (91%)
Received drugs, money or something of value in exchange for sex	13 (3%)	30 (9%)	21 (18%)	29 (10%)	21 (7%)	16 (37%)
Gave drugs, money or something of value in exchange for sex	15 (3%)	46 (14%)	3 (3%)	26 (10%)	5 (2%)	16 (37%)

Table 3.15 - Responses from the Rest of Colorado Regarding Risk Behaviors

	MSM	PWID		Heterosexual		MSM-PWID
		Male	Female	Male	Female	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Sex without a condom	11(100%)	9 (100%)	7(100%)	6 (67%)	4 (50%)	4 (100%)
Sex with 4 or more people in the past 12 months	4 (36%)	3 (33%)	0	0	0	2 (50%)
Sex without a condom with a person whose HIV status was Unknown	9 (82%)	9 (100%)	3 (43%)	0	2 (25%)	0
Sex without a condom with a person who was HIV positive	4 (36%)	0	4 (57%)	1 (11%)	0	2 (50%)

Table 3.15 - Responses from the Rest of Colorado Regarding Risk Behaviors

	MSM	PWID		Heterosexual		MSM-PWID
		Male	Female	Male	Female	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Sex while under the influence of drugs	10 (91%)	9 (100%)	5 (71%)	9 (100%)	8 (100%)	4 (100%)
Received drugs, money or something of value in exchange for sex	1 (9%)	0	0	0		2 (50%)
Gave drugs, money or something of value in exchange for sex	1 (9%)	0	0	0	0	0

Table 3.16 - CHPNA Data Regarding HIV Prevention

	MSM N(%)	PWID N(%)	Het N(%)	MSM-PWID N (%)
Responses from Adams, Arapahoe, Denver, Douglas and Jefferson counties				
Received any HIV Prevention Services	327 (63%)	272 (61%)	188 (33%)	32 (74%)
Received free sterile needles in last 12 months	9 (4%)	176 (81%)	5 (2%)	28 (13%)
Used free sterile needles received	9 (100%)	173 (98%)	5 (100%)	27 (96%)
Received free condoms in last 12 months	312 (95%)	193 (71%)	167 (89%)	28 (88%)
Used free condoms received	210 (67%)	93 (48%)	117 (70%)	23 (82%)
Received individual-level HIV counseling in last 12 months	60 (18%)	102 (38%)	34 (18%)	14 (44%)
Received group-level HIV counseling in last 12 months	30 (9%)	49 (18%)	20 (11%)	6 (19%)
Responses from the Rest of Colorado				
Received any HIV Prevention Services	9 (82%)	15 (94%)	12 (71%)	4 (100%)
Received free sterile needles in last 12 months	1 (11%)	5 (33%)	1 (8%)	1 (25%)
Used free sterile needles received	1 (11%)	5(33%)	1 (8%)	0
Received free condoms in last 12 months	7 (78%)	4 (27%)	7 (58%)	4 (100%)
Used free condoms received	**	**	**	**
Received individual-level HIV counseling in last 12 months	6 (67%)	10 (67%)	7 (58%)	2 (50%)
Received group-level HIV counseling in last 12 months	3 (33%)	7 (47%)	3 (25%)	2 (50%)

Table 3.17 - - CHPNA Data Regarding PrEP

	MSM N(%)	PWID N(%)	Het N(%)	MSM-PWID N (%)
Responses from Adams, Arapahoe, Denver, Douglas and Jefferson counties				
Heard of PrEP	252 (51%)	45 (10%)	27 (5%)	10 (23%)
Currently Taking PrEP	9 (4%)	0	0	0
Responses from the Rest of Colorado				
Heard of PrEP	10 (91%)	5 (30%)	12 (75%)	3 (75%)
Currently Taking PrEP	5 (45%)	0	1 (6%)	1 (25%)

Population Size Estimates

Estimating the sizes of Colorado’s populations at greatest risk of HIV infection is a complex task that must be based on several important assumptions. For MSM, the estimate utilizes a model published in 2015¹⁹ that sets the prevalence of MSM behavior from 1.1 to 4.4 percent²⁰ of the overall male population age 18 to 59, as shown in Table 3.18 below.

Table 3.18 - Colorado MSM Estimate

	Total	HIV positive	HIV negative or Unaware
Denver Transitional Grant Area	24,196	5,949	18,247
Remainder of Colorado	15,566	1,559	14,007
Statewide estimate of MSM	39,762	7,508	32,254

For PWID, the estimate is based a prevalence of 0.39 percent among men (age 18 to 59) and 0.21 percent among women (age 18 to 59), as shown in Table 19 below.²¹

Table 3.19 - Colorado PWID Estimate

	Total	HIV positive	HIV negative or Unaware
Denver Transitional Grant Area	4,578	479	4,099
Remainder of Colorado	4,380	229	4,151
Statewide estimate of PWID	8,958	708	8,250

¹⁹ Alexandra M. Oster, Maya Sternberg, Amy Lansky, Dita Broz, Cyprian Wejnert, and Gabriela Paz-Bailey. Population Size Estimates for Men who Have Sex with Men and Persons who Inject Drugs. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 92, No. 4 doi:10.1007/s11524-015-9970-3. 2015.

²⁰ Considers only those men with MSM behavior in the prior 12 months, and the percentage varies by the population density in the county.

²¹ Considers only those with injection behavior in the prior 12 months.

Not all populations of heterosexuals are at equal risk of becoming HIV positive in Colorado, with equal levels of urgency for HIV testing. Heterosexual risk is higher than average whenever two driving factors are higher than average: 1) practicing unsafe sexual behaviors, 2) in a community where there are potential partners living with HIV or AIDS. As a marker for the extent of unsafe sexual behaviors in a community, COHAS utilized gonorrhea (GC) rates. The CDPHE Surveillance Program ranked all Colorado census tracts by 5-year rates of HIV and then by 5-year rates of GC; the results of these analyses are presented in the Colorado Statewide Coordinated Statement of Need.

These data result in a three-layer estimate of heterosexuals who at higher than average risk of becoming infected with HIV and therefore potentially in need of selective and indicated prevention, as shown in Table 3.20 below.

Table 3.20 - Colorado High Risk Heterosexual Estimate

	Description	Population age 18-59
Layer 1	The ten highest-ranking census tracts within the six county ²² TGA in terms of HIV and GC rates. Of these six counties in the TGA, only Denver had a high enough rate to be included in the top ten highest-ranking tracts.	22,922
Layer 2	The five highest-ranking census tracts <i>within an urban county but outside of the six county TGA</i> in terms of HIV and GC rates. This includes census tracts in El Paso and Pueblo counties.	9,420
Layer 3	The five highest-ranking census tracts <i>outside of the twelve urban counties</i> ²³ in terms of HIV and GC rates. This includes census tracts in Alamosa, Kit Carson and Otero counties.	12,758
SUBTOTAL		45,100
Minus the estimated MSM population of the 20 census tracts		(675)
Minus the estimated PWID population of the 20 census tracts		(161)
TOTAL ESTIMATE SIZE OF POPULATION AT ENHANCED RISK DUE TO HETEROSEXUAL BEHAVIOR		44,264

These 20 census tracts represent a very diverse population of people. In terms of race, the highlighted Denver area census tracts have nearly twice the Blacks/African Americans percentage of residents as compared to the state overall (18.8% versus 3.9%, with two tracts over 25% Blacks/African Americans). The highlighted census tracts outside the Denver area have a disproportionate percentage of Hispanic/Latino residents (43.3% in the urban counties and 43.5% in the rural counties, with two tracts over 70% Hispanic/Latino). All of the census tracts have at least 10 percent of the population living below the federal poverty rate, with eleven (11) tracts exceeding 25 percent and one tract exceeding 75 percent. The gonorrhea rates per 100,000 in these tracts range from 37.2 to 823.4. The HIV rates per 100,000 in these tracts range from 2.7 to 94.1. Additional details regarding case information and demographics of these census tracts may be found in the Appendix (see

²² Six county TGA is defined as Adams, Arapahoe, Broomfield Denver, Douglas and Jefferson counties.

²³ Twelve urban counties include the six county TGA, Boulder, El Paso, Larimer, Mesa, Pueblo and Weld

page 175) and in the Surveillance Data Reference Guide²⁴.

COHAS has identified these census tracts as being representative of the types of communities that appear to be most in need of HIV testing services, particularly for high risk heterosexuals. Contractors funded by CDPHE will not be required to deliver HIV testing services exclusively in these 20 census tracts, nor will participants be denied services because they do not reside in these neighborhoods. It is well known that HIV risk honors no artificial boundaries; people who reside in an apparently “low risk profile area” practice unsafe behaviors in a “high risk profile area,” and too often bring HIV home to unknowing partners. However, in evaluating the targeting of selective prevention resources through requests for applications and proposals, CDPHE will identify the extent to which the communities receiving funding meet or exceed the risk profiles of these representative census tracts and will continually advocate for the most optimal investment of scarce resources, while excluding no person or group with demonstrable need.

To set HIV prevention targets, there also need to be assumptions made about the variations within the risk-defined groups. Utilizing a model released by CDC in 2015, the following percentages are utilized in COHAS:²⁵

MSM with indicators for PrEP	24.7%
PWID with indicators for PrEP	18.5%
Heterosexuals with indicators for PrEP.....	0.6%

Table 3.21 on page 49 combines these risk estimates, as well as self-reported risk behavior data from CHPNA, to set numeric targets for universal, selective, and indicated prevention. The specific estimation methods and assumptions are described on page 50.

Researcher Assumptions Regarding “Treatment as Prevention”

There is one assumption in the data sets utilized in COHAS held by the researchers for all risk populations and their associated service needs: knowing that their partners are virally suppressed has only a nominal effect on the risk behaviors of HIV negative MSM, PWID, or high risk heterosexuals. In other words, if a survey respondent disclosed that she/he is not using condoms or practicing other traditional risk-reduction strategies, the researchers assumed that this behavior is not associated with a choice to rely on partners’ HIV viral suppression as her/his primary protection against acquiring HIV. This assumption is likely to be less and less valid over time, given the increasing body of well-publicized research about the effectiveness of viral suppression as a prevention strategy, also known as “treatment as prevention.” For example, results of the PARTNER (Partners of People on ART—A New Evaluation of the Risks) study released in 2016 were quite compelling: Among 1,166 serodifferent heterosexual and MSM couples in which the HIV-positive partner was using suppressive ART and who reported

²⁴ Data Source: 2010-2014 American Community Survey 5 year estimates. Selected tables include; S0101- Age and Sex, S0601-Selected Sociodemographic Characteristics, S1701-Poverty Status, S2301-Employment Status, S2701-Health Insurance Coverage and B03002 Hispanic Origin by Race. (<http://www.census.gov/acs>)

²⁵ Estimated percentages and numbers of adults with indications for pre-exposure prophylaxis (PrEP), by transmission risk group — United States, 2015 (Smith et.al – Presented at 2015 National HIV Prevention Conf.)
Colorado HIV AIDS Strategy 2017 – 2021 v092316

condomless sex, during median follow-up of 1.3 years per couple, there were no documented cases of within-couple HIV transmission.²⁶ This study was well covered in the popular press, and it is likely that an increasing number of serodifferent couples will forego condom use and rely instead on viral suppression to prevent HIV transmission. It is hoped that NHBS and other researchers will address this issue in future studies about HIV risk and protective behaviors, which will lead to better COHAS planning in future revisions. Regardless of researcher assumptions on this point, the developers of COHAS firmly believe that efforts to link and retain PLWHA in care, and support them to achieve viral suppression, will significantly advance Colorado's efforts to prevent transmission of HIV.

²⁶ Rodger AJ, Cambiano V, Bruun T, et al. Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy. *JAMA*. 2016;316(2):171-181. doi:10.1001/jama.2016.5148.

The targets for universal, selective, and indicated prevention were set using the following estimations:

Table 3.21 - Risk Group Targets for Interventions

Risk Groups	Percentage of Overall Risk Group	Estimated Sizes of Populations for HIV Prevention Services	People Receiving Universal Marketing	People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions	People Receiving Indicated Interventions
MSM (lower risk)	30.1%	11,976	11,976	-	-	-
MSM (moderate risk)	45.2%	17,964	8,756	7,904	1,186	119
MSM (highest risk)	24.7%	9,821	2,321	5,149	1,500	851
Totals	100.0%	39,762	25,053	13,053	2,686	970

PWID (lower risk)	41.6%	3,723	3,723	3,723	1,862	1,862
PWID (moderate risk)	39.9%	3,577	3,577	3,577	2,325	2,325
PWID (highest risk)	18.5%	1,657	1,657	1,657	1,657	1,657
Totals	100.0%	8,958	8,958	8,958	5,844	5,844

HRH (lower risk)	86.5%	38,279	38,279	-	-	-
HRH (moderate risk)	12.9%	5,720	3,535	1,888	283	14
HRH (highest risk)	0.6%	266	266	266	266	266
Totals	100.0%	44,264	42,080	2,154	549	280

Assumptions:

For MSM, 24.7 percent of the population are estimated to meet criteria for PrEP, per CDC guidance.²⁷ Of the remaining MSM, lower risk is defined by not having condomless anal sex in the previous 12 month, while moderate risk is defined by having condomless anal sex in the previous 12 months. MSM deemed to need selective interventions are those reporting sex with 4 or more partners in the previous 12 months, per CHPNA. Approximately 10 percent of moderate risk MSM are estimated to need indicated prevention. Both selective and indicated intervention estimates for highest risk MSM are based on CDC estimates that 7,500 highest risk MSM would need to be on PrEP in order to produce population level effect.

For PWID, 18.5 percent of the population are estimated to meet criteria for PrEP, per CDC guidance.²⁸ Of the remaining PWID, lower risk is defined as having not reported sharing any injection equipment in the prior 12 months, with moderate risk defined as some level of equipment sharing, per CHPNA. Universal interventions are deemed not to be appropriate for PWID. All PWID are assumed to need at least broad-based selective interventions, and both client-centered selective interventions and indicated interventions (syringe exchange) are deemed appropriate for PWID who report not always using new, sterile syringes, per CHPNA findings.

For high risk heterosexuals (HRH), 0.6 percent of the population are estimated to meet criteria for PrEP, per CDC guidance.²⁸ Of the remaining HRH, moderate risk is defined as reporting sex with 4 or more partners in the previous 12 months, with lower risk defined as not reporting multiple partners, per CHPNA. Moderate risk HRH reporting condomless sex with partners of unknown serostatus in the previous 12 months (per CHPNA) are deemed to need selective interventions. All highest risk HRH are assumed to need at least broad-based selective interventions, and both client-centered selective interventions and indicated interventions (especially PrEP) are deemed appropriate for highest risk HRH.

²⁷ Estimated percentages and numbers of adults with indications for pre-exposure prophylaxis (PrEP), by transmission risk group — United States, 2015 (Smith et.al – Presented at National HIV Prevention Conference, 2015)

Table 3.22 - Stratified MSM Targets

MSM	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions	People Receiving Indicated Interventions
			13,053	2,686	970
Geographic Targets					
TGA	75%	80%	9,790	2,015	728
Rest of Colorado	25%	20%	3,263	672	243
Race/Ethnicity Targets					
Black	10%	10%	1,305	269	97
Hispanic	31%	19%	4,046	833	301
Age Group Targets					
15-19	3%	0%	392	81	29
20-24	24%	2%	3,133	645	233
25-29	20%	5%	2,611	537	194
30-34	16%	7%	2,088	430	155
35-39	12%	8%	1,566	322	116
40-44	7%	9%	914	188	68
45-49	7%	14%	914	188	68
50-54	8%	20%	1,044	215	78
55-59	2%	15%	261	54	19
60-64	1%	11%	131	27	10
>65 ²⁸	0%	9%	52	11	4

²⁸ Although the 2015 epidemiology is 0% for this age group, a minimal number of 0.4% of clients is set for prevention targets.

Table 3.23 - Stratified PWID Targets

PWID	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions	People Receiving Indicated Interventions
			8,958	3,982	3,982
Geographic Targets					
TGA	50%	67%	4,479	1,991	1,991
Rest of Colorado	50%	33%	4,479	1,991	1,991
Gender Targets					
Male	67%	65%	6,002	2,668	2,668
Female	33%	35%	2,956	1,314	1,314
Race/Ethnicity Targets					
Black	17%	23%	1,523	677	677
Hispanic	33%	22%	2,956	1,314	1,314
Age Group Targets					
<20 ²⁹	0%	0%	90	40	40
20-29 ³⁰	0%	1%	179	80	80
30-39	33%	8%	2,867	1,275	1,275
40-49	33%	27%	2,867	1,275	1,275
50-59	17%	42%	1,477	657	657
>60	17%	22%	1,477	657	657

²⁹ Although the 2015 epidemiology is 0% for this age group, a minimal number of 1% of clients is set for prevention targets.

³⁰ Although the 2015 epidemiology is 0% for this age group, a minimal number of 2% of clients is set for prevention targets.

Table 3.24 - Stratified HRH Targets

			People Receiving Targeted Marketing, Outreach, or Other Broad-Based Selective Interventions	People Receiving Client-Centered Group or Individual Selective Interventions	People Receiving Indicated Interventions
HETEROSEXUAL	2015 HIV Incidence (%)	PLWHA as of 12/31/2015 (%)	2,154	549	280
Geographic Targets					
TGA	67%	71%	1,443	368	188
Rest of Colorado	33%	29%	711	181	92
Gender Targets					
Male	5%	33%	108	27	14
Female	95%	67%	2,046	522	266
Race/Ethnicity Targets					
Black	29%	42%	625	159	81
Hispanic	33%	21%	711	181	92
Age Group Targets					
13-19 ³¹	0%	<1%	22	5	3
20-24	10%	1%	170	43	22
25-29	14%	4%	238	61	31
30-34	14%	7%	238	61	31
35-39	28%	13%	476	121	62
40-44	14%	14%	238	61	31
45-49	10%	19%	170	43	22
50-54 ³²	0%	16%	215	55	28
55-59	10%	12%	170	43	22
60-64 ³³	0%	7%	108	27	14
>65 ³⁶	0%	7%	108	27	14

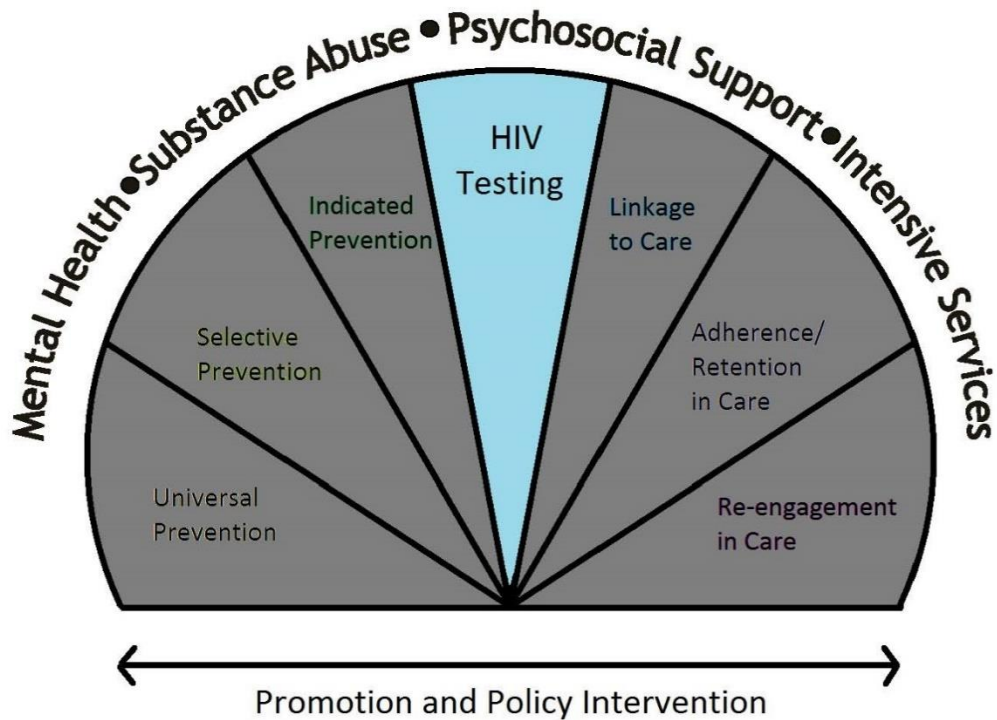
³¹ Although the 2015 epidemiology is 0% for this age group, a minimal number of 1% of clients is set for prevention targets.

³² Although the 2015 epidemiology is 0% for this age group, a minimal number of 10% of clients is set for prevention targets

³³ Although the 2015 epidemiology is 0% for this age group, a minimal number of 5% of clients is set for prevention targets

Chapter 4 - HIV Testing

Overview



HIV testing is at the center of the Colorado Model for HIV Prevention and Care. For people who are HIV negative, HIV testing provides an opportunity to be linked to evidence-based biomedical and psychosocial interventions that prevent future HIV infection. For people who are living with HIV, testing provides the opportunity to link to early HIV care, which greatly increases the likelihood of clients achieving viral suppression and maintaining high quality of life while also achieving HIV prevention goals.

NHAS Goal 1: Reduce new HIV infections

Objective: HIV testing will be a gateway into evidence-based prevention for people testing HIV negative, which will reduce Colorado’s new HIV infections by 20% by December 31, 2021.

Strategy 1: Expand targeted HIV testing for populations at higher-than-average risk of HIV infection, including evidence-based prevention options for people testing HIV negative.

Activities/Interventions

1-1-a Provide at least 38,968 tests per year in venues that are accessible and acceptable to people at moderate to high risk of HIV infection. Prioritize people who are unlikely to seek HIV testing through the general health care system.
Responsible Parties: ICP Program, funded HIV testing contractors.
Timeline: Q1 2017 - Q4 2021

1-1-b Maintain Disease Intervention Specialist statewide voluntary HIV testing of high-risk partners and others engaged in high risk behavior as part of CDPHE Partner Services work.
Responsible Parties: CBP Program, DIS
Timeline: Q1 2017 - Q4 2021

1-1-c Ensure that targeted HIV testing includes screening and active referral for evidence-based prevention for people testing HIV negative, emphasizing PrEP, nPEP, mental health counseling, substance use services, and critical events assistance.
Responsible Parties: Contract Monitoring Unit, DIS supervisors, funded HIV testing contractors, Capacity Building Unit.
Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.1 - Targets by Risk Group, Number of Annual HIV tests

MSM	27,696
PWID	5,572
Heterosexuals	5,700

Table 4.2 - Targets by Geography, Number of Annual HIV tests

Denver TGA	28,664
Rest of Colorado	10,304

Strategy 2: Expand HIV testing in the general health care system, including evidence-based prevention options for people testing HIV negative, which will reduce Colorado’s new HIV infections by 20% by December 31, 2021.

Activities/Interventions

- 1-2-a Promote HIV testing as part of routine medical care, as advised by the U.S. Preventive Services Task Force. This includes baseline HIV testing of every adolescent and adult and subsequent re-testing based on level of HIV risk.
Responsible Parties: Capacity Building Unit
Timeline: Q1 2017 - Q4 2021
- 1-2-b Incentivize the general health care system to provide at least 58,451 HIV tests per year for people at moderate to high risk of HIV infection.
Responsible Parties: ICP Program, clinics funded by CDPHE to provide HIV testing, other medical providers, Capacity Building Unit
Timeline: Q1 2017 - Q4 2021
- 1-2-c Promote screening and active referral for evidence-based prevention as part of general health care delivery, emphasizing PrEP, nPEP, mental health counseling, substance use services, and critical events assistance.
Responsible Parties: ICP Program, clinics funded by CDPHE to provide HIV testing, other medical providers, Capacity Building Unit
Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.3 - Targets by Risk Group, Number of Annual HIV tests

MSM	41,543
PWID	8,358
Heterosexuals	8,550

Table 4.4 - Targets by Geography, Number of Annual HIV tests

Denver TGA	42,995
Rest of Colorado	15,456

NHAS Goal 2: Increase access to care and improve health outcomes for people living with HIV.

Objective: Late HIV/AIDS diagnosis will be reduced overall by 10% by December 31, 2018 and 15% by December 31, 2021.

Strategy 1: Encourage HIV testing at the earliest practical stage in disease progression.

Activities/Interventions

2-1-a Utilize public health reports of HIV and STIs to identify medical practices where the rate of late HIV/AIDS diagnoses exceeds the statewide average of 32%. Incentivize these “priority medical practices” to make HIV testing more of a routine part of medical care.

Responsible Parties: Surveillance Program, ICP Program, clinics funded by CDPHE to provide HIV testing, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

2-1-b In geographic areas of the state where late HIV/AIDS diagnosis exceeds the statewide average of 32%, expand targeted HIV testing in nonclinical settings by at least 10%.

Responsible Parties: ICP Program, funded HIV testing contractors.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.5 - Targets by Risk Group, Percentage of Late HIV

	Baseline	Dec 2018 Target	Dec 2021 Target
MSM	26.8%	26.0%	25.0%
MSM & PWID	17.6%	16.0%	14.5%
PWID (Male and Female)	39.0%	36.0%	34.0%
Heterosexuals (Male and Female)	29.9%	29.7%	28.1%

Table 4.6 - Targets by Geography, Percentage of Late HIV Diagnoses

	Baseline	Dec 2018 Target	Dec 2021 Target
Denver TGA	28%	27%	25%
Other Urban Counties	31%	30%	28%
Rest of Colorado Counties	46%	45%	43%
All of Colorado	30%	29%	27%

Note: percentages of late HIV diagnoses are based on the 5 year average of newly diagnosed HIV cases from 2011 - 2015.

Strategy 2: Minimize any delay between date of initial diagnosis and linkage to care.

Activities/Interventions

2-2-a Ensure that all CDPHE-funded testing providers either directly provide linkage to care services or actively refer newly diagnosed clients to linkage services, resulting in a linkage success rate of at least 95% within 90 days of initial diagnosis.

Responsible Parties: ICP Program, funded HIV testing contractors.

Timeline: Q1 2017 - Q4 2021

2-2-b DIS will assess linkage to care for 100% of the newly diagnosed clients they get assigned. When linkage to care has not been initiated, DIS will actively refer clients to linkage to care programs at CDPHE or community partners.

Responsible Parties: CBP Program, DIS.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.7 - Targets by Risk Group, Percentage linked to care within 90 Days of Initial Diagnosis

	Baseline	Target
MSM, including MSM /IDU (N=1300)	84%	95%
PWID (N=62)	94%	95%
Heterosexuals (N=167)	77%	95%

Table 4.8 - Targets by geography, Percentage linked to care within 90 Days of Initial Diagnosis

	Baseline	Target
All of Colorado (N=1,832)	84%	95%
Denver TGA (N=1,361)	86%	95%
Other Urban Counties (N=330)	76%	95%
Rest of Colorado (N=141)	79%	95%

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: HIV Testing efforts will be targeted to persons at high risk of HIV acquisition. By December 31, 2017, resources will be proportional to the percentage of disease burden by community.

Strategy 1: Ensure that targeted HIV testing reaches populations experiencing disparities in HIV, particularly disparities associated with race/ethnicity and age.

Activities/Interventions

3-1-a Using surveillance data, determine overall disease burden and how this disease burden varies by race/ethnicity and age (see section on data).

Responsible Parties: Surveillance Program.

Timeline: Q1 2017 - Q4 2021

3-1-b Monitor HIV testing contracts to ensure that populations within each service area (stratified by race/ethnicity and age) are receiving HIV testing services at least proportional to their representation in the epidemic. Where this is not being achieved, incentivize contractors to improve the targeting of HIV testing.

Responsible Parties: ICP Program, funded HIV testing contractors.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.9 - Targets by Race/Ethnicity, Number of HIV tests

White, not Hispanic	19,871
Black, not Hispanic	7,018
Hispanic (All Races)	10,520
Asian/Pacific Islander	779
Amer. Indian/Alaska Native	390
Multiple Race	390

Table 4.10 - Targets by Age, Number of HIV tests

Under 15 years	779
15-19 years	390
20-24 years	5,066
25-29 years	6,625
30-34 years	6,625
35-39 years	5,066
40-44 years	4,676
45-49 years	4,286
50-54 years	2,728
55-59 years	1,169
60-64 years	779
65 years and over	779

Strategy 2: Ensure that HIV testing in clinical settings reaches populations experiencing disparities in HIV, particularly disparities associated with race/ethnicity and age.

Activities/Interventions

3-2-a Using surveillance data, identify medical practices located in geographic areas where there is evidence of significant race/ethnicity and age disparities. Of these practices, identify those that are diagnosing and treating the greatest number of HIV and other STIs.

Responsible Parties: ICP Program, funded HIV testing contractors.

Timeline: Q1 2017 - Q4 2021

3-2-b Offer these “priority practices” a combination of capacity building and financial assistance to expand their HIV testing efforts to become more routine.

Responsible Parties: ICP Program, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.11 - Targets by Race/Ethnicity, Number of HIV tests

White, not Hispanic	29,806
Black, not Hispanic	10,528
Hispanic (All Races)	15,780
Asian/Pacific Islander	1,169
Amer. Indian/Alaska Native	584
Multiple Race	584

Table 4.12 - Targets by Age, Number of HIV tests

Under 10 years	585
10-14 years	585
15-19 years	585
20-24 years	7,599
25-29 years	9,937
30-34 years	9,937
35-39 years	7,599
40-44 years	7,014
45-49 years	6,430
50-54 years	4,092
55-59 years	1,754
60-64 years	1,169
65 years and over	1,169

Strategy 3: Reduce late HIV diagnoses across all race/ethnicities and age groups, by 10% by December 31, 2018 and by 15% by December 31, 2021.

Activities/Interventions

3-3-a Using surveillance data, identify geographic areas of the state where late HIV diagnoses are the highest in terms of race/ethnicity and age disparities. Prioritize these geographic areas for funding and other assistance.

Responsible Parties: Surveillance Program.

Timeline: Q1 2017 - Q4 2021

3-3-b Incentivize HIV testing providers (both targeted and medical) to provide specialized services to lower the rate of late HIV diagnoses associated with race/ethnicity and age in the targeted geographic areas. Such specialized services include, but are not limited to, periodic targeted testing events, collaboration with community organizations to host satellite testing sites, marketing, and outreach.

Responsible Parties: ICP Program, funded HIV testing contractors.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.13 - Targets by Race/Ethnicity, Percentage of Late HIV Diagnoses (2011-2015)

	Baseline	Dec 2018 Target	Dec 2021 Target
White, not Hispanic	27.5%	27.9%	26.4%
Black, not Hispanic	26.3%	25.2%	23.8%
Hispanic (All Races)	36.9%	34.2%	32.3%
Asian/Pacific Islander	29.0%	26.1%	24.7%
Amer. Indian/Alaska Native	20.0%	22.5%	21.3%
Multiple Race	38.1%	29.7%	28.1%

Table 4.14 - Targets by Age, Percentage of Late HIV Diagnoses (2011-2015)

	Baseline	Dec 2018 Target	Dec 2021 Target
Under 15 years	5.0%	4.8%	4.5%
15-19 years	4.8%	4.6%	4.3%
20-24 years	13.2%	12.5%	11.9%
24-29 years	19.8%	18.8%	17.8%
30-34 years	26.3%	25.0%	23.7%
35-39 years	38.3%	36.4%	34.5%
40-44 years	41.5%	39.4%	37.4%
45-49 years	41.6%	39.5%	37.4%
50-54 years	48.4%	46.0%	43.6%
55-59 years	40.9%	38.9%	36.8%
60-64 years	62.1%	59.0%	55.9%
65 years and older	66.7%	63.4%	60.0%

Strategy 4: Increase the linkage to care rate within 90 days of diagnosis to 95% across all race/ethnicities and age groups.

Activities/Interventions

3-4-a Using surveillance data, identify geographic areas of the state where linkage to care rates are the lowest in terms of race/ethnicity and age disparities. Prioritize these geographic areas for funding and other assistance.

Responsible Parties: Surveillance Program.

Timeline: Q1 2017 - Q4 2021

3-4-b Incentivize HIV testing providers to collaborate with linkage to care providers to address race/ethnicity and age disparities.

Responsible Parties: ICP Program, funded HIV linkage to care contractors, CDPHE linkage to care staff.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 4.15 - Targets by Race/Ethnicity, Percentage linked to care within 90 Days of Initial Diagnosis (Due to small cell size the race categories of Asian, Pacific Islander, Native American, Alaska Native and Multi-Racial were not analyzed).

	Baseline	Target
White, not Hispanic (N=916)	84%	95%
Black, not Hispanic (N=312)	75%	95%
Hispanic (All Races) (N=537)	88%	95%

Table 4.16 - Targets by Age, Percentage linked to care within 90 Days of Initial Diagnosis (Due to Small Cell Size, some age groups were collapsed).

