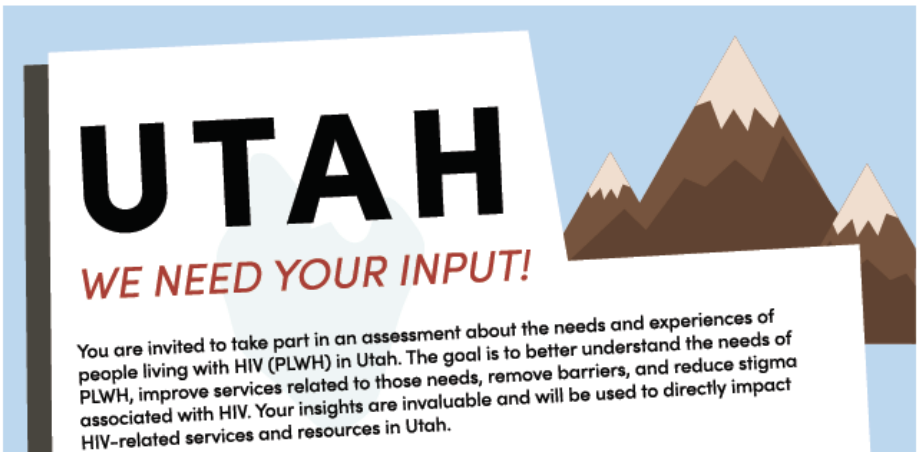
UTAH RED RIBBON SURVEY AND COMMUNITY HEALTH SURVEY REPORT



12/31/2019

Prepared by Deanna Kepka, PhD, MPH

HUNTSMAN CANCER INSTITUTE UNIVERSITY OF UTAH

HEALTH UNIVERSITY OF UTAH

Utah Red Ribbon Survey and Community Health Survey Report

PREPARED BY DEANNA KEPKA, PHD, MPH

PERSONS LIVING WITH HIV IN UTAH

Infection with Human Immunodeficiency Virus (HIV) is a serious health event that has affected Utah residents since the mid-1980s. HIV infection affects the immune system and if left untreated, may lead to a diagnosis of Acquired Immunodeficiency Syndrome (AIDS), a fatal health condition.[1] Utah is a mountainous western state with many urban and rural communities. In 2018, an estimated 3,161,105 people were living in the state of Utah. Out of the 29 counties, Salt Lake County is Utah's most populous county, with an estimated population of 1,152,633 in 2018.[2] Human Immunodeficiency Virus continues to affect communities throughout Utah. Salt Lake County includes the highest rate of people living with diagnosed HIV (PLWH) in the state of Utah. At the end of 2017, Salt Lake County reported 2,965 individuals living with diagnosed HIV.[3] The rate of PLWH has been increasing slowly over the past five years. In 2013, there were 92.3 people living with HIV per 100,000 Utah residents. By the end of 2017, the rate increased to 95.6 per 100,000 Utah residents.[3] This represents a 3.6% increase in the rate of PLWH from 2013 to 2017. The increase may have be due to Utah's rapid population growth and the increased life expectancy among people living with HIV.[3] Notably, the rate decreased 3.1% between 2016 and 2017. In 2017, the birth sex of 85% of PLWDH in Utah was male and 15% was female. The highest rates among both males and females were observed in the 45-54 year old category. Among PLWDH 78% received HIV medical care, 69% achieved viral suppression, and about 37% were enrolled in the Ryan White Part B HIV/AIDS program. The estimated number of clients served by Ryan White HIV/AIDS Program providers in Utah in 2017 was 1,654, representing a large proportion of the estimated number of persons living with diagnosed HIV in the state of Utah.[4]

HIV PREVENTION IN UTAH

The Utah Department of Health (UDOH) HIV prevention strategy includes collaborating with local health departments, medical care providers, community-based organizations, and laboratories to increase routine HIV testing in Utah's population, as well as to quickly identify newly diagnosed HIV infection through disease reporting activities. In 2018, 122 newly diagnosed HIV infections were identified for a rate of 3.8 new

diagnoses per 100,000 residents with the majority of newly diagnosed HIV cases are reported in Salt Lake County.[3] These results represents an improvement from 2015, where the rate was 6.8 diagnoses per 100,000 residents. Although rates have recently declined, for the most part, they have been relatively stable over the past decade. HIV disproportionately affects males in both Utah and the United States (US) with the single largest risk factor for HIV infection in is male-to-male sexual contact (MSM). In 2018, MSM accounted for 73% (n=82) of new HIV infections among males in Utah. In the same year, MSM and injection drug use (IDU) accounted for roughly 11% (n=12) of new male HIV cases in Utah.[3] Male and females who reported IDU as their only transmission risk only accounted for about 4% (n=5) of new diagnoses in 2018. In 2018, Utah women were more likely than men to engage in injection drug use. When the number of new HIV diagnoses in the racial/ethnic populations is compared with the overall size of Utah's population, racial/ethnic minorities are disproportionately burdened by HIV. In 2018, a large percentage of new infections were among women who are Black. Among males and females, the second largest group of new HIV diagnoses is comprised of persons who are Hispanic.[3]

HIV TESTING IN UTAH

The Centers for Disease Control and Prevention recommends that all persons between the ages of 13-64 years are tested for HIV at least once in their lifetime as part of their routine healthcare services and once per year among higher risk patient populations.[5] Human Immunodeficiency Virus testing in Utah continues to be low among the general population. In 2018, data from Utah's Behavioral Risk Factor Surveillance System (BRFSS) provides some insights toward the HIV testing efforts in Utah.[6] During the 2018 survey, the Utah BRFSS combined landline and cell phone survey questioned participants, "As far as you know, have you ever been tested for HIV? Do not count tests you may have had as part of a blood donation." The question is assessing whether the individual, who is an adult due to only adults are given the survey, has ever had an HIV test performed. *Overall, only 22.9% of respondents had ever been tested for HIV*.[6] Although the question is limited due to recall bias, the BRFSS data collected show that we have a long way to go to reach CDC's goal of 100% adult HIV testing at least once per one's lifetime. Improvements in assessments of how many people in Utah are actually being tested for HIV in Utah using multiple data sources are needed. A high percentage of PLWH belong to populations historically underserved by traditional health care systems. Many PLWH struggle with homelessness, substance abuse/use, and mental health issues. Minority populations, including men who have sex with men (MSM), bisexual men, and people of color are disproportionately affected by HIV and often experience a number of barriers which may prevent them from accessing treatment and services.[7]

UTAH DEPARTMENT OF HEALTH UTAH HIV PLANNING GROUP

The Utah Department of Health (UDOH) Bureau of Epidemiology has taken an integrated approach to HIV prevention, treatment, and care in the state of Utah. To create an effective and impactful statewide Integrated HIV Prevention and Care Plan, the Utah HIV Planning Group (UHPG) demonstrates how programmatic activities and resources are being allocated to the most disproportionately affected populations and geographical areas that bear the greatest burden of HIV disease and those at high risk for contracting HIV. To focus efforts on understanding the current needs of individuals living with HIV and of individuals at the highest risk for HIV, the Utah Department of Health's health program manager developed the project named, Utah HIV Population Needs Assessment. UDOH contracted the project leader Deanna Kepka, PhD, MPH, an Associate Professor and a Population Scientist, with expertise in sexually transmitted infections and marginalized populations, from Huntsman Cancer Institute and the College of Nursing, at the University of Utah. Kepka and her team developed a reliable and validated print and online surveys that assessed social, behavioral, and healthcare needs of persons living with HIV in Utah and of persons at high risk for HIV infection in Utah. Additionally, based on the findings from the needs assessments, training modules were developed to improve the continuum of care for persons living with HIV and persons at high risk for HIV infection in Utah.

UTAH HIV POPULATION NEEDS ASSESSMENT

The goal of this project was to better understand the needs of PLWH and the needs of persons at highest risk for HIV infection in Utah. In conjunction to our goals, the goals and objectives from the Utah Integrated HIV Prevention and Care Plan correlated in identifying health disparities and inequalities, assessing barriers to retaining care, identifying barriers to testing for HIV, ways to reduce or prevent HIV infections in the state, and enhancing linkage to prevention and care services. Accordingly the identified research questions for the Red Ribbon and Community Health Survey Projects were:

1. *What are the needs (STI testing and/or treatment, HIV testing, use of PrEP/PEP, insurance status, needle sharing, and condom use) of persons with the highest risk (4+ sex partners, IV drug users, and non-straight men who have anal, receptive sex) of developing HIV in Utah?*

2. *What are the barriers to testing (HIV tests performed, number of clinic visits), linkage to services (finding outpatient medical care, appointments, transportation, more than a year without seeing a medical provider) and retaining care (virally suppressed individuals and those participating in case management) among PLWH in Utah?*

3. *What are the HIV-related disparities and health inequities in Utah?*

Thus, our purpose is to better understand the HIV care continuum within healthcare systems in Utah, assess gaps in healthcare provider skills and knowledge to improve healthcare services for PLWH in Utah, and to assess the quality of primary care delivered to high risk populations in Utah. The project evaluates the most significant gaps in care, training, and risk assessment along with identification of key contextual factors and priority areas.

METHODS

Survey Design

A cross-sectional survey design was utilized to provide a point-in-time assessment. The Red Ribbon survey for people living with HIV in Utah and the Community Health survey for individuals at risk for HIV in Utah was a self-administered survey with both open and close-ended survey questions. The needs assessments were developed to collect quantitative data on the needs, barriers, and challenges that exist for PLWH and to improve services and removed barriers for those at risk. The Red Ribbon survey had a total of 63 questions and was comprised of ten sections that included: A. Patient-provider relationship; B. Attitudes towards healthcare providers; C. Stigma and discrimination; D. Alcohol and drug use; E. Demographics, HIV care and linkage to care; F. HIV treatment; G. HIV services; H. Health status and conditions; and I. Sexual behavior. The Community Health survey had a total of 58 questions and was comprised of six sections that included: A. Health status and conditions; B. Medication for prevention of HIV; C. Sexual Health; D. Demographics; E. Alcohol and drug use; and F. Stigma and discrimination.

Red Ribbon Survey Development

The majority of the Red Ribbon survey items were comprised of questions taken from the 2015-2017 CDC HIV Medical Monitoring Project (MMP) questionnaire.[8] Examples of questions used are "In the past 2 years, at how many total places have you received outpatient medical care?" and "In the past 12 months, how many visits have you had with any clinics with an HIV medical care provider?" Both questions were measured by a number indicating the total places and/or clinic visits the participant had. A Don't Know option was also provided. Other questions include, "Have you ever taken any HIV medications?" and "Are you currently taking any HIV medications?" These questions were measured with a Yes, No, or Don't Know. Survey questions were also taken from the 2018 Behavioral Risk Factor Surveillance System (BRFSS) questionnaire.[9] Questions taken from BRFSS included "In the past 12 months, did you get a vaccine or shot to protect you from the seasonal flu?" measured by a Yes, No, or Don't Know. If selected Yes, the follow-up question asks, "Where did you get your most recent seasonal flu vaccine?" with responses such as Doctor's office, Health department clinic,

Drugstore or store (i.e. CVS, Walgreens, Target), Employer, or an open-ended Other option. To assess doctor-patient relationship, journal articles titled, "Measuring Patients' Trust in their Primary Care Providers,"[10] "Development of the Trust in Physician Scale: A Measure to Assess Interpersonal Trust in Patient-Physician Relationships,"[11] and "Does Doctor-Patient Communication Affect Patient Satisfaction with Hospital Care?"[12] were all used. Example questions consists of "Your provider cares about your health just as much or more than you do and thinks about what is best for you," "I trust my provider so much I always try to follow his/her advice and judgements about my medical care," and "My provider and I agree on the nature of my medical symptoms." All questions were measured on a 5-point Likert scale ranging from 1 – strongly disagree to 5 – strongly agree.

Community Health Survey Development

Community Health survey items were also gathered from the 2015-2017 CDC HIV Medical Monitoring Project (MMP) questionnaire.[8] Examples of questions include, "In the past 12 months when you injected, what was the most common place where you get new sterile needles?" with the following responses: a needle exchange program, a pharmacy or drugstore, a doctor's office, clinic, or hospital, a friend, relative, or sex partner, a needle or drug dealer, trap house, or off the street, and an open-ended Some Other Place option. "In the past 12 months, were you enrolled in an opiate replacement program such as a methadone clinic?" was also used and measured with a Yes, No, or Don't Know option. A couple questions were taken from the 2011-2012 and 2018 Behavioral Risk Factor Surveillance System (BRFSS) questionnaires.[9] Examples include, "Have you ever been tested for Human Immunodeficiency Virus (HIV)?" with responses such as Yes, No, Don't Know. If responded Yes, a follow-up question of "What was the approximate date of your last HIV test?" was asked with space to provide the month and year with a None and Don't Know option available. The final questionnaire used was REACH[13] – Social Dimensions of Response to HIV/AIDS. Questions used from REACH include, "Have you ever heard of AIDS or of HIV the Human Immunodeficiency Virus that causes AIDS?" measured by a Yes, No, or Don't Know. "It is embarrassing to buy or ask for condoms" and "I would feel ashamed if I were infected with HIV" were used to assess attitudes towards condoms and were measured by answering Agree, Neutral, Disagree, and Not Sure.

Pilot Testing

On December 19, 2018, the Red Ribbon survey was pilot tested with a small sample of persons living with HIV in Reno, Nevada. Access for Community & Cultural Education & Trainings (ACCEPT), a non-profit organization that provides services to people living with HIV/AIDS. ACCEPT's mission is to empower underserved individuals and families by providing public health services and resources through community partnerships serving a multicultural population with emphasis on at-risk communities.[7] One of ACCEPT

programs included a support groups are for men and women living with HIV/AIDS and their loved ones. The Health Education and Risk Reduction (HERR) program provides services that educate clients with HIV/AIDS about HIV transmission and how to reduce the risk of HIV transmission, by disseminating information about medical and psychosocial support services and counseling to help consumers with HIV improve their health status. The free group, is held every second and fourth Wednesday of each month at the Northern Nevada HOPES center in Reno, Nevada.

In collaboration with a community health worker from ACCEPT, Dr. Kepka and team were invited to join December's monthly HERR meeting to receive feedback on the content and design of the Red Ribbon Survey that will assess healthcare and other social service needs of PLWH and other vulnerable patient populations in the state of Utah. Flyers for the pilot test meeting was approved by the County and was disbursed to ACCEPT's community partners and clients. The first 30 participants to RSVP their attendance to join the meeting received a $25 Walmart gift as an expression of appreciation for their time and input. Participants received a catered dinner while Dr. Kepka gave a short presentation about her past experiences with HIV public health initiatives and the purpose of the Red Ribbon and Community Health Surveys. Participants were asked to take the Red Ribbon Survey while timed and to take note of the questions that concerned them. Assistance was available to anyone that needed help reading or understanding any questions. Following was an in-depth discussion of feedback on how the needs assessment could better accommodate others who would take the survey. Participants recognized and understood that the survey is very lengthy and thorough but expressed it was drawn out and had too many questions for one person. Participants addressed how important it was that their privacy was going to be kept confidential and anonymous. The discussion also brought up questions about including Hepatitis D and E questions on the survey and how more questions around housing and Ryan White were needed. Group members also suggested writing an intro that was more empathetic and able to bring comfort to those about to take the survey. Lastly, they felt that some questions were too personal, such as asking for a monthly income. All recommendations from the ACCEPT meeting participants were considered in the next revision of the survey.

