

1-9-2015

HIV Care Continuum among Subpopulations of MSM, Georgia, 2012

Hilary Gleske

Follow this and additional works at: http://scholarworks.gsu.edu/iph_theses

Recommended Citation

Gleske, Hilary, "HIV Care Continuum among Subpopulations of MSM, Georgia, 2012." Thesis, Georgia State University, 2015.
http://scholarworks.gsu.edu/iph_theses/378

This Thesis is brought to you for free and open access by the School of Public Health at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Public Health Theses by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

HILARY L. GLESKE

HIV CARE CONTINUUM AMONG SUBPOPULATIONS OF MSM, GEORGIA, 2012

Background: As of 2012, Georgia ranked fifth in the United States in the number of people diagnosed with HIV/AIDS. Given the high burden of disease among men who have sex with men (MSM), the HIV Care Continuum has become an important measure for keeping persons living with HIV in care and eventually reaching an undetectable viral load.

Methods: Data were extracted from the Enhance HIV/AIDS Reporting System (eHARS) using SAS version 9.3. A univariate analysis was then performed by cross tabulating variables such as linked to care, any care in 2012, retained in care and viral suppression (VS) for men who have sex with men only (MSMO) and men who have sex with men and women (MSMW), stratified by race/ethnicity and age.

Results: Among 20,676 males categorized as MSM, 14,316 (69%) were MSMO and 6,360 (31%) were MSMW. Among MSMO, 77% (N=772) were linked to care and 45% were virally suppressed and among MSMW, 75% (N=219) were linked to care and 40% were virally suppressed. Black men have the lowest percentages along the HIV Care Continuum when compared to other race/ethnicities of MSMO and Hispanic/Latino MSMW have the lowest linkage to care of any race/ethnicity for both subpopulations. In both MSMO and MSMW, linkage, any care, retention, and VS increase with increasing age.

Conclusion: MSM suffer are terribly affected by HIV and a substantial proportion of MSM also engage in sexual contact with women, who may not be aware of their partner's HIV risk status. Much speculation can be drawn about what keeps both MSMO and MSMW from being linked to care or reaching an undetectable viral load. Possibilities may include greater perception of stigma, ambivalence about HIV care and increased denial affecting ART adherence for MSMW as compared to MSMO. In order to see a drop in HIV rates within this group, the outside factors that negatively influence a person's progress along the HIV Care Continuum toward an undetectable viral load must be understood and addressed.

INDEX WORDS: HIV, MSMO, MSMW, VS

HIV CARE CONTINUUM AMONG SUBPOPULATIONS OF MSM, GEORGIA, 2012

by

HILARY L. GLESKE

B.A., THE OHIO STATE UNIVERSITY

A Thesis Submitted to the Graduate Faculty of Georgia State University in Partial
Fulfillment of the Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA

30303

HIV CARE CONTINUUM AMONG SUBPOPULATIONS OF MSM, GEORGIA, 2012

by

HILARY L. GLESKE

Approved:

Committee Chair

Committee Member

Date

DEDICATION

Anthony, thank you for all the extra things you have done and continue to do so that I can pursue my dream. There is absolutely no way I could have done this without you and I appreciate you so much. My beautiful son, you are barely a year old but you are already my biggest inspiration and my greatest motivation. To my family, I am so thankful for all of the support and encouragement you have provided me. To my friends, thank you for keeping me focused and making me laugh in the most necessary moments.

ACKNOWLEDGMENTS

Thank you, Dr. Richard Rothenberg, for all of your help with my thesis and for assisting me along the path of getting my MPH. Thank you, Dr. Jane Kelly, for all of your help with this project and my thesis and for presenting me with so many opportunities. Thank you, Dr. Kate Musgrove, thank you giving me the chance to work with you and for trusting me along the way.

AUTHOR'S STATEMENT

In presenting this thesis as a partial fulfillment of the requirements for an advanced degree from Georgia State University, I agree that the Library of the University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote from, to copy from, or to publish this thesis may be granted by the author or, in his/her absence, by the professor under whose direction it was written, or in his/her absence, by the Associate Dean, College of Health and Human Sciences. Such quoting, copying, or publishing must be solely for scholarly purposes and will not involve potential financial gain. It is understood that any copying from or publication of this dissertation which involves potential financial gain will not be allowed without written permission of the author.

Signature of Author

NOTICE TO BORROWERS PAGE

All theses deposited in the Georgia State University Library must be used in accordance with the stipulations prescribed by the author in the preceding statement.

