State of Vermont
2016 HIV Integrated Epidemiologic Profile

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Department of Health & Human Services
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Burlington, Vermont

VERMONT
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ABBREVIATIONS

ADAP: Vermont Department of Alcohol and Drug Abuse Programs
AIDS: Acquired Immune Deficiency Syndrome, now referred to as "Stage 3" HIV infection
VMAP: Vermont Medication Assistance Program
ARV: Anti-retroviral medication
ASO: AIDS Service Organization
BRFSS: Behavioral Risk Factor Surveillance System
CBO: Community Based Organization
CCC: University of Vermont Medical Center Comprehensive Care Clinics
CHS: Vermont College Health Survey
CTR: Counseling Testing & Referral [Vermont's HIV Testing program through October 2017]
eHARS: Enhanced HIV/AIDS Reporting System
HAART: Highly Active Anti-retroviral Therapy
HIV: Human Immunodeficiency Virus
HCV: Hepatitis C Virus
IDU: Injection Drug User
LGB / LGBT: Lesbian, Gay & Bisexual; Lesbian, Gay, Bisexual & Transgender
MSM: Men who have Sex with Men
NCHS: National Center for Health Statistics
NHAS: National HIV/AIDS Strategy
NSDUH: National Survey on Drug Use and Health
OTC: Over the Counter (Medication)
PLWDHI: People/Person Living With Diagnosed HIV Infection
PrEP: Pre-Exposure Prophylaxis
PWID: People Who Inject Drugs/Person Who Injects Drugs
TRL: Testing Referral & Linkage [Vermont's HIV Testing program beginning October 2017]
SSP: Syringe Service Program
STD: Sexually Transmitted Disease
TasP: Treatment as Prevention
VDH: Vermont Department of Health
VHC: Vermont Health Connect
VSHNA: Vermont 2014/15 Statewide HIV Needs Assessment
YRBS: Youth Risk Behavior Survey

EXECUTIVE SUMMARY

The **2016 Vermont Epidemiologic Profile** ascribes to the guidance provided by the Centers for Disease Control and Prevention's (CDC) *Integrated Guidance for Developing Epidemiologic Profiles: HIV Prevention and Ryan White HIV/AIDS Programs Planning*, of August 2014. This profile provides a comprehensive description of Vermont's epidemiologic experience of HIV/AIDS, structured according to the three core questions identified in the guidance:

1) *What are the sociodemographic characteristics of the general population of Vermont?*
2) *What is the scope of HIV burden in Vermont?*
3) *What are the indicators of risk for HIV infection in the population of Vermont?*

An overview of the state of the HIV epidemic in Vermont may be obtained from the following facts[1]:

- Vermont has **661** confirmed People Living with Diagnosed HIV Infection (PLWDHI) as of December 31, 2016, for a case rate of **106 per 100,000**
- All **661 cases** exhibit evidence of care within the past 5 years; **93%** (**618**) are virally suppressed
- **9** individuals were diagnosed with HIV in 2016; **100%** (**9**) were linked to care within one month
- **84%** (**557**) of 661 total cases are *retained* in care, with evidence of care visit within 12 months
- **96%** (**533**) of these 557 cases retained in care have achieved viral suppression

In reviewing the **2016 Vermont Epidemiologic Profile**, note that Vermont is a small, rural state with a low overall population, and a correspondingly small HIV positive population. The state is primarily rural, with a largely racially-homogenous population, demographically-weighted toward an older age range, numbering 625,594 people by Census 2016 estimates.[2] In 2016, the 661 People Living with Diagnosed HIV Infection equated to a rate of HIV in Vermont of 106 cases per 100,000 people. While Men who have Sex with Men (MSM) make up an estimated 2% of the state's population, they account for 53% of the PLWDHI population.[3]

Of Vermont's fourteen counties, only four exceed 55,000 people, qualifying as urbanized areas, and only one – Chittenden County, with 158,500 residents – has a population over 61,000. Vermont has no Major Metropolitan Centers. The state's median household income ($54,000 – $56,000) stands at almost exactly the national average, and per capita income ($29,535) does as well. Of Vermont's overall population, 11.9% reside under the federal poverty limit, and of the state's PLWDHI, 76% reside below 500% adjusted gross federal poverty level.[4]

Vermont has improved HIV data surveillance and collection systems over the last number of years, with less lag time and more data points available. While it is difficult to ascertain an exact number of individuals with HIV who are not in care, the *Vermont 2014/15 Statewide HIV Needs Assessment* (*VSHNA*) found very few PLWDHI reporting not being in care, and even fewer could identify one person they knew who was HIV positive and not in care. At the time of interview (fall 2014/spring 2015) 95% of HIV positive participants in the *VSHNA* reported being in care and 89% reported being on medication – as current surveillance indicates these numbers have improved in the past two to three years.[5]

INTRODUCTION

BACKGROUND: Profile History & Purpose

This profile was prepared under the CDC's epidemiologic *Integrated Guidance*, issued in 2014, and follows those recommendations and guidelines as closely as possible. This document's purpose is to *describe the burden of HIV on the population of Vermont in terms of sociodemographic, geographic, behavioral, and clinical characteristics of persons with HIV*, and represents a comprehensive update to Vermont's last **Epidemiologic Profile**, filed in 2011.

Considerable effort this year has been devoted to streamlining this profile and exhibiting the most relevant data in the best available formats for improved end-user accessibility. Surveillance now has a considerable body of post-2008 data available in the consistent and improved format of names-based reporting that was instituted that year. The change from unique identifiers to names-based has greatly improved the veracity of Vermont HIV surveillance data and the capacity for trend analysis.

The **Integrated Epidemiologic Profile** is an essential tool for the ongoing integration of prevention and care, and the VDH uses it to the full extent of its intended purpose. The HIV/AIDS, STD, Hepatitis C Program (HSH) issued its latest *Integrated HIV Prevention & Care Plan*, with attendant *Statewide Coordinated Statement of Need*, in 2016, based on available epidemiologic data. As that plan is a living document, the material in this profile will be utilized in the plan's annual revisions.

As such, the **Epidemiologic Profile** serves both planning and evaluation needs for HIV prevention and care programs, and assists in determining funding allocations to state services. The VDH HSH issued its first integrated *Request for Proposals for HIV Prevention & Care Funding* in 2016, guided by the combination of the most recent epidemiologic data and additional information from the *Vermont 2014/15 Statewide HIV Needs Assessment (VSHNA)* conducted by VDH HSH. In 2018, the data in this profile will inform Vermont's next *Request for Proposals* for the coming five-year funding cycle under the CDC's *Program Funding Opportunity Announcement PS18-1802*.

The state epidemiology information is circulated to, and informed by, the statewide community planning body, the HIV Community Advisory Group (CAG). At each bimonthly meeting, funded agency performance-to-goals, based on epidemiologic priorities, are reviewed with the CAG.

This updated **Epidemiologic Profile** will help inform future statewide needs assessments, integrated prevention and care plan completion, and identification and analysis of gaps in service.

STRENGTHS & LIMITATIONS: Data Sources & Profile

Data Sources:

- Behavioral Risk Factor Surveillance System
- CDC HIV Surveillance Reports
- CDC Vermont State Health Profile
- Comprehensive Care Clinics – Vermont's HIV/AIDS clinic system
- Emory Coalition for Applied Modeling for Prevention, Emory University
- National Center for Health Statistics Mortality Dataset
- National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Atlas
- National Electronic Disease Surveillance System Base System
- National Survey on Drug Use and Health
- National Vital Statistics System
- State MSM Profile: Vermont – Emory University CAMP/CDC
- United States Census
- Vermont Department of Health
    - eHARS
    - HIV/AIDS Surveillance
    - HIV Testing Program Data
    - Sexually Transmitted Disease Surveillance
    - Data Briefs – 2014 & 2016 LGBT Health; April 2017 Opioid Misuse, Abuse & Dependence
    - CAREWare
    - Evaluation Web
- Vermont 2016 College Health Survey
- Vermont 2014/15 Statewide HIV Needs Assessment
- Vermont 2016 Integrated HIV Prevention & Care Plan, with Coordinated Statement of Need
- Vermont 2011 Integrated Epidemiologic Profile for HIV/AIDS Prevention and Care Planning
- Vermont 2015 Youth Risk Behavior Survey
- Williams Institute

Data Sources Strengths & Limitations:

Vermont's improved surveillance systems increase the strength of the data in this period's profile, shortening the delay between data collection and availability, and providing for additional points of data such as CD4 counts, antiretroviral adherence and viral load suppression, that feed analysis of HIV care needs and transmission risks.

VDH surveillance data is further supported by the *VSHNA*, which focused on HIV-positive consumers and populations at higher risk of infection. A total of 132 PLWDHI participated, representing 20% of Vermont's population diagnosed with HIV (661). Of those 132 individuals, 127 participants could be confirmed in care in the 12 months prior to their participation, representing 23% of the total Vermont PLWDHI population retained in care. These participants provided a wealth of information pertinent to care and risk behaviors, service providers, met and unmet needs, barriers to care, and general health and wellbeing of PLWDHI in Vermont.

The Health Surveillance Division at the Vermont Department of Health uses a cell suppression rule to preserve anonymity and to ensure meaningful numeric calculations. Throughout the report, in instances

where there are five or fewer cases, that include demographic information that could be identifying, the count will be suppressed.

Vermont's low HIV morbidity, and relatively small general population, limits the options for analysis. Readers are cautioned to review footnotes and endnotes carefully. While these complications exist, the small nature of the state also reflects positively on epidemiology data accuracy, with close, direct relationships existing between VDH and all service providers in the state. Surveillance staff are in regular contact with service providers, service providers are seated on the state's HIV CAG, and the VDH HSH Program communicates with providers throughout Vermont regarding PLWDHI and those newly diagnosed.

Vermont participates in the *Youth Risk Behavior Survey (YRBS)*, *College Health Survey (CHS)*, and *Behavioral Risk Factor Surveillance System (BRFSS)*, the results of which provide an overview at a state level of many data points of interest to HIV care and prevention. Vermont's most recent *YRBS* and *CHS* data is from 2015 and 2016, respectively. Due to variation in questions from each year, most recent *BRFSS* data ranges from 2012 to 2016 on most data points, with some trend data dating back to 2002.

A limitation of all of these sources is their central structure, based in self-report. This is of higher concern for reported data on sensitive, highly-personal, and often stigmatized topics such as HIV, sexual behavior, and drug use. As population-based studies, generalization of data from these surveys is limited for targeted higher risk subpopulations. MSM and People Who Inject Drugs (PWID) are numerically limited populations, with reporting from the latter category further complicated by the illegality of most injection drug use.

HIV testing attitudes overall in the community may be generalized from these data, but these broader surveys may reveal little about the reach of targeted testing efforts in specific higher risk communities.

- As a random telephone survey, *BRFSS* is limited to reaching individuals with telephone access, which often precludes individuals struggling with poverty and/or drug addiction.
- The *YRBS* and *CHS* apply to youth in school and young adults in college. Arguably, the population of youth who drop out of high school, and/or do not have opportunity to pursue higher education, are at higher risk for adverse outcomes but are not reflected in these data sets.
- Self-report data raises concerns of self-selection and recall bias.
- Self-report data is vulnerable to individuals' perceptions of what is appropriate to reveal. When response trends diverge along gender, education and socioeconomic status lines, the question exists: does a given population *have a higher or lower rate* of a given risk behavior, or is a given population simply *more or less likely to report* participation in risk behaviors? Example: Men consistently report more sexual partners in a 12-month period than women, and this may be because men do have more sexual partners than women, or it may be that women are disinclined to report multiple sexual partners, even in an anonymous survey, due to societal pressure and judgement. This applies to multiple categories, not just participation in higher risk behaviors for HIV transmission.

Strengths present in all of these risk survey sources include their anonymous nature, which presents less judgement and encourages more honest answers, and the sheer size and reach of the sample sets.

For the purposes of this profile, significant strength of Vermont's data from these surveys resides in the state's repeated selection of questions that pertain to sexual risk behaviors and that inquire specifically about sexual orientation and gender identity. As a result of the inclusion of sexual orientation questions,

Vermont has been able to cross reference data and produce *LGBT Data Briefs* which inform this profile a great deal, given the primary burden of HIV in Vermont – over half – is within the MSM community.

Acquisition of sexual and gender minority data faces limitations in the collection, combination and assessment of transgender data in various data sets. Currently, there is no one standard method of collecting and categorizing transgender populations and risk factor data, even among research conducted specifically on sexual and gender minorities. In many if not most survey circumstances, including *BRFSS* data, individuals responding "yes" to the question "do you consider yourself transgender" are categorized simply as part of the larger LGBT population, and included in that overall population estimate.[6]

As Lesbian, Gay, and Bisexual are all designations of sexual orientation (who one is attracted to), and Transgender is a designation of gender identity (who one is) and indicates nothing about sexual orientation, this presents complications in both the estimation and representation of trans populations, and the accuracy of sexual orientation reporting. Transgender individuals fall across three categories – transgender status (yes/no), gender (male, female, gender queer, etc.), and sexual orientation (gay, straight, lesbian, bisexual, queer, etc.). However, trans individuals are routinely counted only in the category of "members of the LGBT community." Very seldom is trans identity counted in gender data sets, which are most commonly dived along the binary of male and female only. If there are individuals identifying themselves as transgender at all in a data set, a third category of "other" or "transgender" should be reflected in the gender breakdown, or in addition to the gender breakdown given many trans individuals identify strongly with one of the binary gender identities (male/female) but still respond "yes" to "do you consider yourself transgender." A growing percentage of the trans community does not identify with the binary gender system, and in most cases trans individuals are asked to provide the binary gender that "most closely matches their identity."

These limitations, while often working with small subsets of populations and very small numbers in a state such as Vermont, are particularly pertinent to HIV epidemiology and do need to be raised for consideration. Transgender individuals – male-to-female (MTF), female-to-male (FTM), and those identifying outside the binary – are at arguably higher risk for HIV infection for a wide variety of reasons including biology, use of injection equipment for hormones, reduced sexual self-efficacy due to body dysphoria, sex work, and vulnerability to abusive sexual and relationship experiences. MTF individuals have been demonstrated to be at higher risk throughout the history of the HIV epidemic.[7] While information is limited on FTMs and HIV, high risk factors are present in the MSM segments of the FTM community, confirmed by data gathered by Vermont MSM prevention efforts with FTM individuals who identify as gay, bisexual or queer.[8]

In Vermont, data on transgender identity has been collected and individuals identifying as transgender were counted within the LGBT population data set. Additional research with the VDH *BRFSS* records confirm that less than one percent of Vermont respondents identified at transgender.[9]

HIV data reported through medical providers, laboratories, and other HIV service providers are of high accuracy and are part of the ongoing improvements to reporting systems. However, the reported data are limited to individuals that have been in or are currently in care. A primary population of interest to epidemiologic concerns is HIV-positive individuals who know their status but are not engaged in care, and HIV-positive individuals who are not aware of their status. The first category is a consistently difficult-to-reach population that presented one of the largest limitations to *VSHNA* data collection. The latter population is, of course, unidentified and the primary population sought in the state's targeted

HIV testing efforts. Vermont's small size and rural nature limit the usefulness of estimation modeling to calculate a projected number of the population of "HIV infected but unaware."

Profile Strengths & Limitations:

Overall, this Profile provides a strong body of data to examine the HIV epidemic in Vermont, within the constraints of the available data sources, as described in depth directly above in ***Data Sources Strengths & Limitations***. Utilizing every tool available, the best picture of HIV epidemiologic data is assembled here and interpreted.

Low incidence states such as Vermont are limited by a lack of available resources for extensive measurement projects specific to HIV and higher risk populations. The *VSHNA* studied the care and prevention concerns of the HIV positive population in-depth but did not have resources for the same level of investigation with members of higher risk HIV negative populations including MSM, the young queer population, and heterosexuals at higher risk. Additional research opportunities are coming available under Vermont's Office of Alcohol and Drug Abuse Programs, to study individuals who inject drugs. This will further Vermont's ability to report on this higher risk population in future epidemiologic profile reporting periods.

A considerable strength in Vermont's profile is the state's consistent best use of the tools it does have – such as *BRFSS* and *YRBS* – by choosing to include questions of direct relevance to the HIV epidemic. While difficult to generalize, this is still valuable information for a broader picture of Vermont's HIV epidemic.

CORE EPIDEMIOLOGIC QUESTIONS

QUESTION 1: What are the sociodemographic characteristics of the general population in Vermont?

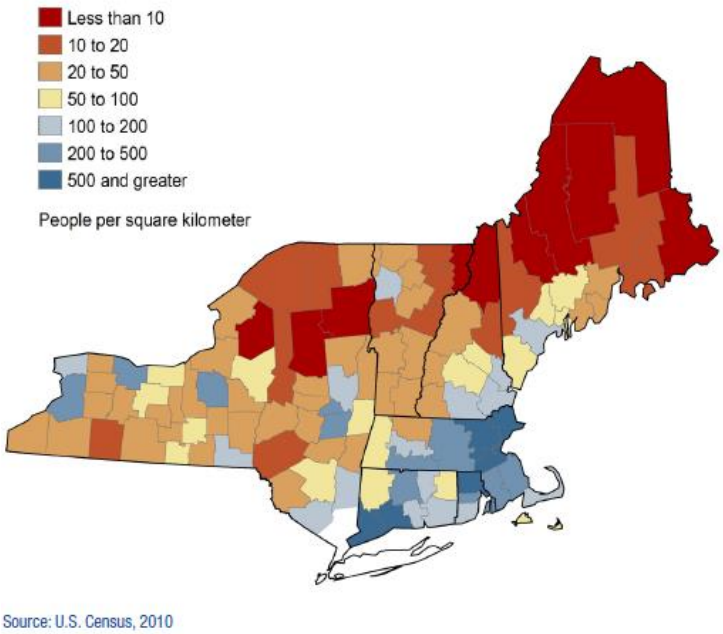
Overview:

Vermont has an estimated total population of 625,594 individuals.[10] General agreement across data sources places Vermont's total Lesbian, Gay, Bisexual and Transgender population at approximately 5 – 6% of Vermont's total population.[11] These sources estimate Men who have Sex with Men (MSM) comprise 2% Vermont's population (approximately 12,500 men). By contrast, research conducted by Grey, et al, at *Emory University Coalition for Applied Modeling for Prevention* estimates Vermont's population of MSM at just over 7,000 men.[12]

Vermont's population has remained largely stable over the previous five to ten years, with population losses balanced by gains. However, in closer analysis, Vermont's population is aging significantly. Over both the last 5-year and 10-year periods there have been significant decreases in numbers of children and youth 19 and under, and an equally significant decrease in adults ages 35 through 55. The population that has been growing the most and the fastest is older adults ages 60 through 75.[13]

Vermont is comprised of 14 counties, four of which are classified as an "urbanized area by Census definitions – Chittenden County, with a population over 160,000, and Rutland, Washington and Windsor Counties with populations ranging between 55,000 and 60,000.[14] The map below demonstrates Vermont's urban/rural characteristics, with the presence of just one area of light blue, with blue representing higher population density. This is contrasted with the remainder of New England states, and New York, wherein additional blue areas proliferate, including darker blues, representing higher densities.

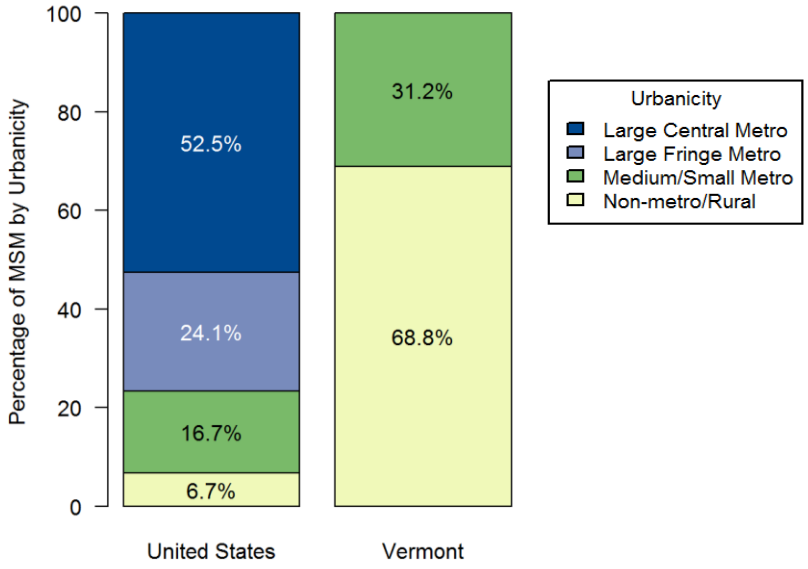
Figure 1. Northeast US Population Density, By County, 2010



The interstate highway system in New England provides fast, unobstructed access to the much more populous areas of Boston and Provincetown, MA; Providence, RI; Manchester and Portsmouth NH; the Maine Seacoast from NH to Portland, ME; and Albany and New York City, NY. The Canadian city of Montreal is also within driving distance of Vermont.

In research conducted by Emory University and the Centers for Disease Control and Prevention (CDC), the urbanicity of Vermont's MSM population was calculated as follows (**Figure 2**), and compared to the country as a whole.

Figure 2. Percentage of MSM by Urbanicity, US and Vermont, 2013



As would be expected from Vermont's population density, most MSM in Vermont reside in non-metropolitan, or rural, counties (68.8%) and no MSM in Vermont reside in a large metropolitan area, given the lack of any in the state.[15]

Gender:

Vermont's gender breakdown is analogous to most states and the US a whole, with the population split almost exactly half-and-half – female (51%) and male (49%).[16] Estimating transgender populations continues to be challenging, and while national studies state that Vermont may have one of the higher transgender populations among states due to respectful legislation and protections afforded to transgender individuals, there is no numerical data to assess this claim.

Sexual Orientation:

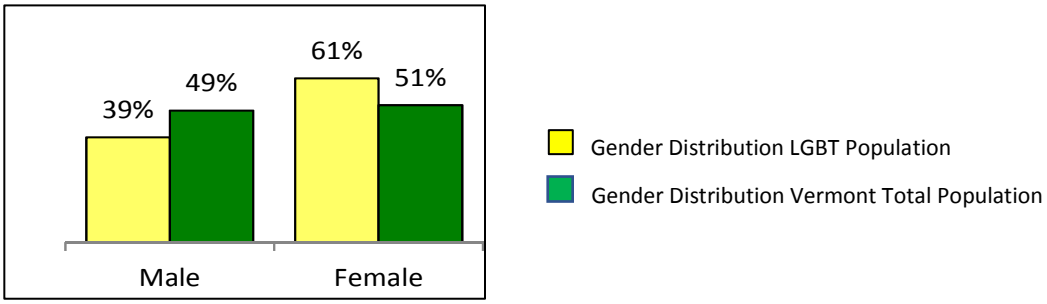
In viewing data regarding sexual orientation it is important to note that while more information tallied by sexual orientation is becoming available, data on Lesbian, Gay and Bisexual individuals is still only collected in a minority of surveys and data polling.

According to the Williams Institute's *LGBT Data & Demographics*, 5.8% of Vermont's population identifies as Lesbian, Gay, Bisexual or Transgender, placing Vermont in the category of one of the twelve US states with higher than 4% LGBT population.[17] Vermont appears to trail only the District of Columbia for LGBT as a total percent of population. While "Transgender" is included in the titles referencing data

overall, it should be noted that the gender breakdown of Vermont's sexual minority population is 41% Male and 59% Female, with no category representing "Other" or "Transgender" identity.[18]

The Williams Institute's data is in line with the state's *BRFSS* findings, summarized in the *Vermont 2016 LGBT Data Brief*, and listing 5% of the state's population overall as LGBT, with 39% reported as male and 61% reported as female.[19] The following chart (**Figure 3**) indicates the population by gender distribution, with green bars representing Vermont as a whole versus yellow bars representing specifically the gender distribution of the LGBT population in Vermont.

Figure 3. Gender Distribution of Vermont's LGBT Population, 2016



By contrast to the *BRFSS* estimates indicating a potential of 12,500 MSM in Vermont, research conducted by Grey, et al, at Emory University estimates Vermont's MSM population at closer to 7,000 via their methods of estimating MSM population per county throughout the US.[20]

Race and Ethnicity:

Vermont remains one of the most racially homogenous states in the nation. According to July 2016 Census estimates, Vermont's racial profile is reflected in the following table (**Table 1**). While diversity has increased incrementally over the years, the racial and ethnic composition of Vermont's population has not shifted significantly in the past 5 to 10 years.[21]

Table 1. Vermont Population Distribution, by Race/Ethnicity, 2016

VERMONT POPULATION DISTRIBUTION BY RACE/ETHNICITY	
RACE/ETHNICITY	**% VERMONT POPULATION**
White	94.6%
Black	1.3%
Native American/ Native Alaskan	0.4%
Asian	1.8%
Hispanic/Latino	1.9%

Age:

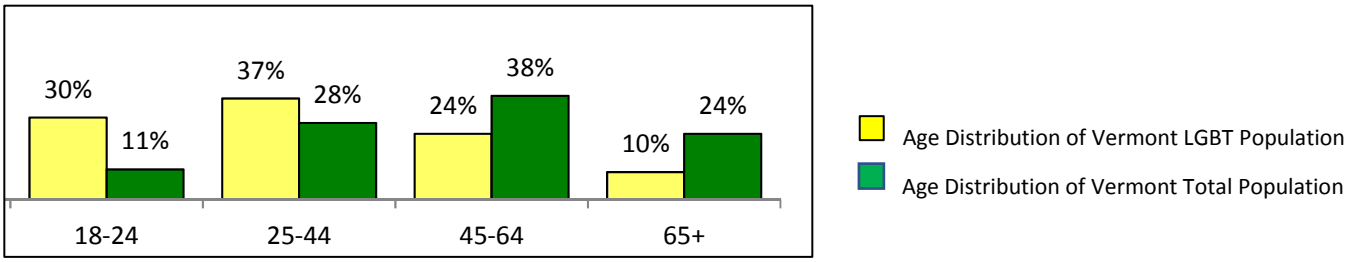
While Vermont's overall population has remained relatively stable in number over the past decade, a continuous and significant age shift has taken place, as the table below (**Table 2**) indicates. Over a 10-year period there has been a decrease in population of children and youth 19 and under, and adults ages 35 through 55. The population that has been growing the most and the fastest in Vermont is older adults ages 60 through 75, including minor spikes in populations of those aged 85+.[22]

Table 2. Vermont Population Percent Gain/Loss by Age Range, 10 Year Trends, 2005 - 2015

VERMONT POPULATION BY AGE: 10 YEAR TRENDS					
AGE	**2005**	**2010**	**2015**	**10 Year Change**	**% GAIN/(LOSS)**
14 & under	111,010	104,243	97,232	(13,778)	(12%)
15 - 24	92,833	89,863	90,619	(2,214)	(2%)
25 - 34	67,389	69,622	71,668	4,279	6%
35 - 44	91,466	78,359	70,630	(20,836)	(23%)
45 - 55	102,414	102,603	89,255	(13,159)	(13%)
55 - 64	74,917	89,973	96,745	21,828	29%
65 +	81,186	91,078	109,893	28,707	35%

The age distribution of the state's LGBT population is reflected in the following chart (**Figure 4**).