Survey Evaluation

HIV Planning Groups (HPG) are a CDC mandated activity aimed at allowing local HIV prevention and treatment programs, service providers, stakeholders, and community members the opportunity to partner with UDOH to address how the jurisdiction can collaborate to accomplish the activities set forth in the CDC's collaborative agreement for health departments.[3] The Utah HIV Planning Group (UHPG) holds quarterly HIV needs assessment meetings at UDOH. Participating organizations consists of UDOH, Utah AIDS Foundation (UAF), Utah Pride Center, Ryan White Clinic 1A (C1A) clinicians and case managers, Utah Primary Care Association, planned Parenthood, Utah Rural Health Association, University of Utah Community Clinics,

Intermountain Healthcare, and other various community partners and stakeholders. Before the distribution of surveys, the Kepka team attended three UHPG meetings. In April of 2019, the Red Ribbon survey was introduced to the UHP group and the Kepka team presented an overview of the surveys purpose, conducted a survey walkthrough with the group, explained the incentive process, and the survey administration. In the course of this meeting an outreach plan and agency goals were allocated. The Kepka team recorded any questions and common concerns expressed by the UHP group.

The second UHPG meeting attended by the Kepka team was in May of 2019 and the Red Ribbon Survey was introduced again; giving the survey another chance to be examined before dissemination. Feedback on formatting and reading level of the survey questions were addressed. Discussed was the possibility of reaching out to at-risk populations utilizing online platforms such as Grind, Adam4Adam, Scruff, and Jack'd. Agencies and community partners were encouraged to participant in the Red Ribbon distribution and the weekly check-in calls. The last UHPG meeting attended was for the Community Health survey dissemination in June of 2019 where the Kepka team outlined the purpose and objectives of this survey. Furthermore, discussion of the distribution plan, incentive procedures, and agency assignment and goals, and the team communicated any data security and confidentiality concerns to the group. All additional advice and feedback on the improvement of both assessments was provided by email. Following the pilot test in Reno and three meetings with the UHPG, the surveys went under multiple edits and then finalized.

Red Ribbon Survey Distribution Plan

A distribution plan included all agencies and other community partners who would be assisting in reaching PLWH, persons at high risk for HIV infection in Utah and those part of the UHP group. Those involved in the distribution plan for the Red Ribbon Survey was UAF, C1A, One Voice Recover (OVR), Utah Harms Reduction Coalition (UHRC), Utah Department of Human Services, Ryan White Part B Program, and social network pages, such as Facebook. Individuals enrolled in the Ryan White Part B Program were also sent a card with online survey instructions as part of the recruitment process.

Community Health Survey Distribution Plan

The distribution plan for the Community Health Survey included UAF, the Free PrEP Clinic, OVR, UHRC, Salt Lake, Davis, and Weber-Morgan county health departments, as well as Planned Parenthood clinics, Utah Department of Human Services Substance Abuse and Mental Health (DSAMH) providers, Utah Community Action Council, Association for Utah Community Health Listserv, Drug User Health Providers, Mr. Friendly, and county health department Nursing Directors.

Distribution Materials

The University of Utah's Institutional Review Board (IRB) and the Utah Department of Health's IRB reviewed and approved this needs assessment project. The Red Ribbon and Community Health Surveys were both available via paper or online. Research Electronic Data Capture (REDCap) a secure, web-based software platform designed to support data capture for research studies was used for the online survey version. Professional online promotional materials included an 8.5 x 5.5 card/postcard identical to their corresponding survey cover designs were created by the Huntsman Cancer Institute communications and graphic design team. Cards were then folded and bound by a sticker to protect survey information. Inside the card was a brief description/summary of the purpose of the survey including a shortened URL and QR code. Lastly, flyers for both surveys were made that contained the survey cover text and then distributed to all agencies included in the distribution plans to hang in there respective clinic or office.

Red Ribbon Survey Tracking

Three documentation tracking logs and paper Red Ribbon Survey copies were dispersed to the agencies case managers. Log A was the gift card tracker that containing a participant made identifier using the combined first two letters of their first name and last name and last two digits of their birth year. The next column of the Log A recorded the date of when the gift card was distributed for tracking purposes. , followed by a column to insert the last four digits of the gift card number being distributed. Case managers were instructed to document whether the participant received a Walmart or Amazon gift card and then to write out their name in the last column. Log B contained the in-person paper survey tracker information. Case managers were asked to document the date and if participants refused to take the in-person survey by writing in a yes or no statement. Log B also tracked survey administration by case managers indicating if the participant took the survey independently or dependently along with the case manager's initials. The last log case managers were requested to document was Log C that documented the referral tracker for the REDcap Online survey. Case managers were asked to document the date that they referred a participant and if they provided a link to the REDcap survey by stating *yes* or *no*. Case managers then indicated if participants refused the referral to the online survey by stating a *yes* and leaving initials in the last column.

Community Health Survey Tracking

To support the administration of the community health survey, the tracking logs used for the Red Ribbon survey were combined and condensed to make one log tracker for the Community Health Survey. Log A was

allocated to case managers of the agency and part of the distribution plan for the Community Health Survey. Required information for Log A included a participant made ID which was comprised of the first two letters of the persons first and last name along with birth year, gift card number or serial number, and date of giving gift cards to participants. This log also included a column to track participants who needed assistance when taking the survey, i.e. independent vs dependent and the name of the case manager administering the survey. Log B contained the in-person paper survey tracker information. Case managers were asked to document the date and if participants refused to take the in-person survey by writing in a yes or no statement.

Spanish Translation of Surveys

Both surveys and promotional materials were translated into Spanish by a certified translator, Sara Carbajal-Salisbury and team from Alliance Community Services, after all materials were finalized in English. The Red Ribbon Survey and online invitation card were translated in May 2019 with Community Health Survey online invitation card translated in July 2019. Approximately 70 surveys and 200 cards were printed and distributed to various agencies who served individuals with Spanish as their first language. Nearly 20 Spanish surveys were completed and returned to Huntsman Cancer Institute with two Spanish surveys completed online.

Incentives

Incentives were provided for participants who completed the Red Ribbon and Community Health surveys, regardless of completion. Originally, $10 gift cards to Walmart or Amazon were given to participants. After survey in-person survey completion, participants were given a physical gift card. Those who chose to take the survey online had the option of receiving a gift card by mail or email. Contact information was required such as first and last name, phone number, and either their email or mailing address. To protect the anonymity of participants, their contact information was collected through a separate survey that could not be linked back to their original responses. The online gift card link was provided to participants once they submitted the first survey. Responses were checked daily in the first three weeks and then weekly/bi-weekly for the remainder of the time to ensure a timely delivery of online gift cards. Due to low responses for the Red Ribbon Survey, UDOH and the Kepka Team increased the incentive to $20.

Data Collection – Red Ribbon Survey

Agencies involved in the distribution plan were given survey materials that comprised of surveys, gift cards to Walmart or Amazon, documentation logs, pre-paid return envelopes, and an enclosed card describing the survey and how to participate via REDCap. Before distribution of surveys, a training took place at UDOH with all agencies involved to review information needed on documentation/tracking logs, how to access REDCap to take the survey online, information needed to obtain a gift card, and what to say if individuals had questions about privacy, confidentiality, and storage of information. Recruitment for the Red Ribbon Survey was

conducted between May 2019 and October 2019. The Kepka team was in contact with each agency to coordinate the best time to drop of survey materials, and when needed pick up completed surveys and additional items. Agencies involved in the distribution plan put forth all their efforts in recruiting participants for the Red Ribbon needs assessment. If individuals refused or didn't have time t, agencies were then advised to provide them with the online invitation card describing how to take the survey in REDCap.

Each agency was given a different amount of promotional materials depending on the number of individuals they serve. Utah AIDS Foundation received 140 English surveys and 100 cards, OVR and UHRC received 10 English surveys, and C1A received 100 English and 30 Spanish surveys in addition to 150 cards. The Apothecary, a pharmacy in Salt Lake City, received 100 cards with approximately 800 sent UDOH to then mail to Ryan White HIV/AIDS Program clients. Weber-Morgan health department received 80 cards with a request for 30 more English and 30 Spanish cards to distribute to the Midtown Clinic in Ogden.

In August 2019, the Kepka team became aware that the majority of responses needed for the Red Ribbon Survey relied solely on C1A as they saw and treated most of HIV positive patients in Utah. Due to C1A's case management capacity, the needs assessment was not given their full attention and their efforts in recruiting participants lacked. Multiple conversations and an in-person meeting with case managers at C1A were had between UDOH, the Kepka team and C1A to discuss barriers and develop an alternative data collection plan to help mitigate these challenges. Barriers discussed were, how long the survey was, lack of language options (only available in English and Spanish), the possibility of needing translators and/or providing assistance to individuals, the incentive not being large enough, clinical workflow, lack of physical space in the clinic, lack of training, not having envelopes for confidentiality purposes, and the tracking of different distributions of the survey given out. In our best attempt to improve barriers for C1A, the Kepka team members were placed at C1A twice a week to help facilitate the needs assessment. Additionally, the incentive was increased to $20 with an added Smith's gift card option along with Walmart and Amazon gift cards. With lack of space within the clinic, the Health Literacy Library (HLL), a public room down the hall from the clinic, was initially used as a place to have individuals complete the Red Ribbon needs assessment and allow for the Kepka team to freely discuss any questions, be with a participant one-on-one, or assist the participant in any other way. The Kepka team was also assisted by two Master of Social Work interns at C1A with recruiting willing participants and bringing them to the HLL. After having been in the HLL two times, it was eventually decided that it be best to place chairs in the case manager hallway in the clinic to allow for more interaction with individuals coming into the clinic.

After patients checked in at the front desk, the Kepka team and/or C1A interns approached the individual asking if they had heard of the anonymous survey being conducted by UDOH for $20. If answered no, they were asked if they would like to know more. If answered yes, the survey was then handed to them to read the

introduction of the survey to see if they would be willing and able to complete it. At this time, they either said they would or would not be willing to participate. If the individual refused at any point in the conversation, taking the survey was not pushed further. The Kepka team and/or C1A interns collected completed surveys from participants and handed them a $20 gift card of their choice. Survey facilitation went on for two months until a desirable response rate was reached and/or reached survey saturation at C1A. In those two months, the Kepka team spent a total of 120 hours increasing survey responses from 25 to 110.

Data Collection – Community Health Survey

Agencies involved in the distribution plan were given survey materials that comprised of surveys, gift cards to Walmart or Amazon, documentation logs, pre-paid return envelopes, and an enclosed card describing the survey and how to participate via REDCap. Before distribution of surveys, a training took place at UDOH with all agencies involved to review information needed on documentation/tracking logs, how to access REDCap to take the survey online, information needed to obtain a gift card, and what to say if individuals had questions about privacy, confidentiality, and storage of information. Recruitment for the Community Health survey started in July 2019 and ended October 2019. The Kepka team was in contact with each agency to coordinate the best time to drop of survey materials, and when needed pick up completed surveys and additional items. Agencies involved in the distribution plan put forth all their efforts in recruiting participants for the Community Health needs assessment. If individuals refused or didn't have time, agencies were then advised to provide them with the online invitation card describing how to take the survey in REDCap.

Each agency was given a different amount of promotional materials depending on the number of individuals they serve. Agencies who were given paper surveys also received gift cards to hand out whereas agencies who only received cards were not given gift cards. Utah AIDS Foundation received 50 English and 15 Spanish surveys and 70 cards, OVR were given 20 English and 5 Spanish surveys with 55 Cards. Utah Harm Reduction Coalition received 40 English and 5 Spanish surveys with 25 cards. Free PrEP clinic, Salt Lake County Health Department, Davis County Health Department were all given approximately 15 English and Spanish surveys in addition to 100 English and 20 Spanish cards. Other agencies who received cards for the online portion of the survey include UDOH (200), Planned Parenthood – Ogden (80), Four Corners Community Behavioral Health (10), and Health Clinics of Utah and Steps Recovery Center's Intensive Outpatient Program (50).

The Community Health Survey having a bit wider and more general target audience allowed for more online recruitment in addition to the agencies mentioned above. In August 2019 one last big push was done by Planned Parenthood Association of Utah (PPAU), a health system of eight clinical locations in Utah and on

Facebook, in an attempt to receive the desired responses for the Community Health needs assessment. The result of this survey promotion by PPAU may have been the reason for a large amount of responses completed via REDCap in one night, going from 342 to 938 participants. Due to this large increase, responses were examined to the best of their ability to check their validity with the intent of removing any potentially fraudulent responses. The Community Health Survey was taken offline to prevent any more responses from taking place while this investigation was happening. Multiple questions were examined when trying to determine fraudulent responses. If duplicated responses were found, for example, the open-ended question on #4 (see below), the first completed survey by the individual in the sample was included in the analyses and any additional duplicated completed surveys were excluded. Variables investigated and description on why they were excluded from analyses, are described below:

1. Zip Code: With this survey only being for those who live in the state of Utah, any response with an out of state zip code were excluded from analyses.

2. Birthyear and reashepc: A comparison was made between the participant's birth year and an answer chosen for the question, "what is the main reason for being tested for Hepatitis C?" Those who chose being born between 1945 and 1965 as their main reason where compared to the birth year they put at the beginning of the survey. If the participant's birth year did not fall between the 1945 and 1965 range, the response was excluded from analyses.

3. Country: In the demographics section, "What country were you born in?" was asked with an open line or box to write out the country. Answers that contained numbers, rather than a country, were excluded from analyses.

4. Act prev: The open-ended question, "Aside from condom use, what other actions do you participate in for disease prevention?" was examined for patterns and/or copy and pasted phrases. Below are the duplicated phrases found:

    a. Learn to disseminate knowledge about AIDS
    b. Health education
    c. There is no safety measures other than condoms
    d. Condoms not considered to participate in other prevention
    e. Exercise to increase/enhance resistance
    f. Pay attention to hygiene
    g. Avoid sharing towels or underclothing

5. Approximately 30 participants had the same answers for the entire survey. Upon further investigation, looking at time stamps of the completed surveys showed that they were done in clusters back-to-back and all within a couple hours of each other.

6. Invalid open-ended responses were excluded from analyses. Examples of invalid responses found were an asterisk (*) or a single number.

Upon finishing the investigation, a total of 171 responses were excluded from analyses.

Statistical Analyses

Surveys in REDCap were exported into an Excel workbook with the paper survey responses manually entered. The Excel workbook was then uploaded into Stata/IC 13 for analysis. Frequencies were run on demographic variables for both the Red Ribbon and Community Health surveys as well as barriers and linkages to care and health disparities and inequities. Chi-square tests of independence were conducted to assess the relationship between demographic characteristics and access to care, HIV testing practices, adherence to HIV therapy, viral load levels, quality of life, risk behaviors, and HIV prevention. One-way ANOVA, Pearson and Spearman's correlations were conducted between demographic characteristics, number of clinic visits and overall stigma. Cronbach's alpha was calculated for the scaled stigma questions to assess the internal consistency of the scale. Findings were considered statistically significant at the $p < 0.05$ level.

RESULTS

Red Ribbon Survey

Demographics

After removing incomplete, duplicate, and ineligible entries, 342 participants were included in the analyses. Table 1 reports the demographic statistics of the sample. The majority of the survey respondents were male (86.16%), over 55 years of age (26.32%), and non-Hispanic/Latino (69.88%). Most participants reported relationship status as single (51.56%), while 13.16% were a member of an unmarried couple and 12.57% stated they were married. The majority of participants had some college (43.57%), were employed full-time (31.87), and had a combined monthly income between $0 and $416 (18.42%).