The author of this thesis is:

Hilary Gleske
2788 Defoors Ferry Rd NW
Apt. 83
Atlanta, GA 30318

The Chair of the committee for this thesis is:

Dr. Richard Rothenberg, MD, MPH
School of Public Health
Georgia State University
140 Decatur St
Atlanta, Georgia 30303

Users of this thesis who not regularly enrolled as students at Georgia State University are required to attest acceptance of the preceding stipulation by signing below. Libraries borrowing this thesis for the use of their patrons are required to see that each user records here the information requested.

NAME OF USER	ADDRESS	DATE	TYPE OF USE (EXAMINATION ONLY OR COPYING)

CURRICULUM VITAE

Hilary Gleske
2788 Defoors Ferry Rd NW
Apt. 83
Atlanta, GA 30318
hgleske1@student.gsu.edu
440-334-4407

EDUCATION

Master of Public Health – Epidemiology Georgia State University	Atlanta, Georgia 08/13 – 12/14
Bachelor of Arts - International Studies – Development Studies The Ohio State University • Biological Sciences Scholars Program	Columbus, Ohio 09/09 – 08/12
Associate of Arts Columbus State Community College	Columbus, Ohio 09/10 - 09/11

RELATED SKILLS

Computer Skills: SAS, SPSS, Microsoft Office, Web Design (Dreamweaver)
Language Skills: Intermediate Spanish, Basic Quechua, Basic Latin

PUBLIC HEALTH EXPERIENCE

Georgia Department of Public Health Intern - CAPUS Project, Division of Health Protection; HIV/AIDS Epidemiology Section • Contacted agencies with HIV/AIDS services to add to the Resource Directory • Researched and developed a webpage with medical information about HIV/AIDS • Assisted with the development of an eligibility portal for Ryan White services	Atlanta, Georgia 04/14 – 10/14
United Nations Association Intern, Board Member • Organized events for UNA such as UN Day and the International Festival • Communicated with other UN organizations and local international groups • Served as the public health liaison to Ohio Department of Health	Columbus, Ohio 09/11 - 12/11

EMPLOYMENT

Georgia State University Instructor • Teach students success skills for their college and professional careers • Assign and grade homework, lecture, and lead class activities	Atlanta, Georgia 06/14 - 12/14
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------

PRESENTATIONS

- University of Georgia Public Health Conference
- Men Who Have Sex With Men (MSM) Symposium
- Center for Aids Research (CFAR) Network Pizza Party

TABLE OF CONTENTS

DEDICATION.....	iv
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
CHAPTERS	
I. INTRODUCTION.....	1
II. LITERATURE REVIEW.....	3
REFERENCES.....	7
III. MANUSCRIPT	
INTRODUCTION.....	8
METHODS.....	10
RESULTS.....	12
DISCUSSION.....	17
IV. REFERENCES.....	22

LIST OF TABLES

Table 1. HIV Care Continuum definitions, Georgia, 2012.....	12
Table 2. HIV Care Continuum, Georgia, 2012.....	16
Table 3. Viral Suppression among those Retained in Care.....	16

LIST OF FIGURES

Figure 1. HIV Care Continuum, MSMO and MSMW, Georgia, 2012.....	14
Figure 2. Viral suppression among MSMO and MSMW, by race, Georgia, 2012.....	15
Figure 3. Viral suppression among MSMO and MSMW, by age, Georgia, 2012.....	15

I

INTRODUCTION

HIV, or Human Immunodeficiency Virus, is an ongoing public health issue in the United States. The National HIV/AIDS Strategy consists of three primary goals: reducing the number of people who become infected with HIV, increasing access to care and optimizing health outcomes for people living with HIV, and reducing HIV-related health disparities.¹ Almost half of the national prevalence for HIV is among men who have sex with men (MSM).² In 2010, 63% of new HIV infections nationally were MSM.³ The Centers for Disease Control and Prevention (CDC) recommendation is annual HIV testing for sexually active MSM between the ages of 13 and 64.⁴

As of 2012, Georgia ranked fifth in the United States in the number of people diagnosed with HIV/AIDS with 37,516 men and 12,640 women living with HIV in Georgia.^{5, 16} Since the advent of highly active antiretroviral therapy (ART) in the mid 1990's, deaths from AIDS have plummeted.⁶ Continuity of HIV care and viral suppression are critical to prevention of progression to AIDS on the individual-level, and prevention of HIV transmission on the public health level. In July 2012, Hall, et al presented an HIV Care Continuum which included national measures for linkage to care within 3 months of diagnosis, retention in care over 12 months and viral suppression (defined as viral load <200 copies/ml).⁷