Figure 4. Age Range Distribution of Vermont Population, LGBT vs Total Population, 2016



By comparison with the overall Vermont population age trends, Vermont's young LGBT population grew significantly over the two-year period for which data is available, as represented below (**Table 3**). Mimicking Vermont's data, this growth was matched by a similar decrease in the 45 – 64 range. [23]

Table 3. Percent Gain/Loss of Vermont LGBT Population, by Age Range, 2014 to 2016

VERMONT LGBT POPULATION AGING TRENDS			
AGE RANGE	**2014**	**2016**	**% GAIN/(LOSS)**
18-24	19%	30%	11%
25-44	37%	37%	0%
45-64	34%	24%	(10%)
65+	10%	10%	0%

Socioeconomic:

The most current Census data reports that 12.2% of Vermont residents live below the federal poverty line. The median household income is $54,447 and the per capita income is $29,535. Median housing rates are $1,541 per month for homeowners with mortgages, and $889 monthly gross rent for renters.

There are no statistically significant differences between the LGBT and non-LGBT adult populations in Vermont in education status, annual household income level, employment status, or in the presence of

children in the home. The vast majority of Vermont residents (91.6%) have a high school diploma, with approximately one third of residents having a bachelor's degree or higher.[24]

A total of 24% of Vermont residents, and 9.8% of the population under 65, are living with a disability.[25]

Vermont maintains a health insurance marketplace – Vermont Health Connect (VHC) – with a range of plans, and both federal and state subsidies help Vermonters better afford care. By VHC's most recent estimate, 5.3% of Vermonters are currently without health insurance, a decrease from the prior year's 7%.[26]

QUESTION 2: What is the scope of HIV burden in Vermont?

Overview:

Contrasting Vermont population demographics with Vermont's HIV/AIDS burden, the following important points[27] emerge, further demonstrated in the following charts, tables, and graphs:

1. **661 individuals** were known to be living with HIV/AIDS in Vermont as of **December 31, 2016**, resulting in a state **case rate of 106** per 100,000.
2. Vermont's HIV/AIDS burden **generally follows its population distribution**, with the largest number of PLWDHI (214 or 32%) residing in Chittenden County, the most populous county.
3. **Men who have Sex with Men** remain the **most heavily affected population** in Vermont, representing over half Vermont PLWDHI (**53%** or **350 cases**).
4. Based on the data of 661 PLWDHI and 350 MSM PLWDHI, the Williams Institute estimate of 12,500 MSM living in Vermont yields a **case rate** of **2,800 per 100,000 MSM**. By contrast, the Emory CAMP estimate of 7,000 Vermont MSM yields a **case rate** of **5,000 per 100,000 MSM**.
5. **People of Color** – specifically Black/African American individuals – are **disproportionally represented** in Vermont's epidemic.
6. In the ten-year period of 2007 to 2016, the **age at diagnosis** was more **evenly distributed** across age ranges than in prior report periods.

Population Density:

Vermont's fourteen counties are displayed in the table below (**Table 4**), with the total 2016 Census population estimates in column one, the total number of Persons Living with HIV in that county in column two, and the rate of PLWDHI in the third.

Table 4. Number and Rate/100,000 of PLWDHI in Vermont, by County, 2016

COUNTY	TOTAL POPULATION	COUNTY NUMBER OF PLWDHI	COUNTY RATE OF HIV PER 100,000
Addison	36,959	33	9
Bennington	36,191	49	14
Caledonia	30,333	23	8
Chittenden	161,531	214	13
Essex	6,176	12	19
Franklin	48,915	29	6
Grand Isle	6,919	8	12
Lamoille	25,333	16	6
Orange	28,919	27	9
Orleans	26,863	23	9
Rutland	59,310	54	9
Washington	58,504	36	6
Windham	43,145	65	15
Windsor	55,496	72	13

The following maps[28] (**Figures 5 & 6**) provide visual representation of both the number of PLWDHI by county and prevalence rates for 2016.

Figure 5. Number PLWDHI by County, 2016

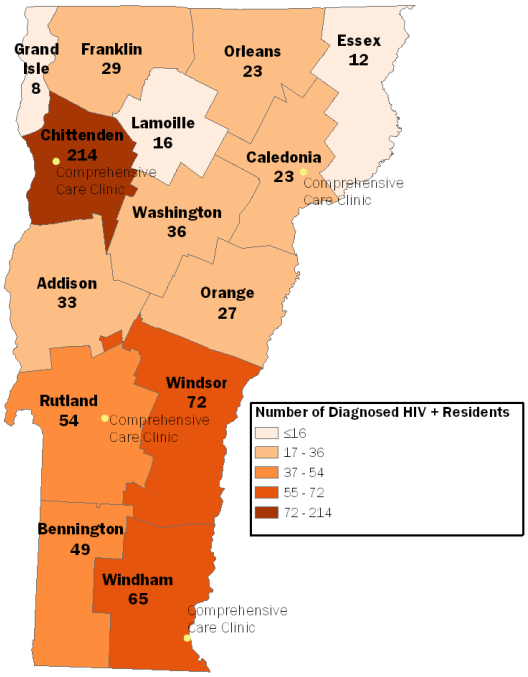
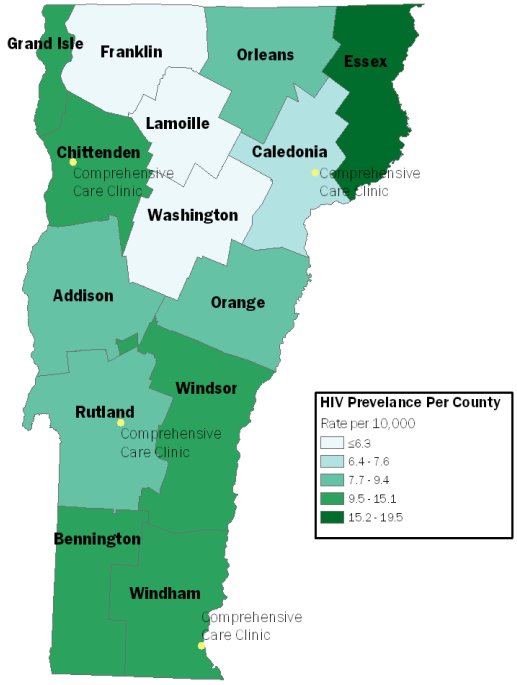


Figure 6. HIV Prevalence by County, 2016



The foregoing information highlights that while the HIV positive population generally follows the population distribution in Vermont, Windsor County (72 PLWDHI or 11% of state total) and Windham County (65 PLWDHI or 10% of state total) have a larger number of positive residents than their overall population might indicate.[29] In county populace, they rank fourth and sixth, respectively.

Gender:

The following charts (**Figures 7 & 8**) contrast the proportion of Vermont's PLWDHI population with the full state population regarding gender. The charts demonstrate that Vermont's HIV epidemic represents a primarily cisgender male population.[30]

Figure 7. VT PLWDHI by Sex at Birth, 2016

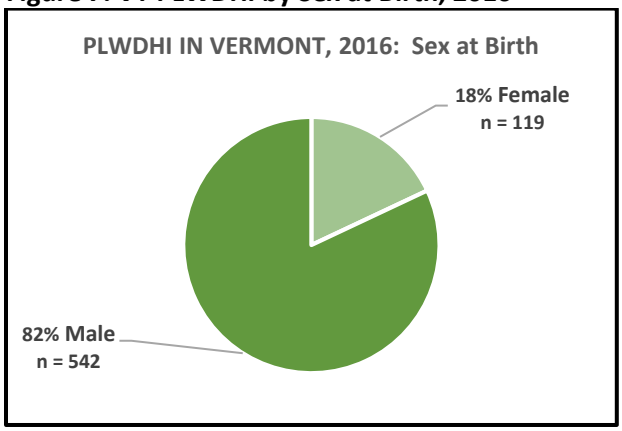
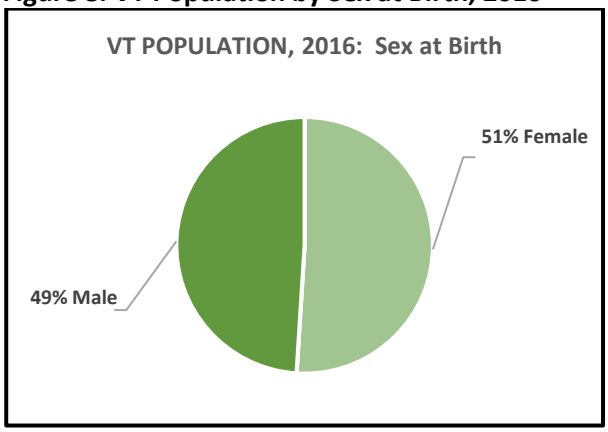


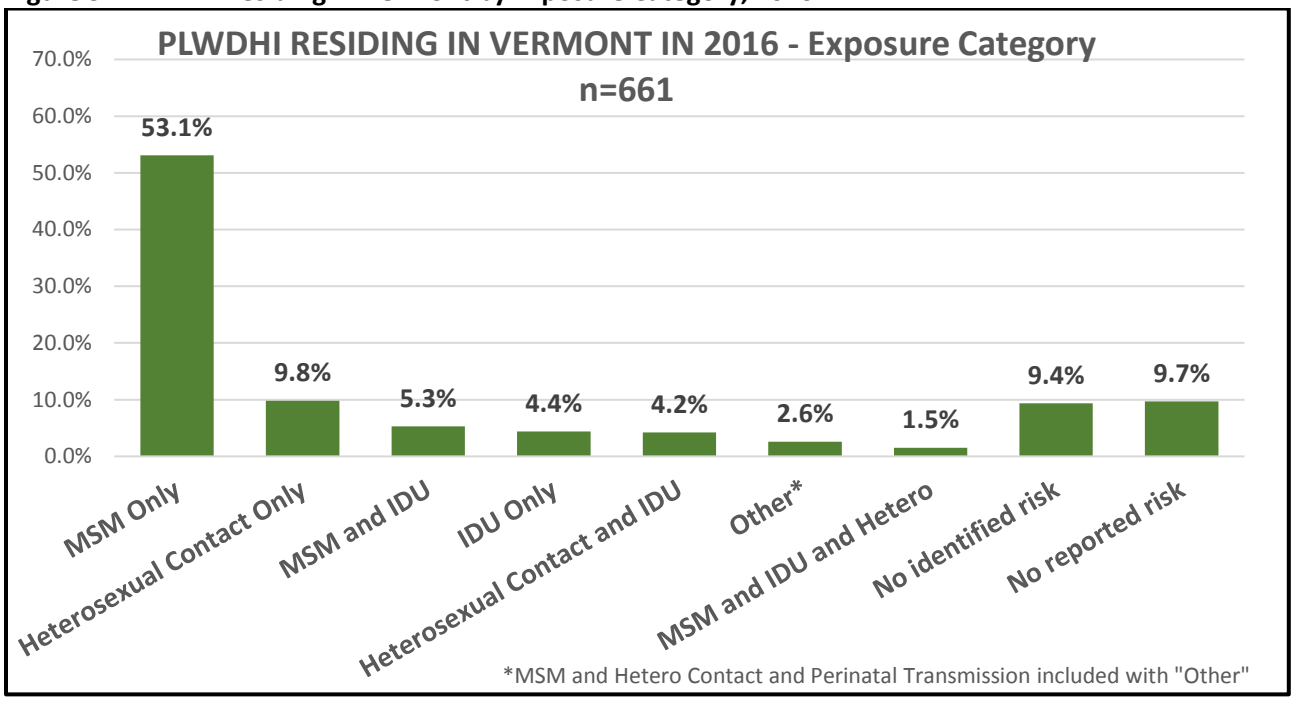
Figure 8. VT Population by Sex at Birth, 2016



Sexual Orientation & Exposure Data:

MSM account for the majority of the HIV positive population of Vermont as well as those newly diagnosed with HIV in the past 5 years.[31] As demonstrated in the following chart (**Figure 9**), the exposure category of male/male sexual contact (*MSM Only*) accounts for the highest HIV transmission percentage in Vermont, representing 53.1%, with male/male sexual contact concurrent with IV drug use (*MSM and IDU*) accounting for another 5.3%. All other reported exposure categories fall below 10%, including the second highest, heterosexual contact, at 9.8%.[32]

Figure 9. PLWDHI Residing in Vermont by Exposure Category, 2016



Race & Ethnicity:

The majority race among PLWDHI in Vermont is White, at 78.5%, followed by Black at 10.3%. Hispanic ethnicity among PLWDHI stands at 4.5%. These numbers are in contrast to Vermont's overall population, which while also predominately White, indicates the disproportionate HIV burden borne by the state's small percentage of People of Color.[33] (**Table 5**)

Table 5. Percent of Vermont PLWDHI by Race vs Percent of Vermont Population by Race

DEMOGRAPHIC	% OF VT PLWDHI	% OF VT POP
WHITE	78.5%	94.6%
BLACK	10.3%	1.3%
HISPANIC	4.5%	1.9%
ASIAN	1.8%	1.8%
MULTI RACE	1.5%	1.9%
OTHER*	0.8%*	0.4*
UNKNOWN	2.6%	NA

* Includes Native American, Not Hispanic, Native Hawaiian, Not Hispanic, and Asian Pacific Islander, Not Hispanic

The first chart below (**Figure 10**) presents the overall disproportionate burden on People of Color, contrasted with Vermont's overall racial and ethnic make-up. The charts that follow (**Figures 11 & 12**) provide a categorical breakdown of the racial and ethnic proportions for both PLWDHI overall, and newly diagnosed PLWDHI.

Figure 10. Vermont General Population Racial Composition vs PLWDHI Population Racial Composition

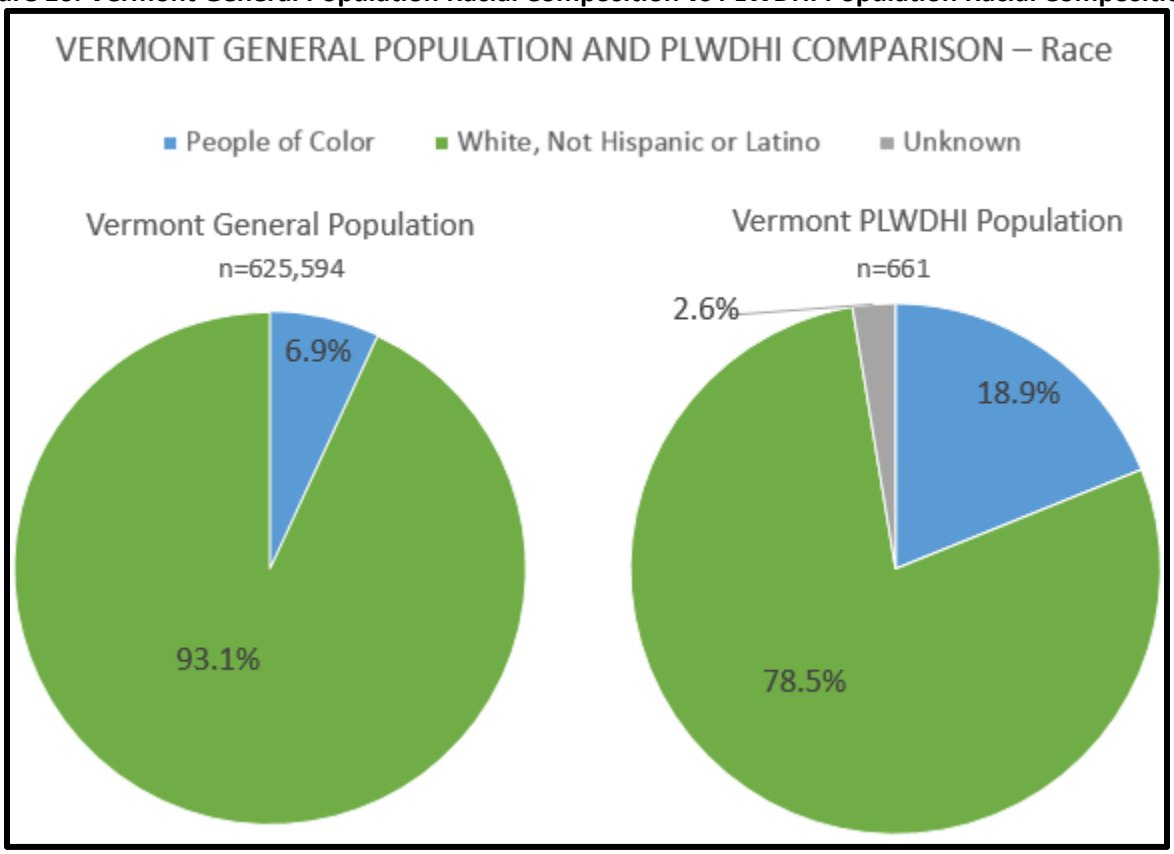


Figure 11. PLWDHI Residing in VT by Race, 2016

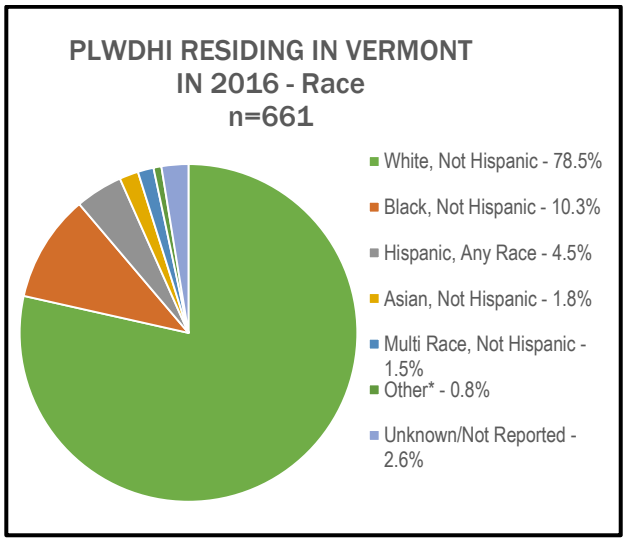
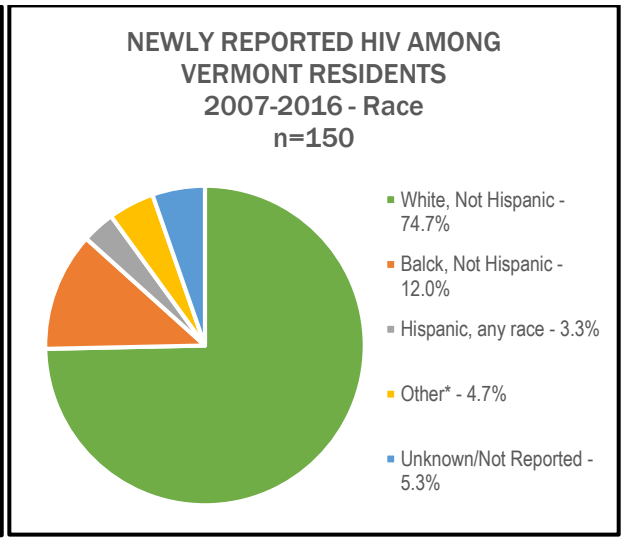


Figure 12. Newly Reported HIV in VT by Race, 2007-2016



* Includes Native American, Not Hispanic, Native Hawaiian, Not Hispanic, and Asian Pacific Islander, Not Hispanic

Age:

Age data is examined from two perspectives – age at diagnosis, and current age ranges of PLWDHI residing in Vermont. Age at diagnosis is displayed for the decade 2007 through 2016 in the first chart (**Figure 13**), and the second chart (**Figure 14**) examines age data for PLWDHI residing in Vermont at the end of 2016.[34]

Figure 13. Newly Reported HIV Among Vermont Residents – Age at Diagnosis, 2007-2016

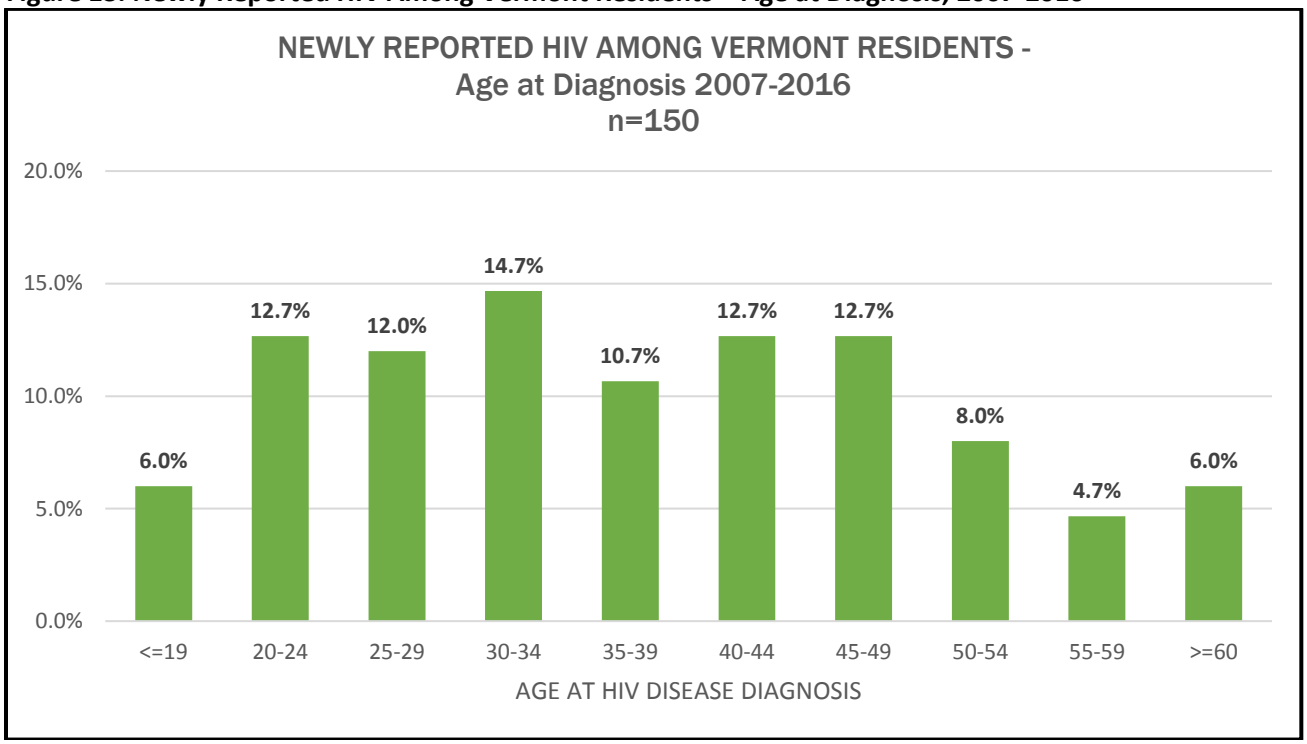
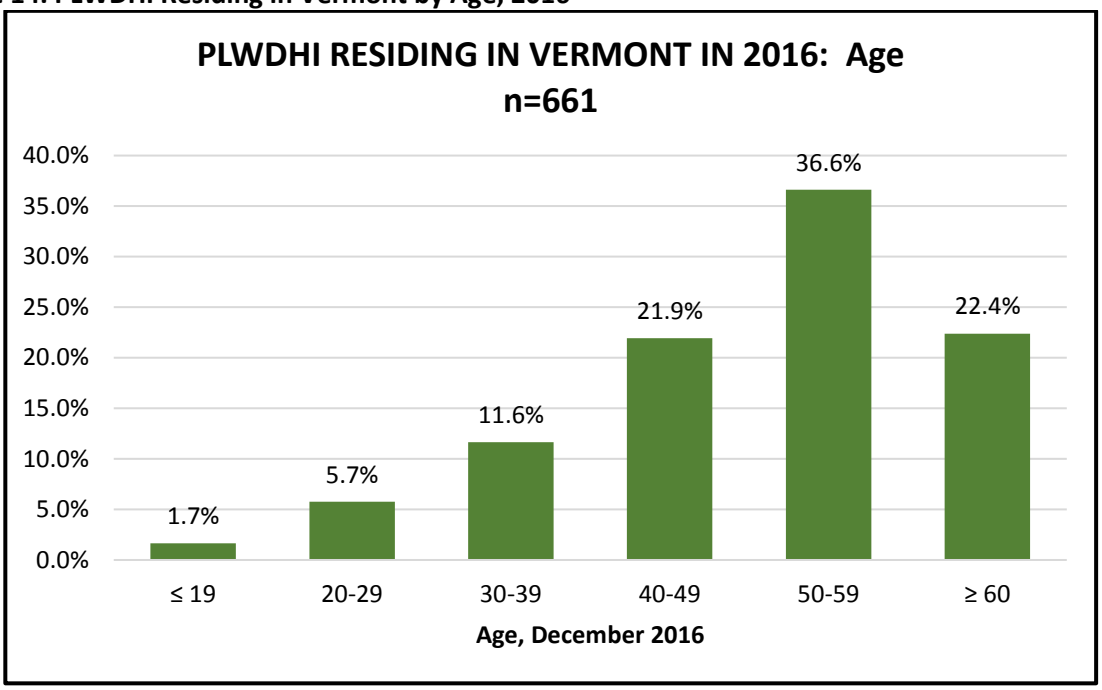


Figure 13 above demonstrates minimal variation in diagnoses rates among ages 20 – 49. The 30 – 34 years cohort ranks highest, but differences across the six 5-year cohorts average only 2%. Approximately one quarter of diagnoses fall within each of the three decade-based age cohorts of 20 – 29 years, 30 – 39 years, and 40 – 49 years.[35]

By contrast, the chart in **Figure 14** indicates clear and significant stratification among the age cohorts of PLWDHI residing in Vermont as of 2016. By far, the most PLWDHI residing in Vermont fall within the 50 – 59 years cohort, with approximately equal percentages falling in the adjacent 40 – 49 years and 60+ years cohorts.[36] This not only follows Vermont's overall population aging patterns, but is also likely representative of the increased survival of those living with HIV infection who were diagnosed in the 1990s and early 2000s.