	Baseline	Target
Under 20 years (N=67)	68.7%	95%
20-24 years (N=287)	77.0%	95%
24-29 years (N=328)	82.3%	95%
30-34 years (N=300)	84.1%	95%
35-39 years (N=227)	88.4%	95%
40-44 years (N=212)	91.5%	95%
45-49 years (N=185)	92.4%	95%
50-54 years (N=126)	97.6%	95%
55 years and older (N=100)	97.6%	95%

Resources

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Rebate	Tobacco MSA	Health Coverage
Goal 1							
1-1-a Provide targeted HIV testing	X	X		X	X	X	
1-1-b Maintain HIV testing by DIS		X		X	X	X	
1-1-c Ensure prevention screening and referrals in targeted HIV testing	X	X	X	X	X	X	
1-2-a Promote HIV testing as routine medical care	X	X		X	X	X	X
1-2-b Incentivize medical HIV testing for people at moderate to high risk	X	X		X	X	X	X
1-2-c Promote prevention screening and referrals in general health care delivery	X	X	X	X	X	X	X
Goal 2							
2-1-a Incentivize medical practices with high late HIV diagnoses rates	X	X		X	X	X	X
2-1-b Target geographic areas with high late HIV diagnoses rates	X	X		X	X	X	
2-2-a Improve linkage to care at CDPHE funded HIV testing providers	X	X		X	X	X	
2-2-b Utilize DIS for linkage to HIV care		X		X	X	X	
Goal 3							
3-1-a Determine how disease burden varies by race/ethnicity and age		X		X	X	X	
3-1-b Ensure services are proportional to the epidemic	X	X		X	X	X	
3-2-a Identify medical practices where there are significant disparities		X		X	X	X	
3-2-b Incentivize these priority practices to address disparities	X	X		X	X	X	
3-3-a Identify geographic areas where there are race/ethnicity and age disparities in late HIV diagnosis rates		X		X	X	X	
3-3-b Incentivize HIV testing providers to address race/ethnicity and age late HIV diagnosis disparities with specialized services	X	X		X	X	X	X
3-4-a Identify geographic areas where there are race/ethnicity and age disparities in linkage to care rates		X		X	X	X	
3-4-b Incentivize HIV testing providers to address race/ethnicity and age linkage to care disparities	X	X		X	X	X	X

Metrics needed to monitor the progress of HIV testing

Goal 1

Metric 1.1 Number of targeted HIV tests overall

Metric 1.2 Number of HIV tests delivered in healthcare settings overall

Metric 1.3 Number of clients screened and referred to additional services overall

Goal 2

Metric 2.1 HIV positivity rate

Metric 2.2 Rate of late HIV diagnoses

Metric 2.3 Number of days between initial HIV diagnosis and evidence of initial HIV care

Metric 2.4 Percentage of patients who attended a routine HIV medical care visit within 3 months of HIV diagnosis.

Goal 3

Metric 3.1 Number of Targeted HIV tests, stratified by race/ethnicity and age

Metric 3.2 Number of HIV tests delivered in healthcare settings, stratified by race/ethnicity and age

Metric 3.3 Rate of late HIV diagnoses, stratified by race/ethnicity and age

Metric 3.4 Number of days between initial HIV diagnosis and evidence of initial HIV care, stratified by race/ethnicity and age

Challenges or barriers related to; reducing new HIV infections, increasing access to care and improving health outcomes for people living with HIV, and reducing HIV-related disparities and health inequities.

Early identification of HIV infection faces several challenges and gaps. With the implementation of the Affordable Care Act and the Colorado Medicaid expansion in 2014, an unprecedented opportunity became real to maximize the impact of opt out HIV screening for everyone ages 13 to 64 in healthcare settings. However, cooperation of health care settings to test priority populations needs further development. In addition, improvements in data sharing among and between CDPHE, local county health departments, and HIV testing providers would improve efforts to assess HIV screening in the priority populations.

Stigma is strongly associated with delayed HIV testing. A 2013 study examined the effect of anticipated stigma on HIV testing behavior, with anticipated stigma defined as “the expectation of rejection or discrimination against by others in the event of seroconversion.”³⁴ Anticipated stigma was negatively associated with risk perception; every standard deviation increase in anticipated HIV stigma was associated with a 54% decrease in the odds of having had an HIV test in the previous 6 months (AOR = 0.54, 95% CI: 0.40, 0.73, $p < 0.001$).

People who are incarcerated face special challenges regarding HIV testing, and this is particularly true in city and county jails. There are multiple reasons for this situation. CDC cites the following reasons, which are consistent with experiences of those who serve incarcerated and recently incarcerated Coloradans:

- Lack of resources for HIV testing and treatment in correctional facilities. Prison and jail administrators must weigh the costs of HIV testing and treatment against other needs, and some correctional systems may not provide such services.
- Rapid turnover among jail populations. While most HIV programs in correctional facilities are in prisons, most incarcerated people are detained in jails. Nine out of ten jail inmates are released in under 72 hours; the shorter the stay in the jail, the less likely the jail will find time to offer an HIV test, administer the test, deliver results, and (when necessary) arrange for HIV care.
- Inmate concerns about privacy and fear of stigma. Many inmates do not disclose their high-risk behaviors, such as anal sex or injection drug use, because they fear being stigmatized.³⁵ Concerns cited include unprofessional correctional staff, lack of proper record keeping, unsecured medical records, inadequate staff training, inconsistent disciplining of staff for stigmatizing behavior or confidentiality breaches, and disregard for privacy protections such as HIPAA.

In Colorado’s state prisons, people are routinely tested for HIV at admission and are linked to HIV care at that time. However, ongoing HIV testing in prison, including HIV testing upon release, is not routine. This is partially driven by concerns about legal liability when a person

³⁴ Sarit A. Golub, PhD, MPH,1,2 and Kristi E. Gamarel, EdM. The Impact of Anticipated HIV Stigma on Delays in HIV Testing Behaviors: Findings from a Community-Based Sample of Men Who Have Sex with Men and Transgender Women in Nerk City. AIDS PATIENT CARE and STDs Volume 27, Number 11, 2013

³⁵ <http://www.cdc.gov/hiv/group/correctional.html>

becomes HIV infected while in state custody. Late diagnoses, delayed access to HIV care, and continued HIV transmission are the direct result.

As shown in Figures 4.1 through 4.4, there has been steady progress made in lowering the rate of late diagnoses overall in Colorado. However, there are considerable variations among various groups within Colorado, both geographically and by other demographics (risk group, age, and gender).

Figure 4.1 - Summary of new HIV cases in Colorado (1985-2015) by stage of HIV disease at initial case report

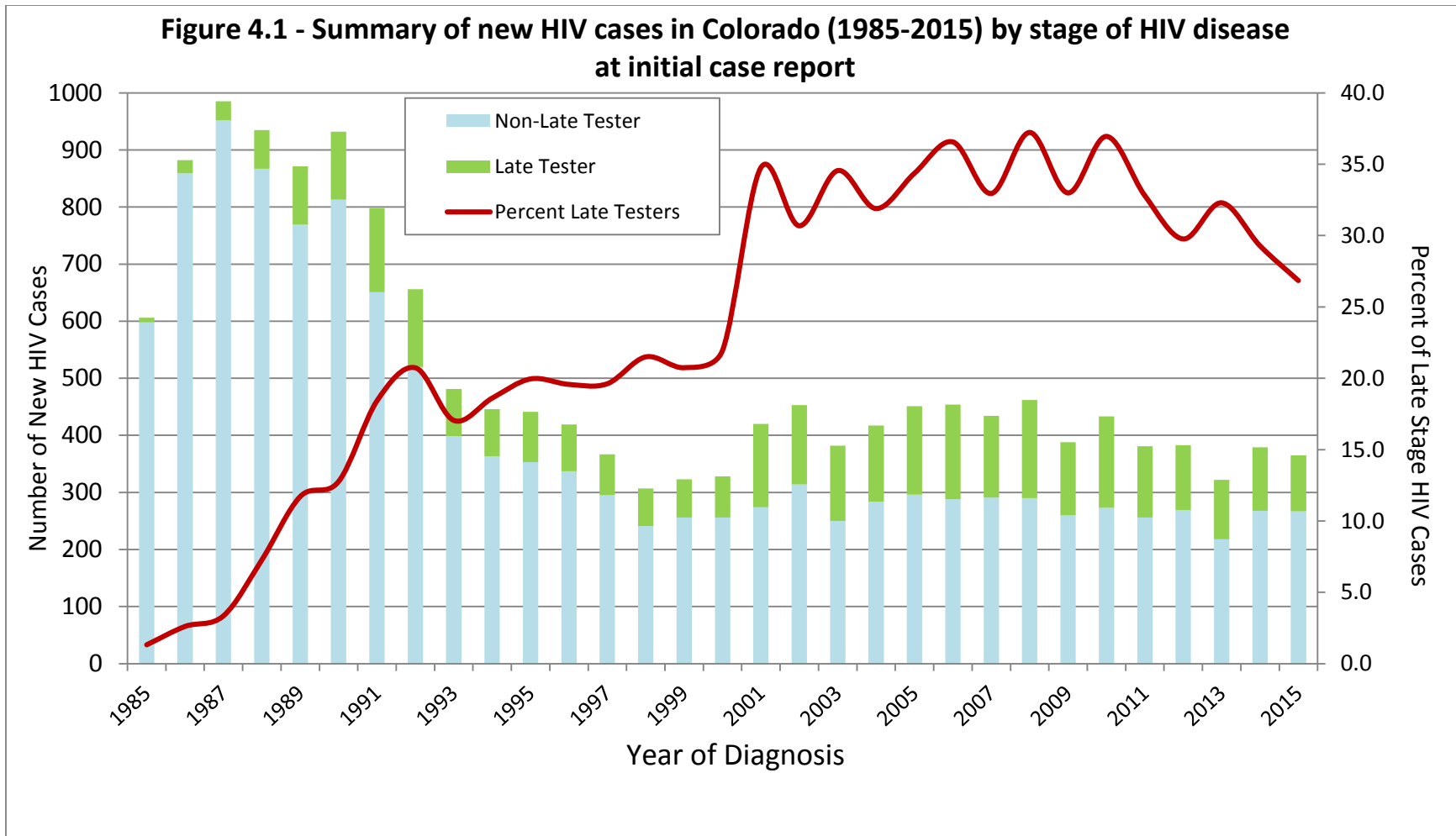


Figure 4.2 - Summary of HIV Cases in Colorado (2005-2015) by stage of HIV Disease with in 12 Months of Diagnosis, Gender and Major Risk Categories (N= 4,440)

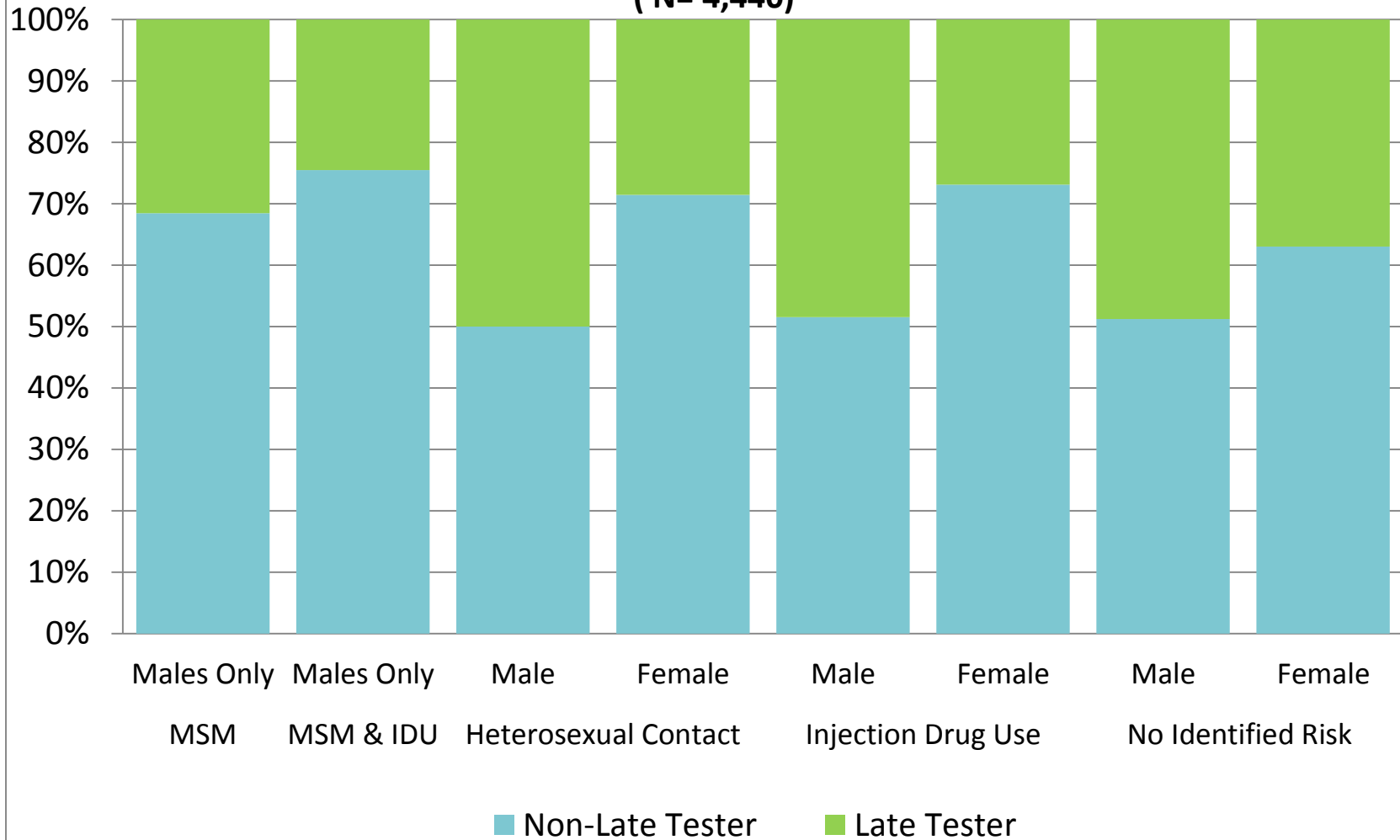


Figure 4.3 - Summary of HIV Cases in Colorado (2005-2015) by Race/Ethnicity, Gender and Stage of HIV Disease within 12 months of Diagnosis (N=4,440)

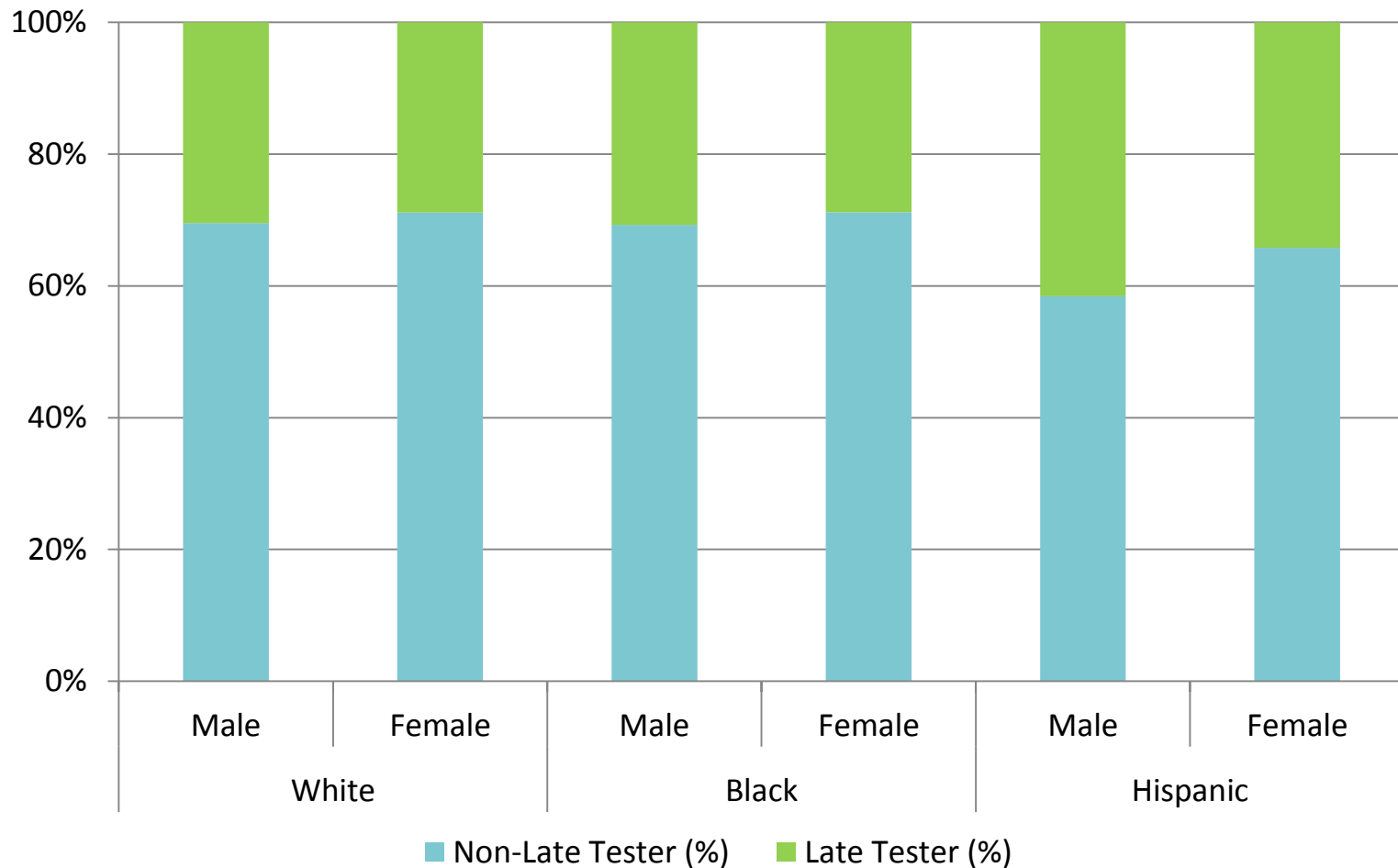
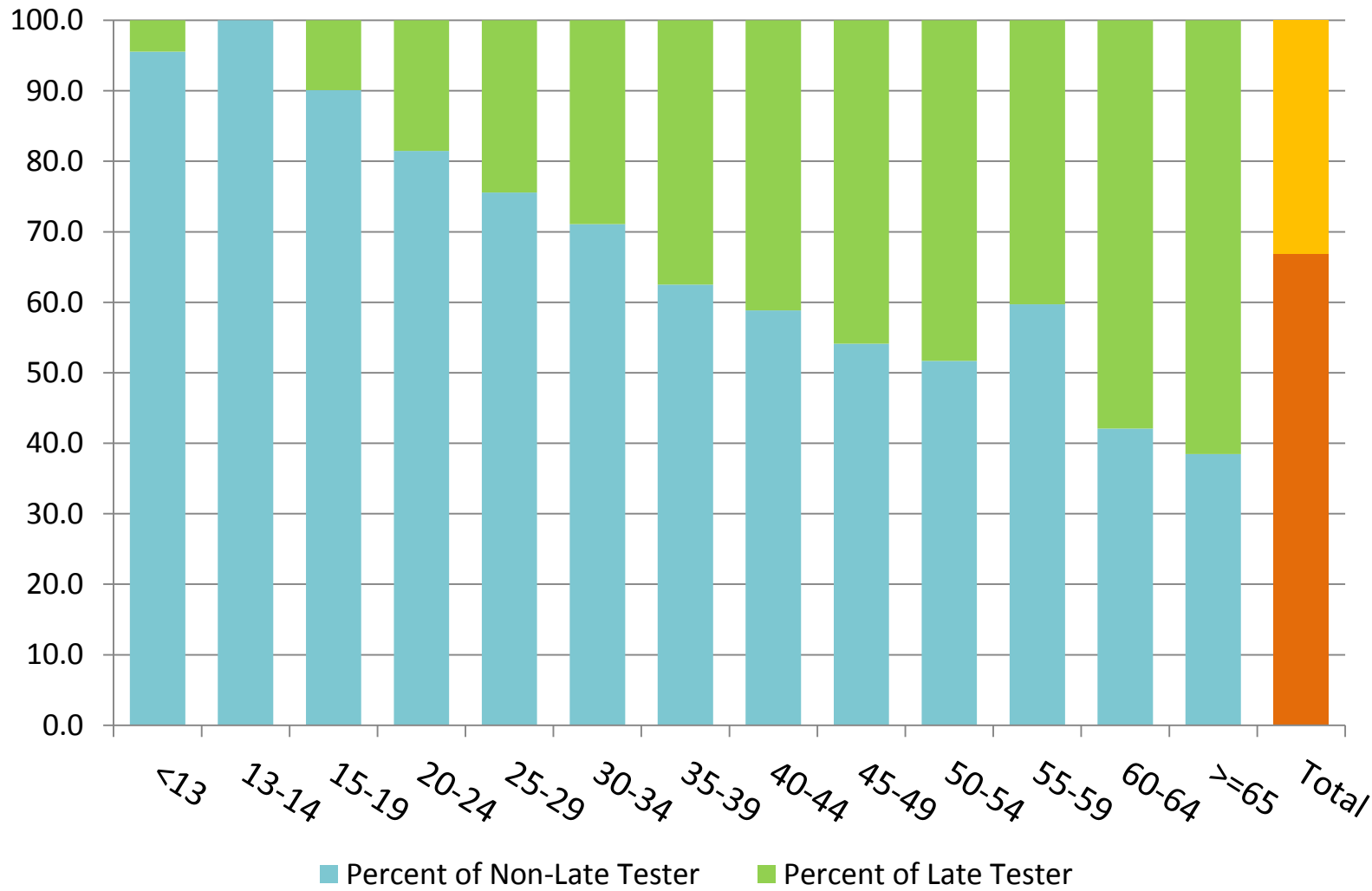


Figure 4.4 - Summary of HIV Cases in Colorado (2005-2015) by age group at diagnosis and stage of HIV disease at 12 months of initial case report (N= 4,440)



Data used to determine the goals and metrics

Population Size Estimates

Estimating the sizes of Colorado's populations at greatest risk of HIV infection is a complex task that must be based on several important assumptions. For MSM, the estimate utilizes a model published in 2015³⁶ that sets the prevalence of MSM behavior from 1.1 to 4.4 percent³⁷ of the overall male population age 18 to 59, as shown in Table 4.17 below.

Table 4.17 - Colorado MSM Estimate

	Total	HIV positive	HIV negative or Unaware
Denver Transitional Grant Area	24,196	5,949	18,247
Remainder of Colorado	15,566	1,559	14,007
Statewide estimate of MSM	39,762	7,508	32,254

For PWID, the estimate is based on a study published in 2014⁵ and provides an overall estimate of PWID within the past 12 months at 0.30% of the total population (Stratified by gender, prevalence is 0.36% among males and 0.21% among females). The estimate in Table 4.18 is calculated for the total population, not stratified by gender for those ages 18-59 years old with injection drug use within the past 12 months.³⁸

Table 4.18 - Colorado PWID Estimate

	Total	HIV positive	HIV negative or Unaware
Denver Transitional Grant Area	4,811	606	4,205
Remainder of Colorado	4,578	292	4,286
Statewide estimate of PWID	9,389	898	8,491

Not all populations of heterosexuals are at equal risk of becoming HIV positive in Colorado, with equal levels of urgency for HIV testing. Heterosexual risk is higher than average whenever two driving factors are higher than average: 1) practicing unsafe sexual behaviors, 2) in a community where there are potential partners living with HIV or AIDS. As a marker for the extent of unsafe sexual behaviors in a community, COHAS utilized gonorrhea (GC) rates. The CDPHE Surveillance Program ranked all Colorado census tracts by 5-year rates of GC and then by 5-year rates of HIV.

³⁶ Alexandra M. Oster, Maya Sternberg, Amy Lansky, Dita Broz, Cyprian Wejnert, and Gabriela Paz-Bailey. Population Size Estimates for Men who Have Sex with Men and Persons who Inject Drugs. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 92, No. 4 doi:10.1007/s11524-015-9970-3. 2015.

³⁷ Considers only those men with MSM behavior in the prior 12 months, and the percentage varies by the population density in the county.

³⁸ Amy Lansky, Teresa Finlayson, Christopher Johnson, Deborah Holtzman, Cyprian Wejnert, Andrew Mitsch, Deborah Gust, Robert Chen, Yuko Mizuno and Nicole Crepez. Estimating the Number of Persons Who Inject Drugs in the United States by Meta-Analysis to Calculate National Rates of HIV and Hepatitis C Virus Infections. *PLOS ONE*, Vol 9, Issue 5 doi:10.1371. 2014.

These data result in a three-layer estimate of heterosexuals who at higher than average risk of becoming infected with HIV and therefore in need of selective HIV testing efforts, as shown in Table 4.19 below.

Table 4.19 - Colorado High Risk Heterosexual Estimate

	Description	Population age 18-59
Layer 1	The ten highest-ranking census tracts within the six county* TGA in terms of HIV and GC rates. Of these six counties in the TGA, only Denver had a high enough rate to be included in the top ten highest-ranking tracts.	22,922
Layer 2	The five highest-ranking census tracts <i>within an urban county but outside of the six county* TGA</i> in terms of HIV and GC rates. This includes census tracts in El Paso and Pueblo counties.	9,420
Layer 3	The five highest-ranking census tracts <i>outside of the twelve urban counties**</i> in terms of HIV and GC rates. This includes census tracts in Alamosa, Kit Carson and Otero counties.	12,758
SUBTOTAL		45,100
Minus the estimated MSM population of the 20 census tracts		(675)
Minus the estimated PWID population of the 20 census tracts		(161)
TOTAL ESTIMATE SIZE OF POPULATION AT ENHANCED RISK DUE TO HETEROSEXUAL BEHAVIOR		44,264

*Six county TGA is defined as Adams, Arapahoe, Broomfield Denver, Douglas and Jefferson counties.

**Twelve urban counties include the six county TGA, Boulder, El Paso, Larimer, Mesa, Pueblo and Weld

These 20 census tracts represent a very diverse population of people. In terms of race, the highlighted Denver area census tracts have nearly twice the Blacks/African Americans percentage of residents as compared to the state overall (18.8% versus 3.9%, with two tracts over 25% Blacks/African Americans). The highlighted census tracts outside the Denver area have a disproportionate percentage of Hispanic/Latino residents (43.3% in the urban counties and 43.5% in the rural counties, with two tracts over 70% Hispanic/Latino). All of the census tracts are have at least 10 percent of the population living below the federal poverty rate, with eleven (11) tracts exceeding 25 percent and one tract exceeding 75 percent. The gonorrhea rates per 100,000 in these tracts range from 37.2 to 823.4. The HIV rates per 100,000 in these tracts range from 2.7 to 94.1. Additional details regarding the case information and demographics of these census tracts may be found in the Statewide Coordinated Statement of Need³⁹.

³⁹ Data Source: 2010-2014 American Community Survey 5 year estimates. Selected tables include; S0101-Age and Sex, S0601-Selected Sociodemographic Characteristics, S1701-Poverty Status, S2301-Employment Status, S2701-Health Insurance Coverage and B03002 Hispanic Origin by Race. (<http://www.census.gov/acs>)

COHAS has identified these census tracts as being representative of the types of communities that appear to be most in need of HIV testing services, particularly for high risk heterosexuals. Contractors funded by CDPHE will not be required to deliver HIV testing services exclusively in these 20 census tracts, nor will clients be denied services because they do not reside in these neighborhoods. It is well known that HIV risk honors no artificial boundaries; people who reside in an apparently “low risk profile area” practice unsafe behaviors in a “high risk profile area,” and too often bring HIV home to unknowing partners. However, in evaluating the targeting of selective prevention resources through requests for applications and proposals, CDPHE will identify the extent to which the communities receiving funding meet or exceed the risk profiles of these representational census tracts and will continually advocate for the most optimal investment of scarce resources, while excluding no person or group with demonstrable need.

Utilizing Population Size Estimates to Set HIV Testing Targets

Regarding screening intervals, the U.S. Preventive Services Task Force notes, “The evidence is insufficient to determine optimum time intervals for HIV screening.”⁴⁰ However, based on the USPSTF’s “reasonable approach” and CDC PrEP guidelines, the following intervals are used for COHAS:

Table 4.20 - HIV Screening Intervals Consistent with the USPSTF Recommendations

Target Population	HIV testing frequency
MSM	At least annually for MSM with at least one sexual encounter in the prior 12 months, quarterly for those with PrEP indicators
PWID	At least annually for all PWID who have injected in the prior 12 months, quarterly for those with PrEP indicators
Heterosexuals with a higher than average risk of becoming infected with HIV	Every 3 years for those at moderate risk, quarterly for those with PrEP indicators

To set HIV testing targets, there also need to be assumptions made about the variations within the risk-defined groups. Utilizing a model released by CDC in 2015, the following percentages are utilized in COHAS:⁴¹

- MSM with indicators for PrEP 24.7%
- PWID with indicators for PrEP 18.5%
- Heterosexuals with indicators for PrEP..... 0.6%

A further assumption is that the health care delivery system will deliver 60% of the tests needed by moderate and highest risk individuals and the targeted HIV testing system will deliver the remaining 40%. This approximates the levels at which the two systems are identifying newly diagnosed individuals.

⁴⁰ <http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/human-immunodeficiency-virus-hiv-infection-screening#risk>

⁴¹ Estimated percentages and numbers of adults with indications for pre-exposure prophylaxis (PrEP), by transmission risk group — United States, 2015 (Smith et.al – Presented at National HIV Prevention Conference, 2015)

The following testing goals are derived from applying these population estimates, screening intervals, and estimates of highest risk:

Table 4.21 – HIV Testing Goals	Estimated Sizes of Populations for HIV testing	Annual Testing frequency	Tests delivered by the health care system (60%)	Targeted HIV testing funded by public health sources (40%)
MSM (moderate risk, 75.3%)	29,941	1.0	17,965	11,976
MSM (highest risk, 24.7%)	9,821	4.0	23,571	15,714
IDU (moderate risk, 81.5%)	7,301	1.0	4,381	2,920
IDU (highest risk, 18.5%)	1,657	4.0	3,977	2,652
HRH (moderate risk, 99.4%)	43,998	0.3	7,919	5,280
HRH (highest risk, 0.6%)	266	4.0	638	426
TOTAL ANNUAL NUMBER OF TESTS			58,451	38,968

Baseline Data for Late Diagnoses

Baselines for late diagnosis goals were set using data from 2010 to 2015, as reflected below.

Table 4.22 - New HIV Cases, All of Colorado

Year of HIV diagnosis	Newly Diagnosed Cases of HIV Disease							Late HIV Diagnoses	
	2011	2012	2013	2014	2015	2011-2015		2011-2015	
	No.	No.	No.	No.	No.	No.	%	Rate	%
Total	381	383	322	380	366	1832	100	6.9	30.1
Gender									
Male	327	324	280	328	316	1575	86%	11.9	30.8
Female	54	59	42	52	50	257	14%	2.0	26.1
Age at HIV Diagnosis									
Under 10 years	9	6	3	1	0	19	1%	0.5	5.0
10-14 years	0	0	2	2	1	5	0%	0.3	0.0
15-19 years	4	2	2	8	3	19	1%	1.1	4.8
20-24 years	46	56	46	39	56	243	13%	13.0	13.2
25-29 years	58	70	54	77	70	329	18%	16.7	19.8
30-34 years	66	60	58	62	67	313	17%	16.2	26.3
35-39 years	40	59	35	56	47	237	13%	13.3	38.3
40-44 years	46	49	44	39	35	213	12%	11.8	41.5
45-49 years	50	35	39	46	34	204	11%	11.7	41.6
50-54 years	32	30	18	24	28	132	7%	7.1	48.4
55-59 years	17	6	8	11	16	58	3%	3.3	40.9
60-64 years	6	3	8	8	6	31	2%	2.0	62.1
65 years and over	8	7	5	7	3	30	2%	0.9	66.7
Race and Hispanic Origin									
White, not Hispanic	205	190	156	184	181	916	50%	5.0	27.5
Black, not Hispanic	56	66	59	71	60	312	17%	30.3	26.3
Hispanic (All Races)	108	114	94	109	112	537	29%	9.7	36.9
Asian/Pacific Islander	6	6	8	7	4	31	2%	3.8	29.0
Amer. Indian/Alaska Native	4	5	2	2	2	15	1%	8.9	20.0
Multiple Race	2	2	3	7	7	21	1%	3.8	38.1
Exposure Category - All									
Male-male sex (MSM)	236	238	207	237	227	1145	63%	---	27.95
Injection Drug Use (IDU)	10	6	7	8	4	35	2%	---	40.3
MSM & PWID	35	36	14	30	40	155	8%	---	18.1
Heterosexual contact	12	11	14	8	1	46	3%	---	29.9
Pediatric*	5	2	4	0	1	12	1%	---	4.4
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	29	31	34	45	43	182	10%	---	45.7
Exposure Category - Female									
Injection Drug Use (IDU)	10	7	3	5	2	27	11%	---	29.6
Heterosexual contact	24	33	24	20	20	121	47%	---	22.3
Pediatric^	4	4	1	2	0	11	4%	---	0.0
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	16	15	14	25	28	98	38%	---	32.7

* Pediatric cases are individuals under age 13 years at the time of HIV or AIDS diagnosis.

‡ 2011-2015 U.S. Census population estimate released 6/23/16 used in calculating the rates

All HIV/AIDS surveillance data reported to the Colorado Department of Public Health & Environment as of March 31, 2016.

Table 4.23 - New HIV Cases, TGA

Year of HIV diagnosis	Newly Diagnosed Cases of HIV Disease							Late HIV Diagnoses 2011-2015	
	2011 No.	2012 No.	2013 No.	2014 No.	2015 No.	2011-2015 No.	%	Rate	%
Total	289	283	245	281	263	1361	100	10.3	28.3
Gender									
Male	252	241	219	244	229	1185	87%	18.0	28.9
Female	37	42	26	37	34	176	13%	2.6	24.4
Age at HIV Diagnosis									
Under 10 years	5	1	2	0	0	8	1%	0.4	12.5
10-14 years	0	0	1	2	0	3	0%	0.3	0.0
15-19 years	2	1	1	6	2	12	1%	1.5	3.2
20-24 years	31	37	37	32	36	173	13%	20.9	12.3
25-29 years	41	51	44	59	53	248	18%	23.5	20.1
30-34 years	55	49	44	46	50	244	18%	23.0	23.6
35-39 years	32	49	25	38	34	178	13%	18.4	34.1
40-44 years	36	36	29	30	27	158	12%	16.3	37.7
45-49 years	33	24	33	30	23	143	11%	15.8	39.6
50-54 years	27	21	12	19	23	102	7%	11.1	42.6
55-59 years	13	6	7	8	9	43	3%	5.1	44.1
60-64 years	6	3	7	6	3	25	2%	3.0	62.5
65 years and over	8	5	3	5	3	24	2%	1.6	45.2
Race and Hispanic Origin									
White, not Hispanic	153	135	117	139	123	667	49%	7.8	26.1
Black, not Hispanic	43	54	44	58	51	250	18%	34.2	22.8
Hispanic (All Races)	84	85	75	77	79	400	29%	13.1	35.8
Asian/Pacific Islander	4	4	5	3	4	20	1%	3.7	30.0
Amer. Indian/Alaska Native	3	3	1	1	1	9	1%	13.8	11.1
Multiple Race	2	2	3	3	5	15	1%	5.3	33.3
Exposure Category - All									
Male-male sex (MSM)	188	176	172	181	168	885	65%	---	26.8
Injection Drug Use (IDU)	5	3	4	6	2	20	1%	---	39.0
MSM & PWID	28	32	11	22	32	125	9%	---	17.6
Heterosexual contact	8	8	7	5	1	29	2%	---	29.9
Pediatric*	3	0	2	0	0	5	0%	---	10.0
Transfusion/Hemophilia	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	20	22	23	30	26	121	9%	---	40.4
Exposure Category - Female									
Injection Drug Use (IDU)	8	5	3	4	1	21	12%	---	28.6
Heterosexual contact	15	24	12	14	13	78	44%	---	21.8
Pediatric^	2	1	1	1	0	5	3%	---	0.0
Transfusion/Hemophil	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	12	12	10	18	20	72	41%	---	27.8

* Pediatric cases are individuals under age 13 years at the time of HIV or AIDS diagnosis.