Rationale

The purpose of this analysis is to describe the HIV Care Continuum methodology used in Georgia, compare the Care Continuum for men who have sex with men only (MSMO) with men who have sex with men and women (MSMW), discuss implications of low percentages of viral

suppression for HIV prevention for men and women, and explore the possible reasons behind the results. By stratifying the data by transmission category, sex, age, and race/ethnicity, the percentage of MSMO and MSMW who were linked to care, retained in care, received any care, and virally suppressed can be better observed. To better understand the numbers at each stage of the HIV Care Continuum, it is important to analyze the social determinants that affect these two groups when it comes to seeking and receiving HIV care. We hypothesized that MSMO would have worse percentages at each stage of the care continuum than MSMW due to the impact stigma and discrimination may have on the MSM community and HIV.

II

LITERATURE REVIEW

HIV Care Continuum

The HIV Care Continuum has become a staple in the public health world for the care of patients with HIV/AIDS. In this analysis, the stages that make up the care continuum are linked to care, any care, retained in care, and viral suppression. The term “linked to care” refers to having a CD4 or viral load (VL) within 3 months of diagnosis date, including the day of diagnosis for those diagnosed between January 1, 2011 and December 31, 2011, inclusively. The term “any care” refers to a male having one or more CD4 or VL in 2012. The term “retained in care” refers to having at least two CD4 or VL at least 3 months apart in 2012. Viral suppression (VS) refers to having a VL of less than 200 copies/ml in the most recent VL in 2012. Each stage in the continuum is independent of those preceding it; all percentages are of the total number of persons (N) diagnosed with HIV in each category.

Bradley et al. used the stages linkage to HIV medical care, diagnosed, engaged in care, prescribed ART, and virally suppressed for their study. While their definitions for linkage and viral suppression are similar to the ones in this analysis, they defined engaged in care as having an HIV medical care visit between January and April of 2011 and prescribed ART as medical record documentation of an ART prescription.¹ Eberhart et al. included two stages of linkage: linked to care and linked to care within 90 days.²

Findings and themes

Despite differing definitions for the HIV care continuum, the findings carry similar trends. Bradley et al. found that of the persons living with HIV in the United States in 2011, 80%

were linked to care within 3 months of diagnosis and 30% were virally suppressed.¹ Eberhart et al. found that 82% of people newly diagnosed with HIV in the city of Philadelphia between 2008 and 2009 were linked to care and of those, 75% linked within 90 days.²

HIV-related health disparities

In the United States in 2011, the lowest viral suppression by race/ethnicity was among blacks (28%) and by age, the 18-24 age group (13%).¹ Other studies also stated that low linkage to care was among young people and race/ethnic minorities.^{4, 5} These trends of low linkage to care and viral suppression were also seen in this analysis of MSMO and MSMW. Mugavero et al. associated poor HIV care engagement with factors such as a lack of access to health care and support services, stigma, and substance abuse.⁴ Singh et al. also mentioned that factors that affect a person's access to care also have an effect on the rest of that person's progress through the care continuum.⁵

Singh et al. found that of MSM diagnosed with HIV in 2010, 77.5% were linked to care and 42% of MSM living with HIV were virally suppressed.⁵ Accounting for 54% of total persons living with HIV in 2011, MSM were 79% linked to care and 30% virally suppressed.¹ Between 2008 and 2009 in Philadelphia, Eberhart et al. found that 86.9% of MSM were linked to care and 27.2% of those retained in care were virally suppressed.² A 2014 survey by the Kaiser Family Foundation (KFF) found that 56% of gay and bisexual men were not personally concerned about becoming infected with HIV. They also found that only 30% of the men surveyed said they had been tested for HIV within the last year.⁶

MSMO and MSMW

MSMO and MSMW fall under the umbrella of MSM, but these subpopulations deserve attention as well. Indeed, both subpopulations are men who have sex with men, but MSMW also carry the risk of transmitting HIV to women.

Information about sexual and other HIV transmission risk behavior is obtained by the Georgia Department of Public Health from HIV case report forms which may be completed by health care providers, from medical record abstraction or, less frequently, from a patient interview.⁷ For this analysis, MSMO is defined as men who have been noted on the HIV case report form as having ever had sex with men, with no heterosexual contact or other risk factor noted. MSMW are those men who have ever had sex with a man and ever had sex with a woman, with no other risk factor noted. The terms MSMO and MSMW will be used rather than “gay” and “bisexual” since the focus is on the behavior rather than identity with a group.