Figure 14. PLWDHI Residing in Vermont by Age, 2016



<u>Socioeconomic</u>:

For PLWDHI who meet the income and residency requirements (500% of the federal poverty limit), the Vermont Medication Assistance Program (VMAP) helps members access the medications they need to stay healthy. Of the 661 people know to be living with HIV in Vermont, 386 are members of VMAP.[37]

<u>Concurrent Diagnoses & Mortality Data</u>:

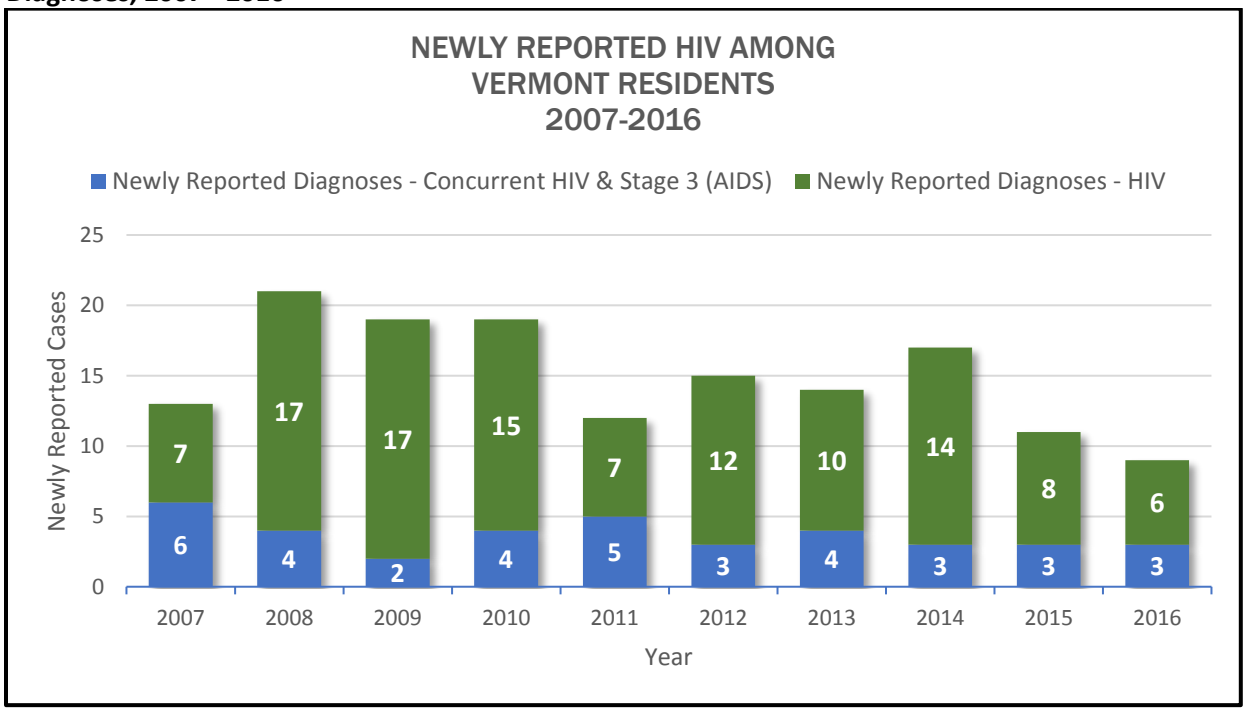
The table (**Table 6**) below provides the number of PLWDHI in Vermont in 2016, by sex at birth and race, and provides the corresponding rate. The chart (**Figure 15**) that follows indicates number of new cases of HIV diagnosed over the decade of 2007 – 2016, breaking out those with Concurrent Stage 3 (AIDS) Diagnoses. The majority of Vermont diagnoses have come before progression to Stage 3 and the number of concurrent diagnoses remained low for the last five years, consistently around 3 individuals.[38]

Table 6. Rate of PLWDHI and Stage 3 (AIDS): Vermont, 2016

RATE OF PLWDHI AND STAGE 3 (AIDS): VERMONT – 2016			
		VT PLWDHI	**Rate of HIV in VT per 100,000**
		661	**105.8**
SEX AT BIRTH	Male	542	175.7
	Female	119	37.7
RACE	Black or African American, Not Hispanic or Latino	68	837.4
	Hispanic or Latino	30	252.8
	White, Not Hispanic or Latino	519	89.3
	Other¥	27	116.8
	Unknown	17	N/A

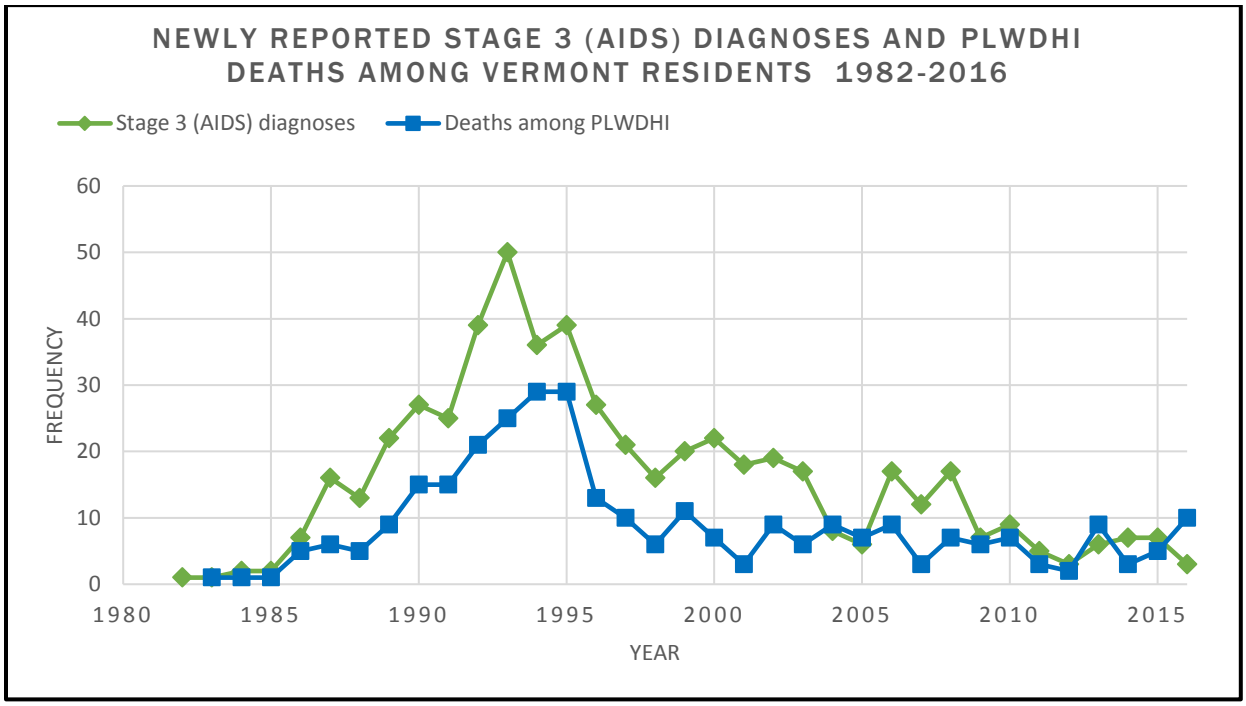
¥ Includes Native American, Not Hispanic, Native Hawaiian, Not Hispanic, and Asian Pacific Islander, Not Hispanic

Figure 15. Newly Reported HIV Among Vermont Residents with and without Concurrent Stage 3 (AIDS) Diagnoses, 2007 - 2016



The graph below (**Figure 16**) reflects the long-term pattern of HIV diagnoses from the early days of the epidemic, through 2016, and illustrates the continued downward trend of concurrent diagnoses.

Figure 16. Newly Reported Stage 3 (AIDS) Diagnoses and PLWDHI Deaths Among Vermont Residents, 1982 - 2016



Vermont experienced ten deaths of PLWDHI in 2016, the most in one single year over the last decade. HIV is not among the ten leading causes of death in any age group in Vermont.[39] The tables below present HIV mortality data for the last decade, in conjunction with new diagnoses and concurrent diagnoses, followed by the contrasting mortality data for the top ten causes of death in the state.[40] Vermont had zero tuberculosis deaths in 2015, and one tuberculosis death in 2016. There was zero coinfection with HIV.[41]

Table 7. HIV Mortality in Vermont, 2007 – 2016: Diagnoses, Concurrent Diagnoses, Mortality

HIV MORTALITY IN VERMONT: 2007 – 2016 Diagnoses, Concurrent Diagnoses, and Mortality				
Year	**Total HIV/AIDS Diagnoses**	**Concurrent Diagnoses (HIV & AIDS within 31 Days)**	**Stage 3 (AIDS) diagnoses**	**Deaths among PLWDHI**
2007	13	6	12	3
2008	21	4	17	7
2009	19	2	7	6
2010	19	4	9	7
2011	12	5	5	3
2012	15	3	3	2
2013	14	4	6	9
2014	17	3	7	3
2015	11	3	7	5
2016	9	3	3	10

Table 8. Vermont Deaths by Top Ten Leading Causes of Death, 2015

VERMONT DEATHS: 2015; number/percent of total deaths and death rates for the 10 leading causes of death			
CAUSE/ICD		**NUMBER OF DEATHS**	**PERCENT OF TOTAL DEATHS**
	ALL CAUSES	5,919	100.0%
1	Malignant neoplasms (C00-C97)	1,399	23.6%
2	Diseases of heart (I00-I09,I11,I13,I20-I51)	1,311	22.1%
3	Chronic lower respiratory diseases (J40-J47)	357	6.0%
4	Accidents (unintentional injury) (V01-X59,Y85-Y86)	346	5.8%
5	Cerebrovascular diseases (I60-I69)	307	5.2%
6	Alzheimer's disease (G30)	298	5.0%
7	Diabetes mellitus (E10-E14)	159	2.7%
8	Intentional self-harm (*U03,X60-X84,Y87.0)	103	1.7%
9	Influenza and pneumonia (J09-J18)	85	1.4%
10	Parkinson's disease (G20-G21)	83	1.4%

HIV Testing Patterns

Vermont's HIV testing network conducted 799 tests in 2016, identifying one positive result (**Table 9 & 10**).[42]

Table 9. HIV Tests Conducted in Vermont HIV Testing Network, 2016

Testing within Vermont Network 2016	
Count of Program	**#**
AIDS Project of Southern Vermont	41
Comprehensive Care Clinics	148
Community Health Center of Burlington	11
HIV/HCV Resource Center	47
Pride Center of Vermont	115
Safe Recovery	31
Vermont Department of Health	30
Vermont CARES	376
Grand Total	**799**

Table 10. Vermont HIV Testing Network HIV Tests by Result, 2016

Testing 2016 – Results	
Count of Test Result	**#**
Invalid	1
Negative	797
Reactive	1
Grand Total	**799**

As the following tables (**Tables 11 – 13**) indicate, approximately twice as many men (64%) tested than did women (31%). Three percent identified as transgender, including 1.8% female-to-male (FTM) and 1.2% male-to-female (MTF), and the remainder declined to provide a gender designation. Primary race of those testing was White at 80%, followed by Black/African American at 5%. The majority of tests were done on individuals identifying heterosexual transmission as their primary risk (42%), followed by MSM (23%) and then IDU (21%).[43]

Table 11. Vermont HIV Testing Network HIV Tests by Current Gender Identification, 2016

Testing 2016 - Current Gender	
Count of Gender Group	**#**
Declined	11
Female	249
Male	514
Transgender FTM	15
Transgender MTF	10
Grand Total	**799**

Table 12. Vermont HIV Testing Network HIV Tests by Race/Ethnicity, 2016

Testing 2016 - Race/Ethnicity	
Count of Race/Ethnicity	**#**
American Indian or Alaska Native	6
Asian	13
Black/African American	41
Declined	24
Don't Know	3
Hispanic	32
Multi - race	34
White	646
Grand Total	**799**

Table 13. Vermont HIV Testing Network HIV Tests by Identified Risk Category, 2016

Testing 2016 - Risk Category		
Count of Risk Category	**#**	**%**
Heterosexual	333	42%
IDU	165	21%
MSM	185	23%
MSM/IDU	11	1%
Other Risk Category	21	3%
Unknown Risk Category	84	11%
Grand Total	**799**	**100%**

HIV testing data from the Vermont *BRFSS* (**Table 14**) indicate that the percentage of overall Vermonters having ever been tested for HIV has been increasing among both males and females.[44]

Table 14. Percent of Vermont Residents Reporting Ever Testing for HIV, by Gender, 2013 - 2016

Have you ever been tested for HIV?			
	OVERALL	**MALE**	**FEMALE**
2013			
Yes	33.7%	30.3%	31.2%
No	66.3%	69.7%	68.8%
2014			
Yes	33.6%	30.0%	32.4%
No	66.4%	70.0%	67.6%
2015			
Yes	36.0%	32.9%	34.2%
No	64.0%	67.2%	65.8%
2016			
Yes	39.8%	37.6%	36.3%
No	60.2%	62.4%	63.7%

The trend graph below (**Figure 17**) presents the ten-year period of 2007 to 2016, regarding the question "have you *ever been* tested for HIV," visually demonstrating that increase. Below that, in a table stratified by age (**Table 15**), the increase can be seen to encompass all age ranges.[45]

Figure 17. Vermont Adults Reporting Ever Testing for HIV, 2007 - 2016

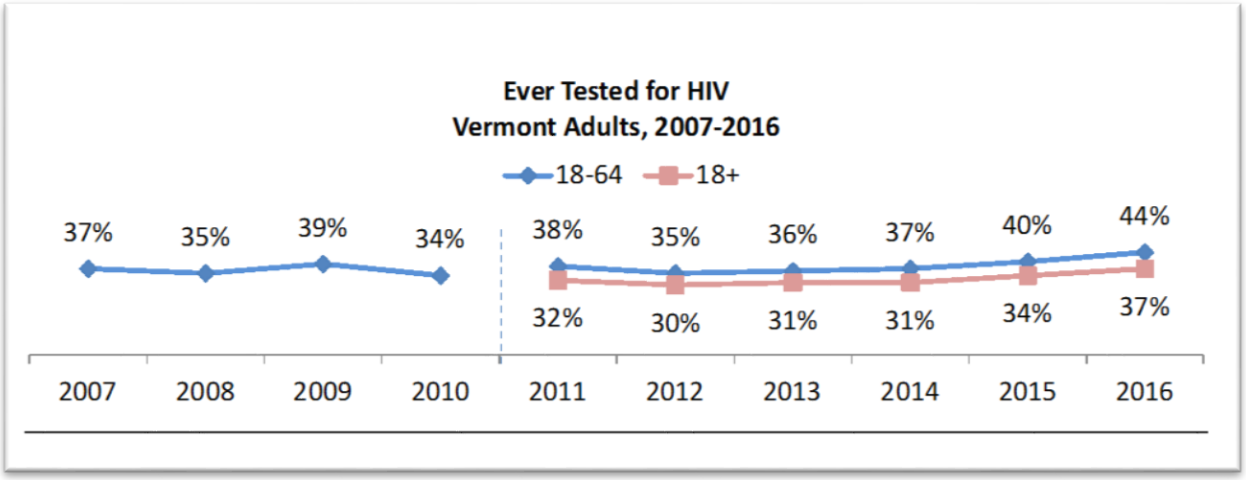


Table 15. Age Distribution of Vermont Adults Reporting Ever Testing for HIV, 2013 - 2016

Have you ever been tested for HIV? Vermont Age Distribution						
2013						
AGE RANGE	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Yes	28.9	51.6	51.5	34.5	21.7	10.1
No	71.1	48.4	48.5	65.5	78.3	89.9
2014						
AGE RANGE	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Yes	24.7	51.5	51.8	36.8	23.2	11.3
No	75.3	48.5	48.2	63.2	76.8	88.7
2015						
AGE RANGE	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Yes	31.4	48.1	53.7	41.4	28.5	11.2
No	68.6	51.9	46.3	58.6	71.6	88.8
2016						
AGE RANGE	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Yes	34.7	55.8	59.4	44.7	29.7	13.1
No	65.3	44.2	40.6	55.3	70.3	86.9

In 2012, Vermont *BRFSS* collected data on why adults reporting "ever having an HIV test" took the test. This is the only year this information was collected in Vermont's *BRFSS* questionnaire. The results in the chart below (**Figure 18**) indicate that the highest percentage (20%) availed themselves of the test

because it was "required."[46] No additional data was collected determining why these individuals were required, or perceived they were required, to take an HIV test.

In 2012, the location of testing for the individuals reporting "ever having an HIV test" was also recorded, once again only in that year (**Figure 19**). The highest percentage (42%) received their test at their doctor's office which is in keeping with the fact that the majority of HIV diagnoses in Vermont are received through the medical network in the state.

Figure 18. Vermont Adults Ever Tested for HIV – Reason Tested, 2012

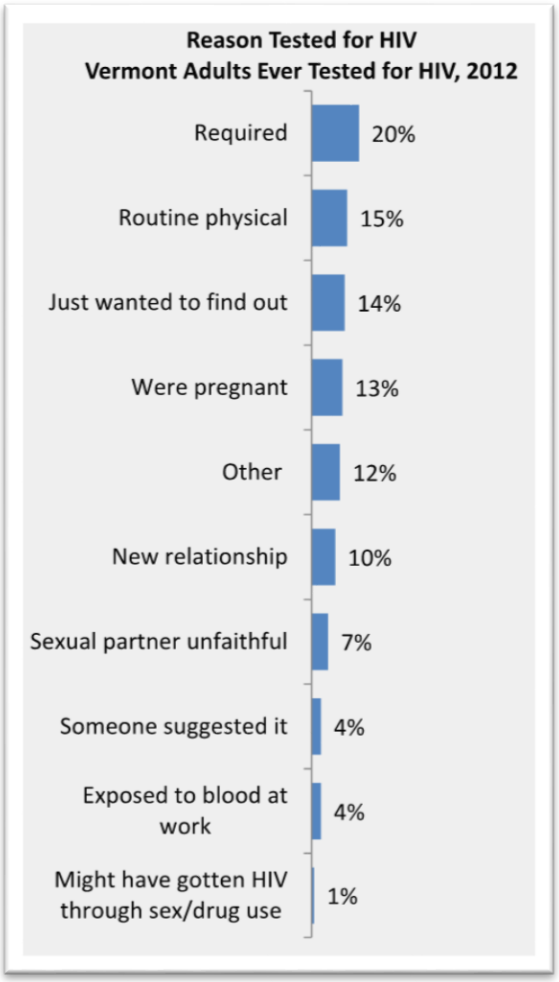
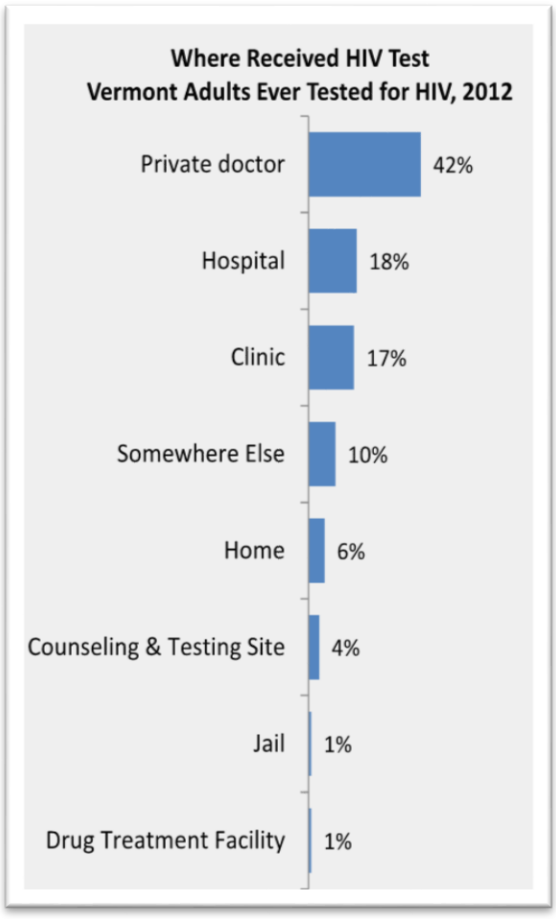


Figure 19. Vermont Adults Ever Tested for HIV – Where Tested, 2012



Vermont's most recent *Youth Risk Behavior Survey* (2015) data on HIV Risk and Testing indicate that 10% of students in grades 9 through 12 report having "ever been tested for HIV," with females and older students more likely to report testing.[47]

Vermont's *LGBT Health Data Brief* (2016) indicates that significantly more LGBT adults have "ever been tested" and more have "tested in the past year" than their heterosexual counterparts (**Figure 20**). The tables that follow (**Tables 16 & 17**) provide comparison data from 2014 to 2015. As of 2015, over half of the Vermont adult LGBT population report having ever been tested for HIV, and over 20% of both LGBT males and females report testing in the last year. LGBT men are significantly more likely than non-LGBT

men to have received HIV testing, both "ever" and "in the last year" and LGBT women are similarly significantly more likely than their heterosexual counterparts to have tested ever, and in the past year.[48]

Figure 20. Percent LGBT vs Non-LGBT Vermont Residents Ever Tested for HIV and Tested for HIV in Last 12 Months, by Gender, 2015

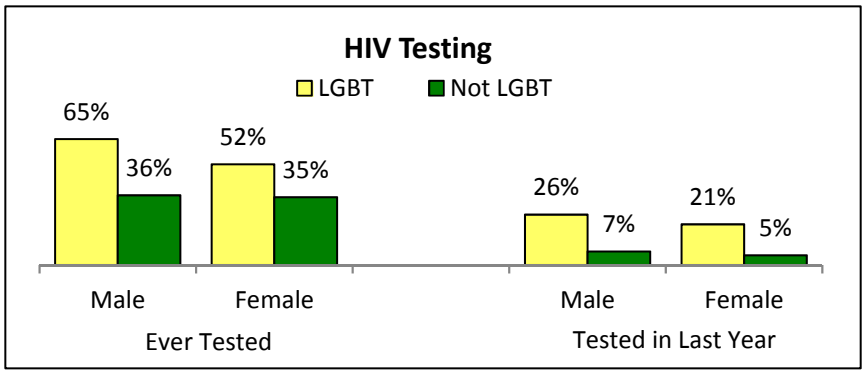


Table 16. Percent LGBT & Heterosexual VT Residents Ever Tested for HIV, 2014 – 2015

EVER BEEN TESTED FOR HIV		
LGBT	**2014**	**2015**
Male	61%	65%
Female	44%	52%
HETEROSEXUAL	**2014**	**2015**
Male	29%	36%
Female	32%	35%

Table 17. Percent LGBT & Heterosexual VT Residents Tested for HIV Last 12 Months, 2014 – 2015

TESTED FOR HIV IN THE LAST YEAR		
LGBT	**2014**	**2015**
Male	29%	26%
Female	11%	21%
HETEROSEXUAL	**2014**	**2015**
Male	6%	7%
Female	6%	5%

From the *VSHNA* roughly 55% of men participating in the surveys – almost all of whom identified as MSM – report getting tested for HIV and other sexually transmitted diseases (STDs) on a yearly or almost yearly basis.[49]

Performance Indicators for HIV Prevention

The VDH HSH program requires quarterly reporting from all funded grantees providing HIV care and prevention services in the state. Standardized indicators of performance are defined when grant funds are awarded, and quarterly reporting allows for ongoing communication between the state and agencies concerning challenges, successes, and needed changes.

The following Performance Dashboard (**Table 18**) has been created as a multi-use tool, fulfilling the needs of monitoring results of prevention efforts, program planning and improvement, and demonstrating accountability. The dashboard has been revised as needed to further target prevention efforts and clarify gaps in funded services to be addressed. The most recent revisions were made in conjunction with the release of the CDC's *Program Funding Opportunity Announcement PS18-1802*, *Jurisdiction Evaluation Performance Measurement Plan*.

The dashboard has been designed to provide the VDH with the most relevant information to ensure funded programming is closely aligned with the eleven strategies defined in that FOA to achieve NHAS long-term outcomes, and making appropriate progress on all efforts. The indicators selected reflect progress on *outcomes* that have been assigned by CDC to the eleven strategies, and collected data is reviewed quarterly at the statewide HIV Community Advisory Group meetings.

Outcomes for four of the eleven strategies have been selected as a focus for dashboard monitoring, including:

1. Identify persons with HIV infection and uninfected persons at risk for HIV infection. (**Strategy 2**)

2. Provide comprehensive HIV-related prevention services for persons living with diagnosed HIV infection. (**Strategy 4**)

3. Provide comprehensive HIV-related prevention services for HIV-negative persons at risk for HIV infection. (**Strategy 5**)

4. Conduct community-level HIV prevention activities. (**Strategy 7**)

The dashboard data also reflects on the **Strategy 8** (Develop partnerships to conduct integrated prevention and care planning) outcome of "Increased coordination of, availability of, and access to comprehensive HIV prevention, treatment, and support services" and the **Strategy 11** (Conduct data-driven planning, monitoring, and evaluation to continuously improve HIV surveillance, prevention, and care activities) outcome of "Improved targeting of HIV testing."

The dashboard presents the strategy, then provides by column the specific strategy outcome addressed, the selected indicators to measure that outcome, the quarter-by-quarter combined performance of all grantees through the fourth quarter of 2017, year-to-date totals, stated goal, and lastly, an indicator symbol of current performance-to-goal, including a blue horizontal arrow for performance "meeting goal," red downward arrow for performance "below goal," and green up arrow for performance "exceeding goal." In certain categories, specific goals were not set, and this is indicated as "X" in this final column. All recorded performance data was compiled from HSH-funded grantee Quarterly Status Reports.

Performance at this time should be viewed within the context of 2017 as a transitional year during which grantees are adapting to the new outcomes, and refined indicator reporting. It is expected that this tool will allow for much closer communication and accountability between the state and grantees, with intervention should performance not be on target to the new specifications.

Following the dashboard is a list of additional indicators that are being set in place for 2018.

This dashboard will continue its evolution as the VDH HSH releases its next integrated RFP for care and prevention services, in 2018, and grantees will be expected to utilize the eleven strategies, their outputs and outcomes, and these defined indicators, in applying for funding and implementing programming. VDH will implement Program Improvement Plans with grantees significantly below target, to assist in determining how service delivery can be improved.