Barriers to Testing, Linkages to Care, and Retaining Care

Identified barriers to testing included undocumented last HIV test, number of clinic visits, linkages to care and retaining care shown in Table 2. Our results indicated that within the past four years (2015-2019) there has

been 71 new HIV infections within our sample. Of those 71 new cases, six (1.85%) were diagnosed in 2019; with all of them identifying as a gay, bisexual, queer, or pansexual male. A majority of participants (69.59%) did not answer the question pertaining to their last HIV test performed with negative HIV test results. Of those who did answer, 22.5% said that their last negative HIV test result was over a year ago. The mean clinic visits among participants, where medical providers routinely provided HIV testing, was 3.26 (SD=2.59) and males were more likely to have more clinic visits than females in the past year (X^2=3.32, p=0.038) (Table 4.1).

Results found that 66.1% of participants said that within 30 days of testing positive for HIV a healthcare provider or case worker had asked about helping with outpatient services or assisted in finding outpatient services. Results showed that 51.8% of participants did not need early intervention services; however, 18.43% of participants did not know about early intervention services or needed them but could not get the services (Table 2). Chi-Squared analyses showed the proportion of participants who were 35 years and older were more likely to receive help figuring out if they qualified for free or low-cost HIV care (p=0.001), had help in making an appointment (p=0.030), and had help finding a place for outpatient HIV care (p=0.037) (Table 4). Additionally, 66.1% of participants said they wanted help figuring out if they qualify for free or low-cost outpatient HIV medical care and 68.42% said they wanted help making appointments for outpatient HIV medical care. When asked about helping to arrange transportation to outpatient HIV medical care appointments 32.46% said yes and 8.48% said they don't know. Sixteen percent of participants went for more than a year without seeing any outpatient HIV medical providers. A majority of participants (46.49%) stated that they did need and used HIV medical care and 36.84% said they did not need HIV medical care while 8.19% said they did not know HIV medical care was available (Table 2).

More than a third of participants reported viral loads as undetectable (<20 copies/ml). Moreover, 3% reported a viral load of 200+ copies/ml. Furthermore, over half of the participants did not respond with their viral load numbers (Table 2). The proportion of participants who were non-Hispanic were statistically more likely to have an undetectable viral load (p=0.038) compared to Hispanics (Table 6). Participants reported that they were almost always taking their HIV medications as prescribed (81.87%) and 53.54% were not missing any does, and 10.77% were only missing one does in 30 days. Interestingly, participants who rented or owned a home or lived with family were less likely to miss HIV medication (X^2= 36.72 p=0.000) compared to those who lived in a car, camped, couch surfed, or single room occupancy (Table 5).

Of participants who used case management services, 62% reported that they did need and were able to use this service while 14.33% of participants said that they did not know about the service or that they needed it but were unable to use it (Table 2). Among participants, 39.57% had Ryan White HIV/AIDS Program as their form of insurance and roughly 30% stated they used either Medicare or Medicaid while 12.57% had

insurance purchased through their employer. Furthermore, 43.27% of participants had health insurance assistance and 23.10% said they did not know health insurance assistance was available or they could not get this service (Table 2).

Health Disparities and Inequities

Living status among participants was mostly rent/own (66.96%) or living with family (12.2%). Additionally, participants reported couch surfing (2.3%), camping (0.88%), or car (0.58%) as their living status (Table 3). Those who had an education of grade 12 or higher were more likely to never have hepatitis (p=0.010) compared to those who have education grade 11 or less. Furthermore, participants who were employed full time were more likely to never have hepatitis compared to those who were part-time, student, unemployed, etc. (p=0.000) (Table 6.1). Participants who were employed full-time reported higher general health status and fewer days of poor physical and mental health keeping them from engaging in their usual activities compared to those who worked part-time, a student, unemployed, etc. (p=0.000) (Table 6).

The maximum overall stigma score was 55 indicating the highest amount of experienced stigma, with the mean score for the sample being 25.05. Identified males and females had approximately the same stigma score (25.25 and 25.92, respectively) and those who identified as something else had a slightly higher score of 29.25. Among sexual orientation, lesbian, gay, bisexual, queer, pansexual and those who identified as something else also had a stigma score similar to the overall mean (25.49, 27.50, respectively) (Table 5). Of the 11 related stigma items within the model, participants mostly reported being hurt by how people reacted to learning they have HIV (54.69%), worried that people will tell others of their HIV status (74.31%), and stopped socializing with some people because of their reactions to their HIV status (48.33%) (Table 3).

Community Health Survey

Demographics

After removing incomplete, duplicate, and ineligible entries, 767 participants were included in the analyses. Table 7.1 reports the demographic statistics of the sample. The majority of participants were male (53.59%), between 25-34 years of age (55.15%), and non-Hispanic/Latino (62.97%). The majority had some college (41.46%), were employed full-time (65.19%), and had a combined monthly income of $5000 or more (12.91%).

Participants at Higher Risk for HIV Exposure

The needs of those at highest risk of being infected with HIV (4+ partners, IV drug users, and/or non-straight men who have anal, receptive sex) included insurance, living status, HIV testing, date of last test, those tested

and/or treated for gonorrhea and syphilis, percent of those taking pre-exposure prophylaxis (PrEP) or post-exposure prophylaxis (PEP), condom use, and sharing injection equipment as shown in Table 8. Our results indicated that 39.22% of participants had insurance through their employer, 20.83% relied on Medicaid, with 45.59% of them renting/owning their place of residence. A majority of participants reported having been tested for HIV (61.76%) but only in the last year (33.33%) with half not reporting a date of their last HIV test. When asked about medications for prevention of HIV, 70.59% reported that they have taken PrEP in the last year but 53.19% said they haven't taken PEP. Among those who are IDU, 69.36% reported that they didn't know if someone used the same injection equipment after them. Chi-Squared analysis showed that the proportion of participants belonging to the higher risk category were male ($p<0.001$), identified as lesbian, gay, bisexual, queer, or pansexual ($p<0.001$), aged 25-34 years old ($p=0.002$), and overall were not as likely to have higher combined monthly income ($p<0.001$) (Table 14). Participants stated that condoms were used when having sex anally and vaginally (10.02% and 20.93%, respectively). Additionally, participants stated that they chose not to use condoms because of their monogamous relationship status (17.6%). Other categories of condom use that were selected, but not by the majority, were participant and/or their partner didn't like them so they were not used. When assessing attitudes towards condom use, chi-squared analysis showed that when asked on the effectiveness of a properly used condom in preventing HIV, sexual orientation was not shown to be statistically significant whereas participants with some college reported that condoms could be somewhat effective in preventing HIV ($p<0.001$) (Table 12.1).

Barriers to Testing, Linkages to Care, and Retaining Care

Identified barriers to testing include ever being tested for HIV and date of HIV test last performed. Linkages to and retaining care include most recent visit to a medical provider, attitudes on sexual health with a medical provider, and medications for prevention of HIV as shown in Table 12. Our results indicated that the majority of participants had been tested for HIV (49.41%) with only 24.64% reporting they've been tested in the last year and 59.84% not reporting a date of their last HIV test. When asked the main reason why they chose to be tested for HIV, 41% reported it being part of a sexual health or general health checkup. Participants when asked why they have not been tested for HIV, 49.08% stated that they felt they had a low chance of being exposed to HIV with 30.47% saying they were afraid of finding out if they had HIV.

Majority of participants (68.45%) reported their most recent visit to a doctor, nurse, or other healthcare worker for outpatient medical care was less than a year ago. When assessing participants attitudes towards health care providers regarding sexual health, 46.15% reported that they think it's important to discuss sexual behaviors with their provider to reduce negative health outcomes, but similarly 42.28% felt that it's uncomfortable to discuss sexual behaviors with a provider (Table 9). Chi-Squared analysis showed that the proportion of participants who have seen an outpatient healthcare worker in the last year were between

ages 25-34 years ($p=0.009$) and were employed full-time ($p<0.001$) (Table 10). Majority of participants also reported that their insurance plan was purchased through their employer (41.72%) (Table 9).

Our results showed that when asked about medications for prevention of HIV, 60.10% had heard of PrEP but 62.06% reported that in the last 12 months they had not had a discussion with a health care provider about taking PrEP and 65.45% reporting not being on PrEP. Among participants who have taken PrEP in the last year, 35.74% of them reported taking it almost every day with 26.10% taking it less often. Among participants who have talked to their providers about taking PrEP, majority reported that they initiated the discussion (61.15%) rather than their provider (36.69%) (Table 9). Chi-Squared analysis showed that there was statistical significance among taking PrEP in the last 12 months with gender ($p<0.001$), sexual orientation ($p<0.001$), and ethnicity ($p=0.023$). A majority of the participants being non-Hispanic (30.56%), lesbian, gay, bisexual, queer, or pansexual (48.80%), males (40.20%), reported being on PrEP in the last 12 months (Table 12).

Risk Behaviors

Identified risk behaviors include IDU, 4+ sex partners in the last year, and drinking alcohol or using drugs to enhance sexual experiences as shown in Table 11. Chi-squared analyses showed that there was statistical significance among injecting drugs other than those prescribed with age ($p<0.001$), education ($p=0.005$), and employment status ($p<0.001$). Although, participants aged 25-34 years old (81.5%), with some college (80.11%), and who were employed full-time (85.97%) said that they were not IV drug users. Participants who we male (63.66%), identified as straight (95.02%), and non-Hispanic (70.64%) all reported having less than four sexual partners in the last year. Gender, sexual orientation, and ethnicity did show statistical significance among number of sexual partners ($p<0.001$, $p<0.001$, and $p=0.031$, respectively). The proportion of participants who drank alcohol or used drugs to enhance sexual experiences were straight (70.65%, $p=0.002$) whereas males aged 25-34 years old reported not drinking alcohol or using drugs to enhance sexual experiences (60.24% and 61.97%, respectively) (Table 11).

CONCLUSIONS

Red Ribbon Survey

Participants from the Red Ribbon Survey were mostly Caucasian males, above age 35, and identified as LGBQP. A majority of the participants had some college or higher but made less than $20,000 per year. In relation to income, the insurance status for most of these individuals were from Ryan White Part B HIV/AIDS program, Medicare, or Medicaid to cover HIV-related expenses and additional healthcare needs. Also,

almost a quarter of participants did not know about health insurance assistance. These findings suggest that PLWH in Utah rely on government-assisted insurance programs for HIV medical care and do not know of programs that exist for insurance assistance. Furthermore, lack of insurance and low socioeconomic status could contribute to adherence to HIV prescribed medications and access to HIV care.

Our findings suggest that PLWH self-manage their diagnosis and want to seek HIV-related healthcare but need help with finding out if they qualify for free or low-cost care, making appointments for HIV medical care, and arranging transportation to HIV medical appointments. Interestingly, more than half of the participants said that a case manager, healthcare worker, health department, etc. had asked participants if they needed help with finding outpatient HIV medical care or assisted in finding outpatient HIV medical care. However, that was in their first 30 days of being diagnosed, implying there could be a gap in care where after the first 30 days of being diagnosed, continual treatment and access to care might be difficult to navigate on their own. To further support this was the fact that over 14% of participants said they did not know about case management services or they were unable to use them and 8% of participants did not know HIV medical care was available. Most participants were adhering to their prescribed HIV medications but about a fifth of them were rarely or sometimes taking them as prescribed; although, more than half the participants did not miss any doses of their medications within 30 days. Moreover, those who were adhering to medications and did not miss doses tended to rent or own their home. People living with HIV, in unstable living conditions might struggle with adherence to medication or miss doses due to moving around, forgetting medications at the last place stayed, or not having anywhere to store their belongings. Aside from medication adherence and access to HIV medical care, the results illustrate the need for more comprehensive care for PLWH. With the nature of HIV attacking the immune system, the chance of comorbidities is high, regardless of age.[14] The results showed that participants with higher education and full-time employment were less likely to be diagnosed with Hepatitis and Tuberculosis. Social determinants of health play a large role in barriers and access to care for PLWH. Furthermore, those who were employed full-time had fewer days of poor physical and mental health. Not only do participants need HIV medical care but mental health care as well, especially with an illness that has created stigma and increased experiences of discrimination.

Overall, stigma was experienced by participants similarly. Those who identified as male or female both had a mean stigma score of 25. Furthermore, there was no difference between those who identified as LGBQP or straight with experiencing stigma. Although stigma and discrimination related to HIV/AIDS have been prevalent for the past few decades, especially among race and sexual orientation,[15] those living with HIV in Utah may experience stigma similarly regardless of race, gender, or sexual orientation. This implies that society has started to debunk myths around race and sexual orientation for PLWH. However, there is still

hesitancy about who they disclose their HIV status to and fear of being hurt by how people react to their HIV status.

Community Health Survey

Participants from the Community Health survey were mostly non-Hispanic, straight males, and aged 25-34 years old and were employed full-time. Majority of participants made between $35,000 and <$60,000 a year and had insurance purchased through their employer. Additionally, the majority of participants had seen an outpatient medical provider in the past year. These findings suggest that people who have a higher chance of being exposed to HIV are more likely to be part of the lower to middle income class.

With trying to reduce new HIV infections in the state of Utah, Utah's Integrated HIV Prevention and Care Plan goals for the Community Health needs assessment include measuring number of HIV tests performed and reducing new HIV infections by assessing participants' knowledge and access to PrEP. Most recent visit to a medical provider and attitudes on talking about sexual health with a medical provider were also evaluated. Our findings suggest that the majority of the participants in our sample have been tested for HIV. Although individuals are being tested, approximately one fourth of them recalled being tested in the last year with more than half not reporting the date of their last test. The main reason individuals are being tested for HIV are due to regular general or sexual health checkups with their healthcare provider. Among those choosing not to be tested for HIV, the majority of participants sampled felt that they had a low chance of being exposed and/or were afraid of finding out if they had HIV. These findings on HIV testing are in accordance to the 2018 Utah BRFSS analysis that had reported a lower percentage of people getting tested for HIV. While our sample findings show a slight increase in individuals being tested in 2019, as stated previously, rates continue to be extremely low, where data is limited in truly assessing how many people are being tested for HIV. Considering HIV is a sexually transmitted infection, attitudes around discussing sexual health with a healthcare provider could potentially affect the conversation between individuals and their providers, and therefore, may affect the number of HIV tests being done. Majority of participants believed that it's important to discuss sexual behaviors with their provider to reduce negative health outcomes but also felt that it's uncomfortable to do so.

The PrEP assessment indicates that the majority of participants have heard of PrEP but in the last 12 months have not talked to a health care provider about taking PrEP. Therefore, participants are not actually taking it as a way to prevent themselves from being infected with HIV. Our findings suggest that there is a need for more and improved conversation surrounding PrEP among health care providers and their patients. Patients are more inclined to initiate the conversation about when to take PrEP compared to their health care providers.

A subsample taken within the participants of the community health survey consists of individuals who have 4+ sexual partners in the past year, are IV drug users, and/or non-straight men who have anal, receptive sex. This subsample provides an insight on the needs of those most at risk for being infected with HIV. Our findings show that the majority of these individuals are being tested for HIV when seeing their medical provider but the date of their last test is unknown as more than half of them didn't report when it was done.