Singh et al. used similar criteria for their analysis.⁸ In Friedman et al.’s study, men self-reported their sexual behavior, with MSMW being any sexual intercourse with at least one man and at least one woman and MSMO as any sexual intercourse with at least one man and no women.⁹ The CDC uses a hierarchy to classify their data by transmission categories, such that male-to-male sexual contact includes both men who had ever had sex with other men and men who had ever had sexual contact with both men and women.

Singh et al. found that of MSM diagnosed with HIV in 2011, 26.4% also had sex with a woman. They then found that 16.3% of persons diagnosed with HIV in 2011 were MSMW and 45.5% were MSMO.⁸ This analysis found that of the MSMO living with HIV in Georgia in 2012, 77% were linked to care and 45% were virally suppressed, compared to 75% linkage and 40% viral suppression among MSMW. In 2013, Freedman et al. conducted the first nationally representative survey that measured sexual risk behaviors among HIV-positive bisexual men

who received care in 2009 and found that the demographic characteristics and sexual risk behaviors of bisexual men were differed significantly from gay and heterosexual men.¹¹ Their findings stress the need for prevention messages and interventions that better fit the bisexual community. Similarly, the fact that this survey was only presented on a year ago highlights the need for more research on this MSM subpopulation.

Treatment and Prevention

KFF found that only 26% of gay and bisexual men surveyed knew about pre-exposure prophylaxis, or PrEP, as a means to lower their risk for HIV infection.⁶ Similarly, the National HIV Behavioral Surveillance study found that 66% of MSM respondents reported being unaware that HIV prophylaxis options existed.¹⁰ Only 46% of the men surveyed by KFF knew that people should start antiretroviral treatment as soon as they are diagnosed with HIV and only 25% knew about treatment as prevention.⁶ Though, as Mugavero et al. state, treatment as prevention is only successful if a person's adheres to the care continuum for HIV care.⁴ Most alarming is that 56% of gay and bisexual men surveyed said that they had never been recommended for HIV testing by a doctor and 61% said they rarely or never even discuss HIV with a doctor.⁶ According to NHBS, many MSM in metro Atlanta reported never having told a health care provider about their sexual orientation. However, 65% of the MSM in the NHBS study reported having received free condoms in the community in the past 12 months.¹⁰

References

1. Centers for Disease Control and Prevention. (2014, November). Morbidity and Mortality Weekly Report: Vol. 63. Vital signs: HIV diagnosis, care, and treatment among persons living with HIV —United States, 2011 (Report No. 47) (H. Bradley, H. I. Hall, R. J. Wolitski, M. M. Van Handel, A. E. Stone, M. LaFlam, . . . L. A. Valleroy, Authors).
2. Eberhart, M. G., Yehia, B. R., Hillier, A., Voytek, C. D., Blank, M., Frank, I., . . . Brady, K. A. (2013). Behind the cascade: Analyzing spatial patterns along the HIV care continuum. *J Acquir Immune Defic Syndr*, 64(0 1), S42-S51. <http://dx.doi.org/10.1097/QAI.0b013e3182a90112>
3. Singh, S., Hu, X., Wheeler, W., & Hall, H. I. (2014). HIV diagnoses among men who have sex with men and women—United states and 6 dependent areas, 2008-2011. *American Journal of Public Health*, 104(9), 1700-1706. <http://dx.doi.org/10.2105/AJPH.2014.301990>
4. Mugavero, M. J., Amico, K. R., Horn, T., & Thompson, M. A. (2013). The state of engagement in HIV care in the United States: From cascade to continuum to control. *Clinical Infectious Diseases*, 57(8), 1164-1171. <http://dx.doi.org/10.1093/cid/cit420>
5. Centers for Disease Control and Prevention. (2014, September). Morbidity and Mortality Weekly Report: Vol. 63. Men living with diagnosed HIV who have sex with men: Progress along the continuum of HIV care — United States, 2010 (Report No. 38) (S. Singh, H. Bradley, X. Hu, J. Skarbinski, H. I. Hall, & A. Lansky, Authors).
6. Hamel, L., Firth, J., Hoff, T., Kates, J., Levine, S., & Dawson, L. (2014, September). HIV/AIDS in the lives of gay and bisexual men in the United States. Kaiser Family Foundation.
7. Adult HIV confidential case report form [PDF]. (2013, March). Retrieved from <http://chfs.ky.gov/NR/rdonlyres/36B936F0-AD69-4B95-83A7FE4E37201364/0/AdultProofFinal.pdf>
8. Singh, S., Hu, X., Wheeler, W., & Hall, H. I. (2014). HIV diagnoses among men who have sex with men and women—United states and 6 dependent areas, 2008-2011. *American Journal of Public Health*, 104(9), 1700-1706. <http://dx.doi.org/10.2105/AJPH.2014.301990>
9. Friedman, M. R., Stall, R., Silvestre, A. J., Mustanski, B., Shoptaw, S., Surkan, P. J., . . . Plankey, M. W. (2014). Stuck in the middle: Longitudinal HIV-related health disparities among men who have sex with men and women. *Journal of Acquired Immune Deficiency Syndromes*, 66(2), 213-220. <http://dx.doi.org/10.1097/QAI.0000000000000143>
10. Georgia Department of Public Health. (2013) HIV Behavioral Surveillance Fact Sheet: 2011 Survey of Men who have Sex with Men who Reside in Metropolitan Atlanta.
11. Freedman, M., Mattson, C., Beer, L., Sullivan, P., Skarbinski, J. Risk Behaviors Among HIV-Infected Bisexual Men Receiving Medical Care in the United States — Medical Monitoring Project, 2009. Poster presentation at the 20th Conference on Retroviruses and Opportunistic Infections, Atlanta, GA March 3-6, 2013. Abstract # X-102.