Table 18. Vermont HIV Care & Prevention Integrated Performance Dashboard

VERMONT HIV INTEGRATED PERFORMANCE DASHBOARD

ONE:	**Identify persons with HIV infection and uninfected persons at risk for HIV infection.**								
(1)1. Outcome: Increased number of persons who are aware of their HIV status.	**SELECTED INDICATORS**	**PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.**						
		Q #1	**Q #2**	**Q #3**	**Q #4**	**YTD**	**GOAL**	
How many clients (**PWID**) engaged in **CLEAR** services, **TESTED** for HIV?	**# PWID in CLEAR TESTED**	1	1	0	2	4 of 20: 20%	80%	⇓
How many CLEAR clients (**PWID**) receiving HIV test **NOT TESTED** w/in **30 DAYS PRIOR TO CLEAR**?	**# PWID NOT TESTED IN < 30 DAYS PRIOR TO CLEAR**	1	1	0	1	3 of 4: 75%	80%	⇓
How many Vermonters at **HIGHEST RISK** were **TESTED** in HIV TRL ASO? ***HIV TRL ASO** = HIV Testing, Referral & Linkage through AIDS Service Organizations*	**# HIGHEST RISK TESTED**	63	84	52	43	242	NO # GOAL	**X**
How many **MSM TESTED** through HIV **TRL ASO** this quarter?	**# MSM TESTED TRL ASO**	21	23	32	25	101 of 242: 42%	60% OF ALL TESTS	⇓
How many **MSM TESTED** through **ALL** HIV **TRL** programming? ***TRL ASO** and **TRL PrEP***	**# MSM TESTED ALL TRL**	48	37	47	43	175 of 316: 55%	60% OF ALL TESTS	⇓

TWO:	**Provide comprehensive HIV-related prevention services for persons living with diagnosed HIV infection (PLWH).**							
(2)1. Outcome: Increased linkage to & retention in HIV medical care among PLWH.	**SELECTED INDICATORS**	**PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.**						
		Q #1	**Q #2**	**Q #3**	**Q #4**	**YTD**	**GOAL**	
Of Vermonters at **HIGHest RISK** w/positive (**+**) **TEST**, how many **LINKED TO MEDical CARE** w/in three (**3**) **WeeKs** of diagnosis?	**# HIGH RISK + TEST: LINKED TO MED CARE 3WKS**	0	0	1	0	1: 100%	90%	⇑
How many PLWH **SERVED** w/**Non-Medical Case Management** had **NO MEDical APPointment** in **six** (**6**) **MOnths**?	**# SERVED NMCM: NO MED APP <6 MO**	20	8	5	9	9 of 253: 5%	<10%	⇑
How many **SERVED** w/**PSYCHOSOCIAL Support**, **CONNECTED TO BIOMED** intervention/**ADHerence** counseling?	**# PLWH SERVED W/PSYCHOSOCIAL CONNECTED TO BIOMED/ADH**	19	31	54	24	128 of 139: 92%	100%	⇓
How many **PLWH Sw/Out-Patient Ambulatory Medical Care**, had at least **one** (**1**) **MEDical APPointment** in each **six (6) MOnth period** in year (min 60 days between apps)?	**# PLWH SERVED W/OP AMC: ~1 MED APP >6 MO**	NA	337	NA	382	337: 100%	90%	⇑
How many **PLWH SERVED** with **NAVIGATION** services? **ASD:** *Assessed*; **SRV:** *Served*	**# PLWH SERVED W/NAVIGATION**	1 SRV 4 ASD	0 SRV 1 ASD	2 SRV 2 ASD	0 SRV 3 ASD	3 SRV of 10 ASD: 30%	(NO SRV # GOAL) 25ASD	**X**SRV ⇓ASD

(2)2. Outcome: Increased early initiation of Anti-Retroviral Therapy in PLWH	SELECTED INDICATORS	PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.						
		Q #1	Q #2	Q #3	Q #4	YTD	GOAL	
How many people **TESTING** positive (**+**) for HIV **LINKED TO MEDical** care, **INITiated HIV THERAPY**?	**# TESTING + LINKED TO MED & INIT HIV THERAPY**	0	0	1	0	1: 100%	NO # GOAL SET	**X**
Of **PLWH SERVED** w/**Non-Medical Case Management # PRESCRibed & ADHerent** to **HIV MEDication**?	**# PLWH SERVED W/NMCM: PRESCR/ADH HIV MED**	257	244	239	242	242 of 253: 96%	90%	⇑

(2)3. Outcome: Increased viral load suppression among PLWH	SELECTED INDICATORS	PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.						
		Q #1	Q #2	Q #3	Q #4	YTD	GOAL	
Of **PLWH SERVED** w/**Non-Medical Case Management # PRESCRibed & ADHerent** to **HIV MEDication?**	**# PLWH SRVD W/NMCM: PRESCR/ADH HIV MED**	257	244	239	242	242 of 253: 96%	90%	⇑
How many **PLWH ON ARV** therapy were **ASSesseD/COUNSeled FOR ADHerence** two (**2**) or more times, at least three (**3**) **MOnths** apart?	**# PLWH ON ARV: ASSD/ COUNS FOR ADH ~2 IN > 3 MO**	NA	82	170	181	433 of 1166: 37%	90%	⇓
How many **PLWH**, served w/**Medical Case Management** inc Treatment Adherence, **INCREASED ADHerence SCORE/ MAINTAINED SCORE >95%**? ***INC:*** *Increased Score.* ***MT:*** *Maintain >95%*	**# PTS MCM: INCREASED ADH SCORE OR MAINTAINED SCORE >95%**	83 14INC 69MT	78 8INC 70MT	47 0INC 47MT	71 5INC 66MT	279 of 433: 64%	60% INC	⇑
How many **PLWH SERVED** with **Medical Case Management** at **BURLINGTON** location?	**# PLWH SERVED MCM BURLINGTON**	176	175	148	154	150+	150 UNDUP	⇑
How many **PLWH SERVED** with **NAVigation** services, **OBTained BIOMEDical** intervention and/or **ADHerence** counseling?	**#PLWH SERVED W/NAV: OBT BIOMED/ADH**	1	0	2	0	3 of 3: 100%	100%	⇒

(2)4. Outcome: Decreased risk behaviors among PLWH at risk for transmission	SELECTED INDICATORS	PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.						
		Q #1	Q #2	Q #3	Q #4	YTD	GOAL	
How many **PLWH SERVed** with **Non-Medical Case Management**?	**# PLWH SERV NMCM**	260	260	250	253	NA	NO # GOAL SET	**X**
How many **PLWH** with **Non-Medical Case Management PRESCRibed & ADHerent to HIV MEDication**?	**# NMCM: PRESCR & ADH TO HIV MEDS**	257	244	239	242	242 of 253: 96%	90%	⇑
How many **PLWH** with **Non-Medical Case Management RECeiving EFA**, are homeless/**UNSTABLY HOUSED**?	**# SERV NMCM: REC EFA & UNSTABLY HOUSED**	3	5	7	10	10 of 132: 8%	<5%	⇓
Of the **MGroups** (**MPGS**) delivered this quarter, how many were for **MSM** living with HIV (**HIV+**)?	**# MGPS HIV+**	0	0	1	1	2 of 9: 22%	2	⇒

Of **MGroups** delivered, how many for **MSM** mixed serostatus (+/-)?	**# MGPS +/-**	1	2	1	3	7 of 9: 78%	6	⇑
For **MSM** living with HIV (**HIV+**), how many completed **MGroup** (**MGP**)?	**# PLWH: MGP HIV+**	0	0	4	5	9: 100%	10	⇒
For **MSM** of unknown or mixed serostatus **(+/-)**, how many completed **MGroup (MGP)**?	**# MSM: MGP +/-**	8	15	3	20	46: 100%	46	⇒
How many **PatienTS** with HIV (**HIV+**) **SEEN DIETICIAN**? ***NEW*** *&* ***EST*** *= Established*	**# HIV+ PT: SEEN DIETICIAN**	4NEW 70EST 74 of 306	2NEW 98EST 100 of 337	2NEW 80EST 82 of 292	0NEW 72EST 72 of 309	17%N 26%E	80%N 50%E	⇓
How many **MSM** with HIV diagnosis (**HIV+**) **TESTED FOR GONoRrhea**? *[Unduplicated by quarter; weighted total %]*	**# HIV+MSM TESTED FOR GONR**	34 of 196: 17%	13 of 220: 6%	36 of 189: 19%	37 of 208: 18%	15%	50%	⇓
How many **MSM** with HIV diagnosis (**HIV+**) **TESTED FOR SYPHILIS**? *[Unduplicated by quarter; weighted total %]*	**# HIV+MSM TESTED FOR SYPHILIS**	36 of 196: 18%	40 of 220: 18%	41 of 189: 22%	40 of 208: 19%	19%	50%	⇓
How many **PLWH**, 12 years & older (**12+**) served by practice, were **SCReened FOR CLINical DEPRession**? *[Unduplicated by quarter; weighted total %]*	**# PLWH 12+ SCR FOR CLIN DEPR**	224 of 306: 73%	250 of 337: 74%	226 of 292: 77%	232of 309: 75%	75%	EST BASE-LINE	⇒
How many **UNDUPlicated PatienTS**, served by practice, **RECeived Mental Health SERVICES**? *[Unduplicated by quarter; weighted total %]*	**# UNDUP PTS REC MH SERVICES**	67 of 306: 22%	71 of 337: 21%	74 of 292: 25%	43 of 309: 14%	255: 21%	70	⇑
How many patients w/HIV (**HIV+**) served by practice, **SCReened** & **REFerred TO Substance Abuse TReatment** services? *[Unduplicated by quarter; weighted total %]*	**# HIV+ PT SCR/REF TO SA TR**	18 of 306: 6%	5 of 337: 1%	5 of 292: 2%	3 of 309: 1%	3%	EST BASE-LINE	⇒

THREE:	**Provide comprehensive HIV-related prevention services for HIV-negative persons at risk for HIV infection.**

(3)1. Outcome: Increased referral of persons eligible for PrEP.	**SELECTED INDICATORS**	**PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.**						
		Q #1	**Q #2**	**Q #3**	**Q #4**	**YTD**	**GOAL**	
How many **MSM TESTED** for HIV in **TRL** embedded with **PrEP** program?	**# MSM TESTED: TRL-PrEP**	27	14	15	18	74	100	⇓
How many **MSM TESTED** for HIV, **ASSesseD FOR PrEP** with CDC assessment tool?	**# MSM TESTED: ASS'D FOR PrEP**	11	14	15	15	55 of 74: 74%	70%	⇑

(3)2. Outcome: Increased prescription of PrEP to those for whom PrEP is indicated.	**SELECTED INDICATORS**	**PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.**						
		Q #1	**Q #2**	**Q #3**	**Q #4**	**YTD**	**GOAL**	
How many **MSM SCORing** ten or higher (**10+**) on CDC PrEP assessment tool **REFerred TO PrEP** services?	**# MSM 10+ SCORE: REF TO PrEP**	11	8	9	13	41 of 41: 100%	100% of 10+ MEN	⇒
How many **MSM REFerred TO PrEP** were **LINKED** to PrEP services?	**# MSM REF TO PrEP: LINKED**	0	4	3	9	16 of 41: 39%	25 61% of 41	⇓
How many **MSM LINKED** to PrEP **RECeived** at least one (**1**) **Follow-Up CONTACT**?	**# MSM LINKED: REC 1 F/U CONTACT**	0	0	0	9	9 of 16: 56%	100%	⇓

FOUR:	Conduct community-level HIV prevention activities.							
(4)2. Outcome: Increased access to syringe service programs for persons who inject drugs.	**SELECTED INDICATORS**	PERFORMANCE: ⇑ Exceeding Goal. ⇒ Meeting Goal. ⇓ Not Meeting Goal. X = Cumulative Result/No Goal.						
		Q #1	Q #2	Q #3	Q #4	YTD	GOAL	
Number **IDU** clients **ENRolled** in **CLEAR** services?	**# IDU ENR CLEAR**	4	3	1	2	10	15	⇓
Number **IDU** clients **ENGaged** through **CLEAR** services?	**# IDU ENG CLEAR**	4	7	4	5	20	15	⇑
Number **SYRinges** exchanged: **IN**	**# SYR IN**	179,813	154,130	179,321	185,928	699,192	NO # GOAL	X
Number **SYRinges** exchanged: **OUT**	**# SYR OUT**	304,534	291,151	305,189	289,014	1,189,888	NO # GOAL	X
Total unduplicated **SSP Membership** (**MBR**)	**# SSP MBR**	5,854	6078	6237	6417	6417	NO # GOAL	X
Number **NEW Members** (**MBR**) **EXCHanging SYRinges**	**# NEW MBR EXCH SYR**	166	144	154	167	631	NO # GOAL	X
Number **Member VISIT**/ Encounter	**# MBR VISIT**	2,620	2581	2495	2421	10,117	NO # GOAL	X
Number **SECondary EXCHanges**	**# SEC EXCH**	1,755	1882	1624	1589	6,850	NO # GOAL	X
Number **Members** (**MBR**) **RECeiving HIV TRL**	**# MBR REC HIV TRL**	27	31	11	36	105	NO # GOAL	X
Number **members** (**MBR**) **RECeiving Hepatitis C TESTing**	**# MBR REC HCV TEST**	14	11	8	40	73	NO # GOAL	X
Number **POSitive HCV TESTS**	**# +HCV TEST**	8	3	5	14	30	NO # GOAL	X
Number **NEGative HCV TESTS**	**# -HCV TEST**	4	8	3	12	27	NO # GOAL	X
Number **indeterminate HCV TESTS**	**# ?HCV TEST**	0	0	0	0	0	NO # GOAL	X

ADDITIONAL INDICATORS TO BE IMPLEMENTED IN 2018:

1. Identify persons with HIV infection and uninfected persons at risk for HIV infection.
(1)2. Outcome: Increased participation in HIV partner services among persons with diagnosed HIV infection.

REFERRED TO PARTNER SERVICES
LINKED TO PARTNER SERVICES

4. Conduct community-level HIV prevention activities.
(4)1. Outcome: Increased availability of condoms among persons living with or at risk for HIV infection.

CONDOMS DISTRIBUTED
DISTRIBUTED TO HIV+

QUESTION 3: What are the indicators of risk for HIV infection in Vermont's population?

3.1: Factors affecting risk of acquiring HIV infection among HIV-negative persons.

Given the significant variation in responses and behavior patterns by age range, the following data on risk factors of Substance Use and Sexual Behavior are categorized by Youth/High School, Young Adults/College, and Adults.

Substance Use:

Substance use is a significant indicator for HIV risk, including but not limited to increased risk of compromised decision-making under the influence, increased risk of sexual assault, and risk of shared needles for intravenous drug use.[50]

- ***Youth/High School: Alcohol and Other Drugs***[51]

Over half of Vermont high school students report drinking alcohol (56%) during their lifetime. Lifetime use increased significantly with age, overall youth drinking rates have decreased over time.

- 30% drank in the last thirty days
- 16% reported binge drinking, with males significantly more likely to participate in binging

Of note is this correlating statistic:

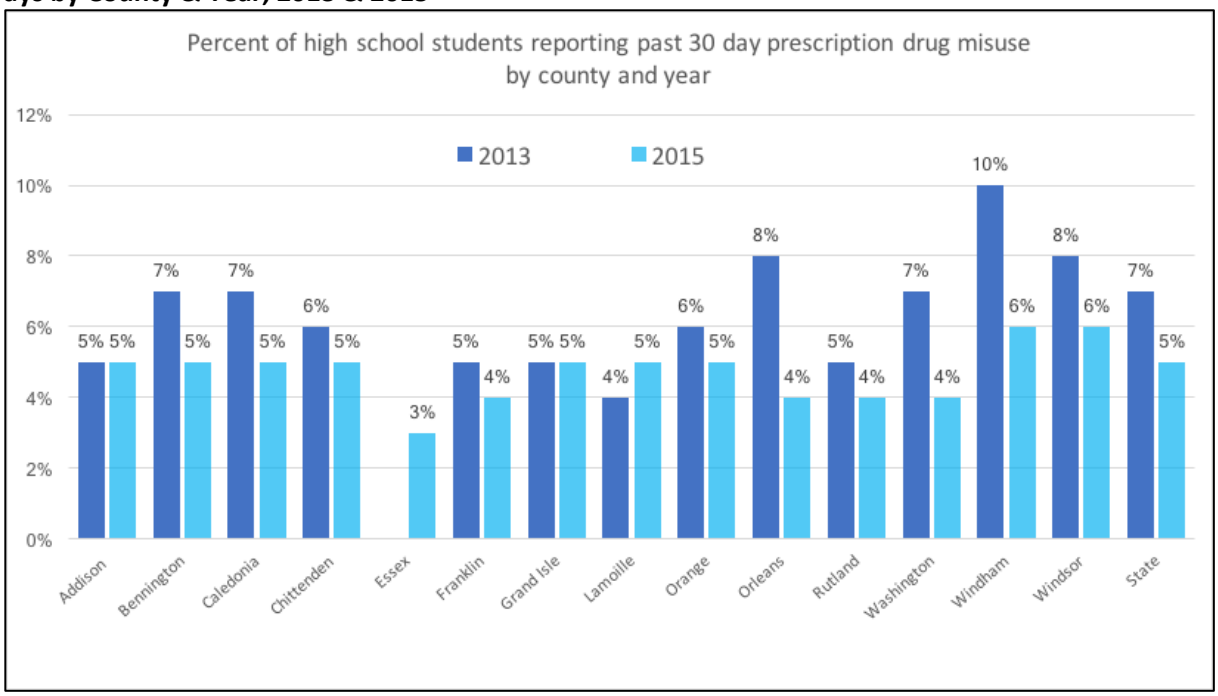
- Of the 31% of high school students reporting *current* sexual activity (within the past three months), 18% reported using alcohol or drugs prior to sex

Across drug use in the high school age range, males are significantly more likely to report harder drug use, and again, rates rise with student age.

- 11% of students report taking a prescription pain reliever or stimulant not prescribed to them in the 2015, a decrease from 2013
- Stimulant use did not decrease in the two year period
- 5% report using cocaine
- 7% report using inhalants
- 3% report using methamphetamines
- 2% report using heroin

From the *2013* to the *2015 Youth Risk Behavior Survey*, a decrease in misuse of prescription drugs was seen in a majority of Vermont counties. The following chart (**Figure 21**) represents comparison of 2013 and 2015 data.

Figure 21. Percent of Vermont High School Students Reporting Prescription Drug Misuse in Past 30 Days by County & Year, 2013 & 2015

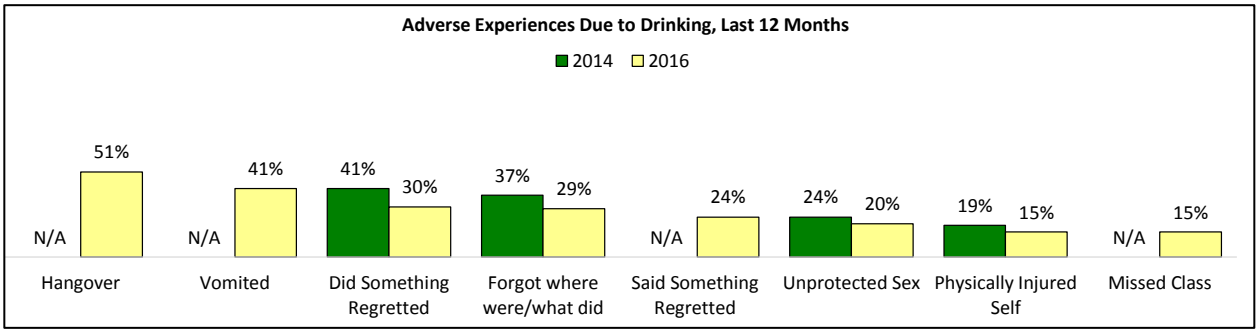


➢ ***Young Adults/College: Alcohol and Other Drugs***

The *2016 College Health Survey* provides considerable data on substance use among college students.[52]

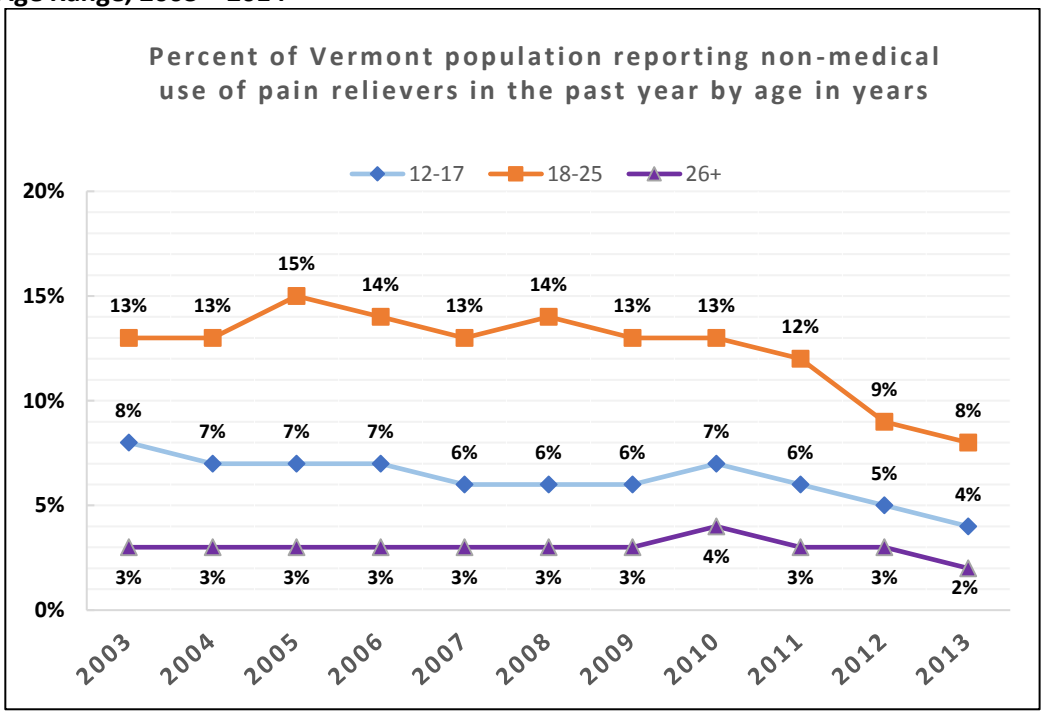
- 41% of Vermont college students had "binged" on alcohol in the past 30 days
- 39% of students estimated "average time spent drinking" as "3-5 hours" when partying in the previous 12 months
- 51% of students had used marijuana in the last 30 days, an increase from 2014 (43%)
- 20% of students reported "unprotected sex" as an adverse experience due to drinking within the last 12 months; 29% reported "forgetting what they did" while under the influence of alcohol (**Figure 22**)

Figure 22. Vermont College Students Adverse Experiences Due to Drinking, 2014 & 2016



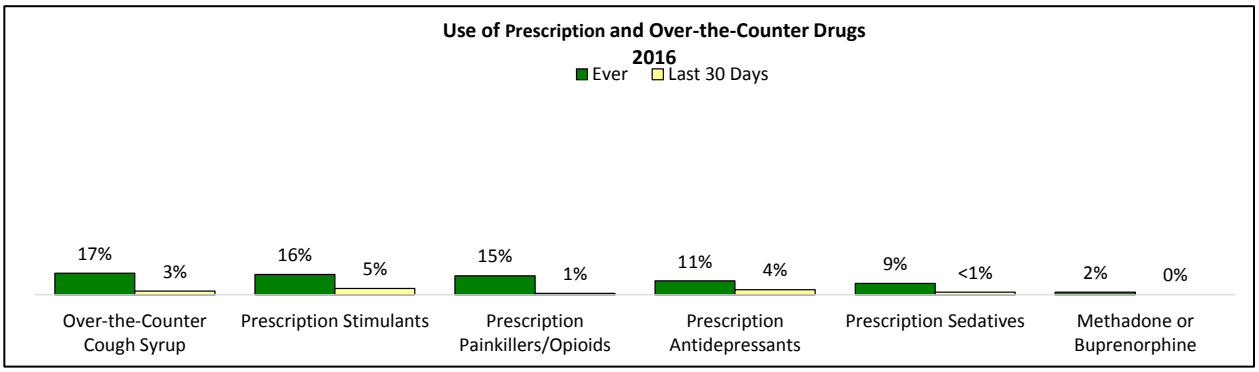
The following graph (**Figure 23**) highlights trends in non-medical use of prescription pain relievers, and crosses age ranges between youth/high school, and young adult/college.[53]

Figure 23. Percent of Vermont Residents Reporting Non-Medical Use of Prescription Pain Relievers Ever by Age Range, 2003 – 2014



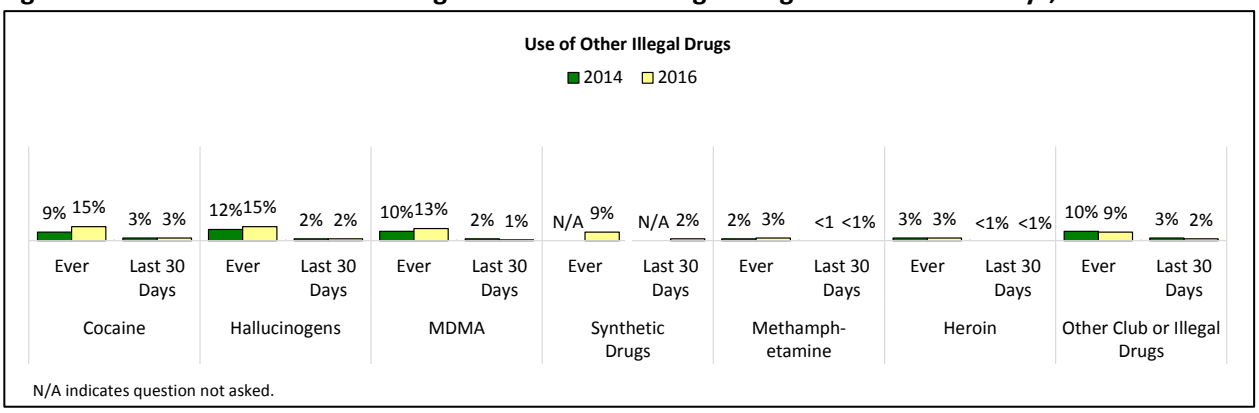
Misuse of prescription and over-the-counter drugs was reported as very low by college students responding to the *2016 College Health Survey*, in both the "ever" and "within the past 30 days" categories, as seen in the chart below (**Figure 24**).[54] Note that while the chart title utilizes the term "use of" prescription and OTC drugs, the percent responses indicate the answers to the question "use of prescription and OTC drugs *other than as indicated*."

Figure 24. Percent of Vermont College Student Use of Prescription and Over-the-Counter Drugs Ever & Last 30 Days, 2016



Use of illegal drugs (**Figure 25**) saw low reports of heroin and methamphetamine, with slightly higher rates of "other club drugs" and the highest rates for cocaine and hallucinogens. The response demonstrated in these charts support further the data in the graph above (**Figure 23**), indicating rates of drug use are decreasing among young adults in recent years, more so than in Vermont teens and adults.[55]

Figure 25. Percent of Vermont College Student Use of Illegal Drugs Ever & Last 30 Days, 2014 & 2016



Sexual violence as a risk factor was identified in categories of "ever experiencing" and "experiencing within the last 12 months", as indicated in the chart below (**Figure 26**). The second chart (**Figure 27**) below indicates use of alcohol or drugs in conjunction with unwanted sexual experiences was high, with 43% of students reporting drinking alcohol prior to experiencing non-consensual sexual situations.[56]

Figure 26. Percent Vermont College Students Reporting Experiences with Sexual Violence Ever and in Last 12 Months, 2016

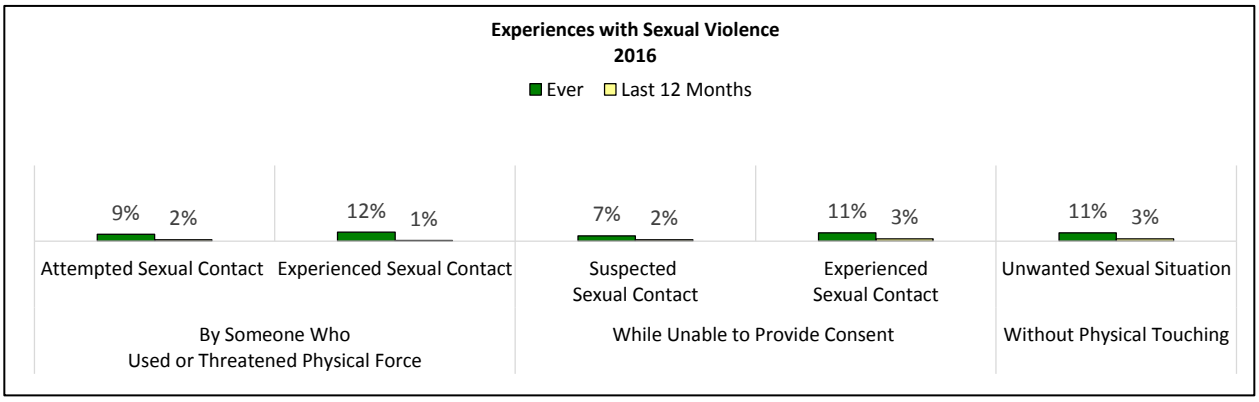
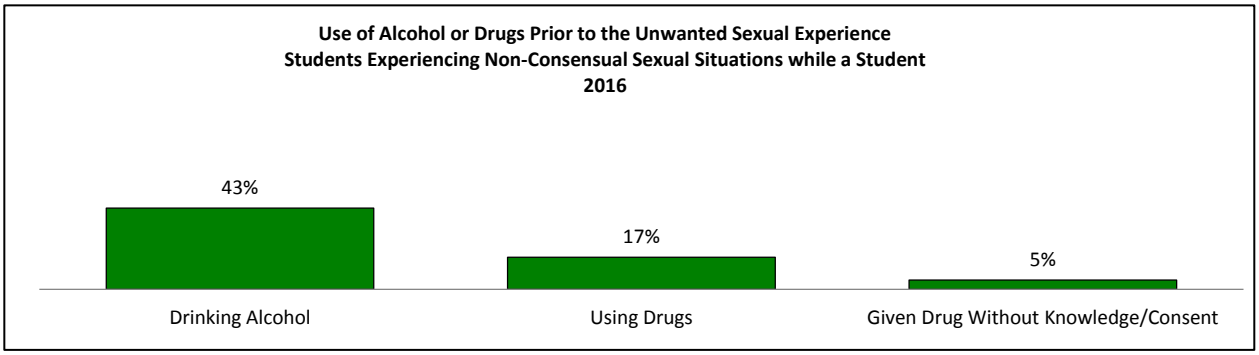


Figure 27. Percent Vermont College Students Reporting Non-Consensual Sex Also Reporting Use of Alcohol/Drugs Prior to Unwanted Sexual Experience, 2016



➢ ***Adults: Alcohol***

The following data on adult alcohol use in Vermont (**Tables 19 – 25**) present a range of perspectives on demographics and trends, including gender, age range, and sexual orientation. For these purposes, **Heavy Drinking** was defined as "males having more than 14 drinks per week; females having more than seven drinks per week" and **Binge Drinking** was defined as "males having five or more drinks on one occasion; females having four or more drinks on one occasion."