Comparable to the UDOH 2017 data of PLWH in Utah, our 2019 findings illustrate the similarity among demographics as the Red Ribbon participants were 86.75% male and 11.42% female compared to 85% male and 15% female in 2017. Moreover, a majority of Red Ribbon participants had achieved viral suppression (65.5%) and were enrolled in Ryan White Part B HIV/AIDS program for insurance coverage (39.77%) similar to those who reported in 2017.[3] In 2018 the Utah Provider Needs Assessment was conducted to demonstrate the training needs of healthcare professionals throughout Utah and found that healthcare providers were least comfortable with HIV care and treatment and more comfortable with HIV testing and prevention.[16] These findings support ours in that over 40% of our participants stated that they received testing at a general or sexual health check-up. As for sexual health treatment, including HIV/AIDS, a majority of participants said they did not seek treatment while less than a quarter sought treatment from a provider. Additionally, nearly half of the participants said that speaking to a provider about sexual behaviors was important but half of the participants found that it was uncomfortable discussing sexual health behaviors with a provider. The implications of these results suggest that first, there is need for provider education to familiarize providers with comprehensive HIV care and treatment recommendations and second, providers should feel comfortable starting sexual health conversations with patients. Strategies to address these needs could be to utilize Peer Navigators and offer frequent access to case managers. The Utah Integrated HIV plan also discusses using Peer Navigators as a way to reach those living with HIV in Utah to share experiences, be a role model for medication adherence, and provide social support.[17]

LIMITATIONS

A major limitation in this project involved having to rely on one Ryan White partner, C1A, and their case management capacity. C1A saw and/or treated the majority of HIV positive individuals in Utah and due to their case management capacity, they were unable to put forth much effort in participating in the Red Ribbon needs assessment. Many conversations were had with C1A, Utah Department of Health, and the Kepka Team to try and coordinate ways to assist them in increasing their participation. In doing so, barriers were expressed by C1A when recruiting participants, which included length of survey and not having enough time to assist participants, incentives not being large enough ($10), lack of language choices (only English and Spanish available) and/or needing translators to assist participants. Having the Kepka team members at C1A to help facilitate the needs assessment was discussed. In doing so, another barrier expressed by C1A stating

there was lack of space to have the Kepka team members stationed at the clinic. Overall, the barriers experienced by C1A were also voiced by other community partners and were considered limitations to this project. To help mitigate these barriers, the incentives were increased to $20, the Kepka team members were at C1A twice a week to support case managers in recruiting participants and to assist participants in taking the survey if needed. The health literacy library was initially used to have participants complete the needs assessment, but we found that being at the clinic was more efficient in reaching participants and was eventually stationed in a hallway within the clinic. Multiple agencies also expressed that the documentation/tracking logs were more of a burden as the information needed on each was too much, and therefore, not done entirely or properly. Another limitation includes the possibility of duplicated responses. With surveys being available on-site at multiple community organizations, participants could have very well taken the survey more than once. Due to the anonymity of the survey there is no sure way to determine duplicity when cleaning data, especially for online responses. Online surveys and the incentive's page were separate and not linked to protect the individual's responses and in doing this, made it difficult to find participants who took it more than once. Another limitation was with the Institutional Review Board at UDOH and length of time for approval to begin data collection...

FUNDING AND SUPPORT

The sponsor and funder of this project is the Utah Department of Health Prevention, Treatment and Care Program (PTCP). A grant was provided to Huntsman Cancer Institute to carry out this needs assessment. Dr. Kepka has also received support from the Huntsman Cancer Institute and the College of Nursing at the University of Utah.

The REDCap application was funded by grant number 8UL1TR000105 (formerly UL1RR025764) from the National Center for Advancing Translational Sciences of the National Institutes of Health (NCATS/NIH).

TABLES

Table 1. Demographic Characteristics of Red Ribbon Participants (N=342)	
	n (%)
Gender Identity	
Male	281 (86.16)
Female	37 (10.82)
Transgender	1 (0.29)
Genderqueer	1 (0.29)
Something else	2 (0.58)
Prefer not to answer	2 (0.58)
Missing	18 (0.58)
Sexual Orientation	
Lesbian	1 (0.29)
Gay	216 (63.16)
Bisexual	30 (8.77)
Queer	2 (0.58)
Straight	62 (18.13)
Pansexual	3 (0.88)
Something else	2 (0.58)
Prefer not to answer	13 (3.80)
Missing	13 (3.80)
Age	
18-24 years	7 (2.05)
25-34 years	47 (13.74)
35-44 years	84 (24.56)
45-54 years	83 (24.27)
Over 55 years	90 (26.32)
Missing	31 (9.06)
Ethnicity	
Non-Hispanic	239 (69.88)
Hispanic	72 (21.05)
Missing	31 (9.06)
Education	
Never attended	1 (0.29)
Grades 1 - 8	16 (4.68)
Grades 9 - 11	30 (8.77)
Grade 12 or GED	62 (18.13)
Some college	149 (43.57)
Bachelor's Degree	45 (13.16)
Any post graduate studies	24 (7.02)
Missing	15 (4.39)
Employment Status [a]	
Employed full-time	109 (31.87)
Employed part-time	46 (13.45)
Homemaker	3 (0.88)
Student full-time	3 (0.88)
Student part-time	4 (1.17)
Retired	25 (7.31)
Unable to work for health reasons	75 (21.93)
Unemployed	68 (19.88)
Other	18 (5.26)
Combined Monthly Income	

0 to $416	63 (18.42)
$417 to $833	39 (11.40)
$834 to $1041	27 (7.89)
$1042 to $1249	27 (7.89)
$1250 to $1666	33 (9.65)
$1667 to $2083	31 (9.06)
$2084 to $2499	27 (7.89)
$2500 to $2916	15 (4.39)
$2917 to $3333	14 (4.09)
$3334 to $4166	18 (5.26)
$4167 to $4999	9 (2.63)
$5000 to $6249	5 (1.46)
$6250 or more	21 (6.14)
Missing	13 (3.80)

*Select all that apply. Participants who selected more than one option are included.

Table 1.1. Demographic Characteristics of Red Ribbon Participants, Collapsed Variables (N=342) **	
	n (%)
Gender Identity [a]	
Male	281 (82.16)
Female	37 (10.82)
Something else	4 (1.17)
Missing	20 (5.85)
Sexual Orientation [b]	
LGBQP	252 (73.68)
Straight	62 (18.13)
Something else	2 (0.58)
Missing	26 (7.60)
Age Group [c]	
18-24 years	7 (2.05)
25-34 years	47 (13.74)
35-44 years	84 (24.56)
45-54 years	83 (24.27)
Over 55 years	90 (26.32)
Missing	31 (9.06)
Ethnicity	
Non-Hispanic	239 (76.85)
Hispanic	72 (23.15)
Missing	31 (9.06)
Education [d]	
< Grade 12	47 (14.74)
Grade 12 or GED	62 (18.13)
Some college	149 (43.57)
Bachelor's Degree and higher	69 (20.18)
Missing	15 (4.39)
Employment Status [e]	
Full-time	109 (31.87)
Part-time	43 (12.57)
Homemaker	3 (0.88)
Student	4 (1.17)
Retired	24 (7.02)
Unemployed/Unable to work for health reasons	131 (38.30)
Other	13 (3.80)
Missing	15 (4.39)
Combined Monthly Income [f]	
< $1666	189 (55.26)
$1667 to $2916	73 (21.35)
$2917 to $4999	41 (11.99)
$5000 or more	26 (7.60)
Missing	13 (3.80)

**Prefer not to answer' are included in the 'Missing.' All were excluded from analyses.
[a] 'Something else' includes Transgender, Genderqueer, and Something else.
[b] LGBQP includes lesbian, gay, bisexual, queer, and pansexual.
[c] Age group was made based on given birth year. 18-24 is birth years 1995-2001, 25-34 is 1985-1994, 35-44 is 1975-1984, 45-54 is 1965-1974, over 55 is 1964 and older.
[d] <Grade 12 includes never attended school and grades 1-11. Bachelor's degree and higher includes any post graduate studies.
[e] Employment status has been recoded. Those who selected full-time & another were coded as full-time. Those who selected retired & another were coded as retired. Student includes part and full-time. Unemployed and unable to work has been combined.
[f] Combined monthly income based off of corresponding annual income: <$1666 is <$20,000 per year, $1667 to $2916 is $20,000 to $34,999 per year, $2917 to $4999 is $35,000 to $59,999 per year and $5000 is >$60,000.

Table 2. Barriers, Linkage to Services, and Retaining Care of Red Ribbon Participants (N=342)	
	n (%)
Barriers to Testing	
HIV tests performed based on participants last negative HIV test	
< year ago (2019)	27 (7.89)
1+ years ago (<2018)	77 (22.51)
Missing	238 (69.59)
Number of clinic visits in the last year	
Mean (SD)	3.26 (2.59)
Linkage to Care and Description of Those Not In Care	
Newly diagnosed HIV positive persons linked to care within 30 days of diagnosis	
Ask if needed help finding a place to go for outpatient HIV medical care or assisted in finding where to go for outpatient HIV medical care.	
Yes	226 (66.08)
No	86 (25.15)
Don't know	30 (8.77)
Help figure out if qualified for free or low-cost outpatient HIV medical care.	
Yes	226 (66.08)
No	88 (25.73)
Don't know	28 (8.19)
Help make an appointment for outpatient HIV medical care.	
Yes	234 (68.42)
No	82 (23.98)
Don't know	26 (7.60)
Help arrange transportation to outpatient HIV medical care appointment.	
Yes	111 (32.46)
No	196 (57.31)
Don't know	29 (8.48)
Missing	6 (1.75)
After first visit to an outpatient medical provider, went more than a year without seeing any outpatient HIV medical provider.	
Yes	55 (16.08)
No	263 (76.90)
Don't know	9 (2.63)
Missing	15 (4.39)
If you have NOT have HIV medical care, which explains why?*	
Didn't like or trust healthcare providers	9 (24.32)
Were physically sick or hospitalized	3 (8.10)
You or your healthcare provider didn't think you needed to	2 (5.41)
New HIV infections	
2019	6 (1.85)
2018	23 (7.10)
2017	13 (4.01)
2016	13 (4.01)
2015	16 (4.94)
Insurance Status	
Plan purchased through employer	43 (12.57)
Plan purchased on own or family member	8 (2.34)
Medicare	37 (10.82)
Medicaid	67 (19.59)
Ryan White HIV/AIDS Program or ADAP	136 (39.77)
TRICARE	2 (0.58)

Alaska Native	0
Other	2 (0.58)
No insurance	17 (4.97)
Missing	30 (8.77)
Health Insurance Assistance	
Did not know this service was available	50 (14.62)
Did not need this service	93 (27.19)
Did need but could not get this service	29 (8.48)
Did need and was able to use this service	148 (43.27)
Missing	22 (6.43)
Barriers to Retaining Care	
Individuals who are virally suppressed	
Undetectable (<20 copies/ml)	125 (36.55)
Virally Suppressed (20 to <200 copies/ml)	14 (4.09)
200+ copies/ml	11 (3.22)
Missing	192 (56.14
Individuals participating in case management services	
Did not know this service was available	28 (8.19)
Did not need this service	58 (16.96)
Did need but could not get this service	21 (6.14)
Did need and was able to use this service	212 (61.99)
Missing	23 (6.73)
Early intervention services	
Did not know this service was available	50 (14.62)
Did not need this service	177 (51.75)
Did need but could not get this service	13 (3.80)
Did need and was able to use this service	81 (23.68)
Missing	21 (6.14)
HIV medical care	
Did not know this service was available	28 (8.19)
Did not need this service	126 (36.84)
Did need but could not get this service	6 (1.75)
Did need and was able to use this service	159 (46.49)
Missing	23 (6.73)
*Question was select all that apply. Top three answers were chosen. 37 participants answered this question.	

Table 3. HIV-Related Disparities and Health Inequities Among Red Ribbon Participants (N=342)	
	n (%)
Relationship status	
Married	43 (12.57)
Divorced	42 (12.28)
Widowed	13 (3.80)
Separated	8 (2.34)
Never married/Single	176 (51.46)
Member of an unmarried couple/Cohabitation	45 (13.16)
Missing	15 (4.39)
Living status	
SRO	9 (2.63)
Rent/Own	229 (66.96)
Family	42 (12.28)
Friends	12 (3.51)
Couch Surfing	8 (2.34)
Motel voucher system	2 (0.58)
Car	2 (0.58)
Camping	3 (0.88)
Shelter	2 (0.58)
Other	13 (3.80)
Missing	20 (5.85)
Stigma	
Agree/Strongly Agree	
I have been hurt by how many people reacted to learning I have HIV.	181 (54.69)
I have stopped socializing with some people because of their reactions to my HIV status.	159 (48.33)
I am very careful about who I tell that I have HIV.	243 (74.31)

Table 4. Demographic Characteristics in Relation to Access to HIV Medical Care Among Red Ribbon Participants												
Items	Receiving Care Within 30 days of Testing Positive for HIV											
	Help figuring out if qualified for free or low-cost HIV care				Help to make an appointment				Help to arrange transportation			
	Yes n (%)	No n (%)	Don't know n (%)	p*	Yes n (%)	No n (%)	Don't know n (%)	p*	Yes n (%)	No n (%)	Don't know n (%)	p*
Gender												
Male	186 (86.51)	70 (88.61)	25 (89.29)	**0.029**	195 (87.84)	64 (85.33)	22 (88.00)	0.472	84 (82.35)	168 (90.32)	23 (82.14)	**0.011**
Female	27 (12.56)	9 (11.39)	1 (3.57)		24 (10.81)	11 (14.67)	2 (8.00)		16 (15.69)	18 (9.68)	3 (10.71)	
Something else	2 (0.93)	0	2 (7.14)		3 (1.35)	0	1 (4.00)		2 (1.96)	0	2 (7.14)	
Sexual Orientation												
LGBQP	167 (78.40)	63 (82.89)	22 (81.48)	0.094	175 (79.55)	58 (81.69)	19 (76.00)	0.818	74 (72.55)	153 (84.53)	19 (70.37)	0.043
Straight	46 (21.60)	11 (14.47)	5 (18.52)		44 (20.00)	12 (16.90)	6 (24.00)		28 (27.45)	26 (14.36)	8 (29.63)	
Something else	0	2 (2.63)	0		1 (0.45)	1 (1.41)	0		0	2 (1.10)	0	
Age												
18-24 years	4 (1.99)	1 (1.20)	2 (7.41)	**0.001**	4 (1.90)	2 (2.67)	1 (3.85)	**0.030**	2 (2.02)	2 (1.12)	3 (11.11)	**0.011**
25-34 years	39 (19.40)	7(8.43)	1 (3.70)		38 (18.10)	8 (10.67)	1 (3.85)		17 (17.17)	25 (13.97)	3 (11.11)	
35-44 years	63 (31.34)	15 (18.07)	6 (22.22)		62 (29.52)	15 (20.00)	7 (26.92)		33 (33.33)	43 (24.02)	8 (29.63)	
45-54 years	44 (21.89)	27 (32.53)	12 (44.44)		48 (22.86)	22 (29.33)	13 (50.00)		26 (26.26)	46 (25.70)	9 (33.33)	
Over 55 years	51 (25.37)	33 (39.76)	6(22.22)		58 (27.62)	28 (37.33)	4 (15.38)		21 (21.21)	63 (35.20)	4 (14.81)	
Ethnicity												
Non-Hispanic	161 (76.30)	60 (81.08)	18 (69.23)	0.443	170 (77.63)	52 (76.47)	17 (70.83)	0.753	70 (70.71)	147 (82.12)	17 (62.96)	**0.020**
Hispanic	50 (23.70)	14 (18.92)	8 (30.77)		49 (22.37)	16 (23.53)	7 (29.17)		29 (29.29)	32 (17.88)	10 (37.04)	
Education												
< Grade 12	33 (14.86)	7 (9.09)	7 (25.00)	0.428	32 (14.04)	9 (12.33)	6 (23.08)	0.747	23 (21.50)	18 (9.73)	5 (17.24)	**0.004**
Grade 12 or GED	45 (20.27)	13 (16.88)	4 (14.29)		43 (18.86)	16 (21.92)	3 (11.54)		27 (25.23)	30 (16.22)	5 (17.24)	
Some college	101 (45.50)	37 (48.05)	11 (39.29)		106 (46.49)	33 (45.21)	10 (38.46)		46 (42.99)	87 (47.03)	12 (41.38)	
Bachelor's Degree and higher	43 (19.37)	20 (25.97)	6 (21.43)		47 (20.61)	15 (20.55)	7 (26.92)		11 (10.28)	50 (27.03)	7 (24.14)	
Employment Status												
Full-time	75 (34.56)	23 (28.05)	11 (39.29)	0.198	73 (32.44)	22 (28.95)	14 (53.85)	0.242	30 (29.13)	64 (33.86)	12 (41.38)	0.111
Part-time	27 (12.44)	14 (17.07)	2 (7.14)		32 (14.22)	10 (13.16)	1 (3.85)		11 (10.68)	30 (15.87)	1 (3.45)	
Homemaker	3 (1.38)	0	0		3 (1.33)	0	0		1 (0.97)	1 (0.53)	1 (3.45)	
Student	4 (1.84)	0	0		3 (1.33)	1 (1.32)	0		2 (1.94)	2 (1.06)	0	
Retired	15 (6.91)	9 (10.98)	0		19 (8.44)	4 (5.26)	1 (3.85)		7 (6.80)	16 (8.47)	1 (3.45)	
	88 (40.55)	31 (37.80)	12 (42.86)		90 (40.00)	33 (43.42)	8 (30.77)		48 (46.60)	71 (37.57)	10 (34.48)	