‡ 2011-2015 U.S. Census population estimate released 6/23/16 used in calculating the rates

All HIV/AIDS surveillance data reported to the Colorado Department of Public Health & Environment as of March 31, 2016.

Table 4.24 - New HIV Cases, Other Urban Counties

Year of HIV diagnosis	Newly Diagnosed Cases of HIV Disease							Late HIV Diagnoses	
	2011	2012	2013	2014	2015	2011-2015		2011-2015	
	No.	No.	No.	No.	No.	No.	%	Rate	%
Total	67	63	63	70	67	330	100	3.5	31.4
Gender									
Male	53	50	49	60	58	270	82%	5.8	32.3
Female	14	13	14	10	9	60	18%	1.3	27.4
Age at HIV Diagnosis									
Under 10 years	4	5	0	1	0	10	3%	0.8	0.0
10-14 years	0	0	1	0	1	2	1%	0.3	0.0
15-19 years	2	1	1	1	1	6	2%	0.9	0.0
20-24 years	13	14	9	6	13	55	17%	6.7	18.2
25-29 years	11	11	8	15	8	53	16%	7.9	10.7
30-34 years	8	6	12	9	10	45	14%	7.2	28.0
35-39 years	8	5	9	13	10	45	14%	7.8	42.1
40-44 years	5	10	11	8	4	38	12%	6.5	53.5
45-49 years	12	5	4	10	9	40	12%	6.9	54.1
50-54 years	2	5	5	3	2	17	5%	2.7	57.9
55-59 years	2	0	1	1	6	10	3%	1.6	28.6
60-64 years	0	0	0	2	3	5	2%	1.0	75.0
65 years and over	0	1	2	1	0	4	1%	0.3	25.0
Race and Hispanic Origin									
White, not Hispanic	37	32	32	30	41	172	52%	2.5	25.7
Black, not Hispanic	11	10	14	11	7	53	16%	22.4	41.8
Hispanic (All Races)	16	19	14	20	18	87	26%	5.0	35.6
Asian/Pacific Islander	2	1	3	4	0	10	3%	4.3	27.3
Amer. Indian/Alaska Native	1	1	0	1	1	4	1%	7.8	50.0
Multiple Race	0	0	0	4	0	4	1%	1.9	50.0
Exposure Category - All									
Male-male sex (MSM)	34	37	28	40	36	175	53%	---	28.8
Injection Drug Use (IDU)	5	2	2	1	2	12	4%	---	40.0
MSM & PWID	4	4	3	7	7	25	8%	---	15.4
Heterosexual contact	2	2	6	2	0	12	4%	---	30.4
Pediatric*	2	2	1	0	1	6	2%	---	0.0
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	6	3	9	10	12	40	12%	---	50.8
Exposure Category - Female									
Injection Drug Use (IDU)	1	1	0	0	1	3	5%	---	33.3
Heterosexual contact	7	6	11	3	3	30	50%	---	21.9
Pediatric^	2	3	0	1	0	6	10%	---	0.0
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0
No Identified Risk/Other	4	3	3	6	5	21	35%	---	42.9

* Pediatric cases are individuals under age 13 years at the time of HIV or AIDS diagnosis.

‡ 2011-2015 U.S. Census population estimate released 6/23/16 used in calculating the rates

All HIV/AIDS surveillance data reported to the Colorado Department of Public Health & Environment as of March 31, 2016.

Table 4.25 - New HIV Cases, Rest of Colorado

Year of HIV diagnosis	Newly Diagnosed Cases of HIV Disease							Late HIV Diagnoses 2011-2015		
	2011	2012	2013	2014	2015	2011-2015		Rate	%	
	No.	No.	No.	No.	No.	No.	%			
Total	25	37	14	29	36	141	100	3.7	46.3	
Gender										
Male	22	33	12	24	29	120	85%	6.0	48.1	
Female	3	4	2	5	7	21	15%	1.1	36.8	
Age at HIV Diagnosis										
Under 10 years	0	0	0	0	0	0	0%	0.0	0.0	
10-14 years	0	0	0	0	0	0	0%	0.0	0.0	
15-19 years	0	0	0	1	0	1	1%	0.4	50.0	
20-24 years	2	5	0	1	7	15	11%	6.7	5.9	
25-29 years	6	8	2	3	9	28	20%	11.5	39.1	
30-34 years	3	5	2	7	7	24	17%	9.8	58.8	
35-39 years	0	5	1	5	3	14	10%	6.0	75.0	
40-44 years	4	3	4	1	4	16	11%	6.5	46.7	
45-49 years	5	6	2	6	2	21	15%	8.2	28.6	
50-54 years	3	4	1	2	3	13	9%	4.4	76.9	
55-59 years	2	0	0	2	1	5	4%	1.6	33.3	
60-64 years	0	0	1	0	0	1	1%	0.4	0.0	
65 years and over	0	1	1	1	0	3	2%	0.5	100.0	
Race and Hispanic Origin										
						0				
White, not Hispanic	15	23	7	15	17	77	55%	2.7	47.7	
Black, not Hispanic	2	2	1	2	2	9	6%	21.0	28.6	
Hispanic (All Races)	8	10	5	12	15	50	35%	6.6	48.9	
Asian/Pacific Islander	0	1	0	0	0	1	1%	3.2	0.0	
Amer. Indian/Alaska Native	0	1	1	0	0	2	1%	3.8	0.0	
Multiple Race	0	0	0	0	2	2	1%	4.1	50.0	
Exposure Category - All										
						0				
Male-male sex (MSM)	14	25	7	16	23	85	60%	---	40.0	
Injection Drug Use (IDU)	0	1	1	1	0	3	2%	---	50.0	
MSM & PWID	3	0	0	1	1	5	4%	---	50.0	
Heterosexual contact	2	1	1	1	0	5	4%	---	28.6	
Pediatric*	0	0	1	0	0	1	1%	---	0.0	
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0	
No Identified Risk/Other	3	6	2	5	5	21	15%	---	75.0	
Exposure Category - Female										
						0				
Injection Drug Use (IDU)	1	1	0	1	0	3	14%	---	33.3	
Heterosexual contact	2	3	1	3	4	13	62%	---	27.3	
Pediatric^	0	0	0	0	0	0	0%	---	0.0	
Transfusion/Hemophiliac	0	0	0	0	0	0	0.0%	---	0.0	
No Identified Risk/Other	0	0	1	1	3	5	24%	---	60.0	

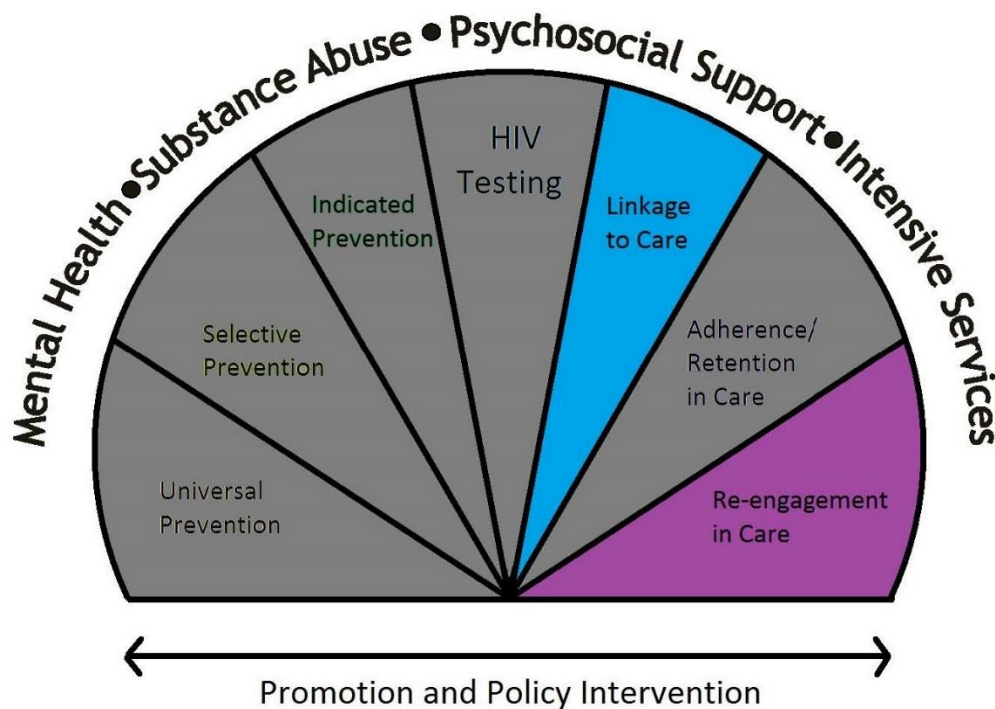
* Pediatric cases are individuals under age 13 years at the time of HIV or AIDS diagnosis.

‡ 2011-2015 U.S. Census population estimate released 6/23/16 used in calculating the rates

All HIV/AIDS surveillance data reported to the Colorado Department of Public Health & Environment as of March 31, 2016.

Chapter 5 - Linkage to Care and Re-engagement in Care

Overview



This chapter covers two parts of the Colorado Model for HIV Prevention and Care. Linkage to Care (LTC) serves people who are newly diagnosed with HIV. Re-engagement in Care serves people whose care has lapsed. These parts of the model are combined in the same chapter because their goals and strategies are similar. Both of these parts involve finding PLWHA who might otherwise “fall through the cracks” and not have access to high quality, affordable HIV care.

A Colorado Executive Order Issued December 1, 2015 announced that Colorado had joined a worldwide effort to curb the spread HIV by the year 2020 and eliminate it entirely by 2030, known as the UNAIDS 90-90-90 Campaign. The success of this campaign depends on successful linkage to and re-engagement in care. It commits Colorado to investing in HIV testing so that 90 percent of people living with HIV know their status, and that 90 percent of people who know they are living with HIV are engaged in health care. This means that, at any time, at least 90 percent of PLWHA who are aware that they are living with HIV should show evidence of being engaged in HIV care, defined in Colorado as having a viral load score or other documentation of care in a 12-month reporting period.

Linkage-to-care and re-engagement in care are meant to assist persons living with HIV or AIDS to access appropriate medical care and other services as needed. This assistance begins when clients are referred to LTC workers and continues until they are effectively connected to care. A successful linkage to medical care is an ongoing process during which the client

comes to assimilate his/her diagnosis, to understand the implications of an HIV diagnosis for self and others, to opt for appropriate care and services, and to commit to a regimen that enhances her/his own health and protects the health of others.

NHAS Goal 2: Increase access to care and improve health outcomes for people living with HIV.

Objective: At least 90% of people living with HIV who know that they are living with HIV will show evidence of HIV care in the 12 month reporting period.

Strategy 1: People will be routinely offered linkage-to-care services when they are initially diagnosed with HIV.

Activities/Interventions

2-1-a Build an integrated system for delivering linkage-to-care services that brings together the efforts of community based organizations, local health departments, CDPHE, medical providers, and community members.

Responsible Parties: ICP Program, CBP Program, community partners, DOHR, DHRPC.
Timeline: Q1 2017 - Q4 2021

2-1-b All CDPHE-funded HIV testing providers will either directly provide linkage-to-care services or will actively refer newly diagnosed clients to linkage services.

Responsible Parties: ICP Program, HIV testing providers.
Timeline: Q1 2017 - Q4 2021

2-1-c DIS will assess linkage to care for 100% of the newly diagnosed clients they get assigned. When linkage to care has not been initiated, DIS will actively link clients to care, if appropriate, or refer clients to linkage to care programs at CDPHE or community providers.

Responsible Parties: CBP Program, DIS.
Timeline: Q1 2017 - Q4 2021

2-1-d CDPHE staff will utilize public health reports, ADAP, and other data to identify people who show no evidence of HIV care within 45 days of their initial HIV diagnosis. Consistent with confidentiality protections and in collaboration with medical providers and community partners, these clients will be offered linkage-to-care services.

Responsible Parties: CBP Program, Surveillance Program, Medical Providers, LTC Contractors, other Community Partners
Timeline: Q1 2017 - Q4 2021

2-1-e Based on an evidence-based assessment, in partnership with case management, PLWHA will be actively linked to services that improve the success of linkage-to-care. This includes: behavioral health care, syringe support programs, case management,

patient navigation, SBIRT services, oral health, psychosocial and support services, and eligibility screening and enrollment counseling for health coverage.

Responsible Parties: CBP Program, Case Management agencies, providers of other support services, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 5.1 - Targets by Geography, Percent of Clients Showing Evidence of HIV Care within 90 Days of Diagnosis (2011-2015)

	Baseline	Target
State of Colorado (N=1,832)	84%	95%
Denver TGA (N=1,361)	86%	95%
Other Urban Counties (N=330)	76%	95%
Rest of Colorado (N=141)	79%	95%

Strategy 2: PLWHA who have lapsed in care will be routinely re-engaged in such care.

Activities/Interventions

2-2-a CDPHE staff and providers of all HIV preventions services will routinely ask about HIV serostatus and will offer linkage-to-care services to all clients disclosing that they are HIV positive and are not in HIV care.

Responsible Parties: CBP Program, DIS, HIV prevention providers.

Timeline: Q1 2017 - Q4 2021

2-2-b Funded providers of all HIV care and treatments services will routinely screen for current engagement in HIV care and will actively re-engage clients in HIV care as needed and requested. This includes providers of most service types, including primary care, case management, EIS, oral health, mental health, substance use, transportation, and housing services.

Responsible Parties: CBP Program, DIS, HIV care and treatment service providers, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

2-2-c Based on an evidence-based assessment, in partnership with case management, PLWHA will be actively linked to services that improve the success of re-engagement in care. This includes: behavioral health care, syringe support programs, case management, patient navigation, SBIRT services, oral health, psychosocial and support services, and eligibility screening and enrollment counseling for health coverage.

Responsible Parties: Program, Case Management agencies, providers of other support services.

Timeline: Q1 2017 - Q4 2021

2-2-d CDPHE staff will utilize public health reports, ADAP, and other data to identify PLWHA who have potentially lapsed in care for 240 days or more. Consistent with confidentiality protections, and in collaboration with medical providers and community partners, CDPHE will review these cases and (when appropriate) offer assistance to re-engage these clients in care.

Responsible Parties: CBP Program, Surveillance Program, Medical Providers, LTC Contractors, DOHR, DHRPC, other Community Partners

Timeline: Q1 2017 - Q4 2021

Target populations

Table 5.2 - Targets by Geography, Percent of Clients Showing Evidence of HIV Care in the Prior 12 Month Period⁴²

	Baseline	Target
Denver TGA	78%	90%
Rest of Colorado	77%	90%
Statewide	77%	90%

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: The benefits of HIV care will be made available to all PLWHA, regardless of risk group, gender, gender identity, age, race, or ethnicity.

Strategy 1: At least 90 percent of PLWHA in Colorado who are aware that they are living with HIV will show evidence of HIV care in the prior 12 month period, regardless of risk group, gender, gender identity, age, race, or ethnicity

Activities/Interventions

3-1-a The collaborative system of delivering linkage-to-care services will include providers that have a proven history of successfully linking or re-engaging populations that are furthest from achieving the 90 percent linkage goal, particularly African Americans, PWID, heterosexuals, people age 25-44, male transfusion/transplant recipients, and transgender people.

Responsible Parties: ICP Program, Agencies with a history of addressing health disparities, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

3-1-b CDPHE staff will monitor the success rates of linkage-to-care providers in achieving the health disparity targets (90%, see targets below). CDPHE will offer capacity building and other motivation to providers that are not showing progress toward these established targets.

Responsible Parties: ICP Program, Linkage to Care providers

Timeline: Q1 2017 - Q4 2021

⁴² Based on CD4, VL and ADAP data reported to CDPHE. Includes only those clients who are aware that they are living with HIV.

Target populations

Table 5.3 - Targets by Risk Group and Gender, Percent of Clients Showing Evidence of HIV Care in the Previous 12 Months

Table 5.3.a

MEN	Baseline	Target
MSM	78%	90%
PWID	74%	90%
MSM/PWID	78%	90%
Sex with Women	70%	90%
Transfusion/Hemophilia	88%	90%

Table 5.3.b

WOMEN	Baseline	Target
PWID	79%	90%
Sex with Men	77%	90%
Transfusion/Hemophilia	86%	90%

Table 5.4 - Targets by Race/Ethnicity, Percent of Clients Showing Evidence of HIV Care in the Previous 12 Months

	Baseline	Target
White, not Hispanic	79%	90%
Black, not Hispanic	73%	90%
Hispanic (All Races)	77%	90%
Other/Multiple Race	74%	90%

Table 5.5 - Targets by Age, Percent of Clients Showing Evidence of HIV Care in the Previous 12 Months

	Baseline	Target
2-12	90%	90%
13-24	85%	90%
25-29 years	73%	90%
30-34 years	72%	90%
35-39 years	73%	90%
40-44 years	74%	90%
45-64	79%	90%
65+	82%	90%

Table 5.6 - Targets by Gender, Percent of Clients Showing Evidence of HIV Care in the Previous 12 Months

	Baseline	Target
Female	78%	90%
Male	77%	90%
Transgender	Not Available	90%

Resources

Goal/Activity	CHAPP	CDC 1201	HRSA Part A	HRSA Part B	Rebate	Tobacco MSA	Health Coverage	Minimal or no identified funding source
NHAS Goal 2								
2-1-a Build a collaborative system for linkage-to-care	X	X	X	X	X	X	X	
2-1-b CDPHE-funded HIV testing providers provide linkage-to-care	X	X			X			
2-1-c DIS assess linkage to care and actively refer clients as needed		X		X				
2-1-d CDPHE staff utilize public health reports and other data to identify clients who need linkage-to-care and will offer the service to them		X		X				
2-1-e Newly diagnosed PLWHA will be actively linked to supportive and clinical services that improve the success of linkage-to-care	X	X	X	X	X	X	X	
2-2-a Providers of HIV prevention services will offer assess for and offer linkage-to-care	X	X			X			
2-2-b Providers of HIV care and treatment services will assess for and offer linkage-to-care			X	X	X			
2-2-c PLWHA whose care has lapsed will be actively linked to supportive and clinical services that improve the success of re-engagement	X	X	X	X	X	X	X	
2-1-d CDPHE staff utilize public health reports and other data to identify clients who need re-engagement and will offer the service to them		X		X				
NHAS Goal 3								
3-1-a Include providers that have a proven history of linking and re-engaging clients that are furthest from achieving the established targets			X	X	X			
3-1-b CDPHE staff will monitor the success rates of linkage-to-care providers in achieving the health disparity targets and will offer capacity building and other motivation		X		X				

Metrics needed to monitor the progress of Linkage to Care

NHAS Goal 2

- Metric 2.1 Percentage of patients who attended a routine HIV medical care visit within 3 months of HIV diagnosis.
- Metric 2.2 Percentage of patients who had evidence of HIV care in the twelve month measurement period.
- Metric 2.3 Percentage of clients who were homeless or unstably housed in the 12-month measurement period.

NHAS Goal 3

- Metric 3.1 Percentage of patients who had evidence of HIV care in the twelve month measurement period, stratified by risk group, gender, age, race, and ethnicity.

Challenges or barriers related to increasing access to care and improving health outcomes for people living with HIV and reducing HIV-related disparities and health inequities.

Trauma and stigma have a significant impact on linkage to HIV care. Many PLWHA exhibit symptoms of Post-Traumatic Stress Disorder (PTSD), and when it remains unaddressed, it complicates engagement in care and certainly has negative implications for overall quality of life.⁴³ A recent meta-analysis estimated a 30 percent rate of PTSD among HIV-positive women in the U. S., which is more than five times higher the rate of PTSD reported in a nationally representative sample of women.⁴⁴

The effect on transgender PLWHA may be particularly severe. The “Positively Trans” study release in March 2016 showed that 41 percent of a national sample of transgender people living with HIV had gone for more than 6 months without medical care since their HIV diagnosis. 31 percent of the respondents reported that they had been refused health care because they were transgender or gender non-conforming, and this was cited as the main reason that their HIV care lapsed.⁴⁵

In terms of linking newly diagnosed people to initial HIV care, Colorado appears to be well on the way to meeting the challenge overall. As Figure 5.2 on page 93 illustrates, the linkage rate at 90 days after diagnosis is 84 % of all newly diagnosed HIV cases in the years 2011-2015.

Colorado’s public health data reveals considerable unmet need among people whose HIV care has lapsed. Based on analysis of Colorado data from January 2015 to December 2015, an estimated 2,082 people living with HIV or AIDS showed no evidence of even basic HIV care in 2015 (a single viral load score). This represented 23 percent of the total PLWHA population. There are major challenges in attempting to serve this population. First, they may be very difficult to locate; especially if they are low income, people may have moved multiple times and lived in temporary situations since their last reported HIV test or care delivery. Second, they may be highly suspicious of any offer of help, due to disappointing or even traumatic experiences with government, community organizations, and the health care delivery system. Third, there may be cultural, linguistic, psychosocial, and literacy barriers that are extremely difficult to address.

The 2015-2016 PLWH Survey offers insight into linkage to care, and the reasons for lapses in care, from the perspective of those living with HIV or AIDS. Overall, 15 percent of respondents reported that they delayed their initial access to HIV care by at least 90 days. There is some geographic variation, as shown in Table 5.7.

⁴³ Weber K. ea, editor. Abuse and mortality in women with and at risk for HIV. 19th International AIDS Conference; 2012; Washington D.C.

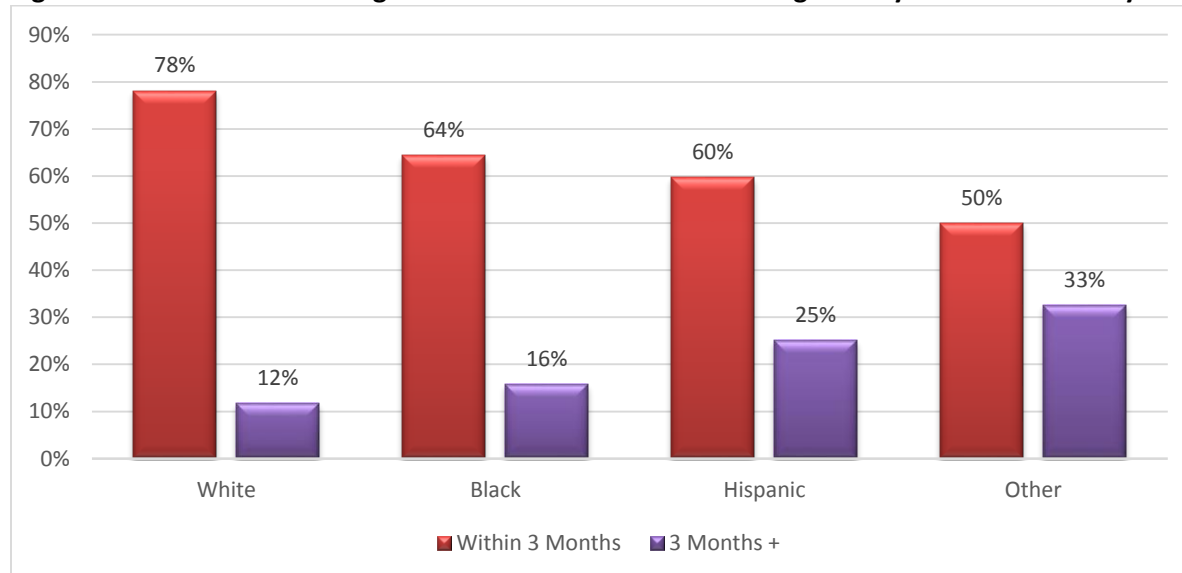
⁴⁴ Machtinger EL, Wilson TC, Haberer JE, Weiss DS. Psychological trauma and PTSD in HIV-positive women: a meta-analysis. *AIDS and Behavior*. 2012 Nov;16(8):2091-100. doi: 10.1007/s10461-011-0127-4

⁴⁵ Transgender Law Center. Positively trans: initial report of a national needs assessment of transgender and gender non-conforming people living with HIV. Available at <http://transgenderlawcenter.org/programs/positively-trans>

Table 5.7	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Time to first care visit following HIV diagnosis (Q. 10)									
Survey Area	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Within 3 months (90 days) of HIV Diagnosis	472	72.1	69.5	183	27.9	75.3	655	100.0	71.0
More than 3 months (90 days) of HIV Diagnosis	107	79.9	15.8	27	20.1	11.1	134	100.0	14.5
Don't Remember	77	72.0	11.3	30	28.0	12.3	107	100.0	11.6
Missing	23	88.5	3.4	3	11.5	1.2	26	100.0	2.8
Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

When patterns of linkage to care are examined by race and ethnicity, definite patterns of delay can be observed particularly among Hispanics and PLWH of other races. Only 60 percent of Hispanics report seeking HIV care within three months of their diagnosis. Similar delays can be seen for PLWH of other races for whom only half (or 50%) were linked into care within the first 90 days of testing positive.

Figure 5.1 - When Clients Sought a Doctor for HIV Care After Diagnosis by Race and Ethnicity N=518



If they had waited more than 3 months to see a doctor, clients were asked to detail all of the reasons why they waited. Most clients (31.89% or 294) reported that they had not waited. Multiple reasons were reported by those clients who answered this question including felt fine (10.95% or 101), afraid people would find out my status (8.9% or 61) and didn't want to believe I was infected (8.24% or 76). Other common reasons were didn't want to take meds (6.07% or 56), couldn't afford HIV care (4.23% or 39), didn't know where to get HIV care (4.66% or 43) and drinking/doing drugs (4.66% or 43). Other reasons reported by 12 or fewer clients are detailed in the table below.

Table 5.8: If you waited more than 3 months to see a doctor, why did you wait? (N=518)

Table 5.8	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Reason waited more than 3 months (90 Days) to receive Medical Care (Q. 11)									
Survey Area	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Did not Wait for more than 3 months	213	72.4	30.3	81	27.6	40.5	294	100.0	32.6
Felt Fine, was not sick	84	83.2	11.9	17	16.8	8.5	101	100.0	11.2
Did not want to believe was HIV positive	74	81.3	10.5	17	18.7	8.5	91	100.0	10.1
Did not want to take Medications	43	76.8	6.1	13	23.2	6.5	56	100.0	6.2
Viral Load was undetectable	19	79.2	2.7	5	20.8	2.5	24	100.0	2.7
Did not know where to get HIV Care	36	83.7	5.1	7	16.3	3.5	43	100.0	4.8
Could not afford Medical Care	34	87.2	4.8	5	12.8	2.5	39	100.0	4.3
Had Substance Abuse Issues (Drinking or Doing Drugs)	37	86.0	5.3	6	14.0	3.0	43	100.0	4.8
Had a mental health issue	19	86.4	2.7	3	13.6	1.5	22	100.0	2.4
Other priorities got in the way	14	77.8	2.0	4	22.2	2.0	18	100.0	2.0
No Transportation	20	87.0	2.8	3	13.0	1.5	23	100.0	2.5
Afraid people would find out about HIV status	62	80.5	8.8	15	19.5	7.5	77	100.0	8.5
Don't Remember	26	68.4	3.7	12	31.6	6.0	38	100.0	4.2
Other*	22	64.7	3.1	12	35.3	6.0	34	100.0	3.8
Total	703	77.9	100.0	200	22.1	100.0	903	100.0	100.0

The 2015-2016 PLWH Survey offers additional insight into re-engagement in HIV care following a lapse in care.

Table 5.9	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Survey Area	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Since HIV Diagnosis have you stopped seeing an HIV doctor for 12 months or more	110	71.0	16.2	45	29.0	18.5	155	100.0	16.8

If they had ever been out of care for 12 months or more, clients were asked to detail all of the reasons why they stopped. Most clients (46.85% of 432) reported that they had never

stopped seeing a doctor. Multiple reasons were reported by those clients who answered this question including couldn't afford it (5.42% or 50), felt fine (6.4% or 59), overwhelmed (5.97% or 55) and didn't want to take medications (5.75 or 53). Roughly five percent listed lost health insurance (4.56% or 42), drinking/doing drugs (5.43% or 50), wanted a break (4.12% or 38), side effects of medications (3.36% or 31), mental health issues (4.56% or 42) and undetectable viral load (2.93% or 27). Other reasons reported by 11 or fewer clients are detailed in the table below.

Table 5.10	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Reasons why stopped seeing a Doctor for 12 months or more (Q.15)									
Survey Area	Denver TGA			Rest of Colorado			All		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Never stopped seeing a doctor	327	75.7	43.1	105	24.3	38.0	432	100.0	41.7
Felt Fine, was not sick	44	74.6	5.8	15	25.4	5.4	59	100.0	5.7
Wanted a break	30	78.9	4.0	8	21.1	2.9	38	100.0	3.7
Did not want to take Meds	41	77.4	5.4	12	22.6	4.3	53	100.0	5.1
Side Effects of Meds	19	61.3	2.5	12	38.7	4.3	31	100.0	3.0
Viral load was undetectable	22	81.5	2.9	5	18.5	1.8	27	100.0	2.6
Could not afford care	34	68.0	4.5	16	32.0	5.8	50	100.0	4.8
Lost health insurance	24	57.1	3.2	18	42.9	6.5	42	100.0	4.1
Lost Ryan White supported services	11	73.3	1.4	4	26.7	1.4	15	100.0	1.4
Drinking / Doing Drugs	38	76.0	5.0	12	24.0	4.3	50	100.0	4.8
Had a mental health issue	31	73.8	4.1	11	26.2	4.0	42	100.0	4.1
Other Priorities	18	78.3	2.4	5	21.7	1.8	23	100.0	2.2
No Transportation	18	69.2	2.4	8	30.8	2.9	26	100.0	2.5
Doctor or Case Manager Left	10	66.7	1.3	5	33.3	1.8	15	100.0	1.4
Bad experience at clinic	17	65.4	2.2	9	34.6	3.3	26	100.0	2.5
Overwhelmed	38	69.1	5.0	17	30.9	6.2	55	100.0	5.3
Appointment Times not Convenient	13	72.2	1.7	5	27.8	1.8	18	100.0	1.7
Don't Remember	11	73.3	1.4	4	26.7	1.4	15	100.0	1.4
Other	13	72.2	1.7	5	27.8	1.8	18	100.0	1.7
Total	759	73.3	100.0	276	26.7	100.0	1035	100.0	100.0

As noted in the PLHWA survey results, substance use and mental health issues are related to delaying and stopping HIV care. This is substantiated by multiple national studies. In terms of health outcomes for PLHWA, substance use treatment in HIV-infected individuals is associated with improved ART adherence, decreased emergency department visits and hospitalizations,

and increased receipt of primary care, but substance use treatment is often underutilized.⁴⁶ Individuals with alcohol and other substance use disorders are at increased risk for poor retention in care, poor adherence, and virologic failure. Regarding mental health, a meta-analysis of 95 studies found a significant relationship between depression and ART non-adherence that was consistent across patients in resource-rich and resource-limited settings. Research has linked depressive symptoms to poor HIV care engagement and health outcomes, including impaired immunologic response and mortality. Randomized, controlled trials indicate that cognitive-behavioral therapy for depression and psychosocial stress improves ART adherence when conducted in tandem with ART adherence counseling. Combined mental health and ART adherence counseling interventions have shown significant reductions in depressive symptoms, improved ART adherence, and improved treatment outcomes in random control trials (RCTs). In contrast, an RCT of a stress management intervention with no ART adherence counseling reduced psychological distress but did not improve ART adherence or treatment outcomes. Evidence further indicates that pharmacologic treatment of depression is beneficial for ART adherence and treatment outcomes for some patients.⁴⁷

A further challenge for linkage to care exists for PLWHA who use street/recreational drugs and face complex interactions with their prescribed HIV medications. For example, Norvir may increase the concentration of Ecstasy in the blood stream to dangerous, even fatal, levels. GHB negatively interacts with protease inhibitors. Ketamine has been associated with liver inflammation when combined with antiretrovirals. Barbiturates can lower the levels of protease inhibitors or non-nucleosides. The sedatives Halcion and Versed could be raised to very dangerous levels when combined with protease inhibitors or non-nucleosides. A wide variety of medications commonly taken by PLWHA can raise the potency of methadone: diflucan, amitriptyline, valium, Xanax, Halcion, Tagamet, Rescriptor, and ciprofloxacin.⁴⁸ Not all healthcare providers screen systematically for these type of issues and prompt frank, harm-reduction oriented conversations with their PLWHA patients; the result may well be failures to link to care, lapses in care, and poor treatment outcomes.