Over half of Vermont adults report alcohol consumption (defined as "at least one drink") in the past 30 days, averaging between 60 – 65% over the past five years. This rate has remained stable for some time, at about 10% higher than the national rate that averages in the low 50 – 55% range.[57]

Vermont has recorded marginally higher-than-national-average rates of heavy drinking (9.1% VT vs 6.5% US in 2016) and binge drinking (18.4% VT vs 16.9% US in 2016). Vermont's rates have averaged only 1 to 3% higher than national (**Tables 19 & 22**). The state recorded a slight increase in both heavy drinking and binge drinking among both men and women from 2015 to 2016, also under 3%.

Significantly more adult males than adult females report binge drinking, while the rates of heavy drinking are more comparable (**Tables 20 & 23**). Analysis by age range indicates an expected preponderance of binge drinking among younger adult age ranges, while heavy drinking is again more comparable among the age ranges and among men and women (**Tables 21 & 24**).[58] Both heavy and binge drinking are significantly higher among Vermont's LGBT population than among their heterosexual counterparts (**Table 25**).[59]

Table 19. Percentage of population reporting Heavy Drinking - Vermont vs United States, 2012-2016

HEAVY DRINKERS Vermont and United States		
	VT	**US**
2016	9.1%	6.5%
2015	7.7%	5.9%
2014	9.1%	5.9%
2013	7.1%	6.2%
2012	7.5%	6.1%

Table 20. Percentage of population reporting Heavy Drinking by gender - Vermont 2012-2016

VERMONT HEAVY DRINKERS By Gender		
	Male	**Female**
2016	9.6%	8.7%
2015	8.5%	7.0%
2014	8.8%	9.4%
2013	7.1%	7.1%
2012	7.0%	8.0%

Table 21. Percentage of population reporting Heavy Drinking by age range - Vermont 2012-2016

VERMONT HEAVY DRINKERS BY AGE RANGE						
	18-24	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
2016	12.6%	9.9%	11.0%	8.7%	8.4%	6.3%
2015	10.5%	10.0%	7.2%	7.9%	6.9%	5.5%
2014	12.6%	10.1%	11.2%	9.0%	8.0%	6.0%
2013	7.6%	7.9%	6.3%	9.3%	7.3%	4.5%
2012	7.7%	6.8%	10.6%	7.7%	8.0%	5.0%

Table 22. Percentage of population reporting Binge Drinking – Vermont vs US 2012-2016

BINGE DRINKERS Vermont and United States		
	VT	**US**
2016	18.4%	16.9%
2015	17.2%	16.3%
2014	17.9%	16.0%
2013	17.1%	16.8%
2012	19.3%	16.9%

Table 23. Percentage of population reporting Binge Drinking by gender – Vermont 2012-2016

VERMONT BINGE DRINKERS By Gender		
	Male	**Female**
2016	23.4%	13.8%
2015	22.5%	12.2%
2014	23.5%	12.7%
2013	22.5%	12.1%
2012	25.1%	14.0%

Table 24. Percentage of population reporting Binge Drinking by age range – Vermont 2012-2016

VERMONT BINGE DRINKERS BY AGE RANGE						
AGE RANGE	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
2016	32.1%	31.6%	24.2%	15.9%	12.4%	5.5%
2015	35.1%	30.4%	20.1%	16.5%	9.7%	3.8%
2014	34.8%	27.9%	23.5%	16.1%	11.5%	4.9%
2013	31.6%	30.9%	19.9%	15.7%	10.8%	3.9%
2012	37.7%	32.3%	22.5%	19.1%	11.0%	4.3%

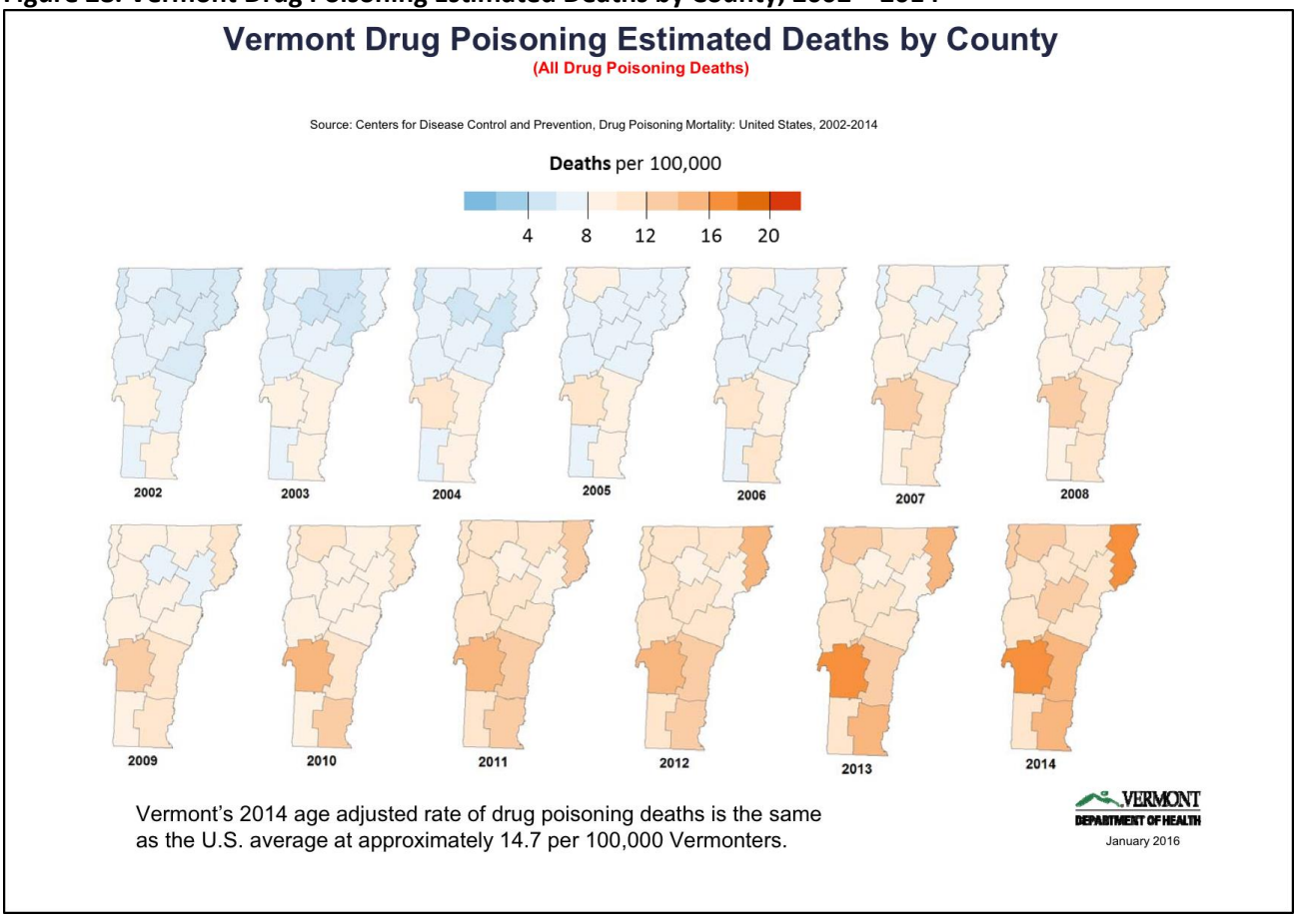
Table 25. Percentage of population reporting Binge/Heavy Drinking by sexual orientation – Vermont 2012-2016

VERMONT DRINKING RATES BY SEXUAL ORIENTATION		
BINGE DRINKING		
	LGBT	**HETEROSEXUAL**
2016	28%	17%
2014	27%	18%
HEAVY DRINKING		
	LGBT	**HETEROSEXUAL**
2016	15%	8%
2014	14%	9%

- ***Adults: Opioids & Injection Drugs***

Like much of the Northeast, Vermont is experiencing an opioid epidemic in which injection drugs play a large and growing role.[60] The following visual progression indicates the considerable rise in deaths from overdose over the years from 2002 to 2014.

Figure 28. Vermont Drug Poisoning Estimated Deaths by County, 2002 – 2014



The following chart and graph (**Figures 29 & 30**) indicate both the rising overdose deaths related to opioids, and the sharp uptick in *survived* overdoses, numbers that contribute to the overall rate of overdoses experienced. In both cases, the increase of heroin use in recent years is clear.

Figure 29. Vermont Drug Related Fatalities Involving Opioids with Trend Comparison of Prescription, Heroin & Fentanyl, 2010 – 2015

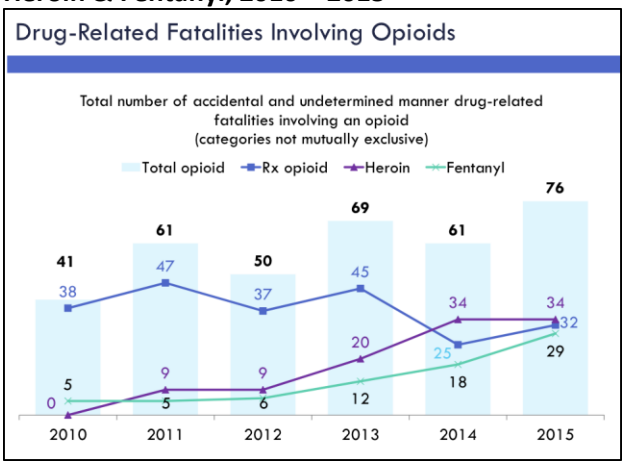
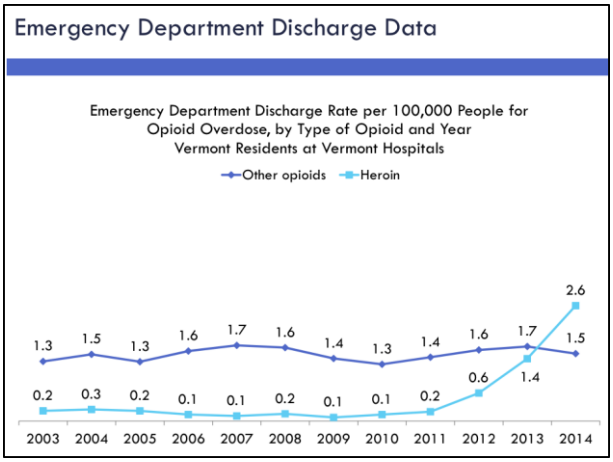


Figure 30. Vermont Rate of ER Discharge for Opioid Overdose by Heroin vs Other Opioids, 2003 – 2014



In addition to the increase in overdose deaths, additional evidence of increased heroin use is indicated in the following graphs (**Figures 31 & 32**), displaying data from individuals entering drug treatment. The number of people admitted for treatment who are using heroin has increased steeply in the last five years, and the increase is occurring *at a steep rate* while use of other opioids at admission is dropping.[61]

Figure 31. Vermont Number of People Treated by Type of Opioid Used at Admission, 2000 – 2015

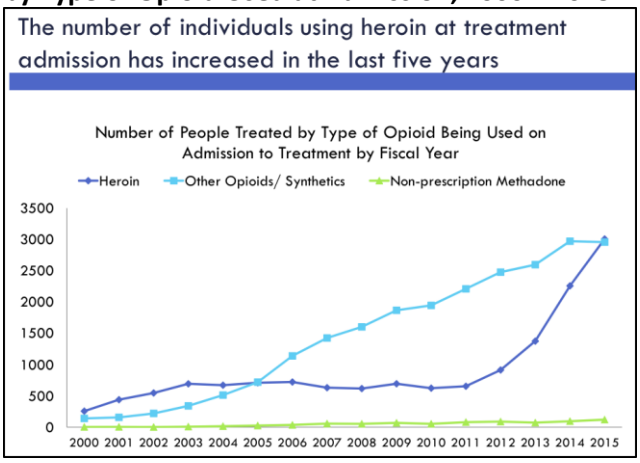
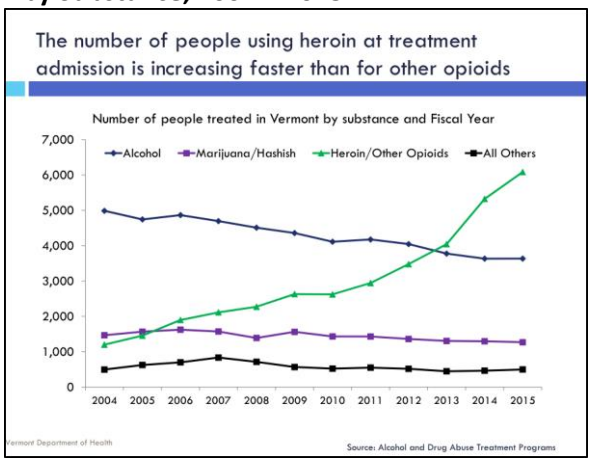


Figure 32. Vermont Number of People Treated by Substance, 2004 – 2015



The health disparities within the opioid crisis are illuminated by an analysis of Medicaid data, as displayed in the following graphs (**Figures 33 & 34**) and chart (**Figure 35**). The graphs on the following page (**Figure 33** & **34**) analyze opioid misuse treatment and opioid poisoning treatment among Medicaid recipients by age ranges, and indicate that those between 25 – 44 years represent the vast majority of both categories. The number of Vermont Medicaid recipients experiencing an opioid overdose has risen steadily, and exponentially, since 2007 (**Figure 35**). In the past five years, overdoses among Medicaid recipients have more than doubled (78 to 205). In the same time period the percent of overdoses linked to illicit opioids (opium and heroin) has steadily risen from 5% of overdoses in 2010, to 65% of overdoses in 2015.[62]

Figure 33. Number of Vermont Medicaid Recipients with at Least One Primary Opioid Diagnosis or Buprenorphine Prescription by Age Range, 2006 - 2015

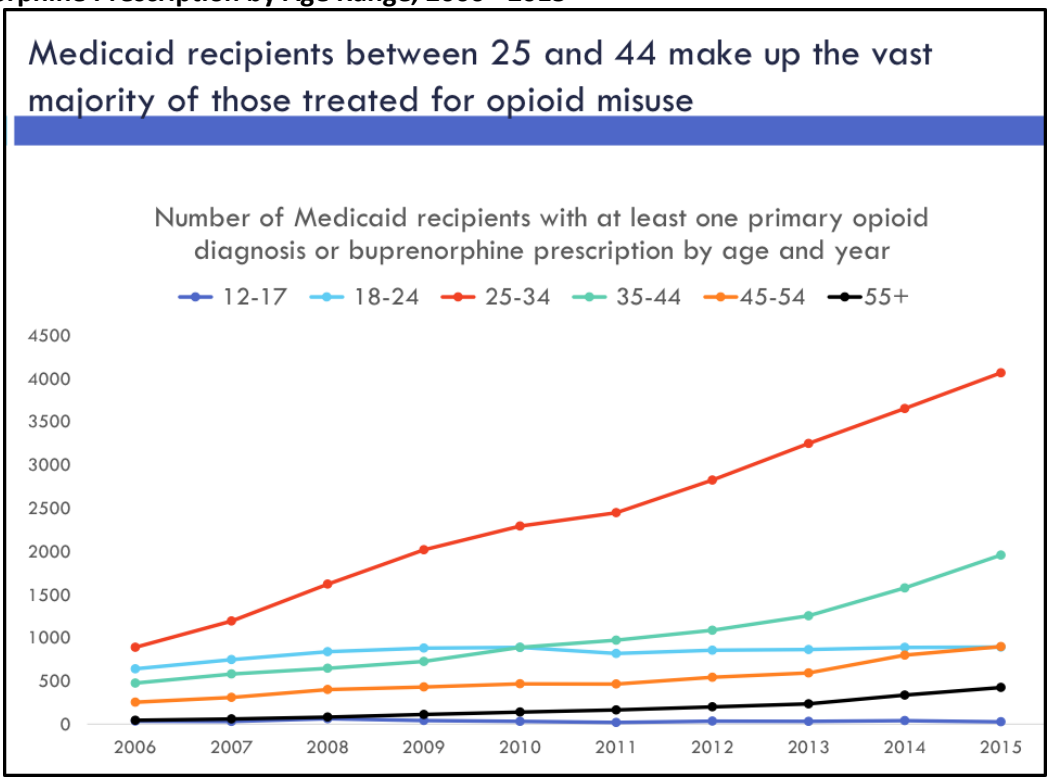


Figure 34. Number of Vermont Medicaid Recipients with at least One Drug Poisoning Diagnosis by Age Range, 2006 - 2015

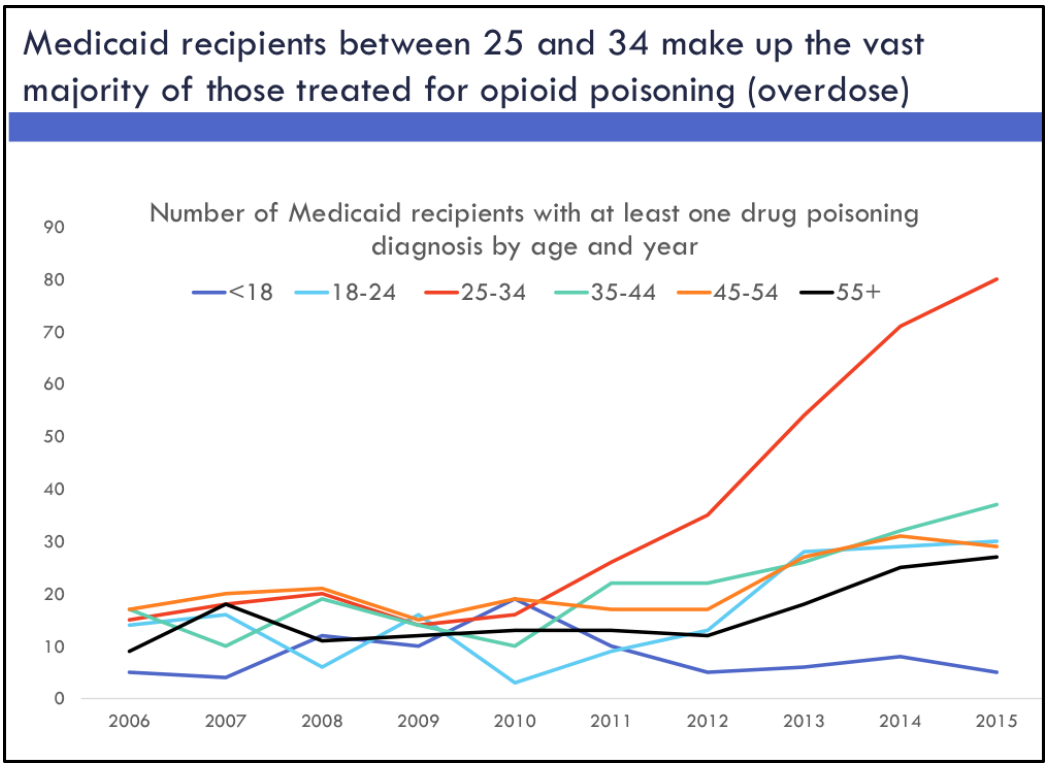
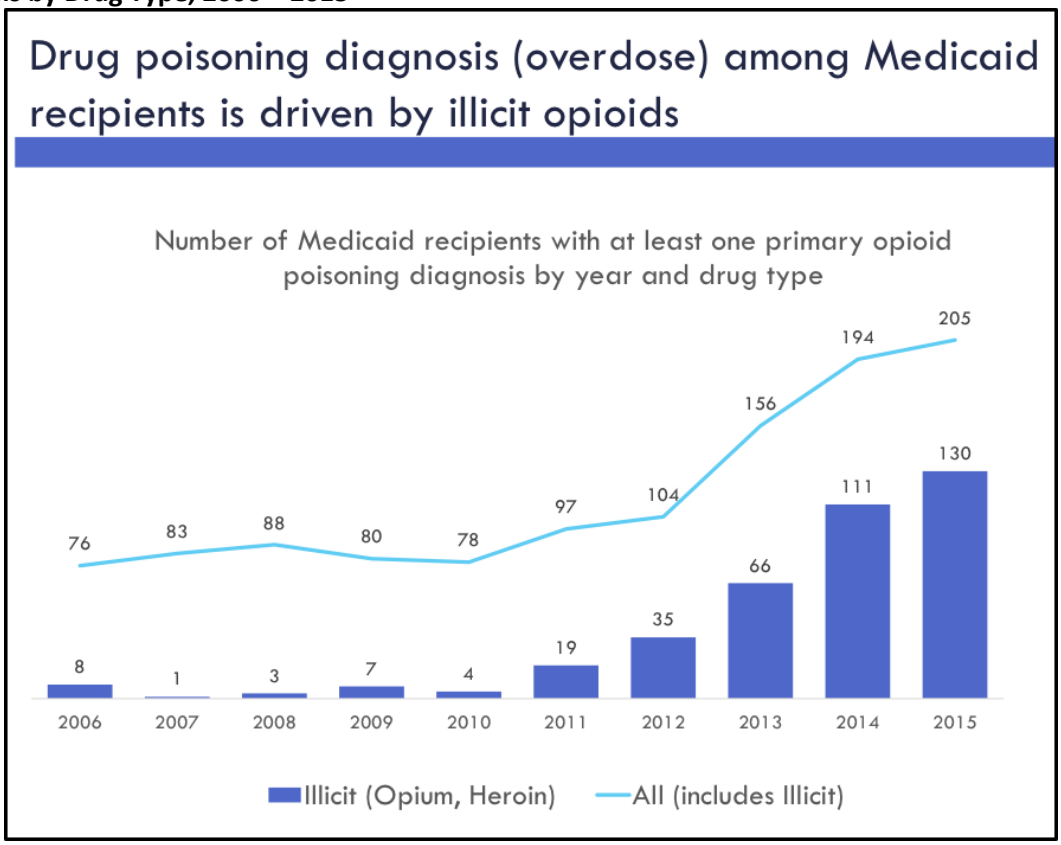


Figure 35. Number of Vermont Medicaid Recipients with at least One Primary Opioid Poisoning Diagnosis by Drug Type, 2006 – 2015



In response to the growing crisis, Vermont has increased syringe service program (SSP) throughout the state, including new static locations and increased mobile services. Currently five sites are available in the towns of Burlington, Rutland, St. Johnsbury, Richmond, White River Junction, and Brattleboro. A mobile van is operated out of Burlington. Increased usage has been sharp and significant, as indicated in the graphs below demonstrating increased members and syringe distribution (**Figures 36 & 37**).[63]

Figure 36. Total Number Vermont Syringe Service Program Members, 2010 – 2015

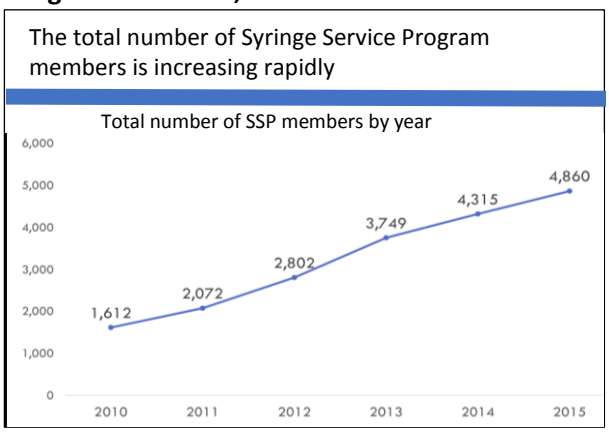
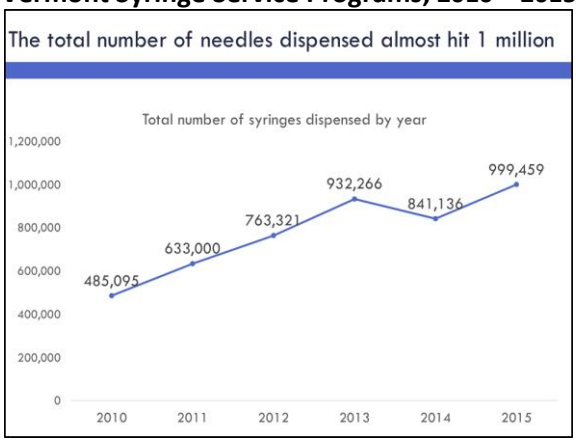
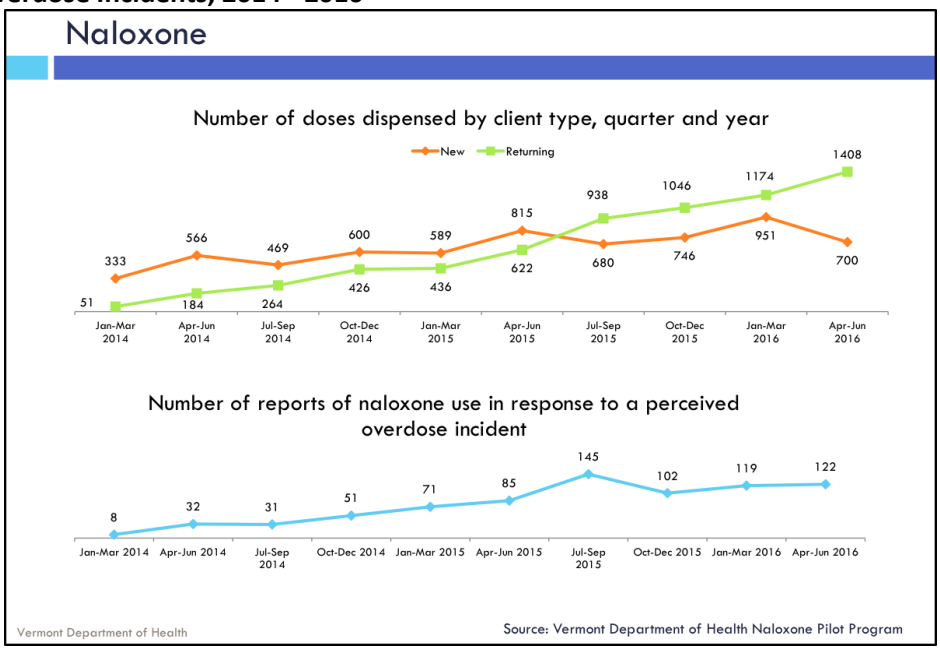


Figure 37. Total Number Syringes Dispensed by Vermont Syringe Service Programs, 2010 – 2015