Unemployed/ Unable to work Other	5 (2.30)	5 (6.10)	3 (10.71)		5 (2.22)	6 (7.89)	2 (7.69)		4 (3.88)	5 (2.65)	4 (13.79)	
Monthly Income												
< $1666	126 (57.27)	45 (54.88)	18 (66.67)	0.122	129 (56.58)	45 (60.00)	15 (57.69)	0.475	62 (59.62)	104 (54.74)	21 (72.41)	0.209
$1667 to $2916	46 (20.91)	20 (24.39)	7 (25.93)		50 (21.93)	16 (21.33)	7 (26.92)		23 (22.12)	43 (22.63)	4 (13.79)	
$2917 to $4999	33 (15.00)	6 (7.32)	2 (7.41)		33 (14.47)	5 (6.67)	3 (11.54)		14 (13.46)	22 (11.58)	4 (13.79)	
$5000 or more	15 (6.82)	11 (13.41)	0		16 (7.02)	9 (12.00)	1 (3.85)		5 (4.81)	21 (11.05)	0	
*p values were calculated using a chi-squared analysis. Bolded values indicate significance at p<0.05												

Table 4.1 Demographic Characteristics in Relation to Access to HIV Medical Care cont'd									
Items	Seeing an outpatient HIV medical healthcare worker			Help finding a place for outpatient HIV care				# of clinic visits in the past year	
	Yes n (%)	No n (%)	p¥	Yes n (%)	No n (%)	Don't know n (%)	p¥	Test Statistic	p¥
Gender									
Male	219 (87.95)	57 (85.07)	0.821	192 (88.48)	65 (84.42)	24 (85.71)	0.432	3.32	**0.038** [a]
Female	27 (10.84)	9 (13.43)		22 (10.14)	12 (15.58)	3 (10.71			
Something else	3 (1.20)	1 (1.49)		3 (1.38)	0	1 (3.57))			
Sexual Orientation									
LGBQP	198 (80.82)	53 (81.54)	0.572	172 (80.37)	60 (81.08)	20 (71.43)	0.650	4.79	**0.009** [a]
Straight	46 (18.78)	11 (16.92)		41 (19.16)	13 (17.57)	8 (28.57)			
Something else	1 (0.41)	1 (1.54)		1 (0.47)	1 (1.35)	0			
Age									
18-24 years	7 (2.97)	0	0.099	4 (1.96)	2 (2.53)	1 (3.57)	**0.037**	-0.035	0.6168 [b]
25-34 years	36 (15.25)	11 (17.74)		37 (18.14)	8 (10.13)	2 (7.14)			
35-44 years	63 (26.69)	19 (30.65)		60 (29.41)	17 (21.52)	7 (25.00)			
45-54 years	55 (23.31)	21 (33.87)		46 (22.55)	23 (29.11)	14 (50.00)			
Over 55 years	75 (31.78)	11 (17.74)		57 (27.94)	29 (36.71)	4 (14.29)			
Ethnicity									
Non-Hispanic	189 (78.42)	47 (71.21)	0.218	166 (78.30)	55 (76.39)	18 (66.67)	0.400	0.16	0.694 [a]
Hispanic	52 (21.58)	19 (28.79)		46 (21.70)	17 (23.61)	9 (33.33)			
Education									
< Grade 12	35 (13.89)	9 (13.24)	0.307	33 (14.86)	9 (11.69)	5 (17.86)	0.855	-0.029	0.6623 [c]
Grade 12 or GED	43 (17.06)	18 (26.47)		41 (18.47)	17 (22.08)	4 (14.29)			
Some college	117 (46.43)	30 (44.12)		98 (44.14)	38 (49.35)	13 (46.43)			
Bachelor's Degree and higher	57 (22.62)	11 (16.18)		50 (22.52)	13 (16.88)	6 (21.43)			
Employment Status									
Full-time	84 (33.20)	23 (34.33)	0.682	74 (33.79)	22 (27.85)	13 (44.83)	0.201	0.162	**0.011** [b]
Part-time	35 (13.83)	7 (10.45)		31 (14.16)	11 (13.92)	1 (3.45)			
Homemaker	3 (1.19)	0		3 (1.37)	0	0			
Student	3 (1.19)	1 (1.49)		4 (1.83)	0	0			
Retired	20 (7.91)	2 (2.99)		14 (6.39)	10 (12.66)	0			
Unemployed/	98 (33.74)	31 (46.27)		87 (39.73)	31 (39.24)	13 (44.83)			
Unable to work	10 (3.95)	3 (4.48)		6 (2.74)	5 (6.33)	2 (6.90)			

Other									
Monthly Income									
< $1666	145 (56.64)	39 (58.21)	0.927	121 (55.00)	50 (63.29)	18 (60.00)	0.530	-0.071	0.2864 [b]
$1667 to $2916	59 (23.05)	13 (19.40)		50(22.73)	15 (18.99)	8 (26.67)			
$2917 to $4999	32 (12.50)	9 (13.43)		32 (14.55)	6 (7.59)	3 (10.00)			
$5000 or more	20 (7.81)	6 (8.69)		17 (7.73)	8 (10.13)	1 (3.33)			

[¥] p values were calculated using a chi-square analysis unless specified otherwise. Bolded values indicate significance at p<0.05.
[a] One-way ANOVA was conducted to obtain p value.
[b] Pearson's correlation was conducted to obtain p value.
[c] Spearman's Rank Correlation was conducted to obtain a p value.

Table 5. Demographic Characteristics in Relation to Medication Adherence and Stigma Among Red Ribbon Participants										
	How many days of at least one missed dose in past 30 days?			How often did you take HIV medications the way you were prescribed?				Overall stigma ‡ (Max: 55)		
	<15 days n (%)	15+ days n (%)	p*	Never/ Rarely n (%)	Usually/ Sometimes n (%)	Almost always/ Always n (%)	p*	N	Mean (SD)	p*
									25.05 (11.58)	
Gender										
Male	249 (88.30)	20 (83.33)	0.538	17 (85.00)	16 (94.12)	244 (87.14)	0.859	281	25.25 (11.15)	0.743 [a]
Female	29 (10.28)	4 (16.67)		3 (15.00)	1 (5.88)	32 (11.43)		37	25.92 (10.87)	
Something else	4 (1.42)	0		0	0	4 (1.43)		4	29.25 (5.62)	
Sexual Orientation										
LGBQP	226 (81.88)	18 (69.23)	0.260	14 (70.00)	15 (83.33)	219 (80.51)	0.763	252	25.49 (10.96)	0.603 [a]
Straight	49 (17.75)	8 (30.77)		6 (30.00)	3 (16.67)	51 (18.75)		62	23.97 (11.76)	
Something else	1 (0.36)	0		0	0	2 (0.74)		2	27.50 (17.67)	
Age										
18-24 years	5 (1.88)	0	0.082	2 (10.53)	0	4 (1.51)	0.054	7	35.14 (8.73)	0.306 [b]
25-34 years	38 (14.29)	3 (10.71)		4 (21.05)	3 (20.00)	39 (14.72)		47	25.06 (12.19)	
35-44 years	73 (27.44)	6 (21.43)		5 (26.32)	7 (46.67)	70 (26.42)		84	24.49 (11.85)	
45-54 years	67 (25.19)	14 (50.00_		6 (31.58)	1 (6.67)	70 (26.42)		83	23.73 (11.60)	
Over 55 years	83 (31.20)	5 (17.86)		2 (10.53)	4 (26.67)	82 (30.94)		90	24.76 (10.60)	
Ethnicity										
Non-Hispanic	209 (76.56)	20 (80.00)	0.696	15 (78.95)	10 (76.92)	210 (76.92)	0.980	239	24.78 (11.02)	0.184 [a]
Hispanic	64 (23.44)	5 (20.00)		4 (21.05)	3 (23.08)	63 (23.08)		72	26.79 (11.78)	
Education										
< Grade 12	37 (12.98)	6 (23.08)	0.204	4 (20.00)	3 (17.65)	37 (13.07)	0.881	47	23.68 (12.48)	0.226 [c]
Grade 12 or GED	52 (18.25)	4 (15.38)		4 (20.00)	3 (17.65)	54 (19.08)		62	25.63 (11.93)	
Some college	132 (46.32)	14 (53.85)		9 (45.00)	9 (52.94)	128 (45.23)		149	25.20 (11.46)	
Bachelor's Degree and higher	64 (22.46)	2 (7.69)		3 (15.00)	2 (11.76)	64 (22.61)		69	26.08 (9.46)	
Employment Status										
Full-time	94 (33.10)	9 (34.62)	0.742	8 (42.11)	5 (27.78)	95 (33.57)	0.841	109	26.60 (9.85)	0.467 [b]
Part-time	39 (13.73)	2 (7.69)		2 (10.53)	1 (5.56)	40 (14.13)		43	23.26 (11.02)	
Homemaker	3 (1.06)	0		0	0	3 (1.06)		3	30.33 (4.73)	
Student	4 (1.41)	0		0	1 (5.56	3 (1.06)		4	28.5 (13.77)	
Retired	23 (8.10)	1 (3.85)		0	2 (11.11)	21 (7.42)		24	22.21 10.30)	
Unemployed/ Unable to work	112 (39.44)	12 (46.15)		8 (42.11)	8 (44.44)	111 (39.22)		131	25.39 (12.54)	
Other	9 (3.17)	2 (7.69)		1 (5.26)	1 (5.56)	10 (3.53)		13	13 (24.31)	
Monthly Income										
< $1666	164 (57.34)	12 (48.00)	0.467	11 (57.89)	10 (52.63)	164 (57.54)	0.171	189	25.06 (11.52)	0.747 [b]
	63 (22.03)	7 (28.00)		3 (15.79)	2 (10.53)	66 (23.16)		73	26.94 (12.09)	

$1667 to $2916 $2917 to $4999 $5000 or more	34 (11.89) 25 (8.74)	5 (20.00) 1 (4.00)		2 (10.53) 3 (15.79)	6 (31.58) 1 (5.26)	33 (11.58) 22 (7.72)		41 26	23.63 (9.32) 26.73 (9.61)	
Living Status										
Single Room Occupancy	4 (1.43)	3 (11.11)	**0.000**							
Rent/Own	208 (74.29)	14 (51.85)								
Family	39 (13.93)	2 (7.41)								
Friends	9 (3.21)	1 (3.70)								
Couch Surfing	8 (2.86)	0								
Motel voucher system	1 (0.36)	1 (3.70)								
Car	2 (0.71)	0								
Camping	1 (0.36)	1 (3.70)								
Shelter	1 (0.36)	1 (3.70)								
Other	7 (2.50)	4 (14.81)								

‡ Questions related to stigma were on a 5-point Likert scale. They were scored with a max of 55 indicating high stigma relating to HIV. Overall stigma scale had a Cronbach's alpha of 0.81 which indicates good internal validity.

ǂ p values were calculated using a chi-square analysis unless specified otherwise. Bolded values indicate significance at $p<0.05$.

[a] One-way ANOVA was conducted to obtain p value.

[b] Pearson's correlation was conducted to obtain p value.

[c] Spearman's Rank Correlation was conducted to obtain a p value.