Special challenges exist for people who reside in correctional settings or are transitioning out of such settings. Nationally, overall rates of linkage to care for incoming inmates were 6 percentage points lower than the general population, (56% vs 62%).⁴⁹ This underscores the role of correctional institutions in improving rates of engagement (and re-engagement) in care for this population. Even for those inmates who initiate care while incarcerated, studies tend to find that after release from incarceration, rates of linkage to care and retention in

⁴⁶ Korthuis, P. T., D. A. Fiellin, et al. (1999). "Unhealthy Alcohol and Illicit Drug Use are Associated with Decreased Quality of HIV Care." *JAIDS Journal of Acquired Immune Deficiency Syndromes*

⁴⁷ Thompson, M. A., M. J. Mugavero, et al. (2012). "Guidelines for Improving Entry Into and Retention in Care and Antiretroviral Adherence for Persons With HIV: Evidence-Based Recommendations From an International Association of Physicians in AIDS Care Panel." *Ann Intern Med*

⁴⁸ Learned, J. and Szalavitz, M. Drug Interactions: HIV Medications, Street Drugs and Methadone. *The Body*. Available at <http://www.thebody.com/content/art14383.html#>

⁴⁹ Hall HI, Gray KM, Tang T, Li J, Shouse L, Mermin J. Retention in care of adults and adolescents living with HIV in 13 US areas. *J Acquir Immune Defic Syndr*. 2012;60(1):77---82.

care drop, resulting in a decline in treatment and virological suppression rates.⁵⁰ Multiple factors have been identified that contribute to linkage to HIV care after release from jail or prison. Facilitators of linkage include HIV education during incarceration, discharge planning, transportation, and stable housing⁵¹ and barriers include drug use,⁵² mental illness, stigma, lack of social support, and unemployment.⁵³ Accordingly, successful interventions have addressed many of these issues, including opiate replacement therapy, enhanced case management, patient navigation, or combinations thereof.⁵⁴ Another service that has been shown to address barriers is discharge planning services for inmates transitioning to the community; if delivered consistent with Centers for Disease Control and Prevention guidelines, this includes making an appointment with a community health care provider, assisting with enrollment in an entitlement program, and providing a copy of the medical record and a supply of HIV medication. People in these situations often have very complex eligibility and enrollment issues which will necessitate providers having specific training and expertise in Medicaid and other coverage options.

⁵⁰ Princess A. Iroh, MS, Helen Mayo, MLS, and Ank E. Nijhawan, MD, MPH. The HIV Care Cascade Before, During, and After Incarceration: A Systematic Review and Data Synthesis. July 2015, Vol 105, No. 7 | American Journal of Public Health, p. e5.

⁵¹ Althoff AL, Zelenev A, Meyer JP, et al. Correlates of retention in HIV care after release from jail: results from a multi-site study. *AIDS Behav.* 2013; 17(suppl 2):S156---S170.

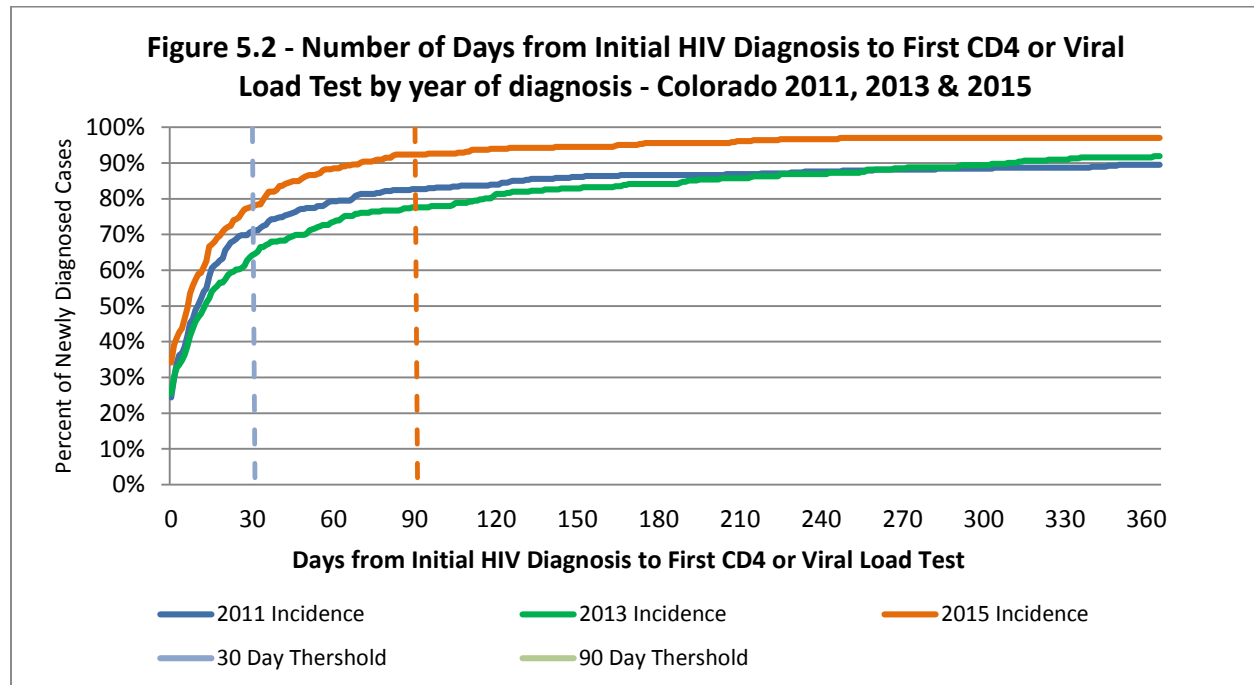
⁵² Chitsaz E, Meyer JP, Krishnan A, et al. Contribution of substance use disorders on HIV treatment outcomes and antiretroviral medication adherence among HIV-infected persons entering jail. *AIDS Behav.* 2013;17(suppl 2):S118-- S127.

⁵³ Brinkley-Rubinstein L, Turner WL. Health impact of incarceration on HIV positive African American males: a qualitative exploration. *AIDS Patient Care STDS.* 2013;27(8):450---458.

⁵⁴ Althoff AL, Zelenev A, Meyer JP, et al. Correlates of retention in HIV care after release from jail: results from a multi-site study. *AIDS Behav.* 2013; 17(suppl 2):S156---S170.

Data used to determine the goals and metrics

The targets for linking people to initial HIV care are based on reported HIV diagnoses and reports of viral load and T-Cell testing. As shown in Figure 5.2, linkage to medical home for newly diagnosed people improved from 2011 to 2015, ultimately exceeding 90 percent.



CDPHE Surveillance Program staff analyzed linkage-to-care data for the purposes of COHAS. The datasets used were the CD4 and Viral load warehouse data from 1/1/2006 to 10/31/2015 and the newly diagnosed cases of HIV from calendar years 2011, 2013 and 2015 according to the datasets frozen in May 2016. There were 1069 unique records pulled from EHARS for new cases with the initial diagnosis in Colorado during the years stated above.

A Kaplan-Meier survival analysis was used to examine the time to first care. This is defined as the time in days from HIV diagnosis date until the first test results reported to CDPHE. This is compared by cohort for the cases initially diagnosed during each calendar year. The three cohorts are as follows:

Calendar Year 2011: 01/01/2011 to 12/31/2011 (N=381)

Calendar Year 2013: 01/01/2013 to 12/31/2013 (N=322)

Calendar Year 2015: 01/01/2015 to 12/31/2015 (N=366)

The following table summarizes the data that were included in the analysis.

Table 5.11. Number of Days from Initial HIV Diagnosis to First CD4 or Viral Load Test by year of diagnosis - Colorado 2011, 2013 & 2015

	Linked to Care at Initial Diagnosis	Care within 30 days of Diagnosis	Care within 90 days of Diagnosis	Care within One Year of Diagnosis	Care after one year of Diagnosis	No Evidence of Care at the time of this report	No of Deaths among those Diagnosed in 2011	Total*
CY 2011	93 (24.4%)	264 (70.9%)	302 (82.7%)	326 (89.5%)	358 (98.4%)	21 (1.6%)	16 (4.2%)	381
CY 2013	82 (25.5%)	203 (64.3%)	245 (77.6%)	289 (91.9%)	309 (98.4%)	13 (1.6%)	8 (2.5%)	322
CY 2015	125 (34.2%)	283 (77.9%)	333 (92.3%)	349 (97.0%)		14 (3.0%)	6 (1.6%)	366

* In 2011, 2 persons have a CD4 or VL test prior to the date of HIV diagnosis as reported in eHARS; in 2013 and 2015, 1 person had a CD4 or VL test prior to the date of HIV diagnosis as reported in eHARS.

The newly diagnosed cases during CY 2015 obtained first HIV care at a higher rate, and earlier than in CY 2011 and CY 2013. Within 30 days post-diagnosis, 78 percent of newly diagnosed cases during CY 2015 had evidence of receiving care compared to 71 percent in CY 2011 and 66 percent in CY2013. All years demonstrate that 90% or more of newly diagnosed cases had at least one laboratory test (CD4 or VL) reported to CDPHE within 1 year.

The CD4 VL database has several inherent issues when applied to this type of analysis. First, there are a small number of patients who had a CD4 or VL test reported to the system a considerable time before they were diagnosed with HIV(N=6). However, given the length of time between the tests and the diagnosis it is not reasonable to assume these testing events are indications of receiving HIV care. Second, it is not uncommon for test results to be submitted more than once, or for there to be duplicate tests ordered within days of each other. For this reason, we will not be considering the total number of test records for an individual or the sequence of tests (second, third, etc), but rather the first occurrence of any test record in a given period of time to show evidence of care. Finally, this dataset is limited in that it only considers one indicator of a person receiving care, so would be an underestimate of people actually receiving care. A more thorough analysis would include records of medical visits, and evidence of antiretroviral prescription claims. However, it is assumed that this bias remains consistent across the five years considered in this analysis.

The targets regarding overall linkage or re-engagement in care is based on the HIV Care Continuum for Colorado PLWHA for the time period January 1, 2015 - December 31, 2015, which includes both residents and PLWHA in-migrants. According to the Continuum, during the period January 1, 2015 to December 31, 2015, 77% of Colorado PLWHA (7,137 / 9,219) had some laboratory evidence of medical care. There were 2,082 diagnosed and reported PLWHA without reported labs in this period. Seventy-two percent (6,677 / 9,219) of diagnosed PLWHA had at least 1 viral load test in the prior 12 months.

In terms of geography, the PLWHA who are not in care live throughout the state but more highly concentrated in the Denver TGA, as shown in Table 5.12.

Table 5.12 Person Living with HIV/AIDS Not in Care in the past 12 months, January 1, 2015 - December 31, 2015

Geographic Area	People Not in Care	
	Number of clients	Percent of clients
Denver TGA	1,562	75.0%
Rest of Colorado	520	25.0%
TOTALS	2,082	100.0%

The health disparity targets for linkage and re-engagement were also based on details from the HIV Care Continuum for Colorado PLWHA residents and PLWHA in-migrants, for the time period January 1, 2015 - December 31, 2015.

Table 5.13 Persons Living with HIV/AIDS in Care in 2015 by Demographic Breakdowns, HIV Care Continuum, Denver TGA, Colorado

Denver TGA

Men, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	3687	100%	877	100%	1344	100%	170
At least one care visit in the past year	4,712	79%	2,901	75%	656	77%	1,031	73%	124
Not linked to care	1,366	21%	786	25%	221	23%	313	27%	46

Men, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	11	100%	102	100%	360	100%	535	100%	625	100%	741	100%	3,335	100%	369
At least one care visit in the past year	4,712	91%	10	87%	89	75%	269	72%	383	74%	463	74%	552	79%	2639	83%	307
Not linked to care	1,366	9%	1	13%	13	25%	91	28%	152	26%	162	26%	189	21%	696	17%	62

Men by Risk Group	Total Number	MSM		MSM/PWID		PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	4,586	100%	670	100%	210	100%	254	100%	28	100%	8	100%	322
At least one care visit in the past year	4,712	78%	3,583	80%	536	73%	154	70%	177	82%	23	88%	7	72%	232
Not linked to care	1,366	22%	1,003	20%	134	27%	56	30%	77	18%	5	12%	1	28%	90

Women, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	286	100%	386	100%	190	100%	52
At least one care visit in the past year	718	80%	230	77%	299	78%	149	77%	40
Not linked to care	196	20%	56	23%	87	22%	41	23%	12

Women, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	12	100%	25	100%	41	100%	87	100%	115	100%	137	100%	447	100%	50
At least one care visit in the past year	718	100%	12	72%	18	76%	31	76%	66	75%	86	78%	107	80%	359	78%	39
Not linked to care	196	0%	0	28%	7	24%	10	24%	21	25%	29	22%	30	20%	88	22%	11

Women by Risk Group	Total Number	PWID		Heterosexual		Pediatric		Transfusion/ Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	156	100%	540	100%	26	100%	6	100%	186
At least one care visit in the past year	718	83%	130	77%	415	77%	20	83%	5	80%	148
Not linked to care	196	17%	26	23%	125	23%	6	17%	1	20%	38

Table 5.14 Persons Living with HIV/AIDS in Care in 2015 by Demographic Breakdowns, HIV Care Continuum, Non-Denver TGA, Colorado

Rest of Colorado

Men, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	1206	100%	197	100%	381	100%	54
At least one care visit in the past year	1,407	79%	958	60%	118	77%	292	72%	39
Not linked to care	431	21%	248	40%	79	23%	89	28%	15

Men, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	9	100%	30	100%	116	100%	148	100%	203	100%	197	100%	1,016	100%	119
At least one care visit in the past year	1,407	89%	8	83%	25	65%	75	70%	104	70%	143	72%	141	80%	816	80%	95
Not linked to care	431	11%	1	17%	5	35%	41	30%	44	30%	60	28%	56	20%	200	20%	24

Men by Risk Group	Total Number	MSM		MSM/PWID		PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	1,260	100%	204	100%	112	100%	94	100%	21	100%	5	100%	142
At least one care visit in the past year	1,407	79%	995	72%	146	74%	83	69%	65	76%	16	100%	5	68%	97
Not linked to care	431	21%	265	28%	58	26%	29	31%	29	24%	5	0%	0	32%	45

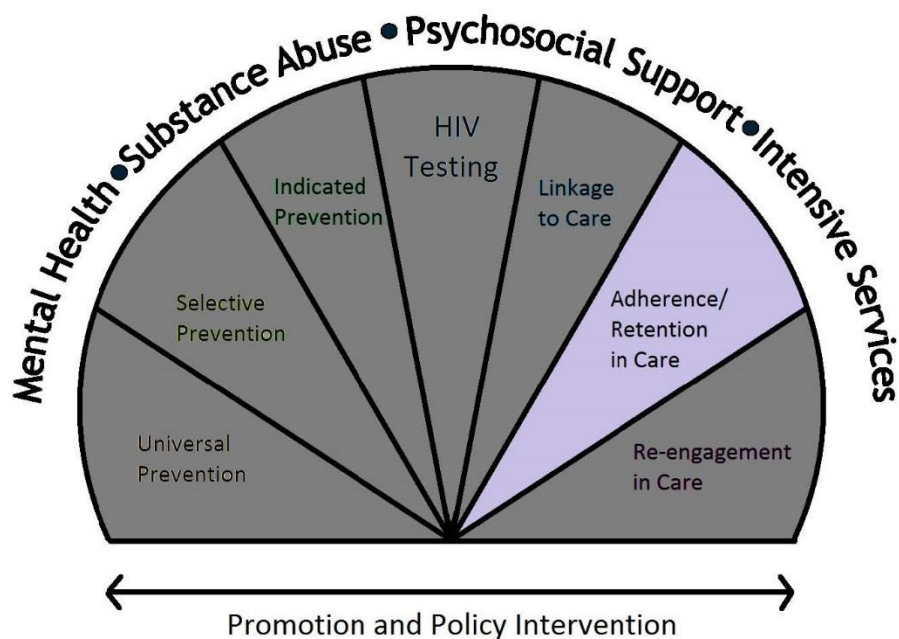
Women, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	193	100%	82	100%	89	100%	25
At least one care visit in the past year	300	79%	153	68%	56	81%	72	76%	19
Not linked to care	89	21%	40	32%	26	19%	17	24%	6

Women, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	9	100%	18	100%	24	100%	33	100%	49	100%	55	100%	176	100%	24
At least one care visit in the past year	300	78%	7	94%	17	83%	20	76%	25	59%	29	75%	41	78%	138	92%	22
Not linked to care	89	22%	2	6%	1	17%	4	24%	8	41%	20	25%	14	22%	38	8%	2

*1 Less than 2 in care

Women by Risk Group	Total Number	PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	63	100%	216	100%	25	100%	2	100%	83
At least one care visit in the past year	300	70%	44	77%	166	89%	23	50%	1	80%	66
Not linked to care	89	30%	19	23%	50	11%	2	50%	1	20%	17

Chapter 6 -Retention in HIV Medical Care and Medication Adherence



Overview

This chapter covers adherence to medication and retention in medical care, which are key components of the overall Colorado Model, as shown above.

Retention in medical care involves providing support for PLWHA that enables and empowers them to access HIV care over time. These services are designed to identify clients who are at high risk of dropping out of care and assist them to recognize and resolve individual and structural barriers to HIV care. PLWHA often have complex reasons for lapsing in care, and the retention services must be responsive to such needs. In a clinical setting, retention rates are improved by screening for and addressing financial, mental health, substance use, and psychosocial needs. It also involves analyzing and improving clinic policies and procedures, such as reducing stigma, creating a more welcoming environment, and promptly following up on missed appointments. In a community setting, retention in care is improved by providing a wide variety of services, including case management, medical transportation, housing, emergency financial assistance, and referrals. Eliminating or minimizing financial barriers, including assistance with medications and with the costs of health coverage, is also a critical factor in improving retention.

Adherence to medication involves a closely related set of services and supports, designed to help PLWHA make informed decisions about their medications and – when the decision is to take ART (anti-retroviral treatment)– to help them follow the prescribed medication regimen. Because difficulty following a ART regimen can be tied to many life circumstances, addressing both medical and non-medical needs is key to medication adherence support. As

with medical retention services, medication adherence services are delivered in both clinical and community settings.

NHAS Goal 2: Increase access to care and improve health outcomes for people living with HIV.

Objective: At least 81 percent of all people diagnosed with HIV or AIDS will benefit from continuous, high quality HIV care and treatment, resulting in an overall viral suppression rate of 73 percent at last measurement date.

Strategy 1: Provide retention-in-care services for people who are currently engaged in HIV care and treatment.

Activities/Interventions

2-1-a Provide financial and technical resources to HIV care providers to improve their retention in care rates, leading to each clinic achieving a minimum retention success rate of 81 percent. This includes comprehensive care required by clients, including oral health and behavioral health care.

Responsible Parties: ICP Program, community clinical partners, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

2-1-b Assist low income PLWHA to overcome financial barriers to HIV care. This includes assisting with costs of health coverage, including premiums, copayments, coinsurance, and other out-of-pocket costs. This also includes options for people who are uninsured and cannot obtain health coverage.

Responsible Parties: ICP Program (including ADAP), community partners that include health insurance and health care system navigation staff.

Timeline: Q1 2017 - Q4 2021

2-1-c Provide community-based services that have proven effective in improving retention-in-care rates, including (but not limited to) medical case management, nonmedical case management, medical transportation, housing assistance, substance use treatment, mental health care, oral health, food bank, linguistic services, referrals, psychosocial support, health education/risk reduction, legal services, and outreach.

Responsible Parties: ICP Program, community partners, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

2-1-d CDPHE staff will utilize public health reports, medical claims, and other data to identify client-level factors often associated with retention issues, such as worsening viral load levels. Consistent with confidentiality protections and in collaboration with medical providers and community partners, clients with potential retention issues be offered services and other resources in support of retention in medical care.

Responsible Parties: ICP Program, Surveillance Integrated Data Unit (SIDU), Case Management agencies, providers of other support services.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 6.1 - Targets by Geography, Percent of Previously Diagnosed Clients Showing Evidence of Continuous HIV Care in the 12-month Measurement Period⁵⁵

	Baseline	Target
Denver TGA	72%	81%
Rest of Colorado	67%	81%
Statewide	71%	81%

Strategy 2: Support adherence to prescribed HIV medication regimens, leading to viral suppression for at least 73 percent of people diagnosed as living with HIV or AIDS.

Activities/Interventions

- 2-2-a Provide financial and technical resources to clinics and pharmacies to improve client medication adherence rates. This includes resources to address factors most often associated with non-adherence, including stigma, trauma, substance use, mental health, medication side effects, financial barriers, lack of support systems, readiness to take medications, and other psychosocial issues.
Responsible Parties: CBP Program, DIS, HIV prevention providers.
Timeline: Q1 2017 - Q4 2021
- 2-2-b Assist low income PLWHA to overcome financial barriers to medication adherence. This includes assisting with costs of prescription coverage, including premiums, copayments, coinsurance, and other out-of-pocket costs. This also includes options for people who are uninsured to have access to free or low cost medications.
Responsible Parties: ICP Program, Case Management agencies, providers of other support services.
Timeline: Q1 2017 - Q4 2021
- 2-2-c Provide community-based services that have proven effective in improving client medication adherence rates, including (but not limited to) adherence counseling integrated into medical and nonmedical case management, medical transportation, substance use services, mental health services, emergency financial assistance, referrals, psychosocial support, housing, and health education/risk reduction.
Responsible Parties: CBP Program, DIS, HIV care and treatment service providers, DOHR, DHRPC.
Timeline: Q1 2017 - Q4 2021

⁵⁵ Based on CD4, VL and ADAP data reported to CDPHE as of 03/31/16. Includes only those clients who are aware that they are living with HIV, which is approximately 90% of those estimated to have HIV in Colorado. "Continuous HIV Care in the Previous 12 Months" for PLWHA was defined as those with at least two lab results over 90 days apart in the last year, or PLWHA with one lab visit in the last year who were virologically suppressed at the time of their last lab.

- 2-2-d CDPHE staff will utilize medication claim data to identify factors often associated with HIV medication adherence issues, such as sporadic filling of prescriptions. Consistent with confidentiality protections and in collaboration with medical providers and community partners, clients with potential adherence issues will be offered services and other resources in support of improved medication adherence.
 Responsible Parties: ICP Program, SIDU, Case Management agencies, providers of other support services.
 Timeline: Q1 2017 - Q4 2021

Target populations

Table 6.2 - Targets by Geography, Percent of Clients Having a Suppressed Viral Load at Last Measurement Date⁵⁶

	Baseline	Target
Denver TGA	67%	73%
Rest of Colorado	57%	73%
Statewide	64%	73%

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: The benefits of continuous HIV care will be available to all PLWHA, regardless of risk group, gender, gender identity, age, race, ethnicity, drug use, disabling mental health condition, housing status, or being a survivor of violence or trauma.

Strategy 1: At least 81 percent of people in Colorado who have been diagnosed with HIV will show evidence of continuous HIV care in the 12-month measurement period, regardless of risk group, gender, gender identity, age, race, ethnicity, drug use, disabling mental health condition, housing status, or being a survivor of violence or trauma.

Activities/Interventions

- 3-1-a The funded network of HIV care and support service providers will include providers that have a proven history of successfully retaining populations that are furthest from achieving the 81 percent retention goal, particularly African Americans, PWID, heterosexuals, people age 25-44, male transfusion/transplant recipients, transgender people, people who use drugs, people with a disabling mental health condition, the homeless, and survivors of violence or trauma.
 Responsible Parties: ICP Program, Agencies with a history of addressing health disparities, DOHR, DHRPC.
 Timeline: Q1 2017 - Q4 2021

⁵⁶ Based on viral load data reported to CDPHE as of 03/31/2016. Includes only those clients who are aware that they are living with HIV, estimated by CDC to be approximately 90% of all persons aware and unaware of their HIV infection in Colorado.

3-1-b CDPHE staff will monitor the success rates of care and support service providers in achieving the health disparity targets (81%, see targets below). CDPHE will offer capacity building and other motivation to providers that are not showing progress toward these established targets.

Responsible Parties: ICP Program, SIDU, care and support service providers
 Timeline: Q1 2017 - Q4 2021

Target populations

Table 6.3 Targets by Risk Group and Gender, Percent of Clients Showing Evidence of Continuous HIV Care in the Previous 12 Months⁵⁷

Table 6.3a

MEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
MSM	73%	70%	81%
PWID	65%	65%	81%
MSM/PWID	72%	55%	81%
Sex with Women	66%	61%	81%
Transfusion/Hemophilia	75%	80%	81%

Table 6.3b

WOMEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	74%	59%	81%
Sex with Men	74%	63%	81%

Table 6.4 - Targets by Race/Ethnicity, Percent of Clients Showing Evidence of Continuous HIV Care in the Previous 12 Months³

	Denver TGA Baseline	Rest of Colorado Baseline	Target
White, not Hispanic	74%	68%	81%
Black, not Hispanic	68%	53%	81%
Hispanic (All Races)	71%	67%	81%
Other/Multiple Race	70%	70%	81%

⁵⁷ “Continuous HIV Care in the Previous 12 Months” for PLWHA was defined as those with at least two lab results over 90 days apart in the last year, or PLWHA with one lab visit in the last year who were virologically suppressed at the time of their last lab.

⁵⁷ Baseline data reported to CDPHE as of 03/31/2016.

Table 6.5 - Targets by Age Group, Percent of Clients Showing Evidence of Continuous HIV Care in the Previous 12 Months³

	Denver TGA Baseline	Rest of Colorado Baseline	Target
2-12	96%	83%	--% ⁵⁸
13-24	75%	73%	81%
25-29	67%	60%	81%
30-34	65%	59%	81%
35-39	68%	56%	81%
40-44	70%	60%	81%
45-64	74%	71%	81%
65+	76%	72%	81%

Table 6.6 - Targets by Gender, Percent of Clients Showing Evidence of Continuous HIV Care in the Previous 12 Months³

	Denver TGA Baseline	Rest of Colorado Baseline	Target
Female	74%	66%	81%
Male	72%	67%	81%
Transgender	Not Available	Not Available	81%

Strategy 2: At least 73 percent of people in Colorado who are aware that they are living with HIV will show HIV viral suppression at their last measurement, regardless of risk group, gender, gender identity, age, race, ethnicity, drug use, disabling mental health condition, housing status, or being a survivor of violence or trauma.

Activities/Interventions

3-2-a The funded network of HIV care and support service providers will include providers that have a proven history of promoting adherence among populations that are furthest from achieving the 73 percent viral suppression goal, particularly African Americans, PWID, heterosexuals, people age 25-44, male transfusion/transplant recipients, transgender people, people who use drugs, people with a disabling mental health condition, the homeless, and survivors of violence or trauma.

Responsible Parties: ICP Program, Agencies with a history of addressing health disparities, DOHR, DHRPC.

Timeline: Q1 2017 - Q4 2021

3-2-b CDPHE staff will monitor the success rates of HIV care and support service providers in achieving the health disparity viral suppression targets (73%, see targets below). CDPHE will offer capacity building and other motivation to providers that are not showing progress toward these established targets.

Responsible Parties: ICP Program, care and support service providers

Timeline: Q1 2017 - Q4 2021

⁵⁸ Maintain existing baselines.

Target populations

Table 6.7 - Targets by Risk Group and Gender, Percent of Clients Showing Viral Suppression at their Last Measurement⁵⁹

Table 6.7a

MEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
MSM	69%	61%	73%
PWID	56%	54%	73%
MSM/PWID	61%	48%	73%
Sex with Women	60%	48%	73%

Table 6.7b

WOMEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	68%	46%	73%
Sex with Men	67%	52%	73%

Table 6.8 - Targets by Race/Ethnicity, Percent of Clients Showing Viral Suppression at their Last Measurement⁶⁰

	Denver TGA Baseline	Rest of Colorado Baseline	Target
White, not Hispanic	70%	60%	73%
Black, not Hispanic	61%	43%	73%
Hispanic (All Races)	66%	57%	73%
Other/Multiple Race	61%	58%	73%

Table 6.9 - Targets by Age Group, Percent of Clients Showing Viral Suppression at their Last Measurement⁶

	Denver TGA Baseline	Rest of Colorado Baseline	Target
2-12 yrs	96%	67%	73%
13-24 yrs	61%	60%	73%
25-29 yrs	59%	49%	73%
30-34 yrs	60%	45%	73%
35-39 yrs	61%	45%	73%
40-44 yrs	65%	49%	73%
45-64 yrs	70%	63%	73%
65+ yrs	71%	64%	73%

⁵⁹ Baselines are based on data reported to CDPHE through 03/31/16.

⁶⁰ Baselines are based on data reported to CDPHE through 03/31/16.

Table 6.10 - Targets by Gender, Percent of Clients Showing Viral Suppression at their Last Measurement⁶

	Denver TGA Baseline	Rest of Colorado Baseline	Target
Female	68%	55%	73%
Male	67%	57%	73%
Transgender	Not Available	Not Available	73%

Resources

Goal/Activity	CHAPP	CDC 1201	HRSA Part A	HRSA Part B	Rebate	Tobacco MSA	Health Coverage	Minimal or no identified funding source
NHAS Goal 2								
2-1-a Provide resources to care providers to improve retention	X	X	X	X	X	X	X	
2-1-b Assist low income PLWHA with financial barriers to retention				X	X	X	X	
2-1-c Provide community-based services that improve retention	X	X	X	X	X			
2-1-d CDPHE staff will identify clients with potential retention issues and offer services and other resources		X		X				
2-2-a Provide resources to clinics and pharmacies to improve adherence	X	X	X	X	X	X	X	
2-2-b Assist low income PLWHA with financial barriers to adherence				X	X	X	X	
2-2-c Provide community-based services that improve adherence	X	X	X	X	X			
2-2-d CDPHE staff will identify clients with potential adherence issues and offer services and other resources		X		X				
NHAS Goal 3								
3-1-a Include providers that have a proven history of successfully retaining populations that are furthest from achieving the 82 percent retention goal	X	X	X	X	X	X	X	
3-1-b CDPHE staff will monitor retention success rates and will offer capacity building and other motivation to improve these rates		X		X				
3-2-a Include providers that have a proven history of successfully promoting adherence among clients that are furthest from achieving the 73 percent viral suppression goal	X	X	X	X	X	X	X	
3-2-b CDPHE staff will monitor viral suppression success rates and will offer capacity building and other motivation to improve these rates		X		X				

Metrics needed to monitor the progress of Retention and Adherence

NHAS Goal 2

- Metric 2.1 Percentage of patients diagnosed with HIV, regardless of age, with at least 2 lab results over 90 days apart during the measurement year (CDC Care Cascade measure).
- Metric 2.2 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year. (HAB Core Measure and NHAS).
- Metric 2.3 Percentage of clients who were homeless or unstably housed in the 12-month measurement period.

NHAS Goal 3

- Metric 3.1 Percentage of patients diagnosed with HIV, regardless of age, with at least 2 lab results over 90 days apart during the measurement year, stratified by risk group, gender, age, race, and ethnicity.
- Metric 3.2 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year, stratified by risk group, gender, age, race, and ethnicity.

Challenges or barriers related to improving retention in medical care and adherence to medications, improving health outcomes for people living with HIV, and reducing HIV-related disparities and health inequities.

Recent research suggests that retention in care should be monitored continuously over a 2- to 3-year timeframe in order to more accurately detect attrition, particularly among African Americans. Among 655 patients studied, (77% male, 83% black, 54% men who have sex with men (MSM), 78% uninsured) continuous retention/virologic suppression at 12 months (84%/64%), 24 months (60%/48%), and 36 months (49%/39%) showed significant attrition ($P < .0001$) over time. Continuous retention was associated with prevalent virologic suppression at the end of 36 months (adjusted prevalence ratio 3.12; 95% confidence interval [CI], 2.40, 4.07). 12-month retention for black (84%) and nonblack (85%) patients was equivalent, yet fewer blacks (46%) than non-blacks (63%) achieved 36-month continuous retention due to a significant interaction between race and time (aOR 0.75, 95% CI, .59, .95).⁶¹

Trauma and stigma have a major impact on adherence to and retention in care for PLWHA. The Coping with HIV/AIDS in the Southeast (CHASE) Study found that among 490 HIV-positive women and men from five rural Southern states, patients with more categories of lifetime trauma had almost twice the all-cause death rate as those below the median levels of trauma, and trauma was also associated with faster development of an opportunistic infection or AIDS-related death.⁶² A study by Edward Machtinger of the University of California - San Francisco revealed evidence that recent trauma (defined as being abused, threatened, the victim of violence, or coerced to have sex in the last 30 days) was the single statistically significant predictor of antiretroviral (ART) failure. Participants reporting recent trauma in the UCSF study had greater than four times the odds of ART failure as those not reporting recent trauma.⁶³ A recent meta-analysis estimated a 30 percent rate of post-traumatic stress disorder (PTSD) among HIV-positive women in the U. S., which is more than five times higher the rate of PTSD reported in a nationally representative sample of women.⁶⁴ It is important to note that the roots of trauma extend beyond the family into the community and larger society and include both men and women. In a study of 152 HIV-positive Black/African American MSM, traumatic, stigmatizing experiences of racial discrimination were significantly associated with lower adherence to anti-retroviral therapy.⁶⁵ Another study reported that among 57 Black/African American PLWHA, racial

⁶¹ Colasanti J, Kelly J, Pennisi E, Hu YJ, Root C, Hughes D, Del Rio C, Armstrong W. Continuous Retention and Viral Suppression Provide Further Insights Into the HIV Care Continuum Compared to the Cross-sectional HIV Care Cascade. *Clin Infect Dis*. 2016 Mar 1;62(5):648-54. doi: 10.1093/cid/civ941. Epub 2015 Nov 12.

⁶² Leserman J. Role of depression, stress, and trauma in HIV disease progression. *Psychosomatic Medicine*. 2008;70(5):539-45. Epub 2008/06/04. doi: 10.1097/PSY.0b013e3181777a5f. PubMed PMID: 18519880.