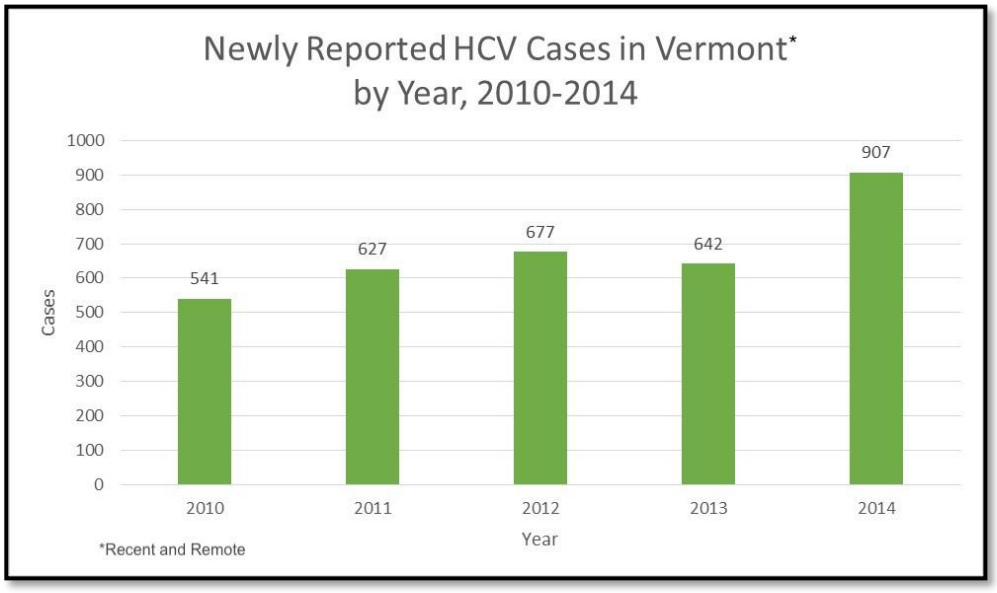
The state of Vermont has introduced naloxone distribution, and distribution in the form of Narcan® has been successful in reaching the intended population and in reversing overdoses as seen in the graph below (**Figure 38**).[64]

Figure 38. Number of Doses of Naloxone Dispensed in Vermont by Client Type and Use in Response to Perceived Overdose Incidents, 2014 - 2016



As opioid dependence has increased over the past several years, so too has the number of newly reported cases of HCV among Vermont residents. The following chart (**Figure 39**) displays newly reported cases of HCV in Vermont over the past five years, followed by data on Vermont HIV/HCV coinfection (**Tables 26 – 28**).[65]

Figure 39. Number of Newly Reported HCV Cases, Recent and Remote, in Vermont, 2012 – 2016



Among the 661 people living with HIV in Vermont at the end of 2016, 36 people, or 5%, were identified as coinfected with HIV and HCV (**Figure 40**). Of these, 81% (29) were male and 19% (7) were female. Age range data for HIV/HCV coinfected individuals (**Table 26**) demonstrated variation from overall HCV age trends in Vermont. Over half of coinfected individuals were 55 years or over, with 81% over 45 years. Exposure data (**Table 27**) indicates that primary exposure risks were MSM, and IDU Heterosexual, with the three IDU categories (IDU Only, IDU MSM, and IDU Heterosexual) totaling 61% (22 cases).[66]

Figure 40. Number of Vermont PLWDHI Coinfected with Hepatitis C by Gender, 2016

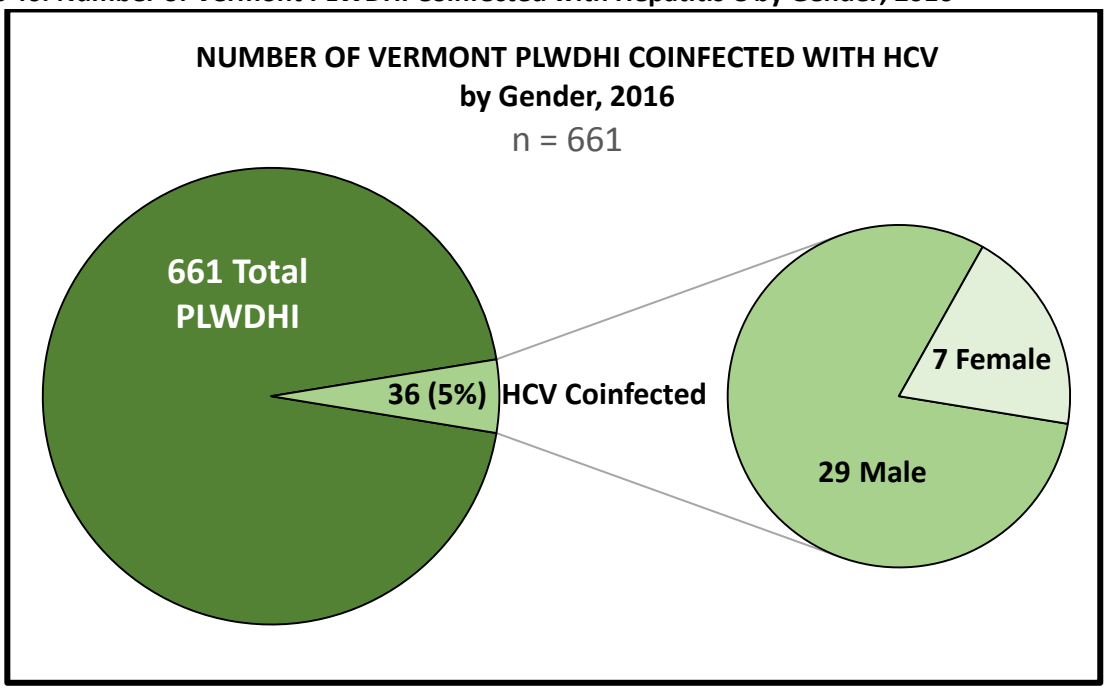


Table 26. PLWDHI Coinfected with HCV Living in Vermont in 2016, by Age Range as of 12/31/2016

VERMONT PWDHI NEWLY DIAGNOSED WITH HCV COINFECTION 2016: By Age at 12/31/2016										
Age Range	**< 19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**> 60**
#	0	1	0	4	1	1	5	5	13	6

Table 27. PLWDHI Coinfected with HCV Living in Vermont in 2016, by Exposure Category

PWDHI COINFECTED WITH HCV LIVING IN VERMONT IN 2016: By Exposure Category	
Exposure Category	**#**
MSM Only	11
IDU Only	7
Hetero Only	1
MSM and IDU	4
IDU and Hetero	10
Other	1
No Reported Risk	2
Total	**36**

County of residence (**Table 28**) indicates Chittenden County, followed by Windsor and Rutland Counties, represent more infections than the remainder of the state, as may be expected.[67] These three counties are all among the four most populous counties in the state.

Table 28. PLWDHI Coinfected with HCV Living in Vermont in 2016, by County of Residence

PLWDHI COINFECTED WITH HCV LIVING IN VERMONT IN 2016: By County of Residence	
County	**#**
Addison	2
Bennington	3
Chittenden	10
Franklin	2
Lamoille	1
Orange	1
Orleans	1
Rutland	5
Washington	1
Windham	3
Windsor	7
Total	**36**

HIV/HCV coinfected cases were identified by cross referencing eHARS for HIV data and the National Electronic Disease Surveillance System Base System (NBS) for HCV data.

Sexual Behavior:

➢ ***Youth/High School: Sexual Behavior***[68]

The *YRBS* collects sexual behavior data on a consistent basis from high school students. The most recent Vermont *YRBS* data indicates:

- 41% of students report having had sex, with numbers of sexually active students rising significantly with each grade level, and 44% reporting having no sexual contact.
    - 42% of those reporting having engaged in sex, report having oral sex, again rising with each grade level, with no difference between males and females
    - 50% of those reporting having engaged in sex, report sexual contact with the opposite sex only
    - 1% report same sex sexual contact only
    - 5% report sexual contact with both sexes
    - 3% report having sex before 13 years of age
    - 10% report having four or more sexual partners

- Orientation:
    - 88% identified as heterosexual
    - 6% identified as bisexual, with females more likely than males to report bisexual orientation

- 2% identified as gay or lesbian, with females again more likely to report a same-sex identification
- 4% identified as unsure of sexual orientation

- 58% of students reported using a condom at last sexual activity, with the rates *decreasing significantly* over increasing age/grade levels, including a drop in reported use from 65% to 54% – an 11% decrease – between 9th grade reporters and 12th grade reporters

- 55% of females and 62% of males report using condoms at last sexual activity, both of which are small decreases (3% in both cases) from 2013 to 2015

➢ ***Young Adults/College: Sexual Behavior***

The *College Health Survey* collects sexual behavior data, including types of sexual activity, number of recent partners, and protective barrier use. The following charts present responses (**Figures 41 – 43**). Notable is the fact that 68% of students engaging in anal intercourse report "never or rarely" using a condom. This is mitigated somewhat by the responses indicating 91% of students engaging in anal intercourse report only one partner, however the data for partner numbers for this age range represents only the *last three months* of sexual activity.[69] "Serial monogamy" among young MSM can be a risk factor for HIV, wherein a couple foregoes condoms shortly after beginning dating, with successive monogamous partners in a reduced relationship time period.[70]

Figure 41. Vermont College Student Sexual Activity by Type, 2014 & 2016

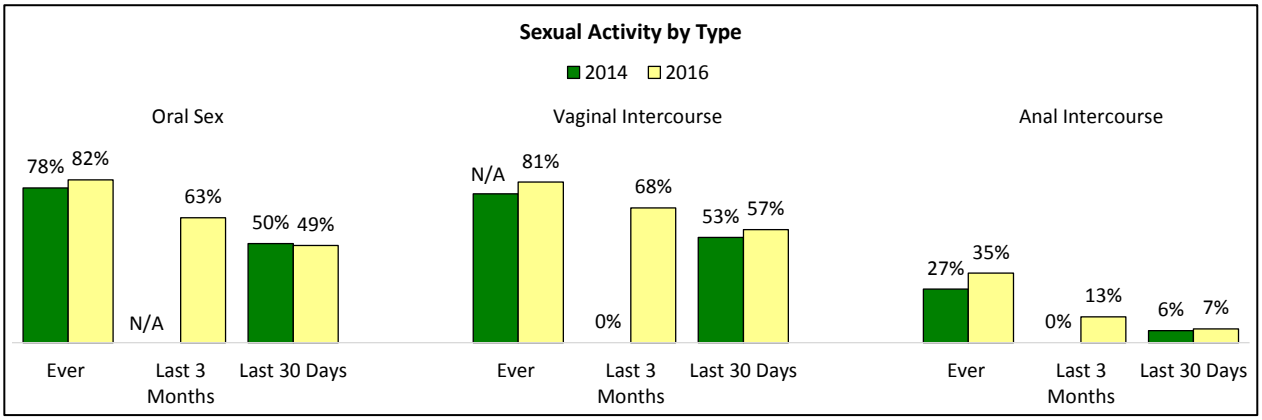


Figure 42. Vermont College Student Number of Partners Last 3 Months by Type of Sex, 2016

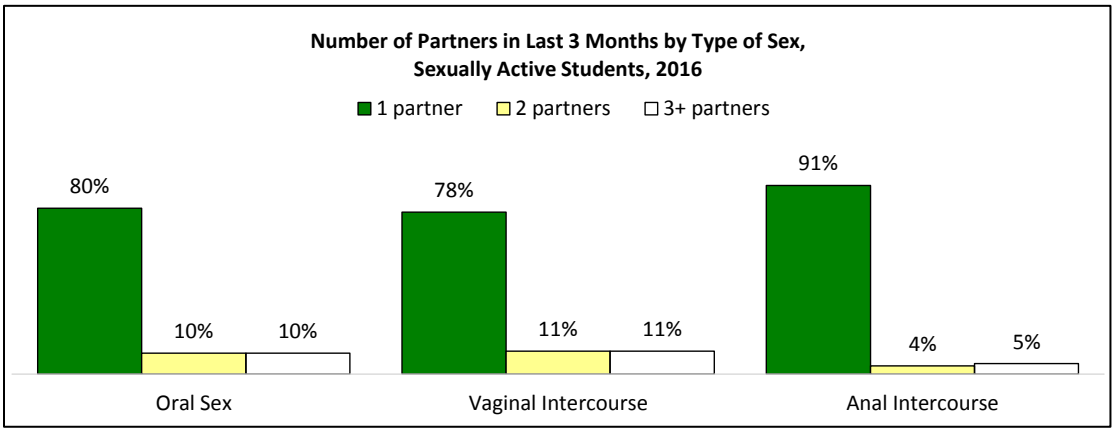
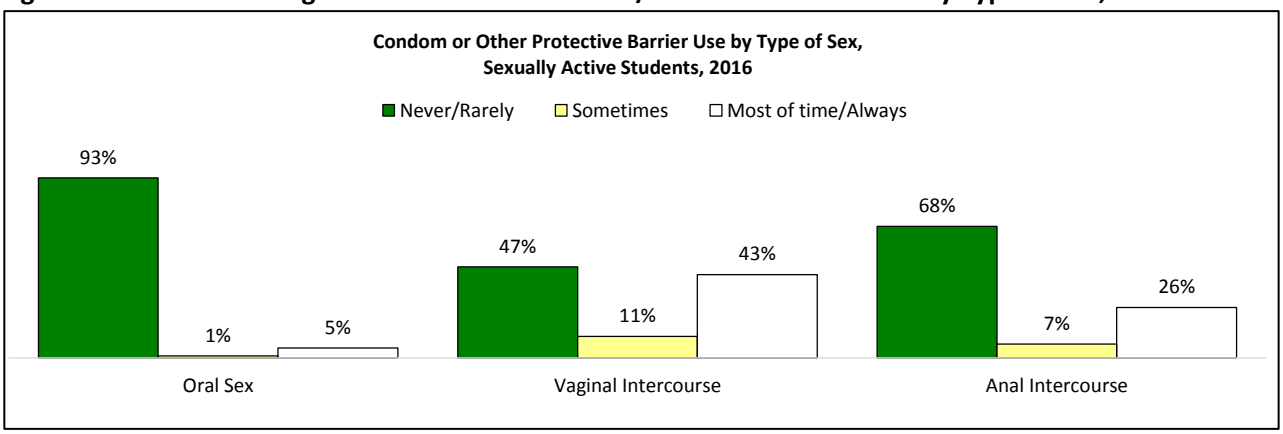


Figure 43. Vermont College Student Rate of Condom/Protective Barrier Use by Type of Sex, 2016



➢ ***Adults: Sexual Behavior***

Sexual behavior data on adults – type of sexual activity, condom use, number of partners, etc. – is not widely collected in Vermont, with the most consistent *BRFSS* surveillance topics being HIV testing and other risk factors that influence HIV risk, such as alcohol and drug use. Data on sexual risk behavior is not regularly collected or reported for the populations at higher risk for HIV transmission in Vermont, specifically MSM.

As noted previously in this profile, most MSM in Vermont reside in non-metropolitan, or rural, counties (68.8%), and Vermont has no large metropolitan areas.[71] This presents a significant consideration in prevention efforts focused on safer sexual behavior with Vermont MSM, given MSM in the broader US predominantly reside in large central metropolitan areas or large fringe metropolitan areas – over three quarters of the total MSM population – and much prevention programming has focused on design and implementation in urban areas.

While reviewing risk data on MSM in rural Vermont, it must be noted that Vermont residents interact with out-of-state individuals and communities to a great degree, affecting many aspects of HIV epidemiology involving both sexual and drug related risk factors.[72] The expedient access to populous urban areas is a factor in Vermont's HIV risk demographics, particularly given the lack of gay infrastructure in Vermont – no gay bars, few organized social events outside of Burlington, and a culture of finding partners through online outlets. Multiple urban destination locations are within a short drive for Vermont men seeking social and sexual outlets among congregating gay populations.

Vermont's *BRFSS* questionnaires last inquired about sexual behavior in 2012, inquiring about number of partners in the past 12 months, condom use, and HIV transmission risk. In 2016, information on HIV transmission risk was posed to respondents again. As all of this data was collected after the last **Epidemiologic Report** had been submitted, it is all pertinent to this report despite the lack of follow-up on certain data points in the last five years of *BRFSS* data collection. Trend data from *BRFSS* results prior to 2012 is indicated for all of these data points.

The 2012 data indicated that approximately 10% of Vermont adults reported having sex with two or more partners in the last year, with men reporting multiple partners at higher rates than women, and rates of multiple partners decreasing significantly as Vermonters age. While no differences in education level were found regarding two or more sexual partners, adults in low to middle income homes were found to be significantly more likely to report multiple partners than those in highest income homes.[73]

The first two charts below (**Figures 44 & 45**) display *BRFSS* data on two or more sexual partners, side by side with the data on condom use for the same survey time periods. A strong correlation between the two bodies of data is that the age range with the highest reports of multiple partners – ages 18 to 24, with 26% reporting two or more partners in a 12-month period – were also by far the most likely to report using condoms at last sexual encounter, at 72% responding affirmatively. Condom use did not indicate any particular influence from either education or income status, with approximately half of all sociodemographic categories expressing condom use at last sexual activity.[74]

Figure 44. Percent of Vermont Adults (18-64) Reporting Two or More Sexual Partners in Last Year, 2012

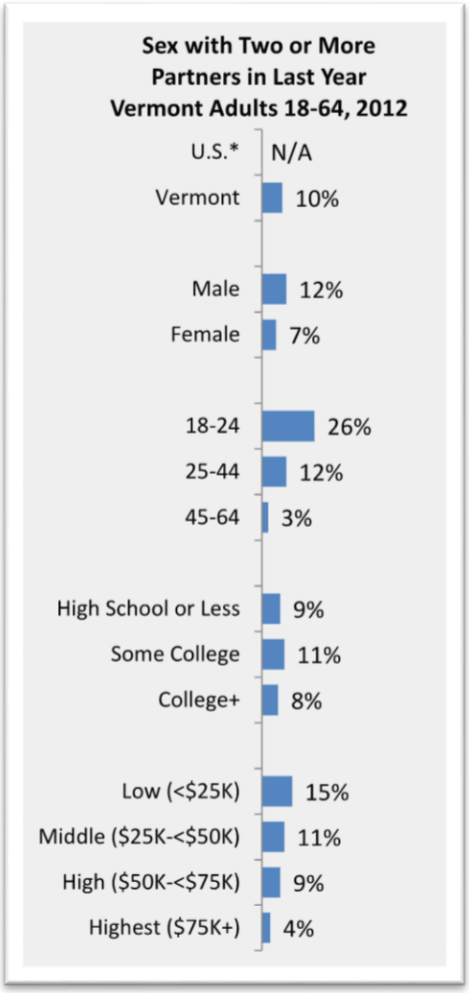
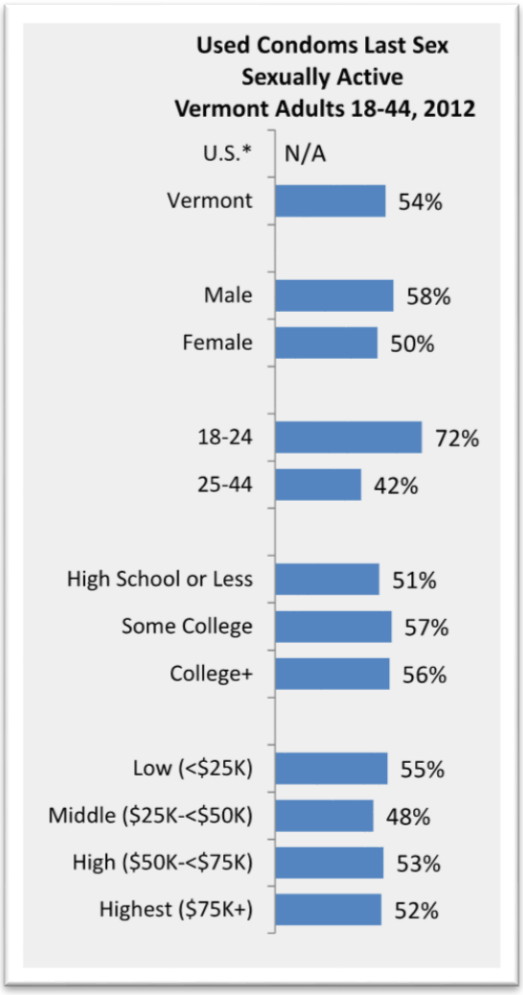


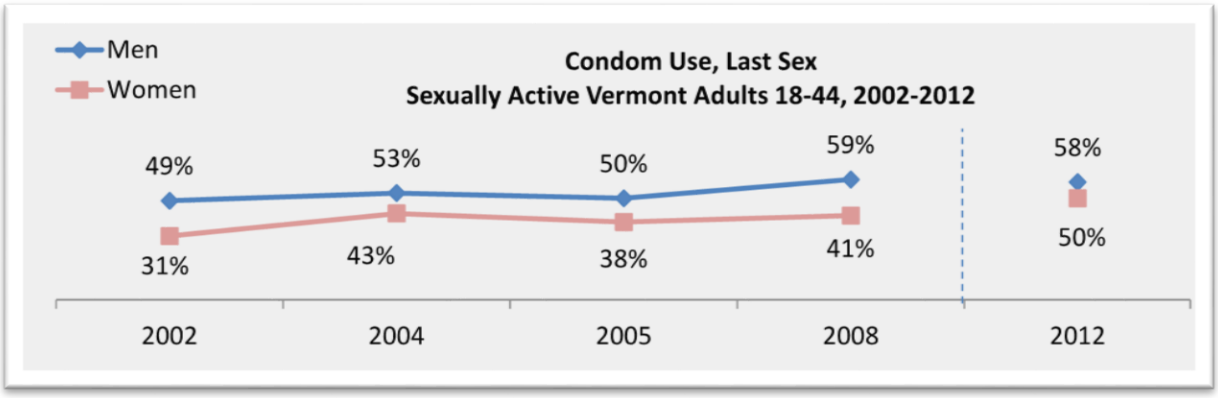
Figure 45. Percent of Vermont Adults (18-44) Reporting Condom Use at Last Sexual Encounter, 2012



The following two graphs (**Figures 46 & 47**) examine the same issues of number of sexual partners and condom use, displaying the trends from 2002 to 2012. Notably, 10% of adults reporting two or more partners is a considerable jump from the 6% reported in 2010, but does not indicate significant variability in trends over the full decade of 2002 – 2012.[75]

Figure 46. Percent of Vermont Adults (18-64) Reporting Two or More Sexual Partners in Last Year, 2002 – 2012

Figure 47. Percent of Vermont Adults (18-44) Reporting Condom Use at Last Sexual Encounter, 2002 – 2012



Rates of condom use for sexually active adults in Vermont rose considerably over the course of the decade, by a full 10% for both men and women between 2002 and 2008, then with another jump for women by 2012 – from 31% in 2002 using a condom at their last sexual encounter, to 50% in 2012. Male use of condoms remained around 50% using a condom at their last sexual encounter throughout the decade, with the number rising closer to 60% between 2008 through 2012.[76]

The prevention arm of the *VSHNA* provides additional data regarding multiple sex partners in the past 12 months, with a more targeted demographic. Three quarters of the 245 Prevention respondents were male, 91% of whom identified as MSM, and of the one quarter of female respondents, 78% identified as heterosexual. This response pattern indicates that *VSHNA* results can be viewed as a snapshot of individuals at higher risk of acquiring HIV infection in Vermont.[77]

In total, over half of prevention respondents indicated that they did have more than one sex partner in the previous 12 months (**Figure 48**), but gender stratification indicates that MSM respondents heavily weighted this average, with 61% of the men reporting more than one partner versus only 22% of women (**Figures 49 & 50**).[78]

Figure 48. Percent of Vermont Statewide HIV Needs Assessment Prevention Respondents Reporting Multiple Sex Partners in the Past Year

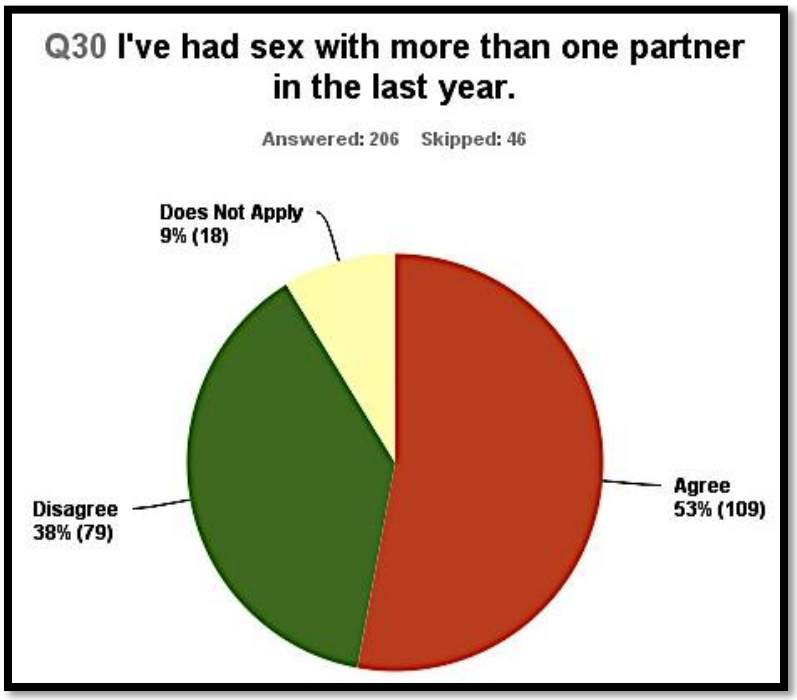


Figure 49. Percent of Vermont HIV Needs Assessment Female Prevention Respondents Reporting Multiple Sex Partners in Past Year

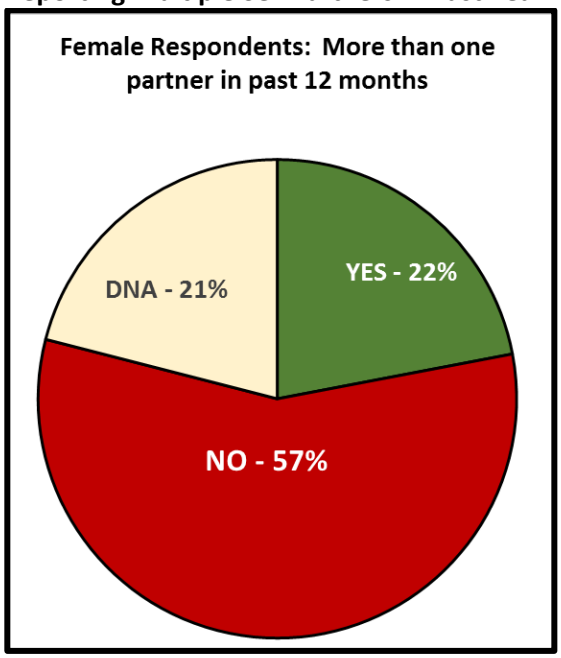
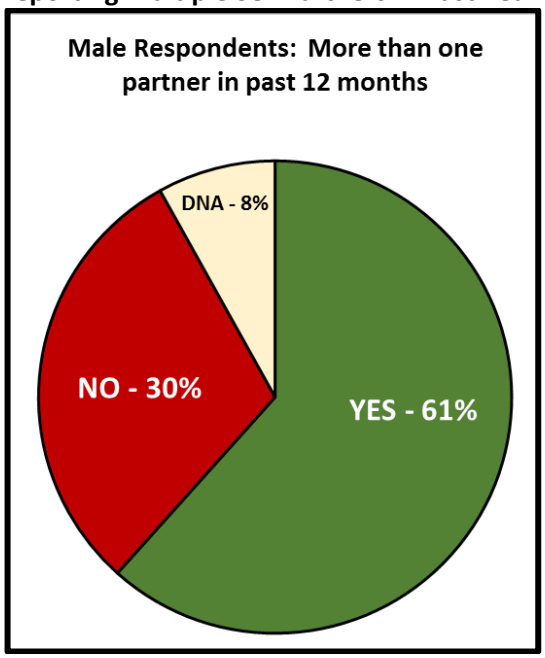


Figure 50. Percent of Vermont HIV Needs Assessment Male Prevention Respondents Reporting Multiple Sex Partners in Past Year



Regarding condom use as represented by *VSHNA* participants, the majority (33%) reported not experiencing outright condom refusal on a consistent basis from their male partners (**Figure 51**), but the picture becomes more complicated when reviewing the other responses.[79]

- While only 2% of respondents *agreed* that "the men I have sex with refuse to use condoms," an additional 13% *mostly agreed* with the statement and 27% *mostly disagreed*. This data indicates that up to 40% of participants have experienced or do experience condom refusal at least some of the time.
- For the statement "I am able to insist on safer sex with partners," only 5% *mostly disagreed* (**Figure 52**), indicating they did not feel able to do so; 30% *mostly agreed* and 55% *agreed completely* that they felt able to do so. This again implies that up to one third of respondents are uncertain of their ability to insist on safer sex at least some of the time.