Table 6. Demographic Characteristics in Relation to Viral Load and Quality of Life Among Red Ribbon Participants											
	Viral load±				General health status			# of days poor physical or mental health kept from doing usual activities			
	<20 copies/ml n (%)	20 to < 200 copies/ml n (%)	200+ copies/ml n (%)	p¥	Poor/Fair n (%)	Good/Very Good/Excellent n (%)	p¥	<10 days n (%)	10-20 days n (%)	>20 days n (%)	p¥
Gender											
Male	198 (88.39)	12 (85.71)	8 (88.89)	0.340	65 (86.67)	209 (87.82)	0.432	174 (89.23)	59 (83.10)	27 (84.38)	0.493
Female	24 (10.71)	1 (7.14)	1 (11.11)		10 (13.33)	25 (10.50)		19 (9.74)	10 (14.08)	5 (15.63)	
Something else	2 (0.89)	1 (7.14)	0		0	4 (1.68)		2 (1.03)	2 (2.82)	0	
Sexual Orientation											
LGBQP	97 (82.91)	12 (92.31)	9 (90.00)	0.893	55 (75.34)	190 (81.20)	0.431	34 (85.00)	59 (85.51)	23 (76.67)	0.371
Straight	19 (16.24)	1 (7.69)	1 (10.00)		17 (23.29)	43 (18.38)		6 (15.00)	10 (14.49)	6 (20.00)	
Something else	1 (0.85)	0	0		1 (1.37)	1 (0.43)		0	0	1 (3.33)	
Age											
18-24 years	3 (1.36)	1 (8.33)	0	0.426	1 (1.43)	6 (2.63)	0.155	3 (1.57)	2 (2.99)	0	0.809
25-34 years	33 (15.00)	2 (16.67)	3 (33.33)		5 (7.14)	41 (17.98)		26 (13.61)	9 (13.43)	7 (24.14)	
35-44 years	55 (25.00)	3 (25.00)	2 (22.22)		20 (28.57)	61 (26.75)		50 (26.18)	21 (31.34)	8 (27.59)	
45-54 years	65 (29.55)	1 (8.33)	2 (22.22)		18 (25.71)	60 (26.32)		53 (27.75)	18 (26.87)	7 (24.14)	
Over 55 years	64 (29.09)	5 (41.67)	2 (22.22)		26 (37.14)	60 (26.32)		59 (30.89)	17 (25.37)	7 (24.14)	
Ethnicity											
Non-Hispanic	173 (79.36)	13 (100.00)	5 (55.56)	**0.038**	61 (83.56)	172 (74.78)	0.121	147 (76.17)	54 (80.60)	22 (73.33	0.674
Hispanic	45 (20.64)	0	4 (44.44)		12 (16.44)	58 (25.22)		46 (23.83)	13 (19.40)	8 (26.67)	
Education											
< Grade 12	26 (11.50)	1 (7.69)	0	0.059	11 (14.10)	35 (14.52)	0.484	35 (17.77)	4 (5.48)	3 (9.09)	0.081
Grade 12 or GED	41 (18.14)	1 (7.69)	1 (10.00)		18 (23.08)	42 (17.43)		37 (18.78)	15 (20.55)	7 (21.21)	
Some college	112 (49.56)	4 (30.77)	4 (40.00)		37 (47.44)	110 (45.64)		81 (41.12)	40 (54.79)	19 (57.58)	
Bachelor's Degree and higher	47 (20.80)	7 (53.85)	5 (50.00)		12 (15.38)	54 (22.41)		44 (22.34)	14 (19.18)	4 (12.12)	
Employment Status											
Full-time	34 (27.64)	6 (42.86)	2 (20.00)	0.974	7 (9.09)	100 (41.49)	**0.000**	10 (24.39)	17 (23.29)	5 (15.15)	**0.028**
Part-time	19 (15.45)	2 (14.29)	2 (20.00)		2 (2.60)	39 (16.18)		11 (26.83)	11 (15.07)	1 (3.03)	
Homemaker	0	0	0		0	3 (1.24)		0	0	0	
Student	3 (2.44)	0	0		2 (2.60)	2 (0.83)		0	0	2 (6.06)	
Retired	8 (6.50)	1 (7.14)	1 (10.00)		6 (7.79)	16 (6.64)		2 (4.88)	3 (4.11)	1 (3.03)	
Unemployed/ Unable to work	55 (44.72)	5 (35.71)	5 (50.00)		58 (75.32)	71 (29.46)		17 (41.46)	38 (52.05)	24 (72.73)	
Other	4 (3.25)	0	0		2 (2.60)	10 (4.15)		1 (2.44)	4 (5.48)	0	
Monthly Income											
< $1666	124 (54.87)	4 (28.57)	5 (45.45)	**0.028**	54 (67.50)	130 (54.17)	0.078	102 (51.52)	49 (68.06)	23 (67.65)	0.132
$1667 to $2916	53 (23.45)	3 (21.43)	4 (36.36)		17 (21.25)	54 (22.50)			14 (19.44)	6 (17.65)	

$2917 to $4999 $5000 or more	30 (13.27) 19 (8.41)	2 (14.29) 5 (35.71)	2 (18.18) 0		7 (8.75) 2 (2.50)	34 (14.17) 22 (9.17)		49 (24.75) 27 (13.64) 20 (10.10)	7 (9.72) 2 (2.78)	4 (11.76) 1 (2.94)	
±Categories: <20 is undetectable, 20 to <200 is virally suppressed, 200+ medium to high viral load ¥p values were calculated using a chi-square analysis. Bolded values indicate significance at p<0.05											

Table 6.1 Demographic Characteristics in Relation to Viral Load and Quality of Life												
	Received HPV vaccine §			Received Flu shot §			Ever had Hepatitis? §			Positive skin or blood test for TB §		
	Yes n (%)	No/Provider Refused n (%)	p*	Yes n (%)	No n (%)	p*	Yes n (%)	No n (%)	p*	Yes n (%)	No n (%)	p*
Gender												
Male	54 (91.53)	126 (84.56)	0.522	239 (88.19)	36 (83.72)	0.387	67 (88.16)	190 (87.56)	0.582	44 (86.27)	210 (87.50)	0.918
Female	4 (6.78)	21 (14.09)		28 (10.33)	7 (16.28)		9 (11.84)	24 (11.06)		6 (11.76)	27 (11.25)	
Something else	1 (1.69)	2 (1.34)		4 (1.48)	0		0	3 (1.38)		1 (1.96)	3 (1.25)	
Sexual Orientation												
LGBQP	52 (86.67)	118 (78.67)	0.372	211 (79.62)	35 (85.37)	0.166	56 (75.68)	175 (82.55)	0.243	35 (71.43)	196 (82.35)	0.135
Straight	8 (13.33)	31 (20.67)		53 (20.00)	5 (12.20)		18 (24.32)	35 (16.51)		14 (28.57)	40 (16.81)	
Something else	0	1 (0.67)		1 (0.38)	1 (2.44)		0	2 (0.94)		0	2 (0.84)	
Age												
18-24 years	4 (6.67)	0	**0.002**	6 (2.34)	0	0.085	0	5 (2.48)	0.075	1 (2.08)	3 (1.30)	0.060
25-34 years	14 (23.33)	18 (12.59)		36 (14.06)	11 (27.50)		8 (10.67)	33 (16.34)		4 (8.33)	39 (16.88)	
35-44 years	18 (30.00)	39 (27.27)		68 (26.56)	14 (35.00)		15 (20.00)	61 (30.20)		9 (18.75)	68 (29.44)	
45-54 years	11 (18.33)	37 (25.87)		68 (25.56)	7 (17.50)		24 (32.00)	50 (24.75)		12 (25.00)	61 (26.41)	
Over 55 years	13 (21.67)	49 (34.27)		78 (30.47)	8 (20.00)		28 (37.33)	53 (26.24)		22 (45.83)	60 (25.97)	
Ethnicity												
Non-Hispanic	35 (61.40)	117 (82.98)	**0.002**	208 (77.90)	27 (69.23)	0.231	57 (80.28)	163 (76.89)	0.552	34 (72.34)	182 (77.78)	0.420
Hispanic	22 (38.60)	24 (17.02)		59 (22.10)	12 (30.77)		14 (19.72)	49 (23.11)		13 (27.66)	52 (22.22)	
Education												
< Grade 12	3 (4.92)	20 (13.51)	**0.022**	37 (13.50)	8 (18.18)	0.057	12 (15.58)	29 (13.18)	**0.010**	11 (21.57)	31 (12.70)	0.113
Grade 12 or GED	17 (27.87)	20 (13.51)		44 (16.06)	13 (29.55)		17 (22.08)	40 (18.18)		11 (21.57)	41 (16.80)	
Some college	32 (52.46)	64 (43.24)		134 (48.91)	13 (29.55)		42 (54.55)	94 (42.73)		23 (45.10)	112 (45.90)	
Bachelor's Degree and higher	9 (14.75)	44 (29.73)		59 (21.53)	10 (22.73)		6 (7.79)	57 (25.91)		6 (11.76)	60 (24.59)	
Employment												
Full-time	27 (44.26)	50 (32.89)	0.666	92 (33.82)	12 (26.67)	0.745	10 (13.16)	91 (41.18)	**0.000**	17 (33.33)	85 (34.84)	0.152
Part-time		23 (15.13)		37(13.60)				31 (14.03)			36 (14.75)	

Homemaker	6 (9.84)	1 (0.66)		3 (1.10)	6 (13.33)		10	2 (0.90)		4 (7.84)	2 (0.82)	
Student	0	2 (1.32)		3 (1.10)	0		(13.16)	2 (0.90)		1 (1.96)	3 (1.23)	
Retired	0	11 (7.24)		20 (7.35)	1 (2.22)		1 (1.32)	10 (4.52)		0	13 (5.33)	
Unemployed/	5 (8.20)	61 (40.13)		107 (39.34	2 (4.44)		2 (2.63)	78 (35.29)		8 (15.69)	96 (39.34)	
Unable to work	22				23		10			20		
Other	(36.07)	4 (2.63)		10 (3.68)	(51.11)		(13.16)	7 (3.17)		(39.22)	9 (3.69)	
							39					
	1 (1.64)				1 (2.22)		(51.32)			1 (1.96)		
							4 (5.26)					
Monthly Income												
< $1666	32	87 (57.24)	0.872	152	31	0.404	51	117	0.055	35	134	0.223
$1667 to $2916	(50.79)	31 (20.39)		(55.47)	(68.89)		(67.11)	(52.70)		(67.31)	(54.25)	
$2917 to $4999	16	22 (14.47)		64 (23.36)	7 (15.56)		17	51 (22.97)		10	55 (22.27)	
$5000 or more	(25.40)	12 (7.89)		36 (13.14)	4 (8.89)		(22.37)	33 (14.86)		(19.23)	38 (15.38)	
	8 (12.70)			22 (8.03)	3 (6.67)		6 (7.89)	21 (9.46)		3 (5.77)	20 (8.10)	
	7 (11.11)						2 (2.63)			4 (7.69)		

§ 'Don't Know' responses were not included in analysis and considered missing.

¥ p values were calculated using a chi-square analysis. Bolded values indicate significance at $p<0.05$.

Table 7. Demographic Characteristics of Community Health Participants (N=767)	
	n (%)
Gender	
Male	411 (53.59)
Female	258 (33.64)
Transgender	28 (3.65)
Genderqueer	11 (1.43)
Something else	1 (0.13)
Prefer not to answer	5 (0.65)
Missing	53 (6.91)
Sexual Orientation	
Lesbian	23 (3.00)
Gay	152 (19.82)
Bisexual	108 (14.08)
Queer	12 (1.56)
Straight	362 (47.20)
Pansexual	30 (3.91)
Something else	5 (0.65)
Prefer not to answer	22 (2.87)
Missing	53 (6.91)
Age	
18-24 years	117 (15.25)
25-34 years	423 (55.15)
35-44 years	161 (20.99)
45-54 years	36 (4.69)
Over 55 years	26 (3.39)
Missing	4 (0.52)
Ethnicity	
Non-Hispanic	483 (62.97)
Hispanic	223 (29.07)
Missing	61 (7.95)
Education	
Never attended	0
Grades 1 - 8	2 (0.26)
Grades 9 - 11	26 (3.39)
Grade 12 or GED	183 (23.86)
Some college	318 (41.46)
Bachelor's Degree	140 (18.25)
Any post graduate studies	45 (5.87)
Missing	53 (6.91)
Employment Status [a]	
Full-time	500 (65.19)
Part-time	97 (12.65)
Self-employed	31 (4.04)
Homemaker	11 (1.43)
Full-time student	59 (7.69)
Part-time student	13 (1.69)
Retired	5 (0.65)
Unable to work	30 (3.91)
Unemployed	39 (5.08)
Other	5 (0.65)
Income	
0 to $416	33 (4.30)
$417 to $833	21 (2.74)
$834 to $1041	20 (2.61)
$1042 to $1249	35 (4.56)
$1250 to $1666	48 (6.26)
$1667 to $2083	46 (6.00)

$2084 to $2499	61 (7.95)
$2500 to $2916	57 (7.43)
$2917 to $3333	60 (7.82)
$3334 to $4166	73 (9.52)
$4167 to $4999	74 (9.65)
$5000 to $6249	80 (10.43)
$6250 or more	99 (12.91)
Missing	60 (7.82)

[a] Select all that apply. Participants who selected more than one option are included.

Table 7.1. Demographic Characteristics of Community Health Participants, Collapsed Variables (N=767) **	
	n (%)
Gender [a]	
Male	411 (57.97)
Female	258 (36.39)
Something else	40 (5.64)
Missing	
Sexual Orientation [b]	
LGBQP	325 (46.97)
Straight	362 (52.31)
Something else	5 (0.72)
Missing	
Age [c]	
18-24 years	117 (15.33)
25-34 years	423 (55.44)
35-44 years	161 (21.10)
45-54 years	36 (4.72)
Over 55 years	26 (3.41)
Missing	
Ethnicity	
Non-Hispanic	483 (68.41)
Hispanic	223 (31.59)
Missing	
Education [d]	
< Grade 12	28 (3.92)
Grade 12 or GED	183 (25.63)
Some college	318 (44.54)
Bachelor's Degree and higher	185 (25.91)
Missing	
Employment Status [e]	
Full-time	495 (64.54)
Part-time	59 (7.69)
Self-employed	30 (3.91)
Homemaker	8 (1.04)
Student	55 (7.17)
Retired	5 (0.65)
Unemployed/Unable to work for health reasons	55 (7.17)
Other	5 (0.65)
Missing	55 (7.17)
Combined Monthly Income [f]	
< $1666	157 (22.21)
$1667 to $2916	164 (23.20)
$2917 to $4999	207 (29.28)
$5000 or more	179 (25.32)
Missing	

**Prefer not to answer' are included in the 'Missing.' All were excluded from analyses.

[a] 'Something else' includes Transgender, Genderqueer, and Something else.

[b] LGBQP includes lesbian, gay, bisexual, queer, and pansexual.

[b] Age group was made based on given birth year. 18-24 is birth years 1995-2001, 25-34 is 1985-1994, 35-44 is 1975-1984, 45-54 is 1965-1974, over 55 is 1964 and older.

[c] <Grade 12 includes never attended school and grades 1-11. Bachelor's degree and higher includes any post graduate studies.

[d] Employment status has been recoded. Those who selected full-time & another were coded as full-time. Those who selected retired & another were coded as retired. Student includes part and full-time. Unemployed and unable to work has been combined.

[e] Combined monthly income based off of corresponding annual income: <$1666 is <$20,000 per year, $1667 to $2916 is $20,000 to $34,999 per year, $2917 to $4999 is $35,000 to $59,999 per year and $5000 is >$60,000.