Leserman J, Whetten K, Lowe K, Stangl D, Swartz MS, Thielman NM. How trauma, recent stressful events, and PTSD affect functional health status and health utilization in HIV-infected patients in the south. *Psychosomatic Medicine*. 2005;67(3):500-7. Epub 2005/05/25. doi: 10.1097/01.psy.0000160459.78182.d9. PubMed PMID: 15911916.

⁶³ Machtinger EL, Haberer JE, Wilson TC, Weiss DS. Recent trauma is associated with antiretroviral failure and HIV transmission risk behavior among HIV-positive women and female-identified transgenders. *AIDS and Behavior*. 2012;16(8):2160-70. Epub 2012/03/20. doi: 10.1007/s10461-012-0158-5. PubMed PMID: 22426597.

⁶⁴ Machtinger EL, Wilson TC, Haberer JE, Weiss DS. Psychological trauma and PTSD in HIV-positive women: a meta-analysis. *AIDS and Behavior*. 2012;16(8):2091-100. Epub 2012/01/18. doi: 10.1007/s10461-011-0127-4. PubMed PMID: 22249954.

⁶⁵ Bogart LM, Wagner GJ, Galvan FH, Klein DJ. Longitudinal relationships between antiretroviral treatment adherence and discrimination due to HIV-serostatus, race, and sexual orientation among African-American men with HIV. *Annals of Behavioral Medicine: a publication of the Society of Behavioral Medicine*. 2010;40(2):184-90. Epub 2010/06/17. doi: 10.1007/s12160-010-9200-x.

discrimination predicted significantly low.

Transgender PLWHA may be particularly vulnerable to retention and adherence issues. The “Positively Trans” study release in March 2016 showed that 41 percent of a national sample of transgender people living with HIV had gone for more than 6 months without medical care since their HIV diagnosis. 31 percent of the respondents reported that they had been refused health care because they were transgender or gender non-conforming, and this was cited as the main reason that their HIV care lapsed.⁶⁶

A 2013 study underscored the importance of provider attitudes and behaviors, particularly concerning stigma and trauma. This study found that a break in care was associated with:

- Perceiving that the doctor or health professionals do not listen carefully most or all of the time ($p < 0.01$)
- Having an elevated stigma score ($p < 0.05$), and
- Perceiving that providers dislike caring for HIV-infected people ($p < 0.01$).

Women were more likely to have an elevated stigma score than men ($p < 0.01$), as were participants over 30 ($p < 0.01$). The researchers concluded that “providers play a key role in the retention of HIV-infected persons in care and are critical to improving outcomes and slowing the epidemic. Development of novel approaches to reduce stigma are imperative in improving retention.”⁶⁷

Colorado’s public health data reveals that hundreds of PLWHA are engaged in HIV care but this care is not continuous or is insufficient to result in viral suppression. Based on analysis of Colorado data from January 2015 to December 2015, an estimated 737 people living with HIV or AIDS showed evidence of basic engagement in HIV care (a single viral load) but did not achieve viral suppression. This group may be broken into two subgroups. The first group, which we term “not receiving standard of care,” are PLWHA who had one viral load score but not the current standard of care set by HHS (which is two viral load scores in a 12-month period).⁶⁸ The second group, which we term “insufficiently benefitting from treatment,” are receiving the standard of care but are still not achieving viral suppression. These groups are depicted in Table 6.11.

Table 6.11 - Subgroups of Clients with Medical Retention or Medication Adherence Issues⁶⁹

	Total PLWHA	PLWHA not receiving standard of care	PLWHA insufficiently benefitting from treatment
Denver TGA	6,992	244	324
Rest of Colorado	2,227	80	89

⁶⁶ Transgender Law Center. Positively trans: initial report of a national needs assessment of transgender and gender non-conforming people living with HIV. Available at <http://transgenderlawcenter.org/programs/positively-trans>

⁶⁷ Magnus M, Herwehe J, Murtaza-Rossini M, Reine P, Cuffie D, Gruber D, Kaiser M. Linking and retaining HIV patients in care: the importance of provider attitudes and behaviors. AIDS Patient Care STDS. 2013 May;27(5):297-303. doi: 10.1089/apc.2012.0423.

⁶⁸ <https://www.aidsinfo.nih.gov/guidelines>

⁶⁹Based on data reported to CDPHE through 03/31/16.

In 2015-2016, a statewide needs assessment was conducted to assess the participation of clients and providers in Ryan White Part A and Part B HIV/AIDS Program services in Colorado. The PLWH Survey provides key information about clients' perceived needs and satisfaction with services that they received within the Ryan White Part A and Part B HIV/AIDS service delivery system. The needs assessment process was a collaboration between the Denver HIV/AIDS Resource Planning Council (DHRPC-Part A) and the Colorado Department of Public Health and Environment (CDPHE-Part B), and resulted in a total of 922 surveys collected from people living with HIV/AIDS in Colorado.

In 2015, a contractor worked with Part A and Part B staff to develop a needs assessment survey and process to administer the survey specifically targeting groups of people living with HIV who may have greater unmet needs for Ryan White services. The survey focused on consumer use and perceived need for Ryan White HIV/AIDS categories of services, barriers to receiving services, issues related to substance use, mental health, stigma, co-morbidity of diseases, transportation, dental services, prevention of HIV transmission and other issues relevant to PLWH in Colorado. The survey collected information on the survey population by TGA and rest of Colorado about demographics, including gender identity, income, health insurance, education, housing, employment and living situation, among many variables.

The first wave of surveys was sent by mail in July 2015 to all active ADAP clients in Colorado, including those whose enrollment had expired up to 3 months. Of approximately 3,225 surveys mailed to current or formerly enrolled ADAP recipients, 686 were returned and analyzed, yielding a response rate of 21 percent. Gift cards for \$10 were available by email to clients who requested them. By comparison, 518 surveys, or 76 percent, were returned from respondents who lived in the Part A catchment area, and 168, or 24 percent, were from the rest of Colorado, and provide information about clients who receive Part B funded services living outside the Part A TGA six county metro Denver area.

Mailed surveys did not capture data from several of the target groups of people who were thought to have greater needs for services, including people who did not have a mailing address or willing to return completed surveys by mail. DHRPC decided to collect additional data from HIV-positive youth, people living with HIV/AIDS ages 25-44 years, Spanish-speaking people living with HIV, homeless people living with HIV, and additional Part B services clients. A second wave of surveys was administered in February-March 2016. Of 470 surveys given to these targeted groups, 236 were completed and analyzed, with a response rate of 50 percent. There were 161 surveys (68%) from Part A clients, and 75 (32%) were completed by clients living in the rest of Colorado. The second survey was identical to the first survey, except that the Spanish version was retranslated to provide better comprehension for Spanish-speaking participants. Surveys and \$10 grocery cards were given to HIV staff in dozens of facilities, and for each survey completed, participants received a gift card at that time.

Overall, of approximately 3,695 surveys, people living with HIV completed 922 surveys, yielding a 25 percent response rate. There were 679 Part A surveys (74%), and 243 (26%) surveys from the rest of Colorado. Contractor, DHRPC and CDPHE staff entered the survey data into Excel and Google data templates, and conducted edit checks and quality control

steps to ensure that database and analyses were consistent and accurate. CDPHE staff analyzed all survey data, and these results are presented in Tables 6.12-6.18.

PLWH Survey Response						
Table 6.12	2015		2016		Total	
	N = 686	%	N = 236	%	N = 922	%
Youth (aged 29 years and younger)						
Denver TGA	30	5.8	13	8.1	43	6.3
Rest of Colorado	8	4.8	5	6.7	13	5.3
All	38	5.5	18	7.6	56	6.1
Homeless/Unstable Housing						
Denver TGA	78	15.1	50	31.1	128	18.9
Rest of Colorado	27	16.1	15	20.0	42	17.3
All	105	15.3	65	27.5	170	18.4
No HIV Medical Care (MD, Nurse, PA) within past 12 months						
Denver TGA	6	1.2	7	4.3	13	1.9
Rest of Colorado	2	1.2	4	5.3	6	2.5
All	8	1.2	11	4.7	19	2.1
No HIV Medications within past 12 months						
Denver TGA	3	0.8	9	5.6	12	1.8
Rest of Colorado	4	2.4	5	6.7	9	3.7
All	7	1.0	14	5.9	21	2.3
Spanish Speaking						
Denver TGA	103*	19.9	42^	26.1	NA	-
Rest of Colorado	28*	16.7	29^	38.7	NA	-
All	131*	19.1	71	30.1	NA	-

*Self-identify as Hispanic

^Completed Spanish survey

Table 6.13		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
		679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Frequency of HIV Care (Doctor's) Visits										
Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
HIV care	Every 3 Months	326	75.1	48.0	108	24.9	44.4	434	100.0	47.1
	Every 6 Months	269	71.5	39.6	107	28.5	44.0	376	100.0	40.8
	Once a Year	48	81.4	7.1	11	18.6	4.5	59	100.0	6.4
	Every 2 years	3	75.0	0.4	1	25.0	0.4	4	100.0	0.4
	When I feel sick	9	100.0	1.3	0	0.0	0.0	9	100.0	1.0
	Never, I don't go to the Doctor	0	0.0	0.0	1	100.0	0.4	1	100.0	0.1
	Never, I do not have a Doctor	2	50.0	0.3	2	50.0	0.8	4	100.0	0.4
	Missing	22	62.9	3.2	13	37.1	5.3	35	100.0	3.8
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

The 2015-16 survey of PLWHA offers insight about retention in HIV care, from the point of view of PLWHA. As shown in Table 6.13, most survey respondents reported receiving at least the minimum standard of care (semi-annual care visits). The majority of respondents also reported receiving the essential components of standard HIV care in the previous 12 months (Table 6.14).

Table 6.14		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
		679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
HIV related care in the past 12 months (Q. 12)										
Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Seen a Doctor, nurse or PA for HIV										
Physician visit	Yes	651	73.5	95.9	235	26.5	96.7	886	100.0	96.1
	No	13	68.4	1.9	6	31.6	2.5	19	100.0	2.1
	Don't know/Can't Remember	2	100.0	0.3	0	0.0	0.0	2	100.0	0.2
	Missing	13	86.7	1.9	2	13.3	0.8	15	100.0	1.6
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Taken HIV Medication (ART)										
Taken Medication	Yes	640	73.6	94.3	229	26.4	94.2	869	100.0	94.3
	No	12	57.1	1.8	9	42.9	3.7	21	100.0	2.3
	Don't know/Can't Remember	4	80.0	0.6	1	20.0	0.4	5	100.0	0.5
	Missing	23	85.2	3.4	4	14.8	1.6	27	100.0	2.9
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

Had a test for HIV Viral Load										
Test for Viral Load	Yes	643	73.3	94.7	234	26.7	96.3	877	100.0	95.1
	No	12	60.0	1.8	8	40.0	3.3	20	100.0	2.2
	Don't know/Can't Remember	3	100.0	0.4	0	0.0	0.0	3	100.0	0.3
	Missing	21	95.5	3.1	1	4.5	0.4	22	100.0	2.4
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Had a test for CD4 (t-cell) count										
Test CD4 count	Yes	642	73.5	94.6	232	26.5	95.5	874	100.0	94.8
	No	12	57.1	1.8	9	42.9	3.7	21	100.0	2.3
	Don't know/Can't Remember	5	100.0	0.7	0	0.0	0.0	5	100.0	0.5
	Missing	20	90.9	2.9	2	9.1	0.8	22	100.0	2.4
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

However, a significant portion of survey respondents (16.8% overall) reported stopping their HIV care in the prior 12-month period (Table 6.15).

Table 6.15		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
		679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Since HIV Diagnosis have you stopped seeing an HIV doctor for 12 months or more (Q.14)										
Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Stopped seeing physician	Yes	110	71.0	16.2	45	29.0	18.5	155	100.0	16.8
	No	549	74.1	80.9	192	25.9	79.0	741	100.0	80.4
	Don't Remember	8	72.7	1.2	3	27.3	1.2	11	100.0	1.2
	Missing	12	80.0	1.8	3	20.0	1.2	15	100.0	1.6
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

The reasons cited by survey respondents for stopping care were varied, with the most-mentioned reasons being: felt fine/was not sick (5.7%), overwhelmed (5.3%), did not want to take meds (5.1%), drinking/doing drugs (4.8%), could not afford care (4.8%), had a mental health issue (4.0%), and lost health insurance (4.0%). See Table 6.16.

Table 6.16		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
		679	73.6	100.0	243	26.4	100.0	922	100.0	100.0
Reasons why stopped seeing a Doctor for 12 months or more (Q.15)										
Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Reason stopped seeing physician	Never stopped seeing a doctor	327	75.7	43.1	105	24.3	38.0	432	100.0	41.7
	Felt Fine, was not sick	44	74.6	5.8	15	25.4	5.4	59	100.0	5.7
	Wanted a break	30	78.9	4.0	8	21.1	2.9	38	100.0	3.7
	Did not want to take Meds	41	77.4	5.4	12	22.6	4.3	53	100.0	5.1
	Side Effects of Meds	19	61.3	2.5	12	38.7	4.3	31	100.0	3.0
	Viral load was undetectable	22	81.5	2.9	5	18.5	1.8	27	100.0	2.6
	Could not afford care	34	68.0	4.5	16	32.0	5.8	50	100.0	4.8
	Lost health insurance	24	57.1	3.2	18	42.9	6.5	42	100.0	4.1
	Lost Ryan White supported services	11	73.3	1.4	4	26.7	1.4	15	100.0	1.4
	Drinking / Doing Drugs	38	76.0	5.0	12	24.0	4.3	50	100.0	4.8
	Had a mental health issue	31	73.8	4.1	11	26.2	4.0	42	100.0	4.1
	Other Priorities	18	78.3	2.4	5	21.7	1.8	23	100.0	2.2
	No Transportation	18	69.2	2.4	8	30.8	2.9	26	100.0	2.5
	Doctor or Case Manager Left	10	66.7	1.3	5	33.3	1.8	15	100.0	1.4
	Bad experience at clinic	17	65.4	2.2	9	34.6	3.3	26	100.0	2.5
	Overwhelmed	38	69.1	5.0	17	30.9	6.2	55	100.0	5.3
	Appointment Times not Convenient	13	72.2	1.7	5	27.8	1.8	18	100.0	1.7
	Don't Remember	11	73.3	1.4	4	26.7	1.4	15	100.0	1.4
	Other*	13	72.2	1.7	5	27.8	1.8	18	100.0	1.7
Total	759	73.3	100.0	276	26.7	100.0	1035	100.0	100.0	

The 2015 survey of PLWHA asked about services that were needed and available versus services that were needed but not available. In terms of direct clinical services, relatively few respondents reported needing such service but being unable to obtain them. The situation was not equal across the different services. Only 14 respondents reported needing HIV care but being unable to obtain it, as compared to 521 reporting that their need for this service was met. In contrast, 27 respondents reported being unable to obtain needed inpatient substance abuse treatment, as compared to 64 reporting their needs being met for this service. See Table 6.17 for details.

Table 6.17 - Client Self-Reported Needs and Experiences Accessing Direct Clinical Services

Summary of Core Medical by Survey Respondents Usage, by Geographic location																					
	Didn't know was available			Didn't need			Needed but could not get			Needed and able to use			Total Clients with a Response			No Response			Total		
	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %
HIV Medical Care																					
Denver TGA	25	3.7	80.6	91	13.4	81.3	10	1.5	71.4	521	76.7	71.6	647	95.3	73.1	32	4.7	86.5	679	100.0	73.6
Rest of Colorado	6	2.5	19.4	21	8.6	18.8	4	1.6	28.6	207	85.2	28.4	238	97.9	26.9	5	2.1	13.5	243	100.0	26.4
All	31	6.2	100.0	112	12.1	100.0	14	1.5	100.0	728	79.0	100.0	885	96.0	100.0	37	4.0	100.0	922	100.0	100.0
Mental Health Services																					
Denver TGA	78	11.5	79.6	347	51.1	71.8	36	5.3	75.0	174	25.6	72.5	635	93.5	73.1	44	6.5	83.0	679	100.0	73.6
Rest of Colorado	20	8.2	20.4	136	56.0	28.2	12	4.9	25.0	66	27.2	27.5	234	96.3	26.9	9	3.7	17.0	243	100.0	26.4
All	98	19.7	100.0	483	52.4	100.0	48	5.2	100.0	240	26.0	100.0	869	94.3	100.0	53	5.7	100.0	922	100.0	100.0
Oral Health Care																					
Denver TGA	117	17.2	78.5	145	21.4	69.4	81	11.9	73.0	295	43.4	74.1	638	94.0	73.6	41	6.0	74.5	679	100.0	73.6
Rest of Colorado	32	13.2	21.5	64	26.3	30.6	30	12.3	27.0	103	42.4	25.9	229	94.2	26.4	14	5.8	25.5	243	100.0	26.4
All	149	30.4	100.0	209	22.7	100.0	111	12.0	100.0	398	43.2	100.0	867	94.0	100.0	55	6.0	100.0	922	100.0	100.0
Substance Abuse In patient																					
Denver TGA	58	8.5	84.1	495	72.9	70.3	24	3.5	88.9	52	7.7	81.3	629	92.6	72.8	50	7.4	86.2	679	100.0	73.6
Rest of Colorado	11	4.5	15.9	209	86.0	29.7	3	1.2	11.1	12	4.9	18.8	235	96.7	27.2	8	3.3	13.8	243	100.0	26.4
All	69	13.1	100.0	704	76.4	100.0	27	2.9	100.0	64	6.9	100.0	864	93.7	100.0	58	6.3	100.0	922	100.0	100.0

Summary of Core Medical by Survey Respondents Usage, by Geographic location																					
	Didn't know was available			Didn't need			Needed but could not get			Needed and able to use			Total Clients with a Response			No Response			Total		
	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %	N	Row %	Col %
Substance Abuse Out Patient																					
Denver TGA	46	6.8	82.1	487	71.7	70.2	18	2.7	90.0	74	10.9	81.3	625	92.0	72.6	54	8.0	88.5	679	100.0	73.6
Rest of Colorado	10	4.1	17.9	207	85.2	29.8	2	0.8	10.0	17	7.0	18.7	236	97.1	27.4	7	2.9	11.5	243	100.0	26.4
All	56	10.9	100.0	694	75.3	100.0	20	2.2	100.0	91	9.9	100.0	861	93.4	100.0	61	6.6	100.0	922	100.0	100.0

The situation was similar for services that support retention and adherence. Only 12 respondents said they could not get the AIDS drug assistance they needed (compared to 828 with fully met need for this service), but 47 respondents reported unmet need for medical transportation, (compared to 143 with fully met need for this service). See Table 6.18 for detail

Table 6.18 - Client Self-Reported Needs and Experiences Accessing Services that Address Retention Issues

Summary of Core Medical by Survey Respondents Usage, by Geographic location																					
	Didn't know was available			Didn't need			Needed but could not get			Needed and able to use			Total Clients with a Response			No Response			Total		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
AIDS Drug Assistance Program (ADAP)																					
Denver TGA	22	3.2	84.6	24	3.5	68.6	9	1.3	75.0	609	89.7	73.6	664	97.8	73.7	15	2.2	71.4	679	100.0	73.6
Rest of Colorado	4	1.6	15.4	11	4.5	31.4	3	1.2	25.0	219	90.1	26.4	237	97.5	26.3	6	2.5	28.6	243	100.0	26.4
All	26	2.8	100.0	35	3.8	100.0	12	1.3	100.0	828	89.8	100.0	901	97.7	100.0	21	2.3	100.0	922	100.0	100.0
Health Insurance Assistance																					
Denver TGA	85	12.5	78.7	116	17.1	74.4	46	6.8	76.7	395	58.2	71.3	642	94.6	73.1	37	5.4	84.1	679	100.0	73.6
Rest of Colorado	23	9.5	21.3	40	16.5	25.6	14	5.8	23.3	159	65.4	28.7	236	97.1	26.9	7	2.9	15.9	243	100.0	26.4
All	108	22.0	100.0	156	16.9	100.0	60	6.5	100.0	554	60.1	100.0	878	95.2	100.0	44	4.8	100.0	922	100.0	100.0
Medical Case Management																					
Denver TGA	90	13.3	79.6	308	45.4	80.8	21	3.1	75.0	202	29.7	62.2	621	91.5	73.3	58	8.5	77.3	679	100.0	73.6
Rest of Colorado	23	9.5	20.4	73	30.0	19.2	7	2.9	25.0	123	50.6	37.8	226	93.0	26.7	17	7.0	22.7	243	100.0	26.4
All	113	22.7	100.0	381	41.3	100.0	28	3.0	100.0	325	35.2	100.0	847	91.9	100.0	75	8.1	100.0	922	100.0	100.0
Other Case Management																					
Denver TGA	77	11.3	90.6	138	20.3	84.7	33	4.9	82.5	389	57.3	66.6	637	93.8	73.1	42	6.2	84.0	679	100.0	73.6
Rest of Colorado	8	3.3	9.4	25	10.3	15.3	7	2.9	17.5	195	80.2	33.4	235	96.7	26.9	8	3.3	16.0	243	100.0	26.4
All	85	9.2	100.0	163	17.7	100.0	40	4.3	100.0	584	63.3	100.0	872	94.6	100.0	50	5.4	100.0	922	100.0	100.0

Summary of Core Medical by Survey Respondents Usage, by Geographic location

	Didn't know was available			Didn't need			Needed but could not get			Needed and able to use			Total Clients with a Response			No Response			Total		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Emergency Financial Assistance																					
Denver TGA	141	20.8	83.4	176	25.9	72.1	64	9.4	82.1	251	37.0	67.3	632	93.1	73.1	47	6.9	81.0	679	100.0	73.6
Rest of Colorado	28	11.5	16.6	68	28.0	27.9	14	5.8	17.9	122	50.2	32.7	232	95.5	26.9	11	4.5	19.0	243	100.0	26.4
All	169	18.3	100.0	244	26.5	100.0	78	8.5	100.0	373	40.5	100.0	864	93.7	100.0	58	6.3	100.0	922	100.0	100.0
Housing																					
Denver TGA	123	18.1	79.9	297	43.7	70.9	50	7.4	71.4	160	23.6	73.7	630	92.8	73.3	49	7.2	79.0	679	100.0	73.6
Rest of Colorado	31	12.8	20.1	122	50.2	29.1	20	8.2	28.6	57	23.5	26.3	230	94.7	26.7	13	5.3	21.0	243	100.0	26.4
All	154	16.7	100.0	419	45.4	100.0	70	7.6	100.0	217	23.5	100.0	860	93.3	100.0	62	6.7	100.0	922	100.0	100.0
Medical Transportation																					
Denver TGA	114	16.8	82.0	395	58.2	73.8	32	4.7	68.1	93	13.7	65.0	634	93.4	73.4	45	6.6	77.6	679	100.0	73.6
Rest of Colorado	25	10.3	18.0	140	57.6	26.2	15	6.2	31.9	50	20.6	35.0	230	94.7	26.6	13	5.3	22.4	243	100.0	26.4
All	139	15.1	100.0	535	58.0	100.0	47	5.1	100.0	143	15.5	100.0	864	93.7	100.0	58	6.3	100.0	922	100.0	100.0
Referrals for Health Care/Supportive Services																					
Denver TGA	115	16.9	81.6	314	46.2	72.7	26	3.8	70.3	172	25.3	68.8	627	92.3	72.9	52	7.7	83.9	679	100.0	73.6
Rest of Colorado	26	10.7	18.4	118	48.6	27.3	11	4.5	29.7	78	32.1	31.2	233	95.9	27.1	10	4.1	16.1	243	100.0	26.4
All	141	15.3	100.0	432	46.9	100.0	37	4.0	100.0	250	27.1	100.0	860	93.3	100.0	62	6.7	100.0	922	100.0	100.0

The 2015-16 PLWHA Survey demonstrated that substance use and mental health issues are strongly related to retention in care and adhering to prescribed regimens. As shown in Table 6.18, 48 respondents needed but couldn't get mental health services (compared with 240 who said they needed and were able to use mental health services). Twenty-seven needed but could not get substance abuse in-patient treatment, and 20 needed but were unable to get out-patient substance abuse treatment. This is substantiated by multiple national studies. In terms of health outcomes for PLWHA, substance use treatment in HIV-infected individuals is associated with improved ART adherence, decreased emergency department visits and hospitalizations, and increased receipt of primary care, but substance use treatment is often underutilized.⁷⁰ Individuals with alcohol and other substance use disorders are at increased risk for poor retention in care, poor adherence, and virologic failure. Regarding mental health, a meta-analysis of 95 studies found a significant relationship between depression and ART non-adherence that was consistent across patients in resource-rich and resource-limited settings. Research has linked depressive symptoms to poor HIV care engagement and health outcomes, including impaired immunologic response and mortality. Randomized, controlled trials indicate that cognitive-behavioral therapy for depression and psychosocial stress improves ART adherence when conducted in tandem with ART adherence counseling. Combined mental health and ART adherence counseling interventions have shown significant reductions in depressive symptoms, improved ART adherence, and improved treatment outcomes in random control trials (RCTs). In contrast, an RCT of a stress management intervention with no ART adherence counseling reduced psychological distress but did not improve ART adherence or treatment outcomes. Evidence further indicates that pharmacologic treatment of depression is beneficial for ART adherence and treatment outcomes for some patients.⁷¹

A further challenge for medical retention and medication adherence exists for PLWHA who use street/recreational drugs and face complex interactions with their prescribed HIV medications. For example, Norvir may increase the concentration of Ecstasy in the blood stream to dangerous, even fatal, levels. GHB negatively interacts with protease inhibitors. Ketamine has been associated with liver inflammation when combined with antiretrovirals. Barbiturates can lower the levels of protease inhibitors or non-nucleosides. The sedatives Halcion and Versed could be raised to very dangerous levels when combined with protease inhibitors or non-nucleosides. A wide variety of medications commonly taken by PLWHA can raise the potency of methadone: diflucan, amitriptyline, valium, Xanax, Halcion, Tagamet, Rescriptor, and ciprofloxacin.⁷² Not all healthcare providers screen systematically for these type of issues and prompt frank, harm-reduction oriented conversations with their PLWHA patients; the result may well be failures to retain clients in care and poor treatment outcomes.

⁷⁰ Korthuis, P. T., D. A. Fiellin, et al. (1999). "Unhealthy Alcohol and Illicit Drug Use are Associated with Decreased Quality of HIV Care." *JAIDS Journal of Acquired Immune Deficiency Syndromes*

⁷¹ Thompson, M. A., M. J. Mugavero, et al. (2012). "Guidelines for Improving Entry Into and Retention in Care and Antiretroviral Adherence for Persons With HIV: Evidence-Based Recommendations From an International Association of Physicians in AIDS Care Panel." *Ann Intern Med*

⁷² Learned, J. and Szalavitz, M. Drug Interactions: HIV Medications, Street Drugs and Methadone. *The Body*. Available at <http://www.thebody.com/content/art14383.html#>

Special medical retention and medication adherence challenges exist for people who reside in correctional settings or are transitioning out of such settings. For those inmates who initiate care while incarcerated, studies found that after release from incarceration, rates of retention in care drop, resulting in a decline in treatment and virological suppression rates.⁷³ Multiple factors have been identified that contribute to linkage to HIV care after release from jail or prison. Facilitators of retention in care include HIV education during incarceration, discharge planning, transportation, and stable housing⁷⁴ and barriers include drug use,⁷⁵ mental illness, stigma, lack of social support, and unemployment.⁷⁶ Accordingly, successful interventions have addressed many of these issues, including opiate replacement therapy, enhanced case management, patient navigation, or combinations thereof.⁷⁷ Another service that has been shown to address barriers is discharge planning services for inmates transitioning to the community; if delivered consistent with Centers for Disease Control and Prevention guidelines, this includes making an appointment with a community health care provider, assisting with enrollment in an entitlement program, and providing a copy of the medical record and a supply of HIV medication. People in these situation often have very complex eligibility and enrollment issues which will necessitate providers having specific training and expertise in Medicaid and other coverage options.

As previously noted, Colorado data shows that PWID experience some of the lowest rates of retention in medical care and achievement of viral suppression. This problem is not isolated to Colorado. Recently, researchers studied the clinical outcomes of patients infected with HIV through injection drug use as compared to those infected sexually and found that PWID had higher risk of late diagnosis, delayed ART initiation, risk of progression to AIDS, and higher mortality rates. Virologic suppression due to ART was lower in PWID only among patients without hepatitis C virus (HCV) infection; among PWID with HCV infection, rates of viral suppression due to ART were not significantly different from people infected with HIV sexually, and there were no significant differences in immunological response after adjusting by HCV. The researchers also found that the proportion of deaths due to non-AIDS related causes was significantly higher in PWID living with HIV: this was due largely to liver-related mortality, which is not surprising considering the high prevalence of HCV co-infection in these patients. Liver diseases were responsible for almost a quarter of deaths among PWID living with HIV, a proportion which was much higher than deaths due to external causes or drug effects. However, HCV does not fully explain the higher risk of death and progression to AIDS,

⁷³ Princess A. Iroh, MS, Helen Mayo, MLS, and Ank E. Nijhawan, MD, MPH. The HIV Care Cascade Before, During, and After Incarceration: A Systematic Review and Data Synthesis. July 2015, Vol 105, No. 7 | American Journal of Public Health, p. e5.

⁷⁴ Althoff AL, Zelenev A, Meyer JP, et al. Correlates of retention in HIV care after release from jail: results from a multi-site study. *AIDS Behav.* 2013; 17(suppl 2):S156---S170.

⁷⁵ Chitsaz E, Meyer JP, Krishnan A, et al. Contribution of substance use disorders on HIV treatment outcomes and antiretroviral medication adherence among HIV-infected persons entering jail. *AIDS Behav.* 2013;17(suppl 2):S118- -- S127.

⁷⁶ Brinkley-Rubinstein L, Turner WL. Health impact of incarceration on HIV positive African American males: a qualitative exploration. *AIDS Patient Care STDS.* 2013;27(8):450---458.

⁷⁷ Althoff AL, Zelenev A, Meyer JP, et al. Correlates of retention in HIV care after release from jail: results from a multi-site study. *AIDS Behav.* 2013; 17(suppl 2):S156---S170.

as these risks were still significantly higher in PWID after adjusting for HCV infection. The researchers noted, “PWID frequently face a number of social problems, including unemployment, low educational level, previous or present imprisonment, economic difficulties, lack of social and family support and associated psychiatric comorbidities. All these factors could impair access to health services and cause a delay in HIV diagnosis and treatment initiation and lower adherence to treatment . . . This study shows that although the proportion of HIVDU among all HIV-infected patients is declining, they merit special attention due to late presentation, late initiation of treatment and higher mortality and risk of AIDS.”⁷⁸

To improve medical retention and medication adherence, the complexity of client needs and circumstances must be addressed. The International Association of Physicians in AIDS Care (IAPAC) convened an expert panel in 2012 to develop evidence-based recommendations to optimize retention in medical care and adherence to medications, utilizing findings from 325 studies.⁷⁹ The panel identified the following practices with evidence of effectiveness:

1. Systematic monitoring of successful entry into HIV care;
2. Brief, strengths-based case management for individuals with a new HIV diagnosis
3. Intensive outreach for individuals not engaged in medical care within 6 months of a new HIV diagnosis;
4. Use of peer or paraprofessional patient navigators;
5. Monitoring ART adherence;
6. Self-reported adherence obtained routinely in all patients;
7. Use of pharmacy refill data for adherence monitoring;
8. Reminder devices and use of communication technologies with an interactive component;
9. Education and counseling using specific adherence-related tools, including individual one-on-one ART education and adherence counseling and group education and counseling;
10. Using nurse- or community counselor-based care;
11. Case management services and other supportive resources to address food insecurity, housing, and transportation needs. This is particularly important to mitigate multiple adherence barriers in the homeless;
12. Integration of medication management services into pharmacy systems;
13. Offering buprenorphine or methadone to opioid-dependent patients;
14. Directly administered ART for individuals with substance use disorders, including integration of ART into methadone maintenance treatment;
15. Screening, management, and treatment for depression and other mental illnesses in combination with adherence counseling;

⁷⁸ Suárez-García I, Sobrino-Vegas P, Dalmau D, Rubio R, Iribarren JA, Blanco JR, Gutierrez F, Alonso MM, Bernal E, García DV, del Amo J., et al. Clinical outcomes of patients infected with HIV through use of injected drugs compared to patients infected through sexual transmission. *Addiction*, 2016, Vol 111, 1235–1245.

⁷⁹ Thompson, M, Mugavero, M, Amico, K R, Cargill, V, Chang, L, Gross, R, Orrell, C, Altice, F, Bangsberg, et al. Guidelines for Improving Entry into and Retention in Care and Antiretroviral Adherence for Persons With HIV: Evidence-Based Recommendations From an International Association of Physicians in AIDS Care Panel. *Ann Intern Med*. 2012 June 5; 156(11): 817–294. doi:10.7326/0003-4819-156-11-201206050-00419.

16. ART during incarceration and potentially upon release to the community; and,
17. Specialized, intensive youth-focused case management for adolescents and young adults living with HIV along with therapeutic support interventions using problem-solving approaches and addressing psychosocial context.

Data used to determine the goals and metrics

The targets for retention in and adherence to care were based on details from the HIV Care Continuum for Colorado PLWHA residents and PLWHA in-migrants, for the time period January 1, 2015 - December 31, 2015.