Figure 51. Percent of Vermont Statewide HIV Needs Assessment Prevention Respondents Reporting Partner Condom Refusal

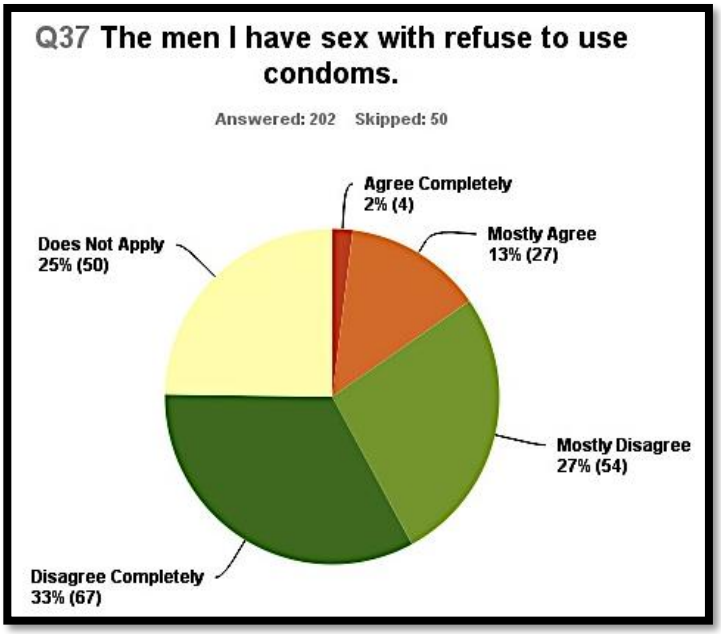
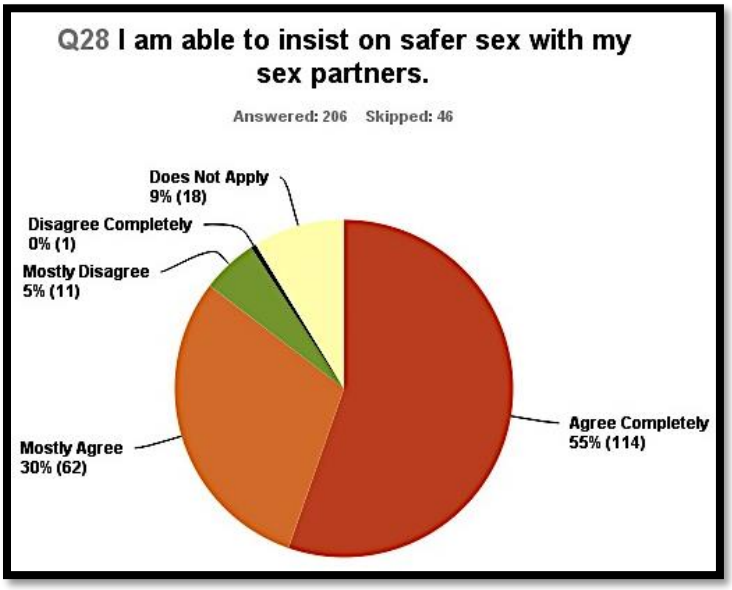


Figure 52. Vermont Statewide HIV Needs Assessment Prevention Respondents' Perceptions of Sexual Self-Efficacy



Similar to number of partners, responses on condom use among *VSHNA* participants also varied by gender and sexual orientation. Condom use was described by heterosexual respondents as generally well-accepted in the context of pregnancy prevention, and was almost entirely dependent on whether or not the female partner in a heterosexual couple was using another form of birth control. While heterosexuals reported using condoms for sex the first or second time with a new partner, if another form of birth control was present, condom use was reported to be quickly discontinued. The female and heterosexual demographics seldom thought about condoms in the context of disease prevention at all.[80]

Condoms among MSM respondents were identified as readily available and easy to find for free, but described as not "prioritized" by men having sex with other men. A "passive resistance" to condom use was described, in which men simply did not "bring up" condoms or HIV in conversation or during sexual experiences. Use of condoms was described as depending largely on one partner "insisting" or being "aggressive" about condom use. This further clarifies the responses above concerning condom refusal.[81]

Age stratification indicated differing relationships with condom use influenced the willingness of MSM to use or forego them, including condom fatigue and perceptions of promiscuity if men carried condoms, raised the topic before sex, or asked their partner to wear one.[82]

MSM reported frequent assumptions about whether an HIV positive individual would disclose their HIV status before sex (**Figure 53**). While respondents expressed a high degree of sexual self-efficacy as noted above, these assumptions of status disclosure raise questions as to how often the respondents would "desire condom use or safer sex," especially in conjunction with the described perceptions of promiscuity of men who carry condoms or ask partners to use them. Expectations around disclosure of HIV status by an HIV positive partner was closely related to age (**Figure 54**), with younger people much more likely to assume a positive partner will disclose before sex, and assume that if the partner does not "bring up HIV" they must be negative.[83]

Figure 53. Vermont Statewide HIV Needs Assessment Prevention Respondents' Perceptions of HIV Disclosure

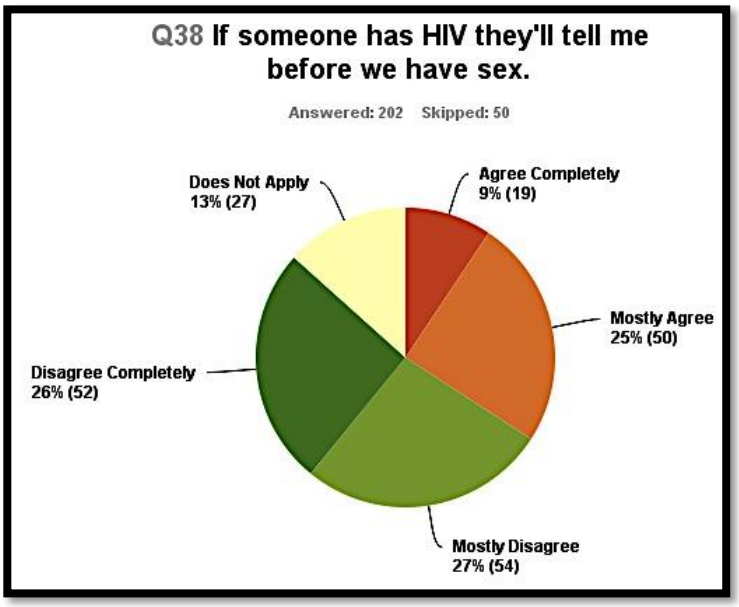
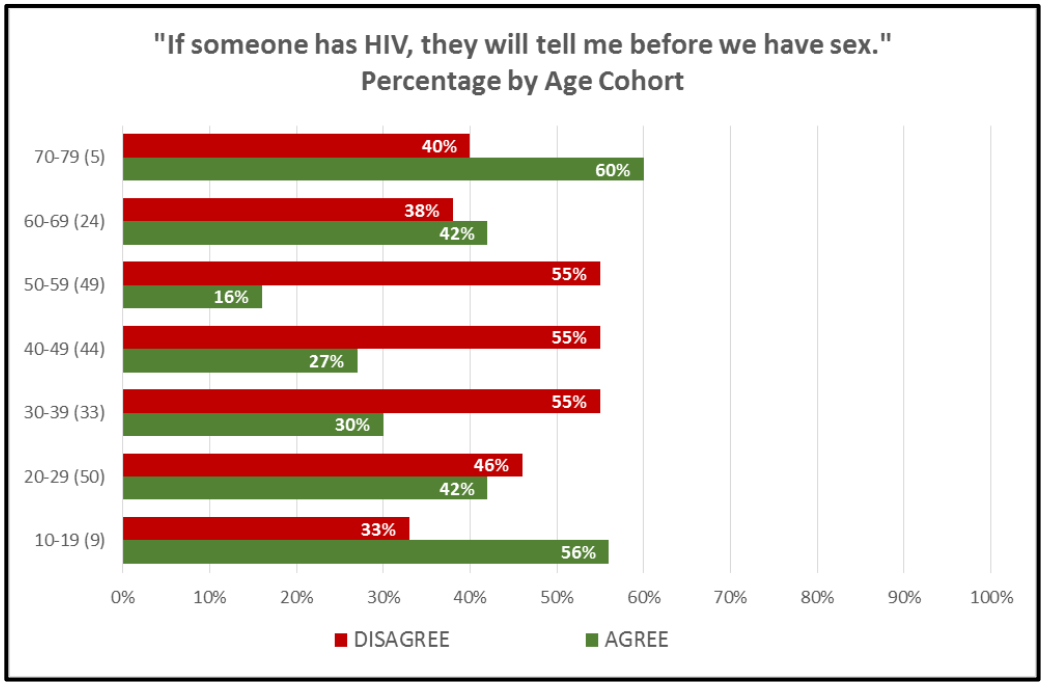


Figure 54. Age Stratification of Vermont Statewide HIV Needs Assessment Prevention Respondents' Perceptions of HIV Disclosure



Vermont's *BRFSS* questionnaire in 2012 and 2016 included a specific inquiry regarding High Risk HIV Transmission Behavior among the broader sampling of Vermont adults. The same question was included during the periods of 2002 through 2005 and 2007 through 2011, providing trend data as well.

For this question, respondents were asked whether they had participated in *any of four high risk behaviors* in the previous year: participated in intravenous drug use, been treated for a sexually transmitted or venereal disease, gave or received sex for drugs or money, and/or had anal sex without a condom. Respondents were not asked to identify which or how many behaviors they participated in, or how often – only if they participated in any one of the four behaviors at least once in the prior 12 months.

The first two charts below (**Figures 55 & 56**) compare 2012 results and 2016 results for the HIV Transmission Behaviors side-by-side. This comparison indicates that while Vermont residents' rate of participation in higher risk behaviors remains in relative range to the United States' average, Vermont's individual rate of participation *more than doubled*, from 3% in 2012 to 7% in 2016.[84] Given the frame of the question, it is impossible to posit whether this indicates a higher rate of unprotected sex, or if it moves in tandem with the increased drug use trends specific to heroin, and/or the increased rates of syphilis and gonorrhea diagnoses among men in Vermont (covered in more detail below).

Age more than gender predicted participation in higher risk behaviors, with consistently significant decreases in riskier behaviors over the life cycle. The largest jump was seen in the 18 – 24 years age cohort. Once again, while education level did not tease out any significant differences in behavior, adults in highest income homes were significantly less likely to report participating in higher risk behaviors.[85]

Figure 55. Percent Vermont Adults Reporting High Risk HIV Transmission Behavior, 2012

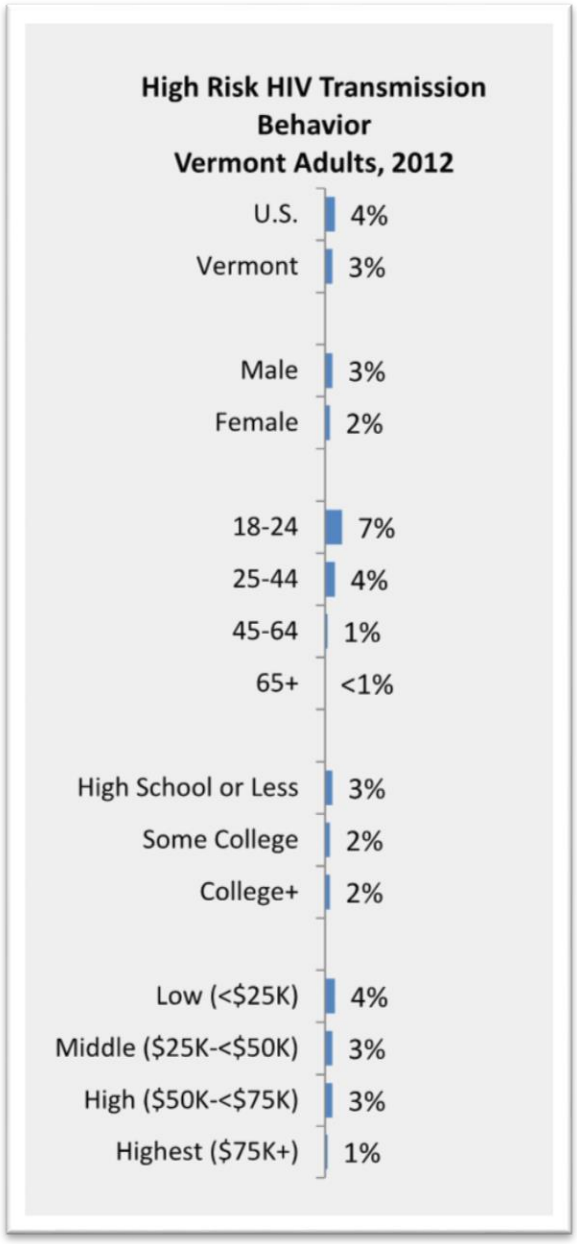
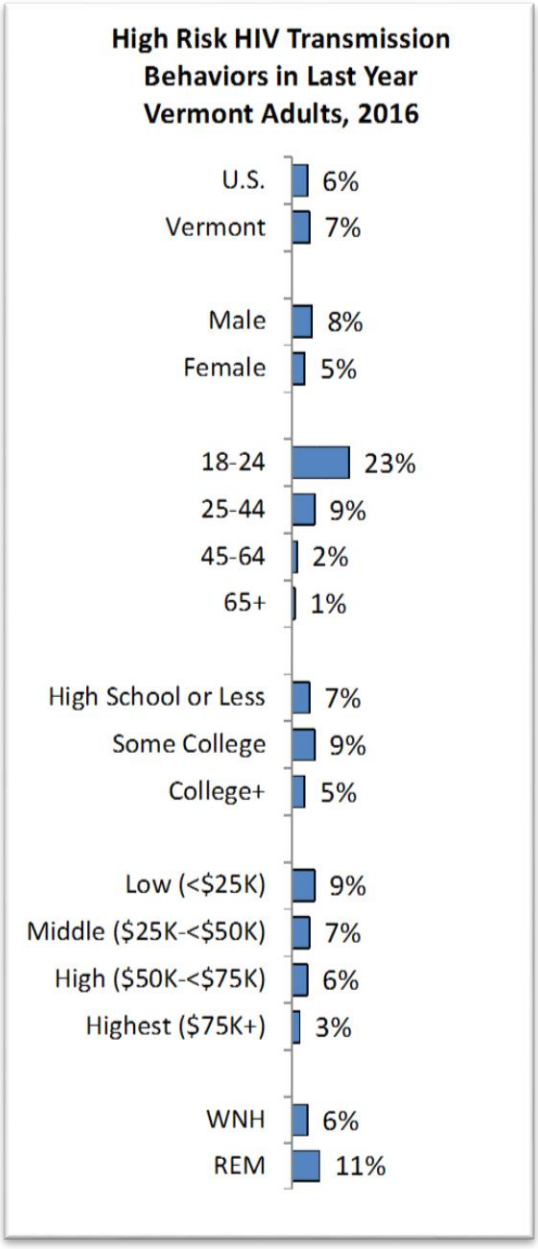


Figure 56. Percent Vermont Adults Reporting High Risk HIV Transmission Behavior, 2016



The following table (**Table 29**) displays the trend data on the above High Risk HIV Transmission Behavior rates. This data presents a clear representation of the increase in risk behavior, given the static rates Vermont had seen since 2002. After 15 years of 3 – 4%, a leap to 7% is striking.[86]

Table 29. High Risk HIV Transmission Behavior Vermont Adults, 2002 - 2016

VERMONT ADULTS: HIGH RISK HIV TRANSMISSION BEHAVIOR 2002 - 2012	
YEAR	**%**
2002	3%
2003	3%
2004	3%
2005	3%
2006	*Not Collected*
2007	*Not Collected*
2008	3%
2009	4%
2010	3%
2011	3%
2012	3%
2013	*Not Collected*
2014	*Not Collected*
2015	*Not Collected*
2016	7%

In 2012, HIV testing was cross-reported with this question on higher risk behavior, and 24% of the individuals identifying higher risk HIV transmission behaviors on this question reported getting an HIV test.[87] In 2016, HIV testing results were not cross-tabulated in the same manner, and "reasons for getting an HIV test" data was not gathered [2012 data on reasons for ever getting an HIV test reflected above in **Question 2: HIV Testing Patterns**, pages 20 – 24].

Other Sexually Transmitted Diseases:

Rates of sexually transmitted diseases provide a window onto sexual risk. **Table 30** provides gonorrhea and chlamydia data. Rates of gonorrhea in men have been rising steadily for the last five years, and made significant jumps from 2015 to 2016. Within these numbers, MSM have been disproportionately impacted. Since 2012, MSM represent 38% or greater of the gonorrhea infection among men. By contrast, in women rates have declined from 2015 to 2016, following a sharp increase in the prior year. Chlamydia has declined across the board, from a high in 2014.[88]

Table 30. Number and Rate of Vermont Gonorrhea & Chlamydia Cases by Gender, 2012 – 2016

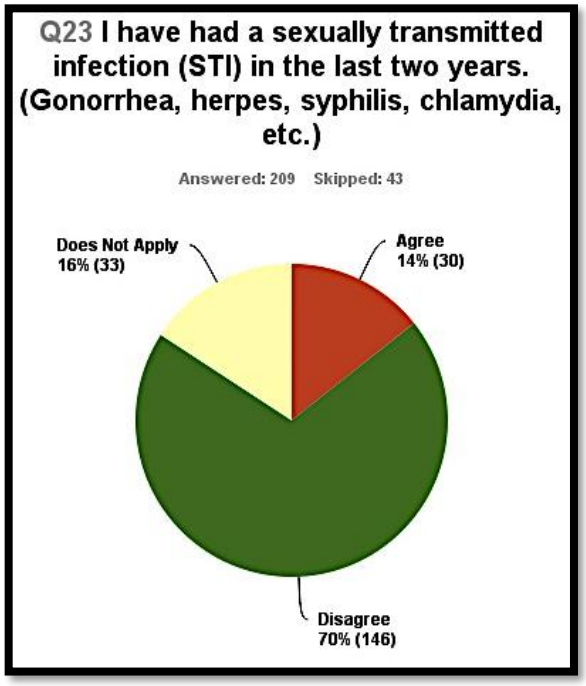
	CASES						RATE per 100,000				
Gonorrhea	**2012**	**2013**	**2014**	**2015**	**2016**		**2012**	**2013**	**2014**	**2015**	**2016**
Total	99	97	84	155	126		15.8	15.5	13.4	24.8	20.1
Women	54	46	35	85	32		17.0	14.5	11.0	26.8	10.1
Men	45	51	49	70	94		14.6	16.5	15.9	22.7	30.5
	CASES						**RATE per 100,000**				
Chlamydia	**2012**	**2013**	**2014**	**2015**	**2016**		**2012**	**2013**	**2014**	**2015**	**2016**
Total	1,724	1,842	2,237	1,901	1,690		275.4	294.0	357.0	303.7	269.9
Women	1,296	1,319	1,613	1,352	1,171		408.5	415.5	507.7	425.8	368.8
Men	428	523	622	549	518		138.6	169.2	201.4	177.9	167.9

Syphilis has more than doubled in the past five years (**Table 31**), with the increase primarily among men, and almost exclusively among MSM. In **Table 31**, comorbidity with HIV is noted under syphilis stages.[89]

Table 31. Number and Rate of Vermont Syphilis Cases by Disease Stage, Primary/Secondary Stage by Gender, with HIV Comorbidity for all Stages, 2012 – 2016

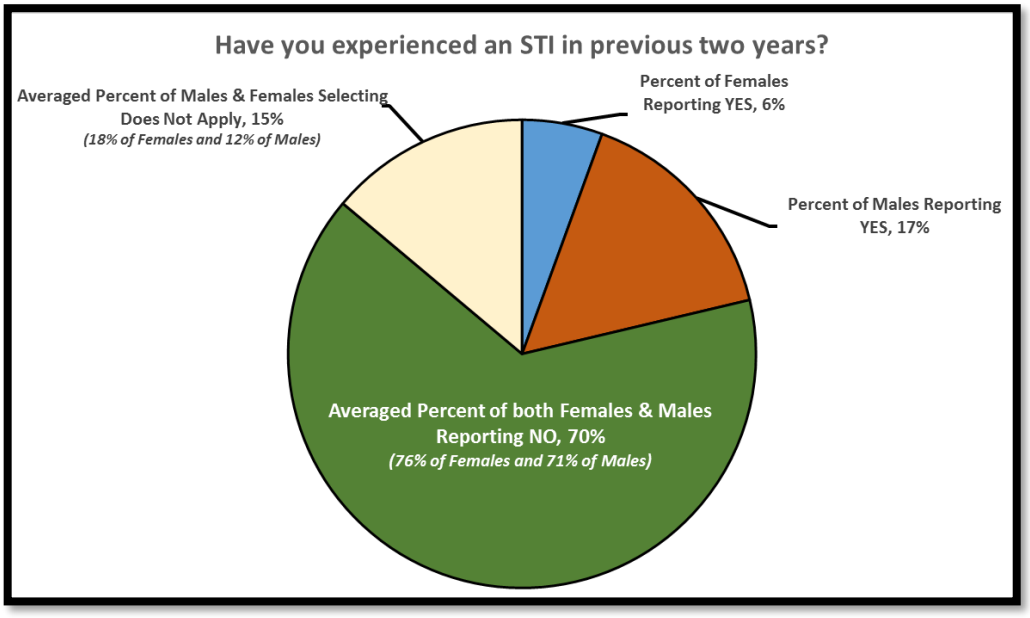
	CASES						RATE per 100,000				
Syphilis	**2012**	**2013**	**2014**	**2015**	**2016**		**2012**	**2013**	**2014**	**2015**	**2016**
Total	12	10	12	15	37		1.9	1.6	1.9	2.4	5.9
Primary & Secondary	6	3	5	9	23		1	0.5	0.8	1.4	3.7
# of P&S *Cases Comorbid with HIV*	*2*	*3*	*2*	*2*	*6*		*0.3*	*0.5*	*0.3*	*0.3*	*1*
Women Primary & Secondary	0	0	0	0	3		0	0	0	0	0.9
Men Primary & Secondary	6	3	5	9	20		1.9	1	1.6	2.9	6.5
Non-primary, Non-secondary Early	6	2	7	6	14		1	0.3	1.1	1	2.2
# of NonP, NonS, Early *Cases Comorbid with HIV*	*0*	*1*	*1*	*1*	*0*		*0*	*0.2*	*0.2*	*0.2*	*0*
Unknown Duration or Late	0	5	0	0	0		0	0.8	0	0	0
# of Unknown Duration or Late *Cases Comorbid with HIV*	*0*	*1*	*0*	*1*	*0*		*0*	*0.2*	*0*	*0.2*	*0*

Figure 57. Vermont Statewide HIV Needs Assessment Participants Reporting STD in Last Two Years



VSHNA data indicated 14% of total respondents experienced an STD in the previous two years (**Figure 57**). Stratified by gender, 17% of men reported an STD versus 6% of women (**Figure 58**).[90]

Figure 58. Vermont Statewide Needs Assessment Percent Reporting STD in Last Two Years by Gender



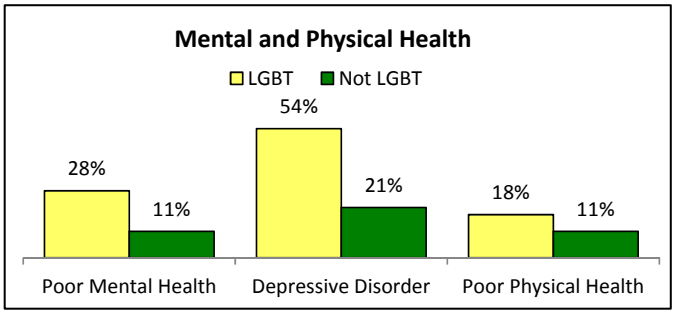
VSHNA STD data also indicated[91]:

- 60% of participants assessed their personal risk for acquiring an STD "other than HIV" as low or very low, equivalent to the 61% assessing their personal risk of HIV infection as low or very low
- 11% of respondents selected "Does Not Apply" for personal risk for other STDs, while 18% selected it for personal risk for HIV, a possible indication that Vermont residents at risk may perceive HIV as less of a concern
- 51% reported testing for other STDs yearly, higher than the 46% testing for HIV yearly

Mental Health and HIV Risk:

An additional note concerning indicators of sexual behavior risks involves the impact of mental health and personal support systems. As indicated in **Figure 59** and **Table 32**, along with higher rates of poor physical health, Vermont LGBT adults are more than twice as likely as non-LGBT adults to report poor mental health (28% vs. 11%) and significantly more likely to have been diagnosed with a depressive disorder (54% vs. 21%). Rates of depressive disorders among LGBT adults also rose steeply (37% to 54%) from 2014, the date of the last *LGBT Health Brief*, while heterosexual rates remained stable (21%).[92]

Figure 59. Mental and Physical Health Among Vermont LGBT vs Non-LGBT Population, 2016

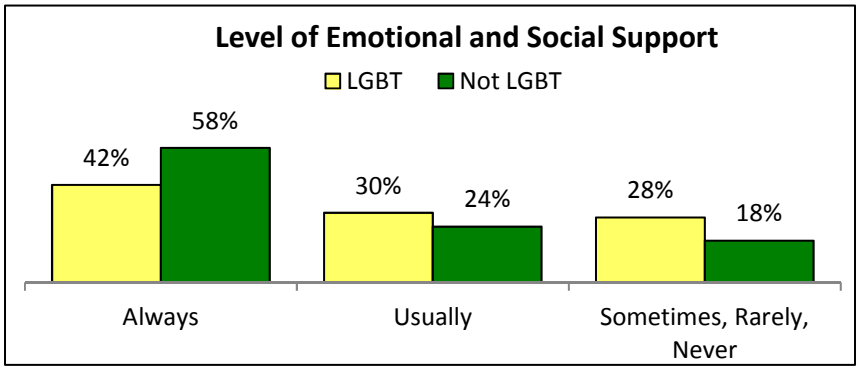


Tables 32. Poor Mental Health & Depression Among Vermont LGBT and Non-LGBT Populations

POOR MENTAL HEALTH				DEPRESSIVE DISORDER		
YEAR	**LGBT**	**HETEROSEXUAL**		**YEAR**	**LGBT**	**HETEROSEXUAL**
2014	22%	10%		**2014**	37%	21%
2016	28%	11%		**2016**	54%	21%

While LGBT adults reported that they generally get the emotional and social support they need, results indicate they get this support less frequently than their heterosexual counterparts (**Figure 60**). LGBT adults are more likely than their heterosexual counterparts to report only "usually" getting supported emotionally and socially, and significantly more likely to report "sometimes, rarely or never" receiving needed support. Consequently, LGBT adults rank as significantly less likely to "always" get support.[93] Mental health challenges and a lack of emotional and social support contribute to higher risk for HIV infection.[94]

Figure 60. Emotional and Social Support Among Vermont LGBT and Non-LGBT Populations



This data corresponds with data from the *VSHNA*, in which PLWDHI reported the most common dual diagnosis with HIV as depression, with over 50% of respondents identifying experiencing depression, which contributed to self-care and medication adherence.[95]

Providers responding to the *VSHNA* further identified the close connections between HIV and depression, both before and after diagnosis. Community-based case managers reported seeing almost as many clients with dual diagnoses of mental health conditions (e.g. depression, anxiety, post-traumatic stress disorder), as they saw with dual diagnoses of medical conditions (e.g. diabetes, hepatitis, arthritis). (**Figures 61 & 62**) Community-based professionals identified that many of the clients they see are those with higher mental health needs, that often existed prior to and may have had a role in their HIV infection.[96]

"There is a lot of co-diagnosis with mental health conditions. There are self-destructive behaviors, some that led people to get infected… trauma, sexual abuse, addiction, anger, rage… TRAUMA just keeps showing up over and over again. And that just doesn't go away for people. We need mental health people who work with trauma, who know how to work with trauma. Good support groups around trauma."