Table 8. Needs of Persons with the Highest Risk of Developing HIV in Utah (4+ partners, IV drug users, and/or non-straight men who have anal, receptive sex). (N=408)	
	n (%)
4+ partners	217 (53.19)
Injection Drug Users	127 (31.13)
Anal, receptive sex	187 (45.83)
Insurance Status	
Plan purchased through employer	160 (39.22)
Plan purchased on own or family member	64 (15.69)
Medicare	45 (11.03)
Medicaid	85 (20.83)
TRICARE	0
Alaska Native	4 (0.98)
Other	6 (1.47)
No insurance	39 (9.56)
Missing	5 (1.23)
Living Status	
SRO	10 (2.45)
Rent/Own	186 (45.59)
Family	114 (27.94)
Friends	21 (5.15)
Couch Surfing	9 (2.21)
Motel voucher system	2 (0.49)
Car	0
Camping	1 (0.25)
Shelter	3 (0.74)
Other	13 (3.19)
Missing	49 (12.01)
Tested and/or treated for STI's	
Gonorrhea only	17 (4.17)
Syphilis only	2 (0.49)
Gonorrhea & Syphilis	9 (2.21)
Tested for HIV	
Yes	252 (61.76)
No	114 (27.94)
Don't know	12 (2.94)
Missing	30 (7.35)
Ethnicity	
Non-Hispanic	231 (56.62)
Hispanic	123 (30.15)
Missing	54 (13.24)
Taken PrEP in the last 12 months	
Yes	288 (70.59)
No	109 (26.72)
Don't know	3 (0.74)
Missing	8 (1.96)
Taken PEP in the last 12 months	
Yes	180 (44.12)
No	217 (53.19)
Don't know	3 (0.74)
Missing	8 (1.96)
Someone used the same injection equipment afterwards	
Yes	72 (17.65)

No	48 (11.76)
Don't know	5 (1.23)
Missing	283 (69.36)
Condom Use	
I use a condom when I have anal sex	59 (16.07)
I use a condom when I have vaginal sex	48 (13.08)
I only have sex with one person and we choose not to use condoms	32 (8.72)

Table 9. Barriers, Linkage to Services, and Retaining Care Among Community Health Participants. (N=767)	
	n (%)
Barriers to Testing	
Ever been tested for HIV	
Yes	379 (49.41)
No	316 (41.20)
Don't know	38 (4.95)
Missing	34 (4.43)
Most recent visit to a healthcare work for outpatient medical care	
< year ago	525 (68.45)
1-3 years ago	166 (21.64)
3+ years ago	11 (1.43)
Missing	65 (8.47)
Linkage to Care	
Heard of PrEP	
Yes	461 (60.10)
No	291 (37.94)
Don't know	7 (0.91)
Missing	8 (1.04)
Discussion with a health care provider about taking PrEP	
Yes	279 (36.38)
No	476 (62.06)
Don't know	4 (0.52)
Missing	8 (1.04)
Who brought up the discussion about taking PrEP	
I did	170 (61.15)
My provider did	102 (36.69)
Individuals accessing PrEP	
Yes	252 (32.86)
No	502 (65.45)
Don't know	4 (0.52)
Missing	9 (1.17)
Those who took PrEP, how often did they take it?	
Every day	51 (20.48)
Almost every day	89 (35.74)
Less often	65 (26.10)
On demand	44 (17.67)
Insurance Status	
Plan purchased through employer	320 (41.72)
Plan purchased on own or family member	145 (18.90)
Medicare	73 (9.52)
Medicaid	136 (17.73)
TRICARE	5 (0.65)
Alaska Native	7 (0.91)
Other	10 (1.30)
No insurance	58 (7.56)
Missing	13 (1.69)

Table 10. Demographic Characteristics in Relation to Contextual Factors Among Community Health Participants											
	General health status			Most recent visit to outpatient healthcare worker [a]				# of days poor physical or mental health kept from doing usual activities			
	Poor/Fair n (%)	Good/Very Good/Excellent n (%)	p*	< 1 year n (%)	1-3 years n (%)	3+ years n (%)	p*	<10 days n (%)	10-20 days n (%)	>20 days n (%)	p*
Gender											
Male	96 (50.26)	315 (61.17)	**0.000**	283 (58.71)	75 (49.34)	6 (54.55)	0.284	273 (60.80)	30 (41.10)	17 (51.52)	**0.029**
Female	72 (37.70)	183 (35.53)		170 (35.27)	66 (43.42)	5 (45.45)		160 (35.63)	39 (53.42)	14 (42.42)	
Something else	23 (12.04)	17 (3.30)		29 (6.02)	11 (7.24)	0		16 (3.56)	4 (5.48)	2 (3.06)	
Sexual Orientation											
LGBQP	101	223 (44.07)	**0.035**	223 (47.85)	63 (41.72)	5 (45.45)	0.747	224 (50.22)	42 (57.53)	18 (54.55)	0.690
Straight	(55.19)	279 (55.14)		239 (51.29)	87 (57.62)	6 (54.55)		218 (48.88)	31 (42.47)	15 (45.45)	
Something else	81 (44.26)	4 (0.79)		4 (0.86)	1 (0.66)	0		4 (0.90)	0	0	
	1 (0.55)										
Age											
18-24 years	19 (9.36)	98 (17.59)	**0.001**	76 (14.56)	32 (19.39)	0	**0.009**	70 (14.52)	13 (15.66)	10 (28.57)	**0.000**
25-34 years	112	310 (55.66)		280 (53.64)	90 (54.55)	8 (72.73)		274 (56.85)	35 (42.17)	13 (37.14)	
35-44 years	(55.17)	114 (20.47)		119 (22.80)	32 (19.39)	0		100 (20.75)	22 (26.51)	6 (17.14)	
45-54 years	46 (22.66)	17 (3.05)		25 (4.79)	8 (4.85)	3 (27.27)		17 (3.53)	9 (10.84)	6 (17.14)	
Over 55 years	18 (8.87)	18 (3.23)		22 (4.21)	3 (1.82)	0		21 (4.36)	4 (4.82)	0	
	8 (3.94)										
Ethnicity											
Non-Hispanic	115	366 (71.07)	**0.010**	326 (67.49)	98 (64.47)	5 (55.56)	0.614	315 (70.47)	55 (75.34)	21 (65.63)	0.558
Hispanic	(60.85)	149 (28.93)		157 (32.51)	54 (35.53)	4 (44.44)		132 (29.53)	18 (24.66)	11 (34.38)	
	74 (39.15)										
Education											
< Grade 12	9 (4.69)	18 (3.47)	**0.000**	14 (2.89)	10 (6.49)	2 (18.18)	0.120	18 (3.97)	2 (2.70)	1 (3.03)	0.152
Grade 12 or GED	75 (39.06)	107 (20.62)		130 (26.80)	41 (26.62)	2 (18.18)		97 (21.41)	20 (27.03)	14 (42.42)	
Some college	76 (39.58)	241 (46.44)		211 (43.51)	62 (40.26)	4 (36.36)		210 (46.36)	36 (48.65)	12 (36.36)	
Bachelor's Degree and higher	32 (16.67)	153 (29.48		130 (26.80)	41 (26.62)	3 (27.27)		128 (28.26)	16 (21.62)	6 (18.18)	
Employment Status											
Full-time	129	365 (70.33)	**0.000**	340 (70.25)	99 (64.71)	3 (27.27)	**0.000**	335 (73.95)	28 (38.89)	15 (45.45)	**0.000**
Part-time	(67.89)	44 (8.48)		32 (6.61)	22 (14.38)	1 (9.09)		33 (7.28)	7 (9.72)	3 (9.09)	
Self-employed	15 (7.89)	23 (4.43)		17 (3.51)	10 (6.54)	2 (18.18)		17 (3.75)	4 (5.56)	3 (9.09)	
Homemaker	7 (3.68)	3 (0.58)		4 (0.83)	3 (1.96)	0		2 (0.44)	4 (5.56)	1 (3.03)	
Student	5 (2.63)	49 (9.44)		39 (8.06)	14 (9.15)	1 (9.09)		37 (8.17)	8 (11.11)	1 (3.03)	
Retired	6 (3.16)	3 (0.58)		5 (1.03)	0	0		5 (1.10)	0	0	
Unemployed/ Unable to work	2 (1.05)	28 (5.39)		44 (9.09)	5 (3.27)	3 (27.27)		20 (4.42)	20 (27.78)	10 (30.30)	
	26 (13.68)										
Other		4 (0.77)		3 (0.62)	0	1 (9.09)		4 (0.88)	1 (1.39)	0	
	0										

Income											
< $1666	58 (30.37)	97 (18.91)	**0.000**	101 (21.04)	39 (25.49)	6 (54.55)	0.174	82 (18.26)	29 (39.73)	20 (62.50)	**0.000**
$1667 to $2916	58 (30.37)	105 (20.47)		115 (23.96)	40 (26.14)	1 (9.09)		106 (23.61)	21 (28.77)	7 (21.88)	
$2917 to $4999	47 (24.61)	160 (31.19)		133 (27.71)	39 (25.49)	2 (18.18)		140 (31.18)	11 (15.07)	2 (6.25)	
$5000 or more	28 (14.66)	151 (29.43)		131 (27.29)	35 (22.88)	2 (18.18)		121 (26.95)	12 (16.44)	3 (9.38)	

¥ p values were calculated using a chi-square analysis. Bolded values indicate significance at $p<0.05$.

ª Question was answered in a date form (mm/yyyy). A new variable was created that only includes year. <year includes all of 2019, 1-3 years includes years 2016-2018, 3+ years includes 2015 and later.

Table 11. Demographic Characteristics in Relation to Risk Behaviors Among Community Health Participants									
	Injected drugs other than those prescribed			Number of sex partners in the last year *			Drink alcohol or use drugs to enhance sexual experiences		
	Yes n (%)	No n (%)	p¥	<4 partners	4+ partners	p¥	Yes n (%)	No n (%)	p¥
Gender									
Male	74 (58.27)	333 (58.42)	0.954	247 (54.65)	141 (65.28)	**0.000**	161 (64.92)	244 (54.83)	**0.013**
Female	45 (35.43)	205 (35.96)		194 (42.92)	47 (21.76)		71 (28.63)	177 (39.78)	
Something else	8 (6.30)	32 (5.61)		11 (2.43)	28 (12.96)		16 (6.45)	24 (5.39)	
Sexual Orientation									
LGBQP	64 (50.39)	258 (46.65)	0.446	145 (33.26)	170 (79.07)	**0.000**	186 (42.47)	135 (56.49)	**0.002**
Straight	63 (49.61)	290 (52.44)		286 (65.60)	45 (20.93)		248 (56.62)	103 (43.10)	
Something else	0	5 (0.90)		5 (1.15)	0		4 (0.91)	1 (0.42)	
Age									
18-24 years	4 (3.20)	108 (18.85)	**0.000**	83 (18.04)	25 (11.57)	0.054	24 (9.72)	87 (19.46)	**0.000**
25-34 years	71 (56.80)	313 (54.62)		243 (52.83)	130 (60.19)		146 (59.11)	238 (53.24)	
35-44 years	38 (30.40)	106 (18.50)		94 (20.43)	45 (20.83)		63 (25.51)	79 (17.67)	
45-54 years	8 (6.40)	26 (4.54)		21 (4.57)	13 (6.02)		12 (4.86)	22 (4.92)	
Over 55 years	4 (3.20)	20 (3.49)		19 (4.13)	3 (1.39)		2 (0.81)	21 (4.70)	
Ethnicity									
Non-Hispanic	83 (68.03)	396 (69.23)	0.795	320 (70.80)	133 (62.44)	**0.031**	158 (64.23)	217 (71.24)	0.057
Hispanic	39 (31.97)	176 (30.77)		132 (29.20)	80 (37.56)		88 (35.77)	128 (28.76)	
Education									
< Grade 12	5 (3.94)	22 (3.83)	**0.005**	17 (3.72)	10 (4.63)	0.710	10 (4.02)	17 (3.79)	0.402
Grade 12 or GED	36 (28.78)	145 (25.22)		118 (25.82)	57 (26.39)		65 (26.10)	114 (25.39)	
Some college	69 (54.33)	244 (42.43)		210 (45.95)	90 (41.67)		119 (47.79)	193 (42.98)	
Bachelor's Degree and higher	17 (13.39)	164 (28.52)		112 (24.51)	59 (27.31)		55 (22.09)	125 (27.84)	
Employment Status									
Full-time	68 (53.54)	417 (72.65)	**0.000**	304 (66.52)	155 (72.43)	0.841	177 (71.08)	309 (68.97)	0.111
Part-time	16 (12.60)	43 (7.59)		43 (9.41)	15 (7.01)		24 (9.64)	32 (7.14)	
Self-employed	9 (7.09)	21 (3.66)		21 (4.60)	9 (4.21)		14 (5.62)	16 (3.57)	
Homemaker	6 (4.72)	2 (0.35)		5 (1.09)	3 (1.40)		3 (1.20)	5 (1.12)	
Student	4 (3.15)	51 (8.89)		40 (8.75)	14 (6.54)		11 (4.42)	44 (9.82)	
Retired	1 (0.79)	4 (0.70)		4 (0.88)	1 (0.47)		2 (0.80)	3 (0.67)	
Unemployed/ Unable to work	22 (17.32)	32 (5.57)		36 (7.88)	16 (7.48)		18 (7.23)	34 (7.59)	
Other	1 (0.79)	4 (0.70)		4 (0.88)	1 (0.47)		0	5 (1.12)	
Income									
< $1666	39 (31.45)	115 (20.14)	**0.000**	89 (19.69)	62 (28.84)	**0.005**	52 (20.97)	101 (22.75)	0.212

$1667 to $2916	43 (34.68)	120 (21.02)		101 (22.35)	55 (25.58)		68 (27.42)	94 (21.17)	
$2917 to $4999	19 (15.32)	187 (32.75)		136 (30.09)	61 (28.37)		74 (29.84)	130 (29.28)	
$5000 or more	23 (18.55)	149 (26.09)		126 (27.88)	37 (17.21)		54 (21.77)	119 (26.80)	
*p values were calculated using a chi-square analysis. Bolded values indicate significance at p<0.05. *4+ sex partners considered higher risk for HIV									

Table 12. Demographic Characteristics in Relation to HIV Prevention Among Community Health Participants												
	Taken PEP in the last 12 months			Taken PrEP in the last 12 months			Date of last HIV test [a]			Date of last STI test [a]		
	Yes n (%)	No n (%)	p*	Yes n (%)	No n (%)	p*	<1 year	1+ years	p*	<1 year	1+ years	p*
Gender												
Male	145 (61.97)	263 (56.44)	**0.000**	164 (70.39)	244 (51.91)	**0.000**	122 (67.40)	64 (56.64)	**0.004**	118 (65.92)	66 (50.77)	**0.003**
Female	65 (27.78)	187 (40.13)		52 (22.32)	203 (43.19)		48 (26.52)	48 (42.48)		53 (29.61)	62 (47.69)	
Something else	24 (10.26)	16 (3.43)		17 (7.30)	23 (4.89)		11 (6.08)	1 (0.88)		8 (4.47)	2 (1.54)	
Sexual Orientation												
LGBQP	133 (59.11)	188 (41.05)	**0.000**	142 (63.11)	179 (38.74)	**0.000**	119 (65.38)	57 (50.00)	**0.018**	115 (63.89)	69 (53.08)	0.130
Straight	92 (40.89)	265 (57.86)		83 (36.89)	278 (60.17)		63 (34.62)	56 (49.12)		64 (35.56)	59 (45.38)	
Something else	0	5 (1.09)		0	5 (1.08)		0	1 (0.88)		1 (0.56)	2 (1.54)	
Age												
18-24 years	11 (4.42)	103 (20.68)	**0.000**	13 (5.20)	103 (20.60)	**0.000**	24 (12.83)	10 (8.47)	**0.000**	34 (18.58)	16 (11.68)	**0.000**
25-34 years	160 (64.26)	257 (51.61)		161 (64.40)	257 (51.40)		111 (59.36)	46 (38.98)		106 (57.92)	54 (39.42)	
35-44 years	74 (29.72)	83 (16.67)		71 (28.40)	86 (17.20)		33 (17.65)	48 (40.68)		25 (13.66)	48 (35.04)	
45-54 years	3 (1.20)	31 (6.22)		2 (0.80)	32 (6.40)		12 (6.42)	8 (6.78)		13 (7.10)	11 (8.03)	
Over 55 years	1 (0.40)	24 (4.82)		3 (1.20)	22 (4.40)		7 (3.74)	6 (5.08)		5 (2.73)	8 (5.84)	
Ethnicity												
Non-Hispanic	140 (60.09)	337 (72.63)	**0.001**	147 (63.09	334 (71.52)	**0.023**	129 (40.49)	78 (70.27)	0.968	125 (69.06)	89 (69.53)	0.930
Hispanic	93 (39.91)	127 (27.37)		86 (36.91)	133 (28.48)		54 (29.51)	33 (29.73)		56 (30.94)	39 (30.47)	
Education												
< Grade 12	10 (4.27)	17 (3.61)	**0.001**	8 (3.42)	20 (4.22)	0.112	3 (1.64)	5 (4.39)	0.050	5 (2.76)	4 (3.05)	**0.003**
Grade 12 or GED	73 (31.20)	107 (22.72)		69 (29.49)	112 (23.63)		38 (20.77)	32 (28.07)		39 (21.55)	42 (32.06)	
Some college	111 (47.44)	202 (42.89)		108 (46.15)	207 (43.67)		70 (38.25)	48 (42.11)		64 (35.36)	58 (44.27)	
Bachelor's Degree and higher	40 (17.09)	145 (30.79)		49 (20.94)	135 (28.48)		72 (39.34)	29 (25.44)		73 (40.33)	27 (20.61)	
Employment Status												
Full-time	205 (87.98)	285 (60.64)	**0.000**	191 (81.97)	302 (63.98)	**0.000**	121 (66.12)	79 (69.91)	0.434	114 (62.98)	81 (62.31)	0.484
Part-time	13 (5.58)	45 (9.57)		22 (9.44)	34 (7.20)		12 (6.56)	12 (10.62)		17 (9.39)	18 (13.85)	
Self-employed	8 (3.43)	21 (4.47)		3 (1.29)	26 (5.51)		8 (4.37)			5 (2.76)	6 (4.62)	
Homemaker										3 (1.66)	3 (2.31)	