Table 6.19 Persons Living with HIV/AIDS Retained in Care and Virologic Suppression in 2015 by Demographic Breakdowns, HIV Care Continuum, Denver TGA, Colorado

Denver TGA

Men, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	3687	100%	877	100%	1344	100%	170
Engaged in care or virologically suppressed past year	4,360	74%	2,711	66%	575	71%	957	69%	117
Virologic suppression	4,054	69%	2,557	58%	510	66%	884	61%	103

Men, by Age On December 31, 2015	Total No.	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	11	100%	102	100%	360	100%	535	100%	625	100%	741	100%	3,335	100%	369
Engaged in care or virologically suppressed past year	4,360	91%	10	76%	78	68%	243	65%	346	68%	423	70%	515	74%	2466	76%	279
Virologic suppression	4,054	91%	10	66%	67	61%	218	59%	318	61%	382	65%	481	70%	2318	70%	260

Men by Risk Group	Total Number	MSM		MSM/PWID		PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	6,078	100%	4,586	100%	670	100%	210	100%	254	100%	28	100%	8	100%	322
Engaged in care or virologically suppressed past year	4,360	73%	3,336	72%	483	65%	136	66%	167	75%	21	75%	6	66%	211
Virologic suppression	4,054	69%	3,151	61%	412	56%	118	60%	153	71%	20	75%	6	60%	194

Women, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	286	100%	386	100%	190	100%	52
Engaged in care or virologically suppressed past year	679	77%	219	74%	284	73%	138	73%	38
Virologic suppression	618	72%	206	66%	256	65%	123	63%	33

Women, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	12	100%	25	100%	41	100%	87	100%	115	100%	137	100%	447	100%	50
Engaged in care or virologically suppressed past year	679	100%	12	68%	17	66%	27	67%	58	70%	81	72%	99	78%	347	76%	38
Virologic suppression	618	100%	12	44%	11	49%	20	61%	53	63%	72	65%	89	73%	325	72%	36

Women by Risk Group	Total Number	PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	914	100%	156	100%	540	100%	26	100%	6	100%	186
Engaged in care or virologically suppressed past year	679	74%	116	74%	399	77%	20	83%	5	75%	139
Virologic suppression	618	68%	106	67%	364	65%	17	83%	5	68%	126

Table 6.20 Persons Living with HIV/AIDS Retained in Care and Virologic Suppression in 2015 by Demographic Breakdowns, HIV Care Continuum, Rest of Colorado

Rest of Colorado

Men, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	1206	100%	197	100%	381	100%	54
Engaged in care or virologically suppressed past year	1,229	70%	839	50%	98	67%	254	70%	38
Virologic suppression	1,055	60%	728	40%	79	57%	218	56%	30

Men, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	9	100%	30	100%	116	100%	148	100%	203	100%	197	100%	1,016	100%	119
Engaged in care or virologically suppressed past year	1,229	89%	8	67%	20	56%	65	57%	84	58%	117	59%	117	72%	734	71%	84
Virologic suppression	1,055	56%	5	57%	17	48%	56	43%	63	47%	96	48%	95	64%	647	64%	76

Men by Risk Group	Total Number	MSM		MSM/PWID		PWID		Heterosexual		Pediatric		Transfusion / Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	1,838	100%	1,260	100%	204	100%	112	100%	94	100%	21	100%	5	100%	142
Engaged in care or virologically suppressed past year	1,229	70%	884	55%	112	65%	73	61%	57	71%	15	80%	4	59%	85
Virologic suppression	1,055	61%	771	48%	97	54%	61	48%	45	48%	10	80%	4	48%	69

Women, by Race/Ethnicity	Total Number	White, non-Hispanic		Black, non-Hispanic		Hispanic		Other/Unknown/ Multiple Race	
		%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	193	100%	82	100%	89	100%	25
Engaged in care or virologically suppressed past year	256	66%	127	60%	49	71%	63	68%	17
Virologic suppression	213	54%	105	51%	42	56%	50	64%	16

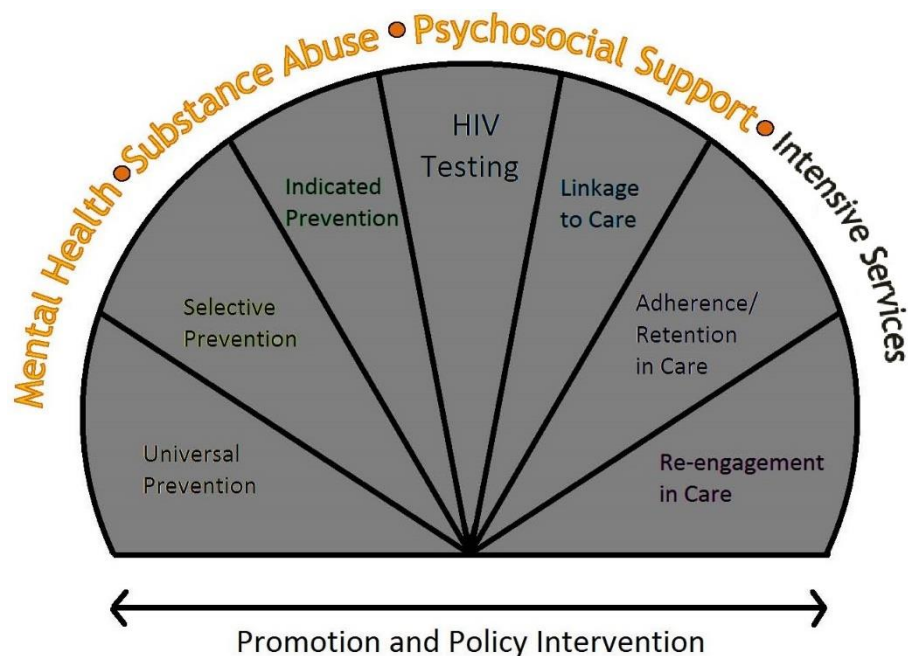
Women, by Age On December 31, 2015	Total Number	2-12		13-24		25-29		30-34		35-39		40-44		45-64		> 65	
		%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	9	100%	18	100%	24	100%	33	100%	49	100%	55	100%	176	100%	24
Engaged in care or virologically suppressed past year	256	78%	7	83%	15	79%	19	67%	22	47%	23	62%	34	66%	116	79%	19
Virologic suppression	213	78%	7	67%	12	50%	12	58%	19	35%	17	51%	28	57%	101	67%	16

*1 Less than 2 virally suppressed

Women by Risk Group	Total Number	PWID		Heterosexual		Pediatric		Transfusion/Hemophiliac		No Identified Risk	
		%	No.	%	No.	%	No.	%	No.	%	No.
People living with HIV	389	100%	63	100%	216	100%	25	100%	2	100%	83
Engaged in care or virologically suppressed past year	256	59%	37	63%	137	92%	23	50%	1	70%	58
Virologic suppression	213	46%	29	52%	113	76%	19	50%	1	61%	51

Chapter 7 - Behavioral Health and Psychosocial Support Services

Overview



This chapter addresses mental health, substance abuse, and psychosocial support which are related to the entire spectrum of care and prevention services, as depicted in the Colorado Model.

This chapter addresses four populations:

- 1) *People vulnerable to becoming HIV infected due to mental health or substance use issues*

This population includes people who are not living with HIV but are at heightened risk of becoming infected due to mental health and/or substance use issues. The mental health or substance issues may be clinical (diagnosed or not diagnosed) or may be sub-clinical but nonetheless associated with HIV risk, such as episodic dysthymia or binge drinking.

- 2) *People vulnerable to becoming HIV infected who lack health-promoting social support*

This population includes people who are socially isolated; have marginal, unstable or highly conditional support; or live in a milieu that poses continual threat of emotional or physical harm. This population often experiences a high degree of shame and stigma around their sexual orientation, socioeconomic status, history of incarceration, gender, gender identity, race, ethnicity, and other factors. Social competency, support networks, and community engagement also build resiliency in this group.

3) *People living with HIV or AIDS who have mental health or substance use issues*

This population is defined as PLWHA living with mental health or substance use issues that interfere with them achieving their HIV-related health goals. These issues often pre-dated their HIV infection, but may also be associated with HIV medication side effects or coping with HIV. The mental health or substance issues may be clinical (diagnosed or not diagnosed) or may be sub-clinical but nonetheless associated with issues such as HIV medication adherence, avoiding dangerous drug interactions, maintaining housing, and keeping partners safe from HIV risk.

4) *People living with HIV or AIDS who lack health-promoting social support*

This population includes PLWHA who are socially isolated; have marginal, unstable or highly conditional support; or live in a milieu that poses continual threat of emotional or physical harm. There may be issues around disclosing HIV serostatus, including to sex partners, in their social support systems. This population often experiences a high degree of shame and stigma around their HIV serostatus, sexual orientation, socioeconomic status, history of incarceration gender, gender identity, race, ethnicity, and other factors. They also experience feeling disenfranchised, stigmatized, and not socially fulfilled.

NHAS Goal 1: Reduce new HIV infections

Objective: Address behavioral health and psychosocial support issues that drive vulnerability to HIV.

Strategy 1: Provide screening and referral for behavioral health issues in the context of HIV prevention, including HIV testing, partner services, selective prevention, and indicated prevention.

Activities/Interventions

1-1-a Integrate screening, brief intervention and referral to treatment (SBIRT) for substance use into all CDPHE-funded HIV prevention programs.⁸⁰ Referrals will include assistance utilizing the behavioral health benefit that is included in Medicaid, Medicare, and other health coverage.

Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors.

Timeline: Q1 2017 - Q4 2021

1-1-b Integrate screening and referral for depression-related services into all CDPHE-funded HIV prevention programs. Referrals will include assistance utilizing the behavioral health benefit that is included in Medicaid, Medicare, and other health coverage.

Responsible Parties: : ICP Program, CBP program, funded HIV prevention contractors.

Timeline: Q1 2017 - Q4 2021

1-1-c Promote a trauma-informed care approach among contractors and others who provide prevention services for people at high HIV risk. This will include evidence-based

⁸⁰ Other than services for PWID; see Strategy 3, below.

screening for trauma and intimate partner violence and will be supported by provider training, standards of care, and other strategies to promote this approach.

Responsible Parties: Contract Monitoring Unit, DIS supervisors, funded HIV prevention contractors, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.1 - Targets for HIV Negative Clients, Behavioral Health Screening and Referral

	Year 1 Target	Year 4 Target
a. Percent of HIV prevention clients screened for substance use, depression, and trauma	90%	90%
b. Percent of those who are screened who show need for further services, all of whom will receive a brief intervention, treatment services, or referral to services.	30%	30%
b. Percent of those who are referred for additional behavioral health services that follow through on the referrals.	15%	15%
c. Percent of HIV prevention clients screened for trauma and receiving trauma-informed services as needed.	40%	80%

Strategy 2: Improve access to psychosocial support for people at highest risk of HIV

1-2-a Incorporate psychosocial support activities into group-level HIV prevention programs. Such activities include individual and group activities designed to promote or enhance social competency, support networks, or community engagement.

Responsible Parties: ICP Program, funded HIV prevention contractors.

Timeline: Q1 2017 - Q4 2021

1-2-b Identify, compile, and promote health-promoting psychosocial support opportunities for clients of HIV prevention programs. Such activities include opportunities to meet, interact with, and gain support from people in a variety of settings, including faith communities, social action groups, groups focusing on topics of common interest (athletics, arts, etc.), and general mental health and recovery-oriented support groups.

Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, Capacity Building Unit

Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.2 - Targets for HIV Negative Clients, Psychosocial Support

	Year 1 Target	Year 4 Target
a. Percent of group-level HIV prevention programs that include psychosocial support activities	40%	100%
b. Percent of funded HIV prevention programs that publicize health-promoting psychosocial support opportunities	100%	100%

Strategy 3: Provide comprehensive programs for HIV negative people who inject drugs

Activities/Interventions

- 1-3-a Facilitate access to biomedical equipment and supplies that reduce the harm associated with drug injection, including syringes, needles, wound care, overdose prevention medications (naloxone), PrEP, and materials used to prepare and share injectable drugs.
Responsible Parties: ICP Program, funded HIV prevention contractors.
Timeline: Q1 2017 - Q4 2021

- 1-3-b Provide or refer clients to services that manage or lessen injection drug use, including treatment readiness, navigation of treatment options, medication assisted therapy, support for sustained changes, and managing fluctuating use over the long term. Consistent with an overall harm reduction approach, client readiness and preferences are key to the success of all such services.
Responsible Parties: ICP Program, funded HIV prevention contractors
Timeline: Q1 2017 - Q4 2021

- 1-3-c Provide or refer clients to health care enrollment and navigation services which include coverage for highest priority client concerns, including high quality drug treatment, wound care, overdose prevention, costs of pre-exposure prophylaxis, and treatment-related case management.
Responsible Parties: ICP Program, funded HIV prevention contractors
Timeline: Q1 2017 - Q4 2021

- 1-3-d Provide or refer clients to psychosocial support or crisis management services tailored to the needs of PWID. Such services include transportation, emergency financial, housing, and employment assistance.
Responsible Parties: ICP Program, funded HIV prevention contractors
Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.3 - Targets for HIV Negative Clients, Comprehensive Injector Health

Number of syringe support program sites in Colorado	
In the Denver TGA	4
In the rest of Colorado	4
Percent of SSP clients that are screened regarding readiness to manage or reduce injection use	90%
Percent of SSP clients screened that receive one or more additional services based on the screening of readiness to manage or reduce injection use	50%
Percent of SSP clients that receive health care navigation or enrollment services	20%
Percent of SSP clients that receive psychosocial support or crisis management services	20%

NHAS Goal 2: Increase access to care and improve health outcomes for people living with HIV.

Objective: Address behavioral health and psychosocial support issues that drive problems with adherence and retention.

Strategy 1: Provide screening and referral for behavioral health issues in the context of HIV care, including case management, outpatient ambulatory care, early intervention, and oral health.

Activities/Interventions

2-1-a Integrate screening, brief intervention and referral to treatment (SBIRT) for substance use into all CDPHE-funded HIV care programs.⁸¹ Referrals will include assistance utilizing the behavioral health benefit that is included in Medicaid, Medicare, and other health coverage.

Responsible Parties: ICP Program, clinics funded by CDPHE to provide HIV care, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

2-1-b Integrate screening and referral for depression-related services into all CDPHE-funded HIV care programs. Referrals will include assistance utilizing the behavioral health benefit that is included in Medicaid, Medicare, and other health coverage.

Responsible Parties: : ICP Program, clinics funded by CDPHE to provide HIV care, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

2-1-c Promote a trauma-informed care approach among contractors and others who provide care services for PLWH. This will include evidence-based screening for trauma and intimate partner violence and will be supported by provider training, standards of care, and other strategies to promote this approach.

Responsible Parties: ICP Program, clinics funded by CDPHE to provide HIV care, Capacity Building Unit.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.4 - Targets for PLWHA, Behavioral Health Screening and Referral

	Year 1 Target	Year 4 Target
a. Percent of HIV care clients screened for substance use, depression, and trauma	90%	90%
b. Percent of those who are screened who show need for further services, all of whom will receive a brief intervention, treatment services, or referral to services.	30%	30%
b. Percent of those who are referred for additional behavioral health services that follow through on the referrals.	15%	15%
c. Percent of HIV care clients screened for trauma and receiving trauma-informed services as needed.	40%	80%

⁸¹ Other than services for PWID; see Strategy 3, below.

Strategy 2: Promote access to a variety of substance use, mental health, and psychosocial support services tailored to meet the needs of PLWHA

Activities/Interventions

2-2-a Provide wrap around financial assistance for PLWHA who have a behavioral health benefit available through third party payers. Provide navigation and enrollment services for clients to access services that meet assessed needs.

Responsible Parties: ICP Program, funded contractors, other community partners

Timeline: Q1 2017 - Q4 2021

2-2-b For PLWHA who lack adequate coverage, fund substance use, mental health, and psychosocial support services. Ensure such services are consistent with the standards of care for PLWHA.

Responsible Parties: ICP Program, funded contractors, other community partners

Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.5 - Targets for PLWHA, Behavioral Health Services

	Denver TGA Baseline	Rest of Colorado Baseline	Target
Of clients accessing HRSA-subsidized services, percentage that show evidence of substance use treatment ⁸²	24.7%	14.0%	25%
Of clients accessing HRSA-subsidized services, percentage that show evidence of mental health services ⁸³	30.9%	32.1%	40%
Of clients accessing HRSA-subsidized services, percentage that show evidence of psychosocial support services ⁸⁴	22.8%	5.7%	25%

Strategy 3: Promote access to comprehensive services for injectors who are living with HIV or AIDS

Activities/Interventions

2-3-a Ensure that the SSP and associated services described in Goal 1, Strategy 3 are accessibly by PLWHA and include screening for HIV care-related needs.

Responsible Parties: ICP Program, funded contractors, other community partners

Timeline: Q1 2017 - Q4 2021

2-3-b Using CDPHE surveillance data, assess health outcomes of PLWHA with a history of injection drug use as compared to other PLWHA among funded providers of HIV care

⁸² Baselines are based on the PLWHA 2015 survey, summing those who accessed services as well as those who needed but could not access service. Includes both residential and outpatient treatment.

⁸³ Baselines are based on the PLWHA 2015 survey, summing those who accessed services as well as those who needed but could not access services.

⁸⁴ Baselines are based on the PLWHA 2015 survey, summing those who accessed services as well as those who needed but could not access services.

services. Where disparities exist, provide capacity building and other motivation to improve such outcomes.

Responsible Parties: Surveillance Program, ICP Program, funded contractors, other community partners

Timeline: Q1 2017 - Q4 2021

Target populations

Table 7.6 - Targets for PWID Living with HIV or AIDS, Percent of Clients Showing Evidence of Continuous HIV Care in the Previous 12 Months⁸⁵

MEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	64%	66%	81%
MSM/PWID	73%	52%	81%

WOMEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	74%	59%	81%

Table 7.7 - Targets for PWID living with HIV or AIDS, Percent of Clients Showing Viral Suppression at their Last Measurement⁸⁶

MEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	56%	55%	73%
MSM/PWID	62%	45%	73%

WOMEN	Denver TGA Baseline	Rest of Colorado Baseline	Target
PWID	68%	47%	73%

⁸⁵ Baselines are based on data reported to CDPHE through 12/31/15.

⁸⁶ Baselines are based on data reported to CDPHE through 12/31/15.

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: Ensure that behavioral health services are tailored to needs of communities disproportionately affected by HIV, particularly African Americans, Latinos, and gay men (both youth and adults).

Strategy 1: Address cultural and linguistic barriers to behavioral healthcare.

Activities/Interventions

3-1-a Identify culturally proficient behavioral health providers that accept Medicaid, Medicare, and other forms of third party payment. Utilize this data to provide better referrals for culturally diverse clients.

Responsible Parties: Capacity Building Unit, Surveillance Program.

Timeline: Q1 2017 - Q4 2021

3-1-b Ensure that agencies funded to provide behavioral health services demonstrate cultural and linguistic proficiency, as evidenced by adherence to CLAS standards.

Responsible Parties: ICP Program, funded contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Strategy 2: Ensure that youth, African Americans, and Latinos have access to comprehensive programs for PWID.

Activities/Interventions

3-2-a Analyze client demographic data of clients access SSPs across Colorado. Where client demographics do not match area HIV epidemiology in terms of race and ethnicity, offer capacity building and other motivations to improve accessibility.

Responsible Parties: ICP Program, Evaluation Unit, funded contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Resources

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Rebate	Tobacco MSA	Health Coverage
Goal 1							
1-1-a Integrate SBIRT into HIV prevention services	X	X			X	X	
1-1-b Integrate depression screening and referral into HIV prevention services	X	X			X	X	
1-1-c Promote a trauma-informed care approach in HIV prevention	X	X			X	X	
1-2-a Incorporate psychosocial support into group-level HIV prevention	X	X			X	X	
1-2-b Identify, compile, and promote psychosocial support opportunities	X	X			X	X	
1-3-a Facilitate access to biomedical equipment and supplies for PWID	X				X	X	
1-3-b Provide or refer PWID to services that manage or lessen injection drug use	X	X			X	X	X
1-3-c Provide or refer PWID to health care enrollment and navigation services	X	X			X	X	
1-3-d Provide or refer clients to psychosocial support or crisis management services	X	X			X	X	
Goal 2							
2-1-a Integrate SBIRT into CDPHE-funded HIV care services	X			X	X	X	X
2-1-b Integrate screening and referral for depression into all CDPHE-funded HIV care	X			X	X	X	X
2-1-c Promote a trauma-informed care approach in HIV care	X			X	X	X	
2-2-a Provide wrap around financial assistance for PLWHA who have a behavioral health benefit	X			X	X	X	X
2-2-b For PLWHA who lack adequate coverage, fund behavioral health and psychosocial support services	X			X	X	X	
2-3-a Ensure that the SSP and associated services are accessibly by PLWHA	X			X	X	X	
2-3-b Assess health outcomes of PWID living with HIV or AIDS, provide capacity building and other motivation to improve such outcomes	X			X	X	X	

Goal/Activity	CHAPP	CDC 1201	CDC 1506	HRSA	Rebate	Tobacco MSA	Health Coverage
Goal 3							
3-1-a Identify and refer to culturally proficient behavioral health providers	X			X	X	X	X
3-1-b Ensure that agencies funded to provide behavioral health services demonstrate cultural and linguistic proficiency		X		X	X	X	
3-2-a Provide capacity building and other motivations to promote accessibility of SSP by all, regardless of race or ethnicity		X		X	X	X	

Metrics needed to monitor the progress of HIV testing

NHAS Goal 1

Metric 1.1 Number of clients screened and referred to additional services overall

NHAS Goal 2

Metric 2.1 Percentage of patients diagnosed with HIV, regardless of age, with at least 2 lab results over 90 days apart during the measurement year (CDC Care Cascade measure).

Metric 2.2 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year. (HAB Core Measure and NHAS).

Metric 2.3 Percentage of clients who were homeless or unstably housed in the 12-month measurement period.

NHAS Goal 3

Metric 3.1 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year, stratified by race and ethnicity (HAB Core Measure and NHAS).

Challenges or barriers related to behavioral health and psychosocial support

PLWHA experience disproportionately high rates of psychiatric disorders, with mood and anxiety disorders being the most common. In a nationally representative US sample of individuals receiving care for HIV infection, 48 percent screened positive for one or more psychiatric disorders in the past year (36% major depression, 27% dysthymia, 16% generalized anxiety, and 11% panic)—rates far higher than those in the general US population. In a meta-analysis, HIV-infected adults were twice as likely to have major depressive disorder compared to HIV-negative adults. Other clinic based studies have found similarly high rates of both lifetime and current mood and anxiety disorders and symptoms among PLWHA. Although the rates of posttraumatic stress and bipolar disorders among PLWHA have not been systematically assessed in large cohort studies, evidence suggests that rates of these disorders are also elevated relative to the general population.⁸⁷

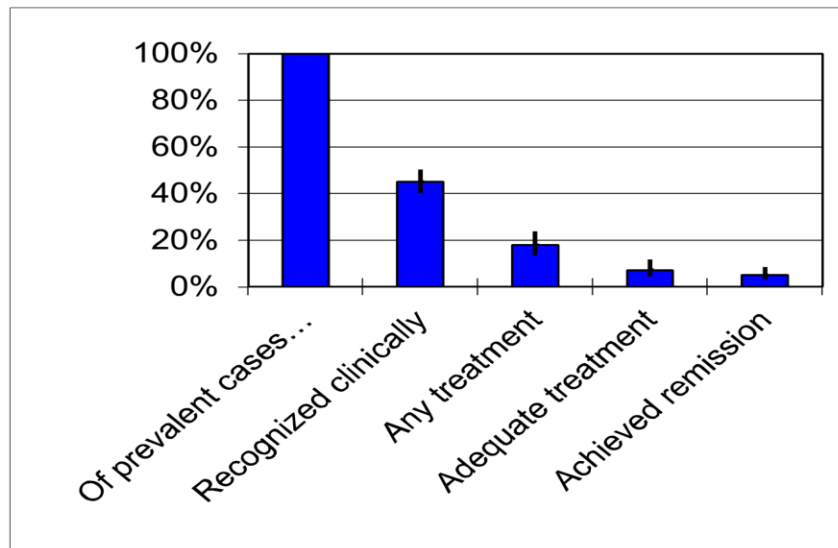
As previously noted, Colorado data shows that PWID experience some of the lowest rates of retention in medical care and achievement of viral suppression. This problem is not isolated to Colorado. Recently, researchers studied the clinical outcomes of patients infected with HIV through injection drug use as compared to those infected sexually and found that PWID had higher risk of late diagnosis, delayed ART initiation, risk of progression to AIDS, and higher mortality rates. Virologic suppression due to ART was lower in PWID only among patients without hepatitis C virus (HCV) infection; among PWID with HCV infection, rates of viral suppression due to ART were not significantly different from people infected with HIV sexually, and there were no significant differences in immunological response after adjusting by HCV. The researchers also found that the proportion of deaths due to non-AIDS related causes was significantly higher in PWID living with HIV: this was due largely to liver-related mortality, which is not surprising considering the high prevalence of HCV co-infection in these patients. Liver diseases were responsible for almost a quarter of deaths among PWID living with HIV, a proportion which was much higher than deaths due to external causes or drug effects. However, HCV does not fully explain the higher risk of death and progression to AIDS, as these risks were still significantly higher in PWID after adjusting for HCV infection. The researchers noted, “PWID frequently face a number of social problems, including unemployment, low educational level, previous or present imprisonment, economic difficulties, lack of social and family support and associated psychiatric comorbidities. All these factors could impair access to health services and cause a delay in HIV diagnosis and treatment initiation and lower adherence to treatment . . . This study shows that although the proportion of HIVIDU among all HIV-infected patients is declining, they merit special attention due to late presentation, late initiation of treatment and higher mortality and risk of AIDS.”⁸⁸

⁸⁷ Sikkema KJ, W. M., Drabkin AS, Meade CS, Hansen NB, Pence BW. (2010). "Mental Health Treatment to Reduce HIV Transmission Risk Behavior: A Positive Prevention Model." *AIDS Behav.* 2010 Apr;14(2):: 252-262

⁸⁸ Suárez-García I, Sobrino-Vegas P, Dalmau D, Rubio R, Iribarren JA, Blanco JR, Gutierrez F, Alonso MM, Bernal E, García DV, del Amo J., et al. Clinical outcomes of patients infected with HIV through use of injected drugs compared to patients infected through sexual transmission. *Addiction*, 2016, Vol 111, 1235–1245.

Unfortunately, research suggests that many PLWHA are not receiving adequate behavioral health care. Regarding depression, one researcher noted, “The response to depression in HIV patients suffers from its own ‘treatment cascade.’ Depression in HIV patients, while highly prevalent, is widely unrecognized. When clinically recognized, the condition often goes untreated. When treated, providers’ adherence to best-practices guidelines about dosing, duration, and monitoring of antidepressants is low, meaning that many patients fail to receive an adequate treatment course and therefore fail to benefit from treatment.”⁸⁹ This researcher developed a Depression Treatment Cascade for HIV Patients, with only 5 percent of HIV patients achieving remission from depression, as shown in Figure 7.1.

Figure 7.1 - Depression Treatment Cascade for HIV Patients



Regarding alcohol and substance use, about 8 percent of PLWHA responding to the national HIV Costs and Services Utilization Survey (HCSUS) reported that they drank heavily, about twice the rate in the general population. Heavy drinking was associated with lower education level and with use of cocaine and/or heroin; however, it was less common among those with more-advanced disease. Men who described themselves as gay or bisexual were more likely to drink and were likely to drink more heavily than any other group. Nearly two-fifths of the HCSUS participants reported using an illicit drug other than marijuana, and more than 1 in 8 screened positive for drug dependence. Those whose survey responses suggested drug dependence tended to be under 35 and heterosexual, live alone or with someone other than a spouse, have many HIV-related symptoms, and often drink heavily. Eight percent of women were drug-dependent or heavy drinkers. Overall, MSM were more likely to use drugs than were other groups, although they were less likely to be drug-dependent.⁹⁰ The results of the 2014 American Men’s Internet Survey showed even higher levels of substance use; 17.6

⁸⁹ Brian W. Pence, PhD, MPH1, Julie K. O’Donnell, MPH2, and Bradley N. Gaynes. Falling through the cracks: The gaps between depression prevalence, diagnosis, treatment, and response in HIV care. (2012) AIDS. 26(5): 656–658. doi:10.1097/QAD.0b013e3283519aae

⁹⁰ Rand Corporation (2007). “Mental Health and Substance Abuse Issues Among People with HIV: Lessons from HCSUS.” Available at http://www.rand.org/content/dam/rand/pubs/research_briefs/2007/RAND_RB9300.pdf

percent of HIV negative respondents and 27.3 percent of HIV positive respondents reported using illegal substances (not including marijuana).⁹¹

A 2014 meta-analysis involving 207 studies and 103,836 patients⁹² quantified the extent to which behavioral health and psychosocial support factors are associated with PLWHA adherence to ART. Four factors were found to be strongly associated with adherence or non-adherence:

1. Current substance use (SMD⁹³ = -0.395, P = 0.001),
2. Depressive symptoms (SMD = -0.305, P = 0.001),
3. Stigma about HIV (SMD = -0.282, P = 0.001), and
4. Social support (SMD = 0.237, P = 0.001).

A separate study explored the protective and mediating effect of social support:

Social support was a key protective factor. This study examined three types of support. After adjusting for other factors, emotional support or having someone to talk to (measured as appraisal support) was significantly associated with lower levels of depression and stress, while having material support (tangible) and people to do things with (belonging) were not. Emotional support was also found to buffer the impact of HIV-related discrimination on depressive symptoms. For anxiety, perceived access to emotional support as well as material support appeared to be important. We also examined different sources of support. In adjusted multivariable analyses, these sources (relationship partner, friends, family, or agencies) were found to be less important than the type of support. Access to social support has previously been shown to be instrumental in HIV health-related outcomes. This study suggests receiving support from any source, especially emotional support, appears to be particularly important. Negotiating disclosure of HIV status, stigma, and unemployment are all potential barriers to accessing social support.⁹⁴

Several studies have examined the important role of self-efficacy in medication adherence. Findings indicated that 25 percent of variance in medication adherence can be explained by a mediation model where depression and provider-patient communication affect medication self-efficacy, which in turn impacts medication adherence.⁹⁵

⁹¹ Sanchez T, Zlotorzynska M, Sineath C, Kahle E, Sullivan P. The Annual American Men's Internet Survey of Behaviors of Men Who have Sex with Men in the United States: 2014 Key Indicators Report, *JMIR Public Health Surveill* 2016;2(1):e23, DOI: 10.2196/publichealth.5476 PMID: 27244770

⁹² Langebeek, N, Gisolf, E, Reiss, P, Vervoort, S, Hafsteinsdóttir, T, Richter, C, Sprangers, M, and Nieuwkerk, P. Predictors and correlates of adherence to combination antiretroviral therapy (ART) for chronic HIV infection: a meta-analysis. (2014), 12:142, *BMC Medicine*, <http://www.biomedcentral.com/1741-7015/12/142>

⁹³ SMD = standardized mean difference, a measurement of effect size.

⁹⁴ Heywood, W and Lyons, A. HIV and Elevated Mental Health Problems: Diagnostic, Treatment, and Risk Patterns for Symptoms of Depression, Anxiety, and Stress in a National Community-Based Cohort of Gay Men Living with HIV. (2016). *AIDS Behav.* DOI 10.1007/s10461-016-1324-y

⁹⁵ Ashley Archiopoli, Tamar Ginossar, Bryan Wilcox, Magdalena Avila, Ricky Hill & John Oetzel (2016): Factors of interpersonal communication and behavioral health on medication self-efficacy and medication adherence, *AIDS Care*, DOI: 10.1080/09540121.2016.1192577

Mental health and substance use issues are also highly associated with HIV risk. According to a 2010 study, HIV positive patients with co-morbid psychiatric and substance disorders reported multiple sex partners most frequently, while substance dependence contributed to irregular condom use and PWID. Analysis by substance use subgroup (no dependence, alcohol dependence only, drug dependence only, co-morbid alcohol, and drug dependence) showed that alcohol dependence contributed to having multiple sex partners, while alcohol and drug dependence both contributed to irregular condom use.⁹⁶ Another study found that HIV risk among MSM increases with both frequency of substance use and the numbers of substances used. For methamphetamine and cocaine, weekly users had higher odds of unprotected anal sex with HIV-positive or unknown status partners (SDUAI) than episodic users, who were in turn at higher risk than non-users. Similarly, the odds of SDUAI increased across categories of the number of substances reported. For poppers, weekly and episodic use were similar, but both carried higher risk than non-use. Finally, heavy alcohol users were more likely to report SDUAI than the moderate users.⁹⁷ In terms of more severe mental illness, a 2014 study showed that patients with Borderline Personality Disorder were more likely to have multiple sexual partners and to use condoms irregularly. Trends for multiple sex partners also were observed among patients with antisocial and depressive personality traits/disorders. Antisocial patients also were more likely to be current PWID.⁹⁸

There is increasing recognition of the association of sexual risk behaviors with a syndemic, or a mutually reinforcing set of conditions, including childhood sexual abuse (CSA), depression, substance use, violence, and financial hardship. This is particularly true for women. A 2016 study analyzed baseline data from a cohort of women with and at-risk for HIV (N = 620; 52 percent HIV+) using Poisson regression to assess evidence for additive, independent and interactive effects among syndemic conditions in relation to reported sexual risk behaviors (e.g., unprotected and transactional sex) over the past 6 months, controlling for age and HIV status. The number of syndemic conditions was incrementally associated with more sexual risk behaviors. For example, women with all five syndemic conditions reported 72 percent more engagement in risk behaviors over 6 months, as compared to women without any syndemic conditions. Compared to women with no syndemic conditions, women with three syndemic conditions reported 34 percent more and women with one syndemic condition reported 13 percent more engagement in risk behaviors. Using substances in the past 6 months, reporting CSA, and experiencing violence as an adult were independently associated with 49 percent, 12 percent, and 8 percent more engagement in risk behaviors, respectively compared to women without these conditions. Using substances and experiencing violence

⁹⁶ Newville, H. and D. L. Haller (2010). "Psychopathology and transmission risk behaviors in patients with HIV/AIDS." *AIDS Care* 22(10): 1259-1268.