-Needs Assessment Care Provider Respondent #3

"You need to watch out for mental health issues all the time. I'm seeing it more now, more co-occurring mental health disorders. More than half of the people I see. A few drop out of care every year because of mental health."

-Needs Assessment Care Provider Respondent #7

Figure 61. Vermont Needs Assessment PLWDHI Dual Diagnosis – Medical Condition

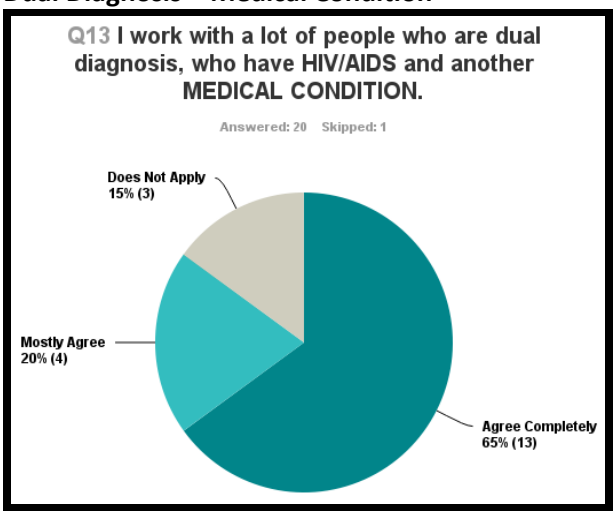
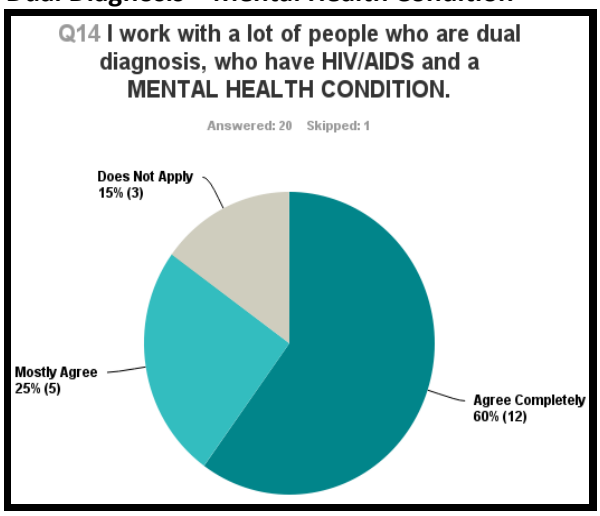
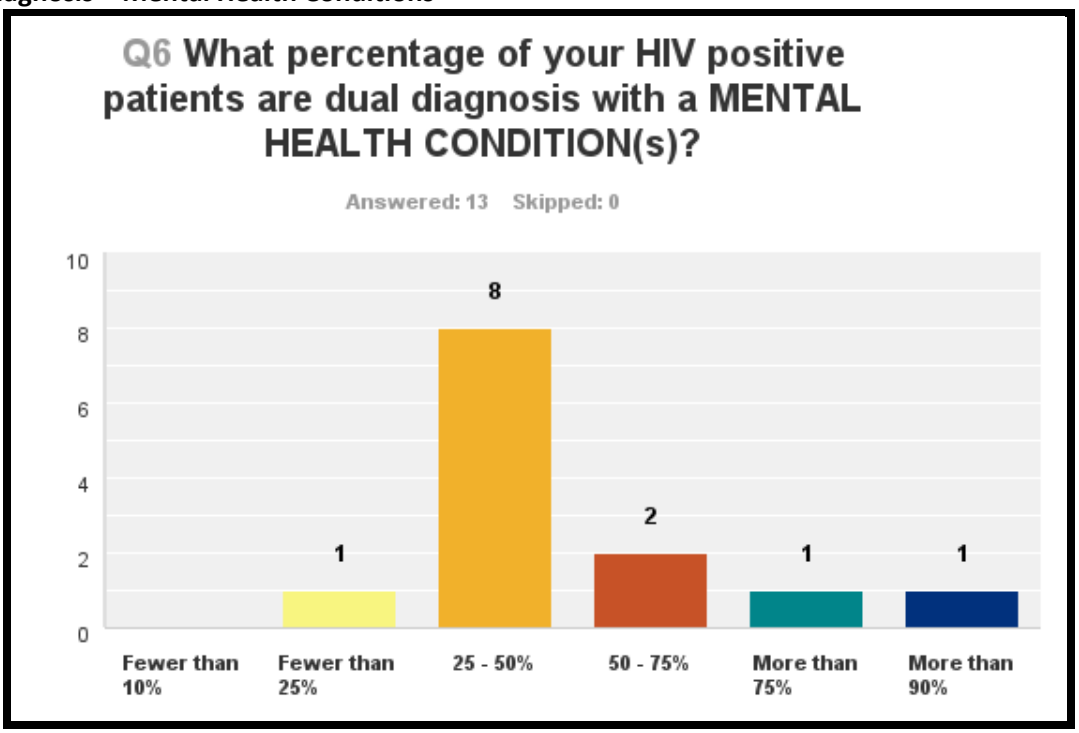


Figure 62. Vermont Needs Assessment PLWDHI Dual Diagnosis – Mental Health Condition



Medical providers reported similar rates (**Figure 63**), with four of 13 providers reporting 50% or more of their patients experienced a dual diagnosis with a mental health condition. The majority of practices, eight, identified that between 25 and 50% of their patients had a mental health dual diagnosis.[97]

Figure 63. Vermont Statewide Needs Assessment Medical Providers Reporting Rates of PLWDHI with Dual Diagnosis – Mental Health Conditions



Providers see mental health and substance abuse as *the primary issues* with care retention and care compliance, greatly affecting risk of transmission of HIV.[98]

3.2: Factors affecting risk of transmitting HIV infection among HIV-positive persons.

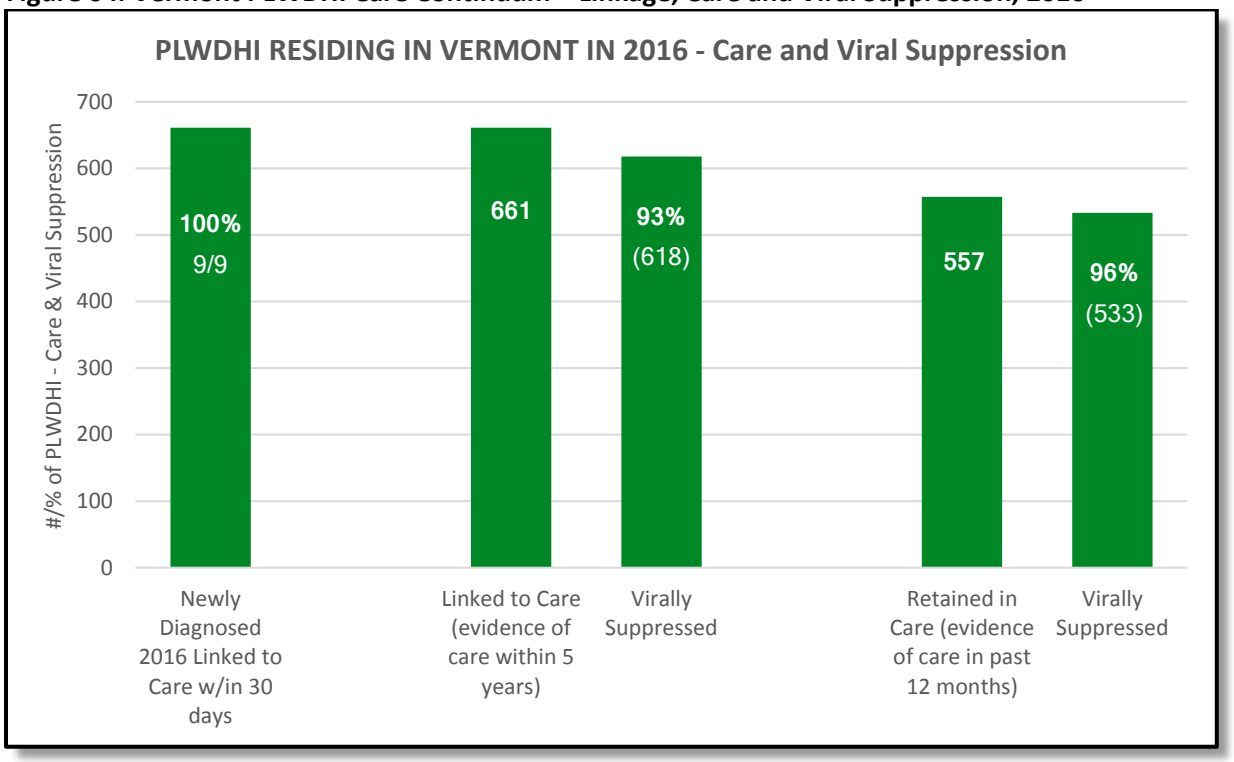
In examining factors affecting risk of transmission of HIV, the first dataset to assess is the basic care continuum that examines linkages to care, retention in care, and viral suppression. The initial data presented here all pertain to this continuum.

HIV Risk Indicators: HIV Surveillance Clinical Data

Care Continuum:

The following chart outlines the basic Care Continuum as applied to Vermont data.[99]

Figure 64. Vermont PLWDHI Care Continuum – Linkage, Care and Viral Suppression, 2016



There are multiple factors to consider regarding the difference between those linked to care and those retained in care. Interjurisdictional record searches may not have revealed that a case has moved to another state, patients may have not had an HIV-related appointment within calendar year 2016 but may still be in care, or patients may have fallen out of care. VDH works with HIV care providers to reengage such individuals.

HIV-Diagnosed[100]:

There are 661 known, reported cases of HIV infection, for a case rate of 106 per 100,000 people. [*VDH Annual Report, 2016*]

- **Numerator:** 661 diagnosed/reported HIV/AIDS cases
- **Denominator:** 625,594 Vermont population
- **Case Rate:** 0.001056 * 100,000 = 105.6595811

Linkage to Care 2016[101]:
100% (9 of 9 people) of individuals diagnosed with HIV in Vermont in 2016 were linked to care within one month (30 days).

- **Numerator:** 9 diagnosed individuals in 2016 linked to care in one month
- **Denominator:** 9 diagnosed individuals in 2016

Table 33. Number & Percent of Persons Linked to Care Following HIV Diagnosis, 2016

Number and percent linked to care[a] within 30, 91, 182, & 365 days[b] of HIV diagnosis among Vermont residents >=13 years of age at diagnosis, diagnosed between 01/01/2016 & 12/31/2016								
Persons diagnosed with HIV infection	Persons linked to care within 30 days of diagnosis		Persons linked to care within 91 days of diagnosis		Persons linked to care within 182 days of diagnosis		Persons linked to care within 365 days of diagnosis	
No.	No.	%	No.	%	No.	%	No.	%
9	9	100	9	100	9	100	9	100

[a]Persons who have at least one CD4, viral load or HIV-1 genotype test during specific time period are considered as linked to care during that time.
[b]Months difference calculated between diagnosis date of HIV infection and sample collection date, and year, month, day are used in calculation.

HIV-Diagnosed and Linked to Care – Evidence of Care in Past Five Years[102]:
There are 661 individuals, or 100% of total recorded cases, diagnosed with HIV with evidence of care within the past 5 years.

- **Numerator:** 661 diagnosed/evidence of care within 5 years
- **Denominator:** 661 diagnosed/reported HIV/AIDS cases
- **Linked to Care & Virally Suppressed:**
  There are 618 individuals, or 93% of total cases, diagnosed with HIV with evidence of care within the past 5 years who are virally suppressed.
  - **Numerator:** 618 virally suppressed
  - **Denominator:** 661 diagnosed/reported HIV/AIDS cases

HIV-Diagnosed and Retained in Care – Evidence of Care in Past One Year[103]:
There are 557 individuals, or 84% of total recorded cases, with evidence of care visit in the last year (12 months), including a viral load test or a CD4 test.

- **Numerator:** 557 diagnosed individuals with one care visit in last 12 months
- **Denominator:** 661 diagnosed individuals in Vermont
- **Retained in Care & Virally Suppressed:**
  There are 533 individuals, or 96%, diagnosed with HIV and retained in care with evidence of care in the past year, who are virally suppressed.
  - **Numerator:** 533 virally suppressed
  - **Denominator:** 557 diagnosed/reported HIV/AIDS cases with evidence of care past year

Viral Load Suppression[104]:
Viral load is considered suppressed if the individual's most recent HIV viral load within the measurement year was less than 200 copies/mL.
96% of PLWDHI with evidence of care in the past one year have achieved viral load suppression.

- **Numerator:** 533 diagnosed individuals virally suppressed
- **Denominator:** 557 diagnosed individuals in Vermont in care

94% of Vermont PLWDHI with evidence of care in past five years have achieved viral load suppression.

- **Numerator:** 618 diagnosed individuals virally suppressed
- **Denominator:** 661 diagnosed individuals in Vermont

Vermont Statewide HIV Needs Assessment Data on Transmission Risk Among PLWDHI[105]

The *VSHNA* collected relevant epidemiologic data on HIV positive individuals in a number of categories, including participation in and satisfaction with HIV care and medication, barriers to care, knowledge and practice of Treatment as Prevention (TasP), knowledge of and interest in PreExposure Prophylaxis (PrEP), and self-disclosure of HIV status with sex partners.

The charts below indicate the high number of HIV positive participants reporting being in medical care (95%) and taking medication for HIV/AIDS (89%). (**Figures 65 & 66**)

Figure 65. Vermont Needs Assessment Percent PLWDHI in Medical Care

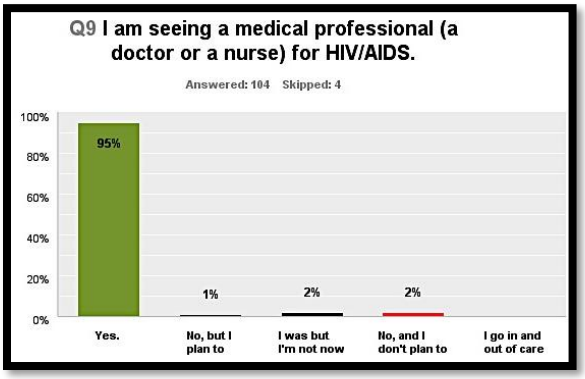
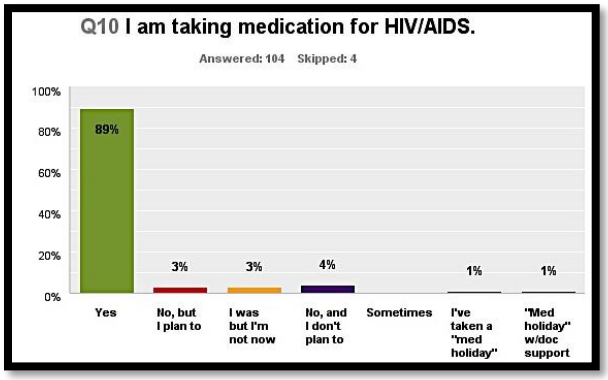


Figure 66. Vermont Needs Assessment Percent PLWDHI Taking HIV Medication



Additional data indicated that:

- 93% agreed or mostly agreed that they are happy with the quality of my medical care
- 74% noted "liking their medical providers" as one of the reasons they stay in care
- 85% agreed or mostly agreed that they have no problem taking their HIV medications
- 63% noted "reduced medication side effects" as one of the reasons they stay in care
- Only 4% of respondents identified having difficulty paying for their medication

Figure 67. Vermont Needs Assessment PLWDHI-Identified Care Supports

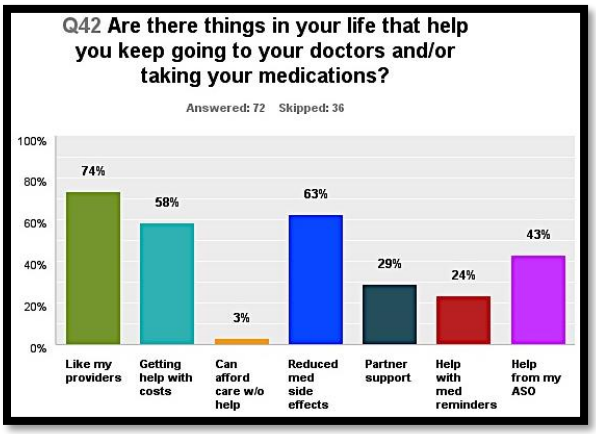
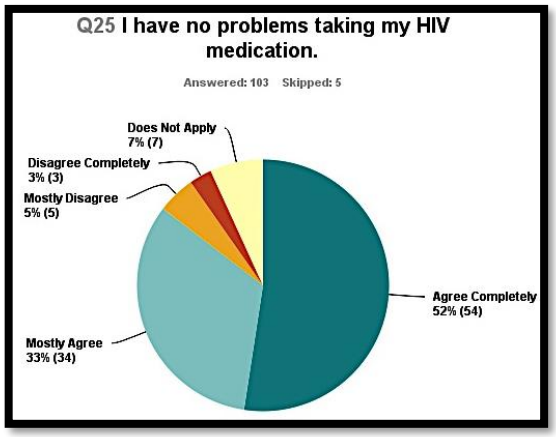


Figure 68. Vermont Needs Assessment Respondent Experience of HIV Medication



All of these indicators reflect well on reduced risk of transmission of HIV infection among the HIV positive community in Vermont. This data complements the high rates of ARV adherence and viral

suppression noted above in the Care Continuum. Individuals are by and large in care, staying in care, and taking their medication with limited difficulties.

Given the importance of care and treatment in halting HIV transmission, the *VSHNA* asked in detail about potential barriers to care. Respondents discussed barriers from two perspectives:

- their own concerns or resistance before they entered care, and
- their thoughts on why other HIV positive individuals may resist entering care and taking medication

Of particular interest was the most common response, "mental health." Approximately half of respondents stated that they felt – from personal experience or witnessing others – that poor mental health is one of the primary reasons a positive individual may fall out of care or not enter care at all. This is telling, when compared to the fact that the most common dual disease with HIV was found to be depression.

A further 35% of respondents stated substance abuse as a primary reason they believed a positive individual might not enter care or may have considerable difficulty staying in care, and 20% stated they believed there were HIV positive people who did not realize how much the medications have improved, and that without that knowledge, many of these participants stated they would not currently be in care.

Knowledge and use of biomedical interventions to reduce transmission risk assessed participant understanding of TasP and PrEP, and willingness to use (TasP) the given method with a sexual partner, or suggest (PrEP) the method to a sexual partner. The following charts (**Figures 69 & 70**) provide a breakdown of responses by gender, and indicate that a majority of HIV positive individuals in Vermont understand TasP and would use it with a partner to prevent transmission – both male and female respondents.

Figure 69. Vermont Needs Assessment Care Respondents' Understanding of Treatment as Prevention, by Gender

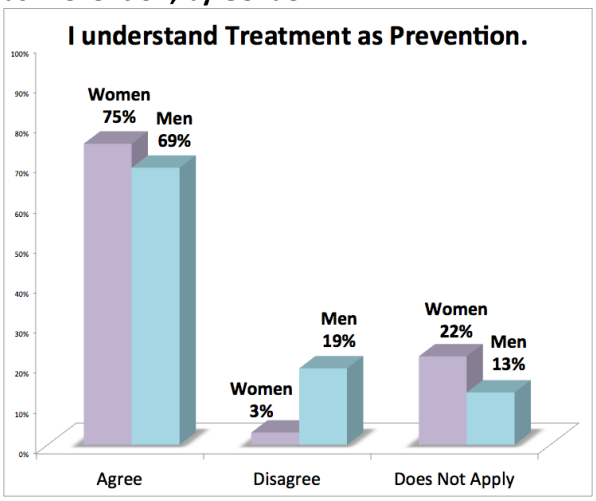
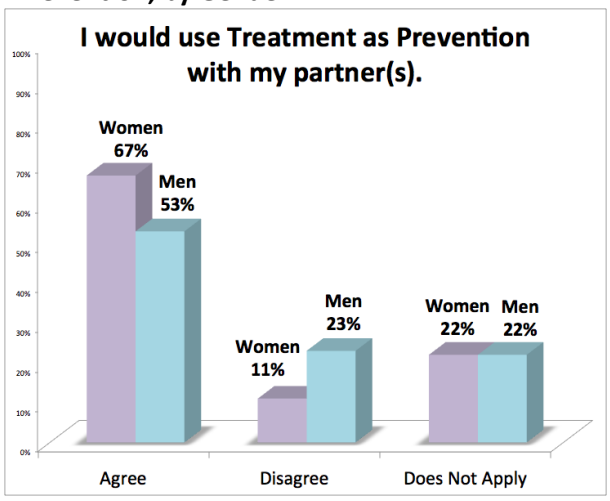


Figure 70. Vermont Needs Assessment Care Respondents' Willingness to Use Treatment as Prevention, by Gender



PrEP was well-recognized by men, but less understood by women (**Figures 71 & 72**). It has been primarily targeted to MSM, so this discrepancy is unsurprising. While a significant majority of men (72%) understood PrEP, a smaller majority (56%) stated they would suggest it to a partner. Again, there is a

significant contingent of respondents who marked “does not apply” – usually indicating a lack of expected new sexual partners – including 17% of men in understanding PrEP, and 25% of men interested in suggesting it to a partner. With a full quarter of respondents removed from the analysis, the 56% of men willing to and interested in suggesting PrEP to a partner represents a higher level of interest in PrEP than may first appear.

Figure 71. Vermont Needs Assessment Care Respondents’ Understanding of PrEP as a Prevention Method, by Gender

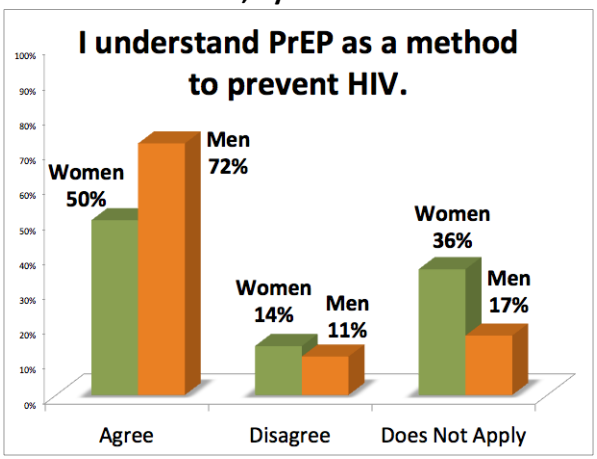
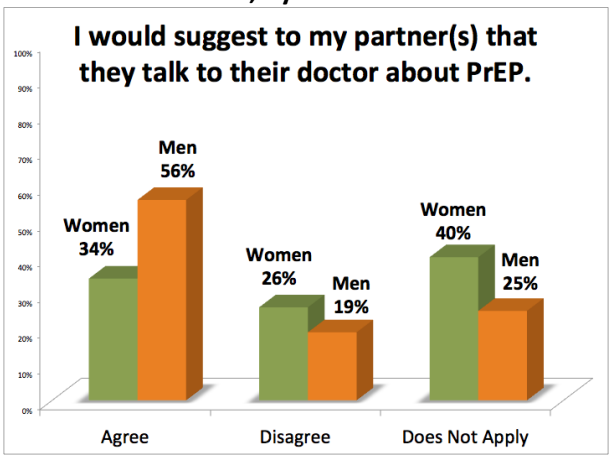
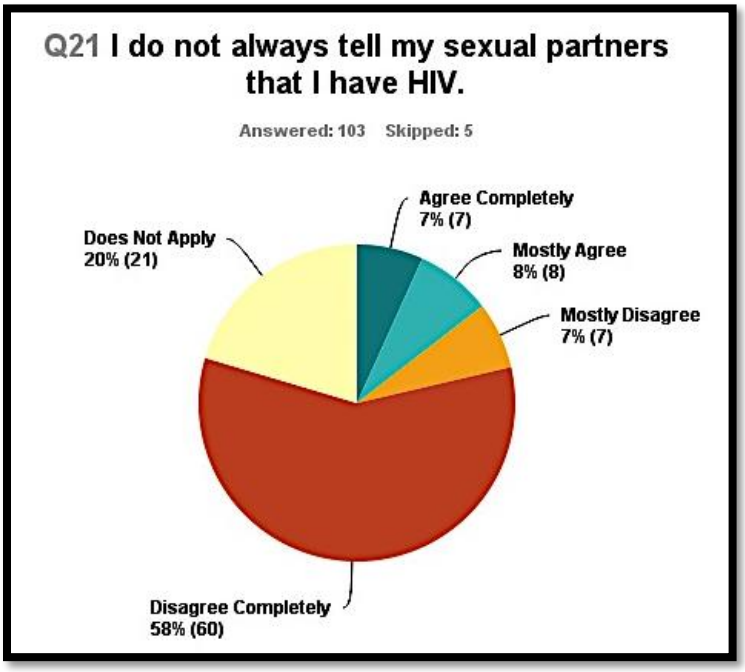


Figure 72. Vermont Needs Assessment Care Respondents’ Willingness to Use PrEP as a Prevention Method, by Gender



The overwhelming majority of respondents (58 - 65%) disclose their HIV status to sexual partners (**Figure 73**), with only 15% of respondents indicating they do not always tell sexual partners. The high number of individuals marking “does not apply” to this question is partially attributable to respondents who stated they either were in a monogamous partnership or simply did not date/engage in sex any longer.

Figure 73. Vermont Statewide Needs Assessment Disclosure of HIV Status to Sexual Partners



It should be noted that data from the *VSHNA*, while only two to three years old, is already dated given the changes occurring quickly in the field of HIV. Trends are shifting and PrEP is more present in Vermont than it was during the *VSHNA* time period. The widely announced confirmation that an undetectable viral load means the individual cannot transmit HIV came about in April of 2017, and brought a freshly heightened awareness of the power of medication in controlling transmission. The VDH has, since the *VSHNA*, implemented funded programs to increase knowledge of and referral for PrEP. Both the VDH HSH staff and providers who participate in the state CAG have confirmed the increase in interest in PrEP in the last two years.[106]

SUGGESTED READING

- *Vermont 2014/15 Statewide HIV Needs Assessment*
  www.caracalconsultingvt.com/needsassessment

CITATIONS

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