Student Retired Unemployed/ Unable to work Other	2 (0.86) 2 (0.86) 0 3 (1.29) 0	6 (1.28) 52 (11.06) 5 (1.06) 51 (10.85) 5 (1.06)		2 (0.86) 5 (2.15) 0 10 (4.29) 0	6 (1.27) 49 (10.38) 5 (1.06) 46 (9.75) 4 (0.85)		3 (1.64) 17 (9.29) 1 (0.55) 20 (10.93) 1 (0.55)	3 (2.65) 3 (2.65) 5 (4.42) 2 (1.77) 8 (7.08) 1 (0.88)		19 (10.50) 1 (0.55) 21 (11.60) 1 (0.55)	6 (4.62) 2 (1.54) 13 (10.00) 1 (0.77)	
Income < $1666 $1667 to $2916 $2917 to $4999 $5000 or more	33 (14.10) 71 (30.34) 79 (33.76) 51 (21.79)	121 (26.08) 91 (19.61) 125 (26.94) 127 (27.37)	**0.000**	32 (13.73) 62 (26.61) 81 (34.76) 58 (24.89)	121 (25.85) 100 (21.37) 126 (26.92) 121 (25.85)	**0.001**	44 (24.44) 49 (27.22) 53 (29.44) 34 (18.89)	20 (17.54) 31 (27.19) 29 (25.44) 34 (29.82)	0.136	51 (28.49) 45 (25.14) 49 (27.37) 34 (18.99)	35 (26.92) 27 (20.77) 34 (26.15) 34 (26.15)	0.479

[¥] p values were calculated using a chi-square analysis. Bolded values indicate significance at $p<0.05$.

[a] Question was answered in a date form (mm/yyyy). A new variable was created that only includes year. <year includes all of 2019, 1+ years includes 2018 and later.

Table 12.1 Demographic Characteristics in Relation to Attitudes Towards Condoms Among Community Health Participants									
	Using condoms is a good way to protect your sex partner from disease people can get through sex.				Some people use condoms to keep from getting HIV through sexual activity. How effective do you think a properly used condom is for this purpose?				
	Agree n (%)	Neutral n (%)	Disagree n (%)	p*	Very effective n (%)	Somewhat effective n (%)	Not at all effective n (%)	Not sure how effective n (%)	p*
Gender									
Male	290 (58.94)	71 (61.21)	25 (47.17)	**0.025**	170 (56.86)	199 (61.42)	24 (54.55)	8 (40.00)	**0.002**
Female	182 (36.99)	36 (31.03)	21 (39.62)		100 (33.44)	117 (36.11)	19 (43.18)	11 (55.00)	
Something else	20 (4.07)	9 (7.76)	7 (13.21)		29 (9.70)	8 (2.47)	1 (2.27)	1 (5.00)	
Sexual Orientation									
LGBQP	236 (48.96)	45 (40.54)	21 (39.62)	0.363	151 (51.54)	143 (44.97)	14 (53.00)	10 (50.00)	0.081
Straight	242 (50.21)	65 (58.56)	32 (60.38)		138 (47.10)	175 (55.03)	25 (62.50)	10 (50.00)	
Something else	4 (0.83)	1 (0.90)	0		4 (1.37)	0	1 (2.50)	0	
Age									
18-24 years	95 (19.00)	7 (5.83)	4 (7.41)	**0.001**	47 (15.21)	51 (15.64)	4 (8.89)	5 (25.00)	**0.000**
25-34 years	267 (53.40)	85 (70.83)	30 (55.56)		169 (54.69)	201 (61.66)	20 (44.44)	8 (40.00)	
35-44 years	93 (18.60)	20 (16.67)	18 (33.33)		61 (19.74)	54 (16.56)	21 (46.67)	4 (20.00)	
45-54 years	28 (5.60)	4 (3.33)	1 (1.85)		17 (5.50)	15 (4.60)	0	1 (5.00)	
Over 55 years	17 (3.40)	4 (3.33)	1 (1.85)		15 (4.85)	5 (1.53)	0	2 (10.00)	
Ethnicity									
Non-Hispanic	355 (72.30)	71 (61.74)	27 (51.92)	**0.002**	192 (64.65)	234 (72.22)	28 (65.12)	11 (55.00)	0.116
Hispanic	136 (27.70)	44 (38.26)	25 (48.08)		105 (35.35)	90 (27.78)	15 (34.88)	9 (45.00)	
Education									
< Grade 12	16 (3.23)	6 (5.13)	4 (7.55)	**0.008**	12 (3.96)	12 (3.69)	1 (2.27)	3 (15.00)	**0.000**
Grade 12 or GED	118 (23.79)	31 (26.50)	21 (39.62)		84 (27.72)	68 (20.92)	12 (27.27)	8 (40.00)	
Some college	215 (43.35)	60 (51.28)	19 (35.85)		109 (35.97)	172 (52.92)	24 (54.55)	5 (25.00)	
Bachelor's Degree and higher	147 (29.64)	20 (17.09)	9 (16.98(		98 (32.34)	73 (22.46)		4 (20.00)	

							7 (15.91)		
Employment									
Full-time	326 (65.86)	93 (80.17)	40 (75.47)	0.078	201	236	38	10	0.127
Part-time	43 (8.69)	7 (6.03)	4 (7.55)		(66.56)	(72.62)	(86.36)	(50.00)	
Self-employed	17 (3.43)	7 (6.03)	4 (7.55)		26 (8.61)	28 (8.62)	2 (4.55)	1 (5.00)	
Homemaker	7 (1.41)	1 (0.86)	0		12 (3.97)	13 (4.00)	1 (2.27)	1 (5.00)	
Student	48 (9.70)	2 (1.72)	2 (3.77)		5 (1.66)	3 (0.92)	0	0	
Retired	5 (1.01)	0	0		21 (6.95)	28 (8.62)	1 (2.27)	3 (15.00)	
Unemployed/	45 (9.09)	6 (5.17)	3 (5.66)		2 (0.66)	2 (0.62)	0	0	
Unable to work					33 (10.93)	14 (4.31)	2 (4.55)	5 (25.00)	
Other	4 (0.81)	0	0						
					2 (0.66)	1 (0.31)	0	0	
Monthly Income									
< $1666	117 (23.83)	20 (17.24)	12 (22.64)	**0.010**	80 (26.85)	57 (17.65)	4 (9.09)	8 (40.00)	**0.000**
$1667 to $2916	101 (20.57)	27 (23.28)	20 (37.74)		61 (20.47)	88 (27.24)	5 (11.36)	4 (20.00)	
$2917 to $4999	141 (20.57)	41 (35.34)	17 (32.08)		74 (24.83)	108	16	5 (25.00)	
$5000 or more	132 (26.88)	28 (24.14)	4 (7.55)		83 (27.85)	(33.44)	(36.36)	3 (15.00)	
						70 (21.67)	19		
							(43.18)		

* p values were calculated using a chi-square analysis. Bolded values indicate significance at $p<0.05$.

Table 13. Characteristics of Community Health Participants that are Considered Higher Risk for HIV (4+ partners, IV drug users, and/or non-straight men who have anal, receptive sex) (N=767) *		
	N	Mean (SD)
4+ partners	219	11.12 (17.01)
	n (%)	
Injection Drug Users	127 (31.14)	
Anal, receptive sex	154 (37.71)	
* Participants can be included in multiple categories		

Table 14. Demographic Characteristics of Community Health Participants That Are Considered Higher Risk for HIV (4+ partners, IV drug users, and/or non-straight men who have anal, receptive sex)*				
	Total (n=767) n (%)	Higher Risk (n=408) n (%)	Not Higher Risk (n=359) n (%)	p¥
Gender				
Male	411 (53.59)	237 (58.09)	174 (48.47)	**0.000**
Female	258 (33.64)	93 (22.79)	165 (45.96)	
Something else	40 (5.22)	31 (7.60)	9 (2.51)	
Missing	58 (7.56)	47 (11.52)	11 (3.06)	
Sexual Orientation				
LGBQP	325 (42.37)	245 (60.05)	80 (22.28)	**0.000**
Straight	362 (47.20)	115 (28.19)	247 (68.80)	
Something else	5 (0.65)	0	5 (1.39)	
Missing	75 (9.78)	48 (11.76)	27 (7.52)	
Age				
18-24 years	117 (15.25)	43 (10.54)	74 (20.61)	**0.002**
25-34 years	423 (55.15)	233 (57.11)	190 (52.92)	
35-44 years	161 (20.99)	98 (24.02)	63 (17.55)	
45-54 years	36 (4.69)	18 (4.41)	18 (5.01)	
Over 55 years	26 (3.39)	13 (3.19)	13 (3.62)	
Missing	4 (0.52)	3 (0.74)	1 (0.28)	
Ethnicity				
Non-Hispanic	483 (62.97)	231 (56.62)	252 (70.19)	0.070
Hispanic	223 (29.07)	123 (30.15)	100 (27.86)	
Missing	61 (7.95)	54 (13.24)	7 (1.95)	
Education				
< Grade 12	28 (3.65)	15 (3.68)	13 (3.62)	0.842
Grade 12 or GED	183 (23.86)	97 (23.77)	86 (23.96)	
Some college	318 (41.46)	156 (38.24)	162 (45.13)	
Bachelor's Degree and higher	185 (24.12)	93 (22.79)	92 (25.63)	
Missing	53 (6.91)	47 (11.52)	6 (1.67)	
Employment Status				
Full-time	495 (64.54)	245 (60.05)	250 (69.64)	**0.031**
Part-time	59 (7.69)	29 (7.11)	30 (8.36)	
Self-employed	30 (3.91)	17 (4.17)	13 (3.62)	
Homemaker	8 (1.04)	7 (1.72)	1 (0.28)	
Student	55 (7.17)	21 (5.15)	34 (9.47)	
Retired	5 (0.65)	3 (0.74)	2 (0.56)	
Unemployed/Unable to work	55 (7.17)	36 (8.82)	19 (5.29)	
Other	5 (0.65)	1 (0.25)	4 (1.11)	
Missing	55 (7.17)	49 (12.01)	6 (1.67)	
Monthly Income				
< $1666	157 (20.47)	99 (24.26)	58 (16.16)	**0.000**
$1667 to $2916	164 (21.38)	89 (21.81)	75 (20.89)	
$2917 to $4999	207 (26.99)	96 (23.53)	111 (30.92)	
$5000 or more	179 (23.34)	73 (17.89)	106 (29.53)	
Missing	60 (7.82)	51 (12.50)	9 (2.51)	

* Duplicates accounted for. Participants can be in one or all of the categories mentioned in Table 9.

¥ p values were calculated using a chi-square analysis. Missing values, don't know, and prefer not to answer were not included in initial analysis. Bolded values indicate significance at $p<0.05$.

References

[1] Utah Department of Health Bureau of Epidemiology Prevention, Treatment and Care Program. HIV integrated Epidemiological Profile. 2015.

[2] United States Census Bureau. Quick facts: Utah. https://www.census.gov/quickfacts/UT. Accessed 12/31/2019.

[3] Utah Department of Health. 2018: Annual HIV surveillance report. http://health.utah.gov/epi/diseases/hivaids/surveillance/2018_HIV_Surveillance_Report.pdf. Accessed 12/31/2019.

[4] HRSA. Ryan White HIV/AIDS Program: 2017.State profiles. Utah. https://hab.hrsa.gov/stateprofiles2017/#/profile. Accessed 12/31/2019.

[5] Centers for Disease Control and Prevention. HIV Testing. https://www.cdc.gov/hiv/testing/index.html. Accessed 12/31/2019.

[6] Utah Department of Health, Indicator-Based Information System for Public Health Web site. http://ibis.health.utah.gov. Accessed 12/31/2019.

[7] Utah Department of Health. Utah case management standards of care. 2018-2019. http://health.utah.gov/epi/treatment/resources/2019-2020%20Utah%20Case%20Management%20Standards%20of%20Care.pdf. Accessed 12/31/2019.

[8] Centers for Disease Control and Prevention 2015-2017 Questionnaire: https://www.cdc.gov/hiv/pdf/statistics/systems/mmp/CDC-HIV-MMP-Questionnaire-2015-2017-EN.pdf. Accessed 12/31/2019.

[9] Behavioral Risk Factor Surveillance System. 2018 BRFSS Questionnaire: https://www.cdc.gov/brfss/questionnaires/pdf-ques/2018_BRFSS_English_Questionnaire.pdf. Accessed 12/31/2019.

[10] Hall, M. A., Zheng, B., Dugan, E., Camacho, F., Kidd, K. E., Mishra, A., & Balkrishnan, R. (2002). Measuring Patients' Trust in their Primary Care Providers. *Medical Care Research and Review*, *59*(3), 293–318. doi: 10.1177/1077558702059003004. https://journals.sagepub.com/doi/pdf/10.1177/1077558702059003004.

[11] Anderson, L. A., & Dedrick, R. F. (1990). Development of the Trust in Physician Scale: A Measure to Assess Interpersonal Trust in Patient-Physician Relationships. *Psychological Reports*, *67*(3_suppl), 1091–1100. doi: 10.2466/pr0.1990.67.3f.1091. https://journals.sagepub.com/doi/pdf/10.2466/pr0.1990.67.3f.1091.

[12] Clever, S., Jin, L., Levinson, W., & Meltzer, D. (2008). Does Doctor-Patient Communication Affect Patient Satisfaction with Hospital Care? Results of an Analysis with a Novel Instrumental Variable. *Health Services Research*, *43*(5), 1505–1519. doi: 10.1111/j.1475-6773.2008.00849.x. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2653895/.

[13] Northwestern University. REACH survey url: https://buffett.northwestern.edu/documents/research-projects/Individual_Questionnaire_Semilongitudinal.pdf.

[14] Schouten, J., Wit, F.W., Stolte, I.G., Kootstra, N.A., van der Valk, M., Geerlings, S.E., Prins, M., Reiss, P., and AGEhIV Cohort Study Group. (2014). Cross-sectional comparison of the prevalence of age-associated comorbidities and their risk factors between HIV-infected and uninfected individuals: the AGEhIV cohort study. *Clin Infect Dis*, *59*(12), 1787–97. DOI: 10.1093/cid/ciu701

[15]Dowshen, N., Binns, H.J. and Garofalo, R. (2009). Experiences of HIV-related stigma among young men who have sex with men. *AIDS Patient Care STDs*, 23: 371–376.

[16] Martel L. (2019). Utah provider needs assessment. Mountain West AIDS Education and Training Center.

[17]AIDS United. (2015). Best Practices for Integrating Peer Navigators into HIV Models of Care. https://www.aidsunited.org/data/files/Site_18/PeerNav_v8.pdf/. Accessed 12/31/2019.