⁹⁷Santos GM, Coffin PO, Das M, Matheson T, DeMicco E, Raiford JL, Vittinghoff E, Dille JW, Colfax G, Herbst JH. (2013). "Dose-response associations between number and frequency of substance use and high-risk sexual behaviors among HIV-negative substance-using men who have sex with men (SUMSM) in San Francisco." *J Acquir Immune Defic Syndr.* 2013 Aug 1;63(4):540-4. doi:10.1097/QAI.0b013e318293f10b.

⁹⁸ Newville, H. and D. L. Haller (2012). "Relationship of axis II pathology to sex- and drug-related risk behaviors among patients in HIV primary care." *AIDS Care* 24(6): 763-768

was associated with 27 percent more engagement in risk behaviors. These associations were not moderated by HIV status.⁹⁹

Recent studies of HIV prevention interventions have presented that HIV-related risk behaviors are influenced by both individual level factors and socio-cultural level factors. Since the 1990s, the relationship between social support and HIV-related risk behaviors has been drawing increased attention in both research and practice fields. To date, this relationship has been examined in diverse populations including PLWHA, drug users, men who have sex with men, and female sexual workers (FSWs). Findings of existing studies have suggested that higher level of social support (either general or HIV-specific) might be generally related to fewer HIV related risk behaviors among FSWs, PLWHA and heterosexual adults. However, results about relationships between social support and HIV-related risk behaviors varied across populations and they were inconsistent within drug users, MSM, and adolescents. The complicated and mixed findings may result from the complexity of social support as a concept with multiple dimensions. Another possible reason for the mixed findings may be that the effect of social support is context dependent.¹⁰⁰

Trauma is increasingly recognized as an important factor in increasing prevalence of HIV and poor health outcomes of PLWHA, and it affects both men and women. Meta-analysis in two studies (2012) demonstrated highly disproportionate rates of trauma exposure and post-traumatic stress disorder (PTSD) in HIV-positive women. Thirty percent of American women with HIV/AIDS suffer PTSD (five times national rate) and 55.3 percent of women with HIV/AIDS suffer intimate partner violence (twice the national rate).¹⁰¹ The work also demonstrated the personal and public health consequences of trauma in women living with HIV: women with HIV who report recent trauma are over four times more likely to fail their HIV treatment and almost four times more likely to engage in risky sexual behavior.¹⁰² This contributes to the epidemic as women are an increasing proportion of new cases and for these women, their virus is not suppressed. The authors also believe that, for some women, substance abuse and depression are closely related to trauma and that all may contribute to the poor outcomes seen in the study. The Coping with HIV/AIDS in the Southeast (CHASE) Study found that among 490 HIV-positive women and men from five rural Southern states, patients with more categories of lifetime trauma had almost twice the all-cause death rate as those below the median levels of trauma, and trauma was also associated with faster development of an opportunistic infection or AIDS-related death.¹⁰³ Efforts to treat substance

⁹⁹ W Batchelder, A, Lounsbury DW, Palma A, Carrico A, Pachankis J, Schoenbaum E, Gonzalez JS. Importance of substance use and violence in psychosocial syndemics among women with and at-risk for HIV. *AIDS Care*. (2016) Apr 25:1-5.

¹⁰⁰ Qiao, S., X. Li, et al. (2014). "Social support and HIV-related risk behaviors: a systematic review of the global literature." *AIDS Behav* 18(2): 419-441.

¹⁰¹ Machtinger EL, Wilson TC, Haberer JE, and Weiss DS (2012). "Psychological Trauma and PTSD in HIV- Positive Women: A Meta-Analysis". *AIDS Behav* (17 Jan 2012) 16:2091-2100.

¹⁰² Machtinger EL, Haberer JE, Wilson TC, and Weiss, DS (2012). "Recent Trauma is Associated with Antiretroviral Failure and HIV Transmission Risk Behavior among HIV-positive Women and Female-identified Transgenders". *AIDS Behav* (17 Mar 2012) 16:2160 - 2170.

¹⁰³ Leserman J. Role of depression, stress, and trauma in HIV disease progression. *Psychosomatic Medicine*. 2008;70(5):539-45. Epub 2008/06/04. doi: 10.1097/PSY.0b013e3181777a5f. PubMed PMID: 18519880.

abuse and depression may be more effective if such counseling acknowledges that ongoing trauma may be contributing to both conditions.

For communities of color, there is a serious disparity that exists around behavioral health services. Specifically, there is a lack of providers that are adequate to the culturally-based content that should be addressed in such services. In addition, there are linguistic issues that are evident for all clients who need services in any language other than English. However, the needs are still severe. A 2016 study of black MSM who use online venues to meet sexual partners found extremely high self-reported sex/party drug use (30.6 percent), alcohol use before or during sex (76.3 percent), and drug use before or during sex (45.3 percent) among HIV negative respondents.¹⁰⁴

Transgender clients may be experiencing disproportionate levels of mental health, substance use, and psychosocial support challenges, with associated impact on HIV risk and HIV care outcomes. A 2016 study of community-recruited transgender women found 41.5 percent of participants had 1 or more mental health or substance dependence diagnoses; 1 in 5 (20.1 percent) had 2 or more comorbid psychiatric diagnoses. Prevalence of specific disorders was as follows: lifetime and current major depressive episode, 35.4 percent and 14.7 percent, respectively; suicidality, 20.2 percent; generalized anxiety disorder, 7.9 percent; posttraumatic stress disorder, 9.8 percent; alcohol dependence, 11.2 percent; and non-alcohol psychoactive substance use dependence, 15.2 percent.¹⁰⁵

A significant portion of PLWHA relies on Medicaid for their behavioral health care. Medicaid operates through a network of Behavioral Health Organizations, each of which has a defined network of providers. Clients have experienced serious difficulties navigating this BHO system and locating the services they need in a timely manner. In addition, Medicare has behavioral health coverage, but the coinsurance can be costly.

Leserman J, Whetten K, Lowe K, Stangl D, Swartz MS, Thielman NM. How trauma, recent stressful events, and PTSD affect functional health status and health utilization in HIV-infected patients in the south. *Psychosomatic Medicine*. 2005;67(3):500-7. Epub 2005/05/25. doi: 10.1097/01.psy.0000160459.78182.d9. PubMed PMID: 15911916.

¹⁰⁴ Lisa A. Eaton, PhD, Jessica L. Maksut, MA, Kristi E. Gamarel, PhD, Elizabeth J. Siembida, MA, Daniel D. Driffin, BS, and Robert Baldwin, BA. Online Sex Partner Meeting Venues as a Risk Factor for Testing HIV Positive Among a Community-Based Sample of Black Men Who Have Sex With Men. (2016). *Sexually Transmitted Diseases*. Volume 43, Number 6, pp. 360-364.

¹⁰⁵ Sari L. Reisner, ScD, Katie B. Biello, PhD, MPH, Jaclyn M. White Hughto, MPH, Lisa Kuhns, PhD, MPH, Kenneth H. Mayer, MD, Robert Garofalo, MD, MPH, and Matthew J. Mimiaga, ScD, MPH. Psychiatric Diagnoses and Comorbidities in a Diverse, Multicity Cohort of Young Transgender Women. *JAMA Pediatr*. 2016 May 1; 170(5): 481-486. doi:10.1001/jamapediatrics.2016.0067.

Data used to determine the goals and metrics

Several of the questions on the 2015-2016 PLWHA survey focused on mental health and substance use issues and services. Data from these survey questions are summarized on Tables 7.8 to 7.11.

Table 7.8 -- Summary of variables applying to respondent within past 12 months, by Geographic location (Q. 21)

Responses	Yes			No			Prefer not to Say			No Response			Total		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Drank more than meant to															
Denver TGA	97	14.3	71.9	499	73.5	73.7	12	1.8	75.0	71	10.5	75.5	679	100.0	73.6
Rest of Colorado	38	15.6	28.1	178	73.3	26.3	4	1.6	25.0	23	9.5	24.5	243	100.0	26.4
All	135	14.6	100.0	677	73.4	100.0	16	1.7	100.0	94	10.2	100.0	922	100.0	100.0
Felt should cut down on alcohol use															
Denver TGA	117	17.2	78.0	452	66.6	72.7	9	1.3	69.2	101	14.9	73.7	679	100.0	73.6
Rest of Colorado	33	13.6	22.0	170	70.0	27.3	4	1.6	30.8	36	14.8	26.3	243	100.0	26.4
All	150	16.3	100.0	622	67.5	100.0	13	1.4	100.0	137	14.9	100.0	922	100.0	100.0
Used drugs more than meant to															
Denver TGA	67	9.9	87.0	498	73.3	71.7	14	2.1	70.0	100	14.7	76.9	679	100.0	73.6
Rest of Colorado	10	4.1	13.0	197	81.1	28.3	6	2.5	30.0	30	12.3	23.1	243	100.0	26.4
All	77	8.4	100.0	695	75.4	100.0	20	2.2	100.0	130	14.1	100.0	922	100.0	100.0
Felt should cut down on drug use															
Denver TGA	76	11.2	89.4	465	68.5	71.8	14	2.1	66.7	124	18.3	73.8	679	100.0	73.6
Rest of Colorado	9	3.7	10.6	183	75.3	28.2	7	2.9	33.3	44	18.1	26.2	243	100.0	26.4
All	85	9.2	100.0	648	70.3	100.0	21	2.3	100.0	168	18.2	100.0	922	100.0	100.0

Table 7.9 -- Summary of variables respondent felt and wanted help within past 12 months,

by Geographic location

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Experience	Anger	127	73.8	7.3	45	26.2	7.1	172	100.0	7.2
	Anxiety or worry	293	76.1	16.8	92	23.9	14.5	385	100.0	16.2
	Fear of leaving home	90	78.9	5.2	24	21.1	3.8	114	100.0	4.8
	Feeling manic or out of control	66	68.0	3.8	31	32.0	4.9	97	100.0	4.1
	Hallucinations	28	73.7	1.6	10	26.3	1.6	38	100.0	1.6
	Night terrors	58	69.9	3.3	25	30.1	3.9	83	100.0	3.5
	Insomnia	197	75.2	11.3	65	24.8	10.2	262	100.0	11.0
	Memory Loss	122	71.3	7.0	49	28.7	7.7	171	100.0	7.2
	Panic attacks	114	69.5	6.5	50	30.5	7.9	164	100.0	6.9
	PTSD or trauma	76	70.4	4.4	32	29.6	5.0	108	100.0	4.5
	Sadness	259	72.3	14.8	99	27.7	15.6	358	100.0	15.0
	Thoughts or hurting yourself or others	59	77.6	3.4	17	22.4	2.7	76	100.0	3.2
	None of the Above	201	70.5	11.5	84	29.5	13.2	285	100.0	12.0
	Prefer not to answer	9	64.3	0.5	5	35.7	0.8	14	100.0	0.6
	Other*	46	85.2	2.6	8	14.8	1.3	54	100.0	2.3
Total	1745	73.3	100.0	636	26.7	100.0	2381	100.0	100.0	

*"Other" includes the following with n=1 unless otherwise noted; aches and pains, fear of homelessness, aphasia, depression (n=3), fatigue (n=2), confusion (n=2), weight loss (n=2), loss of libido, fear of being on medications forever, loss of inspiration, migraines, overwhelmed, peripheral neuropathy, fear of death, social anxiety, loneliness.

Table 7.10 -- Summary of variables respondent experienced past 12 months, by Geographic location

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Experience	Treated Differently because HIV+	67	72.8	10.0	25	27.2	10.0	92	100.0	10.0
	Denied Services because HIV+	16	72.7	2.4	6	27.3	2.4	22	100.0	2.4
	Asked to Leave public space	8	53.3	1.2	7	46.7	2.8	15	100.0	1.6
	Verbal Harassment/taunts	48	68.6	7.2	22	31.4	8.8	70	100.0	7.6
	Threats of violence	28	73.7	4.2	10	26.3	4.0	38	100.0	4.1
	Physical Assault	16	61.5	2.4	10	38.5	4.0	26	100.0	2.8
	Sexual Assault	11	64.7	1.6	6	35.3	2.4	17	100.0	1.8
	None of the above	450	74.9	67.3	151	25.1	60.2	601	100.0	65.3
	Prefer Not to answer	23	63.9	3.4	13	36.1	5.2	36	100.0	3.9
	Other*	2	66.7	0.3	1	33.3	0.4	3	100.0	0.3
	Total	669	72.7	100.0	251	27.3	100.0	920	100.0	100.0

*"Other" includes the following; housing, job harassment, fired from job, domestic violence, taken advantage of

Table 7.11 - Summary of Behavioral Health and Psychosocial Question

Client Responses	Didn't know was available			Didn't need			Needed but could not get			Needed and able to use			Total Clients with a Response			No Response			Total		
	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Mental Health Services																					
Denver TGA	78	11.5	79.6	347	51.1	71.8	36	5.3	75.0	174	25.6	72.5	635	93.5	73.1	44	6.5	83.0	679	100.0	73.6
Rest of Colorado	20	8.2	20.4	136	56.0	28.2	12	4.9	25.0	66	27.2	27.5	234	96.3	26.9	9	3.7	17.0	243	100.0	26.4
All	98	10.6	100.0	483	52.4	100.0	48	5.2	100.0	240	26.0	100.0	869	94.3	100.0	53	5.7	100.0	922	100.0	100.0
Oral Health Care																					
Denver TGA	117	17.2	78.5	145	21.4	69.4	81	11.9	73.0	295	43.4	74.1	638	94.0	73.6	41	6.0	74.5	679	100.0	73.6
Rest of Colorado	32	13.2	21.5	64	26.3	30.6	30	12.3	27.0	103	42.4	25.9	229	94.2	26.4	14	5.8	25.5	243	100.0	26.4
All	149	16.2	100.0	209	22.7	100.0	111	12.0	100.0	398	43.2	100.0	867	94.0	100.0	55	6.0	100.0	922	100.0	100.0
Substance Abuse In patient																					
Denver TGA	58	8.5	84.1	495	72.9	70.3	24	3.5	88.9	52	7.7	81.3	629	92.6	72.8	50	7.4	86.2	679	100.0	73.6
Rest of Colorado	11	4.5	15.9	209	86.0	29.7	3	1.2	11.1	12	4.9	18.8	235	96.7	27.2	8	3.3	13.8	243	100.0	26.4
All	69	7.5	100.0	704	76.4	100.0	27	2.9	100.0	64	6.9	100.0	864	93.7	100.0	58	6.3	100.0	922	100.0	100.0
Substance Abuse Out Patient																					
Denver TGA	46	6.8	82.1	487	71.7	70.2	18	2.7	90.0	74	10.9	81.3	625	92.0	72.6	54	8.0	88.5	679	100.0	73.6
Rest of Colorado	10	4.1	17.9	207	85.2	29.8	2	0.8	10.0	17	7.0	18.7	236	97.1	27.4	7	2.9	11.5	243	100.0	26.4
All	56	6.1	100.0	694	75.3	100.0	20	2.2	100.0	91	9.9	100.0	861	93.4	100.0	61	6.6	100.0	922	100.0	100.0
Psycho-social Support																					
Denver TGA	94	13.8	81.7	374	55.1	69.1	36	5.3	76.6	119	17.5	81.0	623	91.8	73.3	56	8.2	77.8	679	100.0	73.6
Rest of Colorado	21	8.6	18.3	167	68.7	30.9	11	4.5	23.4	28	11.5	19.0	227	93.4	26.7	16	6.6	22.2	243	100.0	26.4
All	115	12.5	100.0	541	58.7	100.0	47	5.1	100.0	147	15.9	100.0	850	92.2	100.0	72	7.8	100.0	922	100.0	100.0

In addition, CDPHE staff and community partners conducted a survey of PWID. By June 2016, 421 responses had been received, over 84 percent of which were from active PWID. The survey showed needs for a wide variety of services as shown in Figure 7.2 and Table 7.12.

Figure 7.2 – Summary of the Results of the 2016 PWID Survey

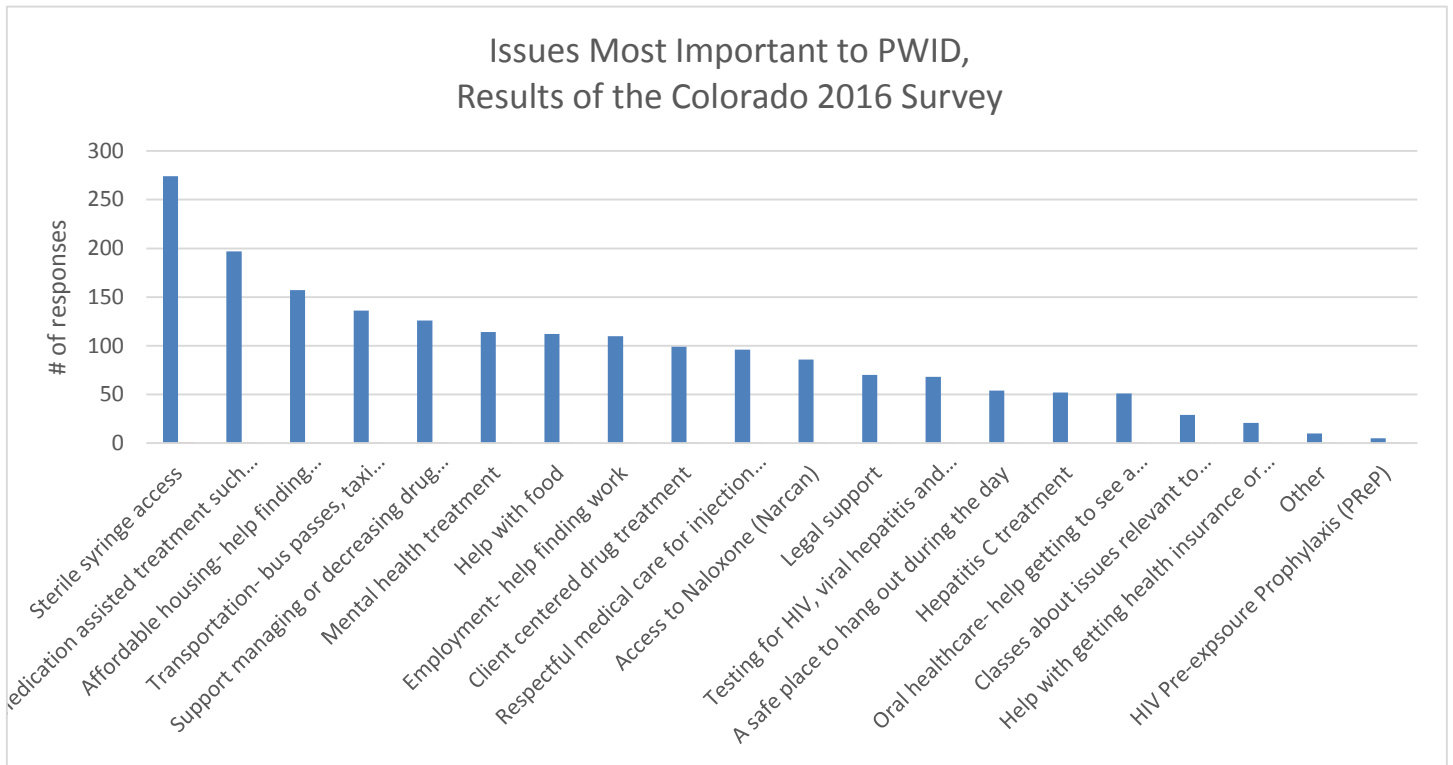
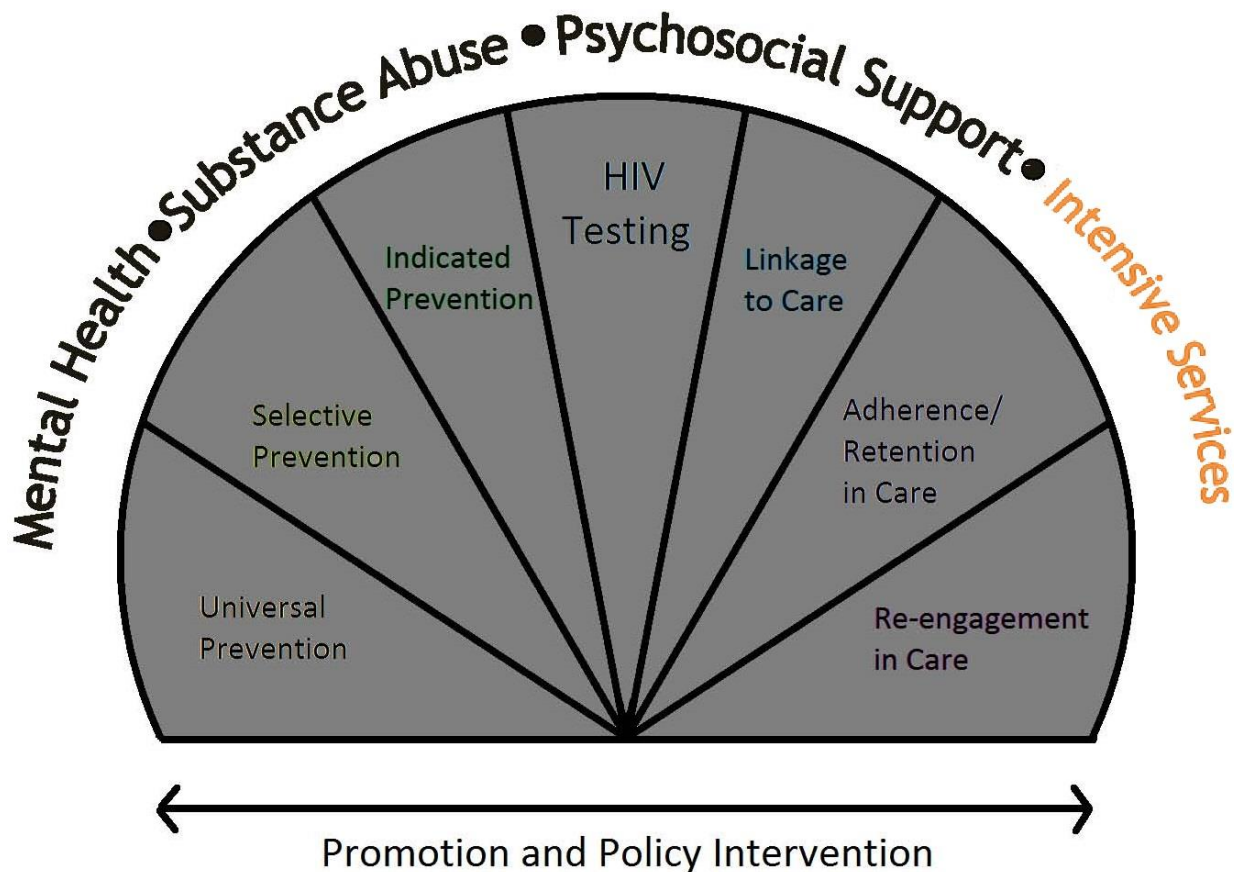


Table 7.12 - Services Needed By PWID, 2016 Colorado PWID Survey, in Descending Order of Frequency Mentioned by Respondents

	Number of responses	%
Sterile syringe access	274	69.2%
Medication assisted treatment such as methadone, suboxone, naltrexone	197	49.7%
Affordable housing- help finding somewhere to live that I can afford	157	39.6%
Transportation- bus passes, taxi vouchers, bicycle etc.	136	34.3%
Support managing or decreasing drug use	126	31.8%
Mental health treatment	114	28.8%
Help with food	112	28.3%
Employment- help finding work	110	27.8%
Client centered drug treatment	99	25%
Respectful medical care for injection related issues like abscesses, cellulitis etc.	96	24.2%
Access to Naloxone (Narcan)	86	21.7%
Legal support	70	17.7%
Testing for HIV, viral hepatitis and sexually transmitted infections (STIs)	68	17.2%
A safe place to hang out during the day	54	13.6%
Hepatitis C treatment	52	13.1%
Oral healthcare- help getting to see a dentist	51	12.9%
Classes about issues relevant to people who inject drugs (HIV, viral hepatitis, how to manage use, etc.)	29	7.3%
Help with getting health insurance or Medicaid	21	5.3%
HIV Pre-Exposure Prophylaxis (PrEP)	5	1.3%

Chapter 8 - Intensive Services for People Experiencing Critical Events

Overview



As mentioned in previous chapters, there is a significant proportion of PLWHA who are experiencing relatively high levels of psychosocial stress that make it extremely challenging to access and remain in HIV care, ultimately achieving viral suppression. A similar statement can be made about people at high risk of HIV infection: extreme levels of psychosocial stress produce extreme challenges preventing HIV, including accessing and remaining adherent to biomedical approaches (such as PrEP and syringe access).

Colorado's social safety net cannot accommodate the full range of psychosocial needs, much less the needs of PLWHA and people at high HIV risk. It is very unlikely that Colorado's HIV programs will ever have enough resources to fully compensate for these overall deficiencies in safety net programs, even for all PLWHA. However, the STI/HIV/Viral Hepatitis Branch has prioritized the needs of a much smaller subset of persons for assistance, namely, *persons who are experiencing "critical life events" and who could benefit from short-term, intensive services, leading to self-sufficiency*. While this approach cannot satisfy the long term needs of all PLWHA or people at highest risk, it can be justified from a population health point of view. These are the clients that are most likely to become infected with HIV or to transmit HIV to others, so even a single such client moving to viral suppression or higher biomedical prevention adherence justifies a significant investment in resources.

In terms of PLWHA, the Colorado “critical events system” focuses on clients who meet at least one of 3 medical criteria:

- 1) Newly diagnosed in the past 365 days.
- 2) Pregnant
- 3) Medically vulnerable, as evidenced by
 - No evidence of care in the past 365 days
 - Most recent medical care was out-of-state
 - Most recent viral load level (less than 90 days ago) was over 100,000
 - Three or more occurrences of VL over 50,000 in the past 3 years
 - Most recent CD4 level (less than 90 days ago) was below 100
 - Diagnosed with another medical condition that poses significant risk of death or rapid deterioration of HIV condition without immediate intervention or assistance.

In addition, to be eligible, clients must have at least one additional criteria which involves economic or psychosocial factors known to be associated with poor health outcomes for PLWHA:

- 1) Homeless
- 2) Unemployed
- 3) Been diagnosed with 2 or more occurrences of gonorrhea, syphilis, or chlamydia
- 4) Worsening health status due to hepatitis C
- 5) Named by a person newly diagnosed as HIV infected as non-disclosing of their positive HIV status prior to sex and/or needle sharing
- 6) Potentially severe addiction or drug dependence, based on evidence-based screening.
- 7) Potentially severe mental illness, based on evidence-based screening.
- 8) Experienced intimate partner violence or sexual assault
- 9) Sex worker, engaged in survival sex, or a person who has been subjected to human trafficking

Colorado has a separate, similar system for people who are at highest risk of becoming infected with HIV. To be eligible for assistance such clients must show at least one high risk indicator in the past 365 days:

- 1) Sexual partner living with HIV or AIDS
- 2) Transgender
- 3) Received drugs/sex/something needed in exchange for sex
- 4) Used needles, syringes, or other drug preparation equipment that had already been used by another person
- 5) Has been in a methadone or other medication-based drug treatment program¹⁰⁶
- 6) Had condomless anal or vaginal sex with a PWID
- 7) If female, had condomless sex with an MSM
- 8) If MSM, was diagnosed with a sexually transmitted disease OR had more than one sexual partner with whom condoms not always used

¹⁰⁶ This factor is recommended by CDC due to the high risk of returning to needle sharing while enrolled in methadone maintenance. See <http://www.cdc.gov/hiv/pdf/PrEPguidelines2014.pdf>

In addition, eligible clients must demonstrate at least one of the following psychosocial situations or stressors that are known to be associated with vulnerability to HIV and difficulty adhering to a biomedical prevention strategy:

- 1) Diagnosis with multiple (two or more) rectal or vaginal STIs (Gonorrhea or Chlamydia,) in the past 365 days
- 2) New diagnosis with Syphilis (within last 365 days)
- 3) Potentially severe mental illness, based on evidence-based screening
- 4) Potentially severe addiction or drug dependence, based on evidence-based screening in the past 180 days
- 5) Assault, intimate partner violence, or sexual assault in the past 180 days
- 6) Engaged in sex work, survival sex, or subjected to human trafficking in the past 180 days
- 7) In a relationship that involves coercion or power disparities that make risk reduction extremely difficult to negotiate in the past 180 days.

NHAS Goal 1: Reduce new HIV infections

Objective: For HIV negative clients experiencing extremely high HIV risk and psychosocial distress, offer an opportunity to address underlying factors and move toward self-sufficiency and lower HIV risk.

Strategy 1: Provide screening and referral for critical events in the context of HIV prevention, including HIV testing, partner services, selective prevention, and indicated prevention.

Activities/Interventions

1-1-a Integrate screening for critical events into all CDPHE-funded HIV prevention programs and in community partners that opt to participate.

Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

1-1-b For clients that meet CE criteria, HIV prevention staff will evaluate their readiness for CE assistance, which requires substantial motivation for improvement in a short time frame. For those clients that are ready, staff will complete and submit a CE nomination.

Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

1-1-c For clients whose nomination is accepted at CDPHE, staff will develop and submit a CE treatment plan which includes movement toward a biomedical prevention strategy (PrEP or syringe access).

Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 8.1 - Screening, Nomination and Planning Targets for Clients at Highest risk

Percent of HIV prevention clients screened for CE after having met PrEP criteria	100%
Of those screened, percent of HIV prevention clients nominated for CE	10%
Of those nominated, percent of HIV prevention clients that follow through and have an approved treatment plan	50%

Strategy 2: Provide CE assistance, consistent with an approved treatment plan

- 1-2-a For clients with an approved CE treatment plan, offer short-term, intensive one-on-one support and assistance with medical and psychosocial needs, including support for biomedical prevention strategies (PrEP or syringe access).
Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.
Timeline: Q1 2017 - Q4 2021
- 1-2-b As clients make progress on the CE treatment plan, CDPHE and its community partners will continue to assist with medical and psychosocial needs, including support for client progress toward fully adopting biomedical prevention strategies.
Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.
Timeline: Q1 2017 - Q4 2021
- 1-2-c By the conclusion of the CE assistance, sponsors and staff will develop a transition plan supporting client commitment to self-sufficiency and lessened HIV risk.
Responsible Parties: ICP Program, CBP program, funded HIV prevention contractors, other community partners.
Timeline: Q1 2017 - Q4 2021

Target populations

Table 8.2 - Plan Completion, Transition, and Follow Up Targets for Clients at Highest risk

Percentage of CE clients that complete their treatment plan	58%
Percentage of CE clients that complete a transition plan	30%
Percentage of CE clients that are utilizing a biomedical prevention strategy 6 months following the end of their CE assistance.	30%

NHAS Goal 2: Increase access to care and improve health outcomes for people living with HIV.

Objective: For PLWHA experiencing psychosocial distress, offer an opportunity to address underlying factors and move toward self-sufficiency and medical stability.

Strategy 1: Provide screening and referral for critical events in the context of HIV care services, including.

Activities/Interventions

2-1-a Integrate screening for critical events into all CDPHE-funded HIV care programs and in community partners that opt to participate.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

2-1-b For clients that meet CE criteria, staff will evaluate their readiness for CE assistance, which requires substantial motivation for improvement in a short time frame. For those clients that are ready, staff will complete and submit a CE nomination.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

2-1-c For clients whose nomination is accepted, staff will develop and submit a CE treatment plan.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 8.3 - Screening, Nomination and Planning Targets for Clients Living with HIV or AIDS

Percent of clients living with HIV or AIDS screened for CE	100%
Of those screened, percent of clients living with HIV or AIDS nominated for CE	10%
Of those nominated, percent of clients living with HIV or AIDS that follow through and have an approved treatment plan	40%

Strategy 2: Provide CE assistance, consistent with an approved treatment plan

2-2-a For clients with an approved CE treatment plan, offer short-term, intensive one-on-one support and assistance with medical and psychosocial needs, including support for retention in care and achieving or maintaining viral suppression.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

2-2-b As clients make progress on the CE treatment plan, CDPHE and its community partners will continue to assist with medical and psychosocial needs, including support for retention in care and achieving or maintaining viral suppression.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

2-2-c By the conclusion of the CE assistance, develop a transition plan supporting client commitment to self-sufficiency, retention in care, and maintaining HIV viral suppression.

Responsible Parties: ICP Program, CBP program, funded HIV care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 8.4 - Plan Completion, Transition, and Follow Up Targets for Clients Living with HIV or AIDS

Percentage of CE clients that complete their treatment plan	58%
Percentage of CE clients that complete a transition plan	30%
Percentage of CE clients that are virally suppressed 6 months following the end of their CE assistance.	30%

NHAS Goal 3: Reduce HIV-related disparities and health inequities

Objective: Ensure that Critical Event assistance services are tailored to needs of communities disproportionately affected by HIV, particularly African Americans and Latinos.

Strategy 1: Address cultural and linguistic issues that pose additional challenges in addressing critical events.

Activities/Interventions

3-1-a CDPHE staff will track the demographics of clients receiving CE assistance, and those successfully completing CE treatment plans, to ensure that African Americans and Latinos are benefitting from this opportunity at least proportionate to their representation in the HIV epidemic.

Responsible Parties: ICP Program, Surveillance Program.

Timeline: Q1 2017 - Q4 2021

3-1-b Recruit and maintain a culturally and linguistically diverse group of CE sponsors that are proficient in addressing the needs of diverse populations.

Responsible Parties: ICP Program, funded HIV prevention and care contractors, other community partners.

Timeline: Q1 2017 - Q4 2021

Target populations

Table 8.5 - Percentage Targets for CE Clients by Race/Ethnicity¹⁰⁷

	Denver TGA	Rest of Colorado
African American	18%	13%
Latino	22%	21%

¹⁰⁷ Based on epidemiologic data reported to CPDHE as of 12/31/2015

Resources

Goal/Activity	CHAP P	CDC 1201	CDC 1506	HRSA	Rebate	Tobacco MSA	Health Coverage
Goal 1							
1-1-a Integrate screening for critical events into all CDPHE-funded HIV prevention	X	X	X			X	
1-1-b Evaluate readiness for CE assistance	X	X	X			X	
1-1-c For clients whose nomination is accepted at CDPHE, develop and submit a CE treatment plan	X	X	X			X	
1-2-a Offer short-term, intensive one-on-one support and assistance with medical and psychosocial needs	X					X	X
1-2-b Continue to assist with medical and psychosocial needs	X					X	X
1-2-c Develop a transition plan supporting client commitment to self-sufficiency and lessened HIV risk	X	X	X				
Goal 2							
2-1-a Integrate screening for critical events into all CDPHE HIV care	X			X	X	X	
2-1-b Evaluate readiness for CE assistance	X			X	X	X	
2-1-c Develop and submit a CE treatment plan for clients whose plan is accepted	X			X	X	X	
2-2-a Offer short-term, intensive one-on-one support and assistance with medical and psychosocial needs	X			X	X	X	X
2-2-b Continue to assist with medical and psychosocial needs	X			X	X	X	X
2-2-c Develop a transition plan supporting client commitment to self-sufficiency and HIV viral suppression	X			X	X	X	
Goal 3							
3-1-a Track the demographics of clients receiving CE assistance, and those successfully completing CE treatment plans, to ensure that African Americans and Latinos are benefitting from this opportunity	X			X		X	
3-1-b Recruit and maintain a culturally and linguistically diverse group of CE sponsors	X	X	X	X	X	X	

Metrics needed to monitor the progress of HIV testing

Goal 1

Metric 1.1 Incidence of new HIV infections

Metric 1.2 Number of clients screened and referred to additional services overall

Goal 2

Metric 2.2 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year. (HAB Core Measure and NHAS).

Metric 2.3 Percentage of clients who were homeless or unstably housed in the 12-month measurement period.

Goal 3

Metric 3.2 Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/mL at last HIV viral load test during the measurement year, stratified by race and ethnicity.

Challenges or barriers related to intensive services

As noted in Chapter 7, PLWHA experience mental health and substance use challenges at far greater rates than the overall population. In a nationally representative US sample of individuals receiving care for HIV infection, 48 percent screened positive for one or more psychiatric disorders in the past year (36% major depression, 27% dysthymia, 16% generalized anxiety, and 11% panic)—rates far higher than those in the general US population. In a meta-analysis, HIV-infected adults were twice as likely to have major depressive disorder compared to HIV-negative adults. Other clinic based studies have found similarly high rates of both lifetime and current mood and anxiety disorders and symptoms among PLWHA. Although the rates of posttraumatic stress and bipolar disorders among PLWHA have not been systematically assessed in large cohort studies, evidence suggests that rates of these disorders are also elevated relative to the general population.¹⁰⁸

Regarding alcohol and substance use, about 8 percent of PLWHA responding to the national HIV Costs and Services Utilization Survey (HCSUS) reported that they drank heavily, about twice the rate in the general population. Heavy drinking was associated with lower education level and with use of cocaine and/or heroin; however, it was less common among those with more-advanced disease. Men who described themselves as gay or bisexual were more likely to drink and were likely to drink more heavily than any other group. Nearly two-fifths of the HCSUS participants reported using an illicit drug other than marijuana, and more than 1 in 8 screened positive for drug dependence. Those whose survey responses suggested drug dependence tended to be under 35 and heterosexual, live alone or with someone other than a spouse, have many HIV-related symptoms, and often drink heavily. Eight percent of women were drug-dependent or heavy drinkers. Overall, MSM were more likely to use drugs than were other groups, although they were less likely to be drug-dependent.¹⁰⁹ The results of the 2014 American Men's Internet Survey showed even higher levels of substance use; 17.6 percent of HIV negative respondents and 27.3 percent of HIV positive respondents reported using illegal substances (not including marijuana).¹¹⁰

Mental health and substance use issues are also highly associated with HIV risk. According to a 2010 study, HIV positive patients with co-morbid psychiatric and substance disorders reported multiple sex partners most frequently, while substance dependence contributed to irregular condom use and PWID. Analysis by substance use subgroup (no dependence, alcohol dependence only, drug dependence only, co-morbid alcohol, and drug dependence) showed that alcohol dependence contributed to having multiple sex partners, while alcohol and drug dependence both contributed to irregular condom use.¹¹¹ Another study found that HIV risk among MSM increases with both frequency of substance use and the numbers of substances used. For methamphetamine and cocaine, weekly users had higher odds of unprotected anal

¹⁰⁸ Sikkema KJ, W. M., Drabkin AS, Meade CS, Hansen NB, Pence BW. (2010). "Mental Health Treatment to Reduce HIV Transmission Risk Behavior: A Positive Prevention Model." *AIDS Behav.* 2010 Apr;14(2): 252-262

¹⁰⁹ Rand Corporation (2007). "Mental Health and Substance Abuse Issues Among People with HIV: Lessons from HCSUS." Available at http://www.rand.org/content/dam/rand/pubs/research_briefs/2007/RAND_RB9300.pdf

¹¹⁰ Sanchez T, Zlotorzynska M, Sineath C, Kahle E, Sullivan P. The Annual American Men's Internet Survey of Behaviors of Men Who have Sex with Men in the United States: 2014 Key Indicators Report, *JMIR Public Health Surveill* 2016;2(1):e23, DOI: 10.2196/publichealth.5476 PMID: 27244770

¹¹¹ Newville, H. and D. L. Haller (2010). "Psychopathology and transmission risk behaviors in patients with HIV/AIDS." *AIDS Care* 22(10): 1259-1268.

sex with HIV-positive or unknown status partners (SDUAI) than episodic users, who were in turn at higher risk than non-users. Similarly, the odds of SDUAI increased across categories of the number of substances reported. For poppers, weekly and episodic use were similar, but both carried higher risk than non-use. Finally, heavy alcohol users were more likely to report SDUAI than the moderate users.¹¹² In terms of more severe mental illness, a 2014 study showed that patients with Borderline Personality Disorder were more likely to have multiple sexual partners and to use condoms irregularly. Trends for multiple sex partners also were observed among patients with antisocial and depressive personality traits/disorders. Antisocial patients also were more likely to be current PWID.¹¹³

There is increasing recognition of the association of sexual risk behaviors with a syndemic, or a mutually reinforcing set of conditions, including childhood sexual abuse (CSA), depression, substance use, violence, and financial hardship. This is particularly true for women. A 2016 study analyzed baseline data from a cohort of women with and at-risk for HIV (N = 620; 52 percent HIV+) using Poisson regression to assess evidence for additive, independent and interactive effects among syndemic conditions in relation to reported sexual risk behaviors (e.g., unprotected and transactional sex) over the past 6 months, controlling for age and HIV status. The number of syndemic conditions was incrementally associated with more types of sexual risk behaviors. For example, women with all five syndemic conditions reported 72 percent more types of risk behaviors over 6 months, as compared to women without any syndemic conditions. Compared to women with no syndemic conditions, women with three syndemic conditions reported 34 percent more and women with one syndemic condition reported 13 percent more types of risk behaviors. Endorsing substance use in the past 6 months, reporting CSA, and experiencing violence as an adult were independently associated with 49 percent, 12 percent, and percent more types of risk behaviors, respectively compared to women without these conditions. Endorsing both substance use and violence was associated with 2percent more types of risk behaviors. These associations were not moderated by HIV status.¹¹⁴

Trauma is increasingly recognized as an important factor in increasing prevalence of HIV and poor health outcomes of PLWHA, and it affects both men and women. Meta analysis in two studies (2012) demonstrated highly disproportionate rates of trauma exposure and post traumatic stress disorder (PTSD) in HIV-positive women. Thirty percent of American women with HIV/AIDS suffer PTSD (five times national rate) and 55.3 percent of women with HIV/AIDS suffer intimate partner violence (twice the national rate).¹¹⁵ The work also demonstrated the personal and public health consequences of trauma in women living with HIV: women with HIV who report recent trauma are over four times more likely to fail their

¹¹²Santos GM, Coffin PO, Das M, Matheson T, DeMicco E, Raiford JL, Vittinghoff E, Dilley JW, Colfax G, Herbst JH. (2013). "Dose-response associations between number and frequency of substance use and high-risk sexual behaviors among HIV-negative substance-using men who have sex with men (SUMSM) in San Francisco." *J Acquir Immune Defic Syndr.* 2013 Aug 1;63(4):540-4. doi:10.1097/QAI.0b013e318293f10b.

¹¹³Newville, H. and D. L. Haller (2012). "Relationship of axis II pathology to sex- and drug-related risk behaviors among patients in HIV primary care." *AIDS Care* 24(6): 763-768

¹¹⁴W Batchelder, A, Lounsbury DW, Palma A, Carrico A, Pachankis J, Schoenbaum E, Gonzalez JS. Importance of substance use and violence in psychosocial syndemics among women with and at-risk for HIV. *AIDS Care.* (2016) Apr 25:1-5.

¹¹⁵Machtiger EL, Wilson TC, Haberer JE, and Weiss DS (2012). "Psychological Trauma and PTSD in HIV- Positive Women: A Meta-Analysis". *AIDS Behav* (17 Jan 2012) 16:2091-2100.

HIV treatment and almost four times more likely to engage in risky sexual behavior.¹¹⁶ This contributes to the epidemic as women are an increasing proportion of new cases and for these women, their virus is not suppressed. The authors also believe that, for some women, substance abuse and depression are closely related to trauma and that all may contribute to the poor outcomes seen in the study. The Coping with HIV/AIDS in the Southeast (CHASE) Study found that among 490 HIV-positive women and men from five rural Southern states, patients with more categories of lifetime trauma had almost twice the all-cause death rate as those below the median levels of trauma, and trauma was also associated with faster development of an opportunistic infection or AIDS-related death.¹¹⁷ Efforts to treat substance abuse and depression may be more effective if such counseling acknowledges that ongoing trauma may be contributing to both conditions.

Transgender clients may be experiencing disproportionate levels of mental health, substance use, and psychosocial support challenges, with associated impact on HIV risk and HIV care outcomes. A 2016 study of community-recruited transgender women found 41.5 percent of participants had 1 or more mental health or substance dependence diagnoses; 1 in 5 (20.1 percent) had 2 or more comorbid psychiatric diagnoses. Prevalence of specific disorders was as follows: lifetime and current major depressive episode, 35.4 percent and 14.7 percent, respectively; suicidality, 20.2 percent; generalized anxiety disorder, 7.9 percent; posttraumatic stress disorder, 9.8 percent; alcohol dependence, 11.2 percent; and non-alcohol psychoactive substance use dependence, 15.2 percent.¹¹⁸

¹¹⁶ Machtiger EL, Haberer JE, Wilson TC, and Weiss, DS (2012). "Recent Trauma is Associated with Antiretroviral Failure and HIV Transmission Risk Behavior among HIV-positive Women and Female-identified Transgenders". *AIDS Behav* (17 Mar 2012) 16:2160 - 2170.

¹¹⁷ Leserman J. Role of depression, stress, and trauma in HIV disease progression. *Psychosomatic Medicine*. 2008;70(5):539-45. Epub 2008/06/04. doi: 10.1097/PSY.0b013e3181777a5f. PubMed PMID: 18519880.

Leserman J, Whetten K, Lowe K, Stangl D, Swartz MS, Thielman NM. How trauma, recent stressful events, and PTSD affect functional health status and health utilization in HIV-infected patients in the south. *Psychosomatic Medicine*. 2005;67(3):500-7. Epub 2005/05/25. doi: 10.1097/01.psy.0000160459.78182.d9. PubMed PMID: 15911916.

¹¹⁸ Sari L. Reisner, ScD, Katie B. Biello, PhD, MPH, Jaclyn M. White Hughto, MPH, Lisa Kuhns, PhD, MPH, Kenneth H. Mayer, MD, Robert Garofalo, MD, MPH, and Matthew J. Mimiaga, ScD, MPH. Psychiatric Diagnoses and Comorbidities in a Diverse, Multicity Cohort of Young Transgender Women. *JAMA Pediatr*. 2016 May 1; 170(5): 481-486. doi:10.1001/jamapediatrics.2016.0067.

Data used to determine the goals and metrics

CDPHE piloted a CE system for PLWHA beginning in February 2015. Tables 8.6 - 8.8 summarize data about CE client demographics and outcomes.

Table 8.6 -- CE System Client Data as of June 30, 2016

	Current	Completed	Terminated	Totals	Percentages
Race/Ethnicity					
White	13 (10.7%)	21 (17.2%)	18 (14.7%)	52	42.62%
Black	14 (11.5%)	18 (14.7%)	16 (13.1%)	48	39.35%
Hispanic	7 (5.7%)	9 (7.4%)	5 (4.1%)	21	17.21%
Asian	0 (0%)	1 (.82%)	0 (0%)	1	0.82%
Age					
2-12	0	0	0	0	0%
13-24	4	4	2	10	8.21%
25-29	4	7	6	17	13.93%
30-34	4	9	8	21	17.21%
35-39	5	6	9	20	16.39%
40-44	7	9	2	18	14.75%
45-64	10	12	11	33	27.05%
Over 65	0	2	1	3	2.46%
Gender					
Male	20 (16.4%)	37 (30.3%)	32 (26.2%)	89	72.95%
Female	13 (10.7%)	11 (9%)	5 (4.1%)	29	23.77%
Transgender	1 (.82%)	1 (.82%)	2 (1.6%)	4	3.28%
Insurance					
Medicaid	22	31	34	87	71.31%
Medicare	5	9	2	16	13.11%
Commercially Insured	5	4	1	10	8.20%
Uninsurable	2	5	2	9	7.38%
Lab Reports					
Last VL below 200	20	34	12	66	54.10%
No recent viral load	8	6	10	24	19.67%
VL over 200	8	9	17	34	27.87%
Last CD4 higher than 200	21	33	15	69	56.56%

Table 8.7 –Clients Completing each Phase of CE assistance

Phase of CE Assistance	No. of Clients	Percentages
Nominations	99	100.0%
Phase 1 (Intake/Plan Approval)	78	78.8%
Phase 2.1 (Month 1 of Assistance)	78	78.8%
Phase 2.2 (Month 2 of Assistance)	64	82.1%
Phase of CE Assistance (continued)	No. of Clients	Percentages
Phase 2.3 (Month 3 of Assistance)	55	70.5%
Phase 2.4 (Month 4 of Assistance)	43	55.1%
Phase 2.5 (Month 5 of Assistance)	31	39.7%
Phase 2.6 (Month 6 of Assistance)	18	23.1%
Phase 3 (Close Out/Transition Month)	42	53.8%

Table 8.8 – CE System Expenditures February 1, 2015 to June 30, 2016

CE Service Type	Funding Level	No. of clients	Percent of Total Funding
Housing Services	\$422,831	112	76.71%
Substance Abuse Services - Residential	\$76,672	9	13.91%
Medical Transportation Services	\$17,947	63	3.26%
Emergency Financial Assistance	\$16,681	42	3.00%
Food Bank/Home-Delivered Meals	\$15,718	50	2.85%
Oral Health Care	\$1,105	1	0.20%
Referral for Health Care/Supportive Services	\$120	1	0.02%
Legal Services	\$102	3	0.02%
Total	\$551,176		100%

The responses to the 2015-2016 PLWH Survey show a population with significant economic and psychosocial stressors.

Table 8.9 – Economic and Housing Stressors from the 2015-2016 PLWH Survey

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Monthly Rent Increase in 12 months (Calculated based on Q 32)										
Rent Increase	No increase in rent	164	64.6	24.2	90	35.4	37.0	254	100.0	27.5
	\$1-\$200	169	78.6	24.9	46	21.4	18.9	215	100.0	23.3
	\$201-\$400	67	79.8	9.9	17	20.2	7.0	84	100.0	9.1
	\$401-\$600	33	80.5	4.9	8	19.5	3.3	41	100.0	4.4
	\$601-\$800	40	80.0	5.9	10	20.0	4.1	50	100.0	5.4
	More than \$1000	15	83.3	2.2	3	16.7	1.2	18	100.0	2.0
	No Income Response	191	73.5	28.1	69	26.5	28.4	260	100.0	28.2
	Total	679	73.6	100.0	243	26.4	100.0	922	100.0	100.0

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Employment Status (Q. 39)										
Employment Status	Employed Full-time	186	75.3	25.5	61	24.7	24.0	247	100.0	25.2
	Employed Part-time	70	72.9	9.6	26	27.1	10.2	96	100.0	9.8
	Temp/Contract/Seasonal	28	62.2	3.8	17	37.8	6.7	45	100.0	4.6
	Odd Jobs/work for cash	32	71.1	4.4	13	28.9	5.1	45	100.0	4.6
	Retired	93	76.9	12.8	28	23.1	11.0	121	100.0	12.3
	Unemployed (not looking)	83	82.2	11.4	18	17.8	7.1	101	100.0	10.3
	Unemployed (looking)	26	76.5	3.6	8	23.5	3.1	34	100.0	3.5
	Not working due to disability	171	72.8	23.5	64	27.2	25.2	235	100.0	23.9
	Student	26	76.5	3.6	8	23.5	3.1	34	100.0	3.5
	Other	13	54.2	1.8	11	45.8	4.3	24	100.0	2.4
	Total (All that apply)	728	74.1	100.0	254	25.9	100.0	982	100.0	100.0

When asked to describe their recent life experiences that prompted them to seek help, respondents to the 2015-2016 PLWHA Survey revealed a number of critical events that could call for intensive services.

Table 8.10 -- Summary of variables respondent felt and wanted help with in the past 12 months

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Experience	Anger	127	73.8	7.3	45	26.2	7.1	172	100.0	7.2
	Anxiety or worry	293	76.1	16.8	92	23.9	14.5	385	100.0	16.2
	Fear of leaving home	90	78.9	5.2	24	21.1	3.8	114	100.0	4.8
	Feeling manic or out of control	66	68.0	3.8	31	32.0	4.9	97	100.0	4.1
	Hallucinations	28	73.7	1.6	10	26.3	1.6	38	100.0	1.6
	Night terrors	58	69.9	3.3	25	30.1	3.9	83	100.0	3.5
	Insomnia	197	75.2	11.3	65	24.8	10.2	262	100.0	11.0
	Memory Loss	122	71.3	7.0	49	28.7	7.7	171	100.0	7.2
	Panic attacks	114	69.5	6.5	50	30.5	7.9	164	100.0	6.9
	PTSD or trauma	76	70.4	4.4	32	29.6	5.0	108	100.0	4.5
	Sadness	259	72.3	14.8	99	27.7	15.6	358	100.0	15.0
	Thoughts or hurting yourself or others	59	77.6	3.4	17	22.4	2.7	76	100.0	3.2
	None of the Above	201	70.5	11.5	84	29.5	13.2	285	100.0	12.0
	Prefer not to answer	9	64.3	0.5	5	35.7	0.8	14	100.0	0.6
	Other*	46	85.2	2.6	8	14.8	1.3	54	100.0	2.3
Total	1745	73.3	100.0	636	26.7	100.0	2381	100.0	100.0	

Table 8.11 -- Other responses to the PLWHA Survey revealed additional factors that could indicate a strong need for intensive services.

Survey Area		Denver TGA			Rest of Colorado			All		
		N =	Row %	Col %	N =	Row %	Col %	N =	Row %	Col %
Experience	Treated Differently because HIV+	67	72.8	10.0	25	27.2	10.0	92	100.0	10.0
	Denied Services because HIV+	16	72.7	2.4	6	27.3	2.4	22	100.0	2.4
	Asked to Leave public space	8	53.3	1.2	7	46.7	2.8	15	100.0	1.6
	Verbal Harassment/taunts	48	68.6	7.2	22	31.4	8.8	70	100.0	7.6
	Threats of violence	28	73.7	4.2	10	26.3	4.0	38	100.0	4.1
	Physical Assault	16	61.5	2.4	10	38.5	4.0	26	100.0	2.8
	Sexual Assault	11	64.7	1.6	6	35.3	2.4	17	100.0	1.8
	None of the above	450	74.9	67.3	151	25.1	60.2	601	100.0	65.3
	Prefer Not to answer	23	63.9	3.4	13	36.1	5.2	36	100.0	3.9
	Other ¹¹⁹	2	66.7	0.3	1	33.3	0.4	3	100.0	0.3
Total	669	72.7	100.0	251	27.3	100.0	920	100.0	100.0	

PWID are expected to be amongst the most common recipients of CE assistance. The 2016 PWID Survey reveals the economic, psychosocial, and medical service needs that are experienced by this population.

Table 8.12 - Services Needed By PWID, 2016 Colorado PWID Survey, in Descending Order of Frequency Mentioned by Respondents

Service Description	Number	Percentage
Sterile syringe access	274	69.2%
Medication assisted treatment such as methadone, suboxone, naltrexone	197	49.7%
Affordable housing- help finding somewhere to live that I can afford	157	39.6%
Transportation- bus passes, taxi vouchers, bicycle etc.	136	34.3%
Support managing or decreasing drug use	126	31.8%
Mental health treatment	114	28.8%
Help with food	112	28.3%
Employment- help finding work	110	27.8%
Client centered drug treatment	99	25.0%
Respectful medical care for injection related issues like abscesses, cellulitis etc.	96	24.2%
Access to Naloxone (Narcan)	86	21.7%
Legal support	70	17.7%
Testing for HIV, viral hepatitis and sexually transmitted infections (STIs)	68	17.2%
A safe place to hang out during the day	54	13.6%
Hepatitis C treatment	52	13.1%
Oral healthcare- help getting to see a dentist	51	12.9%

¹¹⁹ "Other" Includes the following with n=1 unless otherwise noted; aches and pains, fear of homelessness, aphasia, depression (n=3), fatigue (n=2), confusion (n=2), weight loss (n=2), loss of libido, fear of being on medications forever, loss of inspiration, migraines, overwhelmed, peripheral neuropathy, fear of death, social anxiety, loneliness

Table 8.12 (Continued)	Number	Percentage
Classes about issues relevant to people who inject drugs (HIV, viral hepatitis, how to manage use, etc.)	29	7.3%
Help with getting health insurance or Medicaid	21	5.3%
HIV Pre-Exposure Prophylaxis (PrEP)	5	1.3%

Chapter 9 - Collaborations, Partnerships, and Stakeholder Involvement

- a. Description of the specific contributions of stakeholders and key partners to the development of the plan

The plan was developed with the contribution of the skills, experience and expertise of a large range of stakeholders and key partners. Medical doctors, staff from community based organizations as well as health care facilities serving people living with HIV, and individuals directly impacted by HIV assisted in the development of the objectives, strategies, activities, and performance indicators reflected in the plan. Many attended all of the ten meetings called specifically to develop the plan. Drafts of the plan were provided in advance. Participants came to these meetings prepared, having read the draft, and ready to make recommendations to strength it.

- b. Description of stakeholders and partners not involved in the planning process, but who are needed to more effectively improve outcomes along the HIV Care Continuum

People who are consumers of substance abuse services, mental health services, Medicaid, Medicare, Housing and Urban Development services, veteran services, and many other services participated in the development of the plan. However, staff from the Veterans Health Administration, Housing and Urban Development (HUD), Medicaid and Medicare Offices were not involved in the planning process. Their input is valued and may have assisted us to improve outcomes along the HIV Care Continuum. Therefore additional efforts will be made in the future to include these entities in the planning process.

Chapter 10 - People Living With HIV (PLWH) and Community Engagement

- a. Description of how the people involved in developing the Integrated HIV Prevention and Care Plan are reflective of the epidemic in the jurisdiction.

The people involved in the development of the Integrated HIV Prevention and Care Plan are reflective of the epidemic in the jurisdiction. The preponderance of individuals living with HIV or at highest risk of acquiring HIV live in the major metropolitan and urban areas of the State. Therefore, approximately 90% of individuals participating in the planning process represent metropolitan/urban areas. Men who have sex with men (MSM), young MSM, former injection drug users, transgendered, people of color, women, and HIV+ individuals all are reflective of the epidemic and contributed their time, experience, skills and expertise to the development of the plan.

- b. Description of how the inclusion of PLWH contributed to the plan development.

Nearly 40% of individuals participating in the plan development were people living with HIV. They contributed significantly by providing insight to their experience and understanding of how services may best meet the needs of the community.

- c. Description of the methods used to engage communities, people living with HIV, those at substantial risk of acquiring HIV infection and other impacted population groups to ensure that HIV prevention and care activities are responsive to their needs in the service area.

The Colorado Department of Health and Environment (CDPHE), Denver Office of HIV Resources (DOHR), the Denver HIV Resources Planning Council DHRPC, and the Colorado Alliance for HIV Prevention, Treatment and Care agreed upon a process for plan development with multiple ways to engage communities, people living with HIV, those at substantial risk of acquiring HIV infection and other impacted population groups, Alliance members, CDPHE staff, DHRPC members, and DOHR staff to ensure that the HIV prevention and care activities are responsive to their needs in the service area. These include:

- Meeting announcements were posted on the CDPHE and DHRPC online community calendars.
- Meeting announcements were distributed electronically through a variety of list serves reaching more than 200 individuals and agencies.
- Meeting materials were posted on Google docs and distributed via email and hard copies made available at all meetings.
- Meetings to review and revise the chapters were held twice per month from April through August: one meeting taking place during business hours, and the other taking place in the evening hours.
- Meetings were available via conference call and Adobe Connect.
- A well-respected facilitator, with extensive experience in HIV care planning, was brought on to facilitate meetings so all voices could be heard.

- d. Description of how impacted communities are engaged in the planning process to provide critical insight into developing solutions to health problems to assure the availability of necessary resources.

As previously mentioned, the plan was developed with the contribution of the skills, experience and expertise of a large range of stakeholders and key partners. Individuals representing communities directly impacted by HIV assisted in the development of the objectives, strategies, activities, and performance indicators reflected in the plan. Many attended all of the ten meetings called specifically to develop the plan. Drafts of the plan were provided in advance. Participants came to these meetings prepared, having read the draft, and ready to make recommendations to strength it.

Moving forward, CDPHE is committed to continuing to involve impacted communities in monitoring progress on the plan and revising the plan as further insights develop. CDPHE will do so through presentation at scheduled meetings of the Colorado Alliance for HIV Prevention, Treatment and Care and the Denver HIV Resources Planning Council.

Chapter 11 - Monitoring and Improvement

- a. Description of the process for regularly updating planning bodies and stakeholders on the progress of plan implementation, soliciting feedback, and using the feedback from stakeholders for plan improvements.

CDPHE will provide updates on the progress of plan implementation at least twice per year for each of the main planning bodies, which are the Colorado Alliance for HIV Prevention, Treatment and Care and the Denver HIV Resources Planning Council. These meetings will also be used to solicit feedback and use the feedback for plan improvements. CDPHE expects to have at least minor revisions to the plan annually.

- b. Description of the plan to monitor and evaluate the goals and objectives from COHAS.

For each of the major parts of COHAS (Prevention, Linkage to Care, Retention/Re-engagement, Intensive Services, Behavioral Services) there are established metrics to measure progress on the COHAS goals and objectives. CDPHE surveillance and program staff will compile data from available data systems to report on these metrics. This will be reported to the Colorado Alliance for HIV Prevention, Treatment and Care and the Denver HIV Resources Planning Council at least twice per year.

- c. Description of the strategy to utilize surveillance and program data to assess and improve health outcomes along the HIV Care Continuum which will be used to impact the quality of the HIV service delivery system, including long-range planning.

The chapters in COHAS mirror the HIV Care Continuum. Therefore, as the metrics are measured, we will also be measuring outcomes along the HIV Care Continuum. Both CDPHE and DOHR have Quality Committees, and these same reports will be made available to these committees to highlight potential areas for quality improvement PDSA cycles. In addition, these reports will be used to support long-range planning past 2021, for the development of the next COHAS.

Appendix
Detailed Census Tract Data

Race/Ethnicity Data for 20 Highly-Impacted Census Tracts

Geographic Description	Percent of Population that is White, Non-Hispanic	Percent of Population that is African American, Non-Hispanic	Percent of Population that is another race, Non-Hispanic	Percent of the Population that is Latino/Hispanic
Census Tracts in the Denver TGA				
Sun Valley	9.7%	20.3%	20.6%	49.4%
Auraria Lincoln Park	31.6%	17.9%	6.0%	44.5%
Southern Five Points	59.0%	17.2%	3.6%	20.3%
East North Capitol Hill	76.8%	4.8%	9.8%	8.5%
Northwest Capitol Hill	71.8%	3.2%	7.7%	17.3%
Northeast Capitol Hill	83.4%	2.6%	3.9%	10.0%
North City Park West	64.3%	21.7%	4.4%	9.6%
South City Park West	62.8%	15.9%	4.9%	16.4%
Skyland	42.2%	38.4%	4.6%	14.9%
Northeast Park Hill	16.3%	52.8%	7.5%	23.4%
<i>Averages for this Region</i>	<i>55.1%</i>	<i>18.8%</i>	<i>6.5%</i>	<i>19.6%</i>
Census Tracts in Urban Areas outside of the Denver TGA				
Eastern Stratmoor and Fort Carson	49.7%	7.4%	12.6%	30.4%
Valley Hill, Colorado Springs	53.3%	22.1%	11.3%	13.3%
Western Eastborough, Colorado Springs	33.9%	10.5%	3.5%	52.0%
Outer East Side Neighborhood, Pueblo	26.5%	0.4%	0.5%	72.5%
Downtown, Pueblo	34.6%	2.1%	4.8%	58.6%
<i>Averages for this Region</i>	<i>40.8%</i>	<i>8.7%</i>	<i>7.2%</i>	<i>43.3%</i>
Census Tracts in Rural Areas				
Northern Alamosa	57.7%	2.1%	3.3%	37.0%
Southern Alamosa	25.0%	2.2%	1.6%	71.3%
Western Kit Carson County	92.7%	0.2%	0.7%	6.3%
La Junta, Otero County	70.3%	0.1%	1.2%	28.4%
Western La Junta and Swink, Otero County	43.3%	0.3%	7.2%	49.1%
<i>Averages for this Region</i>	<i>51.9%</i>	<i>1.3%</i>	<i>3.3%</i>	<i>43.5%</i>

Data Source: 2010-2014 American Community Survey 5 year estimates. Selected tables include; S0101- Age and Sex, S0601-Selected Sociodemographic Characteristics, S1701-Poverty Status, S2301-Employment Status, S2701-Health Insurance Coverage and B03002 Hispanic Origin by Race. (<http://www.census.gov/acs>)

Education, Poverty, Employment, and Health Insurance Data for 20 Highly-Impacted Census Tracts

Geographic Description	Percent of Population with High School Education	Percent Foreign Born	Percent of Individuals below poverty	Percent of individuals older than 5 yrs where the ability to speak English is less than "very well"	Unemployment Rate, Among those 16 years and over	Percent of civilian non-institutionalized population with no Health Insurance
Census Tracts in the Denver TGA						
Sun Valley	43.1%	20.9%	84.3%	28.1%	26.3%	8.9%
Auraria Lincoln Park	64.0%	17.4%	46.2%	28.3%	21.9%	9.8%
Southern Five Points	90.2%	10.0%	25.9%	16.2%	6.7%	13.3%
East North Capitol Hill	98.3%	4.8%	20.4%	9.8%	2.3%	17.7%
Northwest Capitol Hill	94.4%	7.4%	19.0%	14.5%	6.5%	25.0%
Northeast Capitol Hill	91.4%	3.8%	18.1%	6.9%	4.7%	20.2%
North City Park West	96.9%	2.8%	10.0%	4.4%	10.7%	5.6%
South City Park West	88.7%	7.7%	35.5%	9.6%	10.1%	9.8%
Skyland	91.7%	5.7%	12.0%	10.1%	5.7%	12.3%
Northeast Park Hill	80.2%	12.2%	24.4%	18.4%	16.2%	18.0%
<i>Averages for this Region</i>	<i>86.3%</i>	<i>8.7%</i>	<i>26.2%</i>	<i>14.0%</i>	<i>9.8%</i>	<i>15.9%</i>
Census Tracts in Urban Areas outside of the Denver TGA						
Eastern Stratmoor and Fort Carson	86.3%	7.0%	28.2%	15.2%	15.4%	16.3%
Valley Hill, Colorado Springs	90.7%	13.8%	23.8%	14.6%	7.5%	15.4%
Western Eastborough, Colorado Springs	73.1%	22.0%	46.5%	31.6%	23.0%	28.1%
Outer East Side Neighborhood, Pueblo	76.8%	6.6%	49.5%	24.7%	15.5%	16.7%
Downtown, Pueblo	76.8%	5.7%	41.4%	25.2%	21.3%	26.0%
<i>Averages for this Region</i>	<i>80.9%</i>	<i>11.8%</i>	<i>37.2%</i>	<i>22.1%</i>	<i>17.0%</i>	<i>20.6%</i>
Census Tracts in Rural Areas						
Northern Alamosa	88.9%	5.0%	32.2%	15.2%	13.1%	8.3%
Southern Alamosa	72.7%	11.7%	30.6%	28.8%	14.1%	24.4%
Western Kit Carson County	92.4%	1.6%	15.6%	4.4%	9.6%	17.9%
La Junta, Otero County	89.6%	1.7%	19.7%	10.2%	7.4%	14.3%
Western La Junta and Swink, Otero County	78.2%	6.3%	35.2%	14.9%	14.2%	14.6%
<i>Averages for this Region</i>	<i>83.5%</i>	<i>5.9%</i>	<i>29.5%</i>	<i>16.4%</i>	<i>12.3%</i>	<i>14.5%</i>

Data Source: 2010-2014 American Community Survey 5 year estimates. Selected tables include; S0101- Age and Sex, S0601-Selected Sociodemographic Characteristics, S1701-Poverty Status, S2301-Employment Status, S2701-Health Insurance Coverage and B03002 Hispanic Origin by Race. (<http://www.census.gov/acs>)