III

MANUSCRIPT

Introduction

As of 2012, Georgia ranked fifth in the United States in the number of people diagnosed with HIV/AIDS with 37,516 men and 12,640 women living with HIV in Georgia.^{5, 16} In July 2012, Hall, et al presented an HIV Care Continuum which included national measures for linkage to care within 3 months of diagnosis, retention in care over 12 months and viral suppression.⁷ A year later, President Obama signed an Executive Order to establish the HIV Care Continuum Initiative in hopes of bettering HIV prevention and care in the United States.¹¹ For MSM, this initiative is especially important given their position as the group most heavily effected by HIV.¹³

The purpose of this analysis is to describe the HIV Care Continuum methodology used in Georgia, compare the Care Continuum for men who have sex with men only (MSMO) with men who have sex with men and women (MSMW) in Georgia in 2012, discuss implications of low percentages of viral suppression for HIV prevention for men and women, and explore the possible reasons behind the results. By stratifying the data by transmission category, sex, age, and race/ethnicity, the percentage of MSMO and MSMW who are linked to care, received any care in 2012, retained in care, and virally suppressed can be better observed. To better understand the numbers at each stage of the HIV Care Continuum, it is important to analyze the social determinants that affect these two groups when it comes to seeking and receiving HIV care. We hypothesized that MSMO would have worse percentages at each stage of the care

continuum than MSMW due to the impact stigma and discrimination may have on the MSM community and HIV.

Methods

HIV Care Continuum

Name-based reporting of HIV began in Georgia in 2004. Georgia law mandates that laboratory facilities licensed in Georgia report all HIV-related laboratory tests including undetectable viral loads (VL) and that all health care providers submit HIV case report forms to the Georgia Department of Public Health (DPH) HIV/AIDS Epidemiology Section. Data from laboratory tests and case report forms are entered into the eHARS (enhanced HIV/AIDS Reporting System) database.⁸ Cross-matches are performed with other DPH databases such as STD, TB, Cancer, ADAP, and CAREWare to obtain additional information. Data can be stratified by sex, race/ethnicity, age, and transmission category in analyses. Transmission categories for males are defined by a risk hierarchy established by the Centers for Disease Control and Prevention (CDC) into MSM, injection drug use (IDU), MSM/IDU, heterosexual transmission (heterosexual contact with a woman known to be HIV positive or IDU), or other (e.g., clotting factor or blood transfusion) or unknown.

The CDC transmission categories do not further distinguish MSMO from MSMW, however, risk behaviors of sex with a male and sex with a female are separately collected on case report forms. The risk factors presented on a HIV case report form include sex with male, sex with female, ever used injection non-prescription drugs (IDU), heterosexual relations with person with HIV or at risk for HIV infection, and received transfusion of blood/blood components.⁸ We identified men living with HIV at the end of 2012 as MSMO and MSMW by creating 2 sub-categories of MSM based on a checklist of reported risk behaviors: 1) sex with a male “Yes” and sex with female “No” or blank (MSMO) and 2) sex with male “Yes” and sex

with female “Yes” (MSMW). Cases reporting of other risk behaviors (e.g., IDU) were excluded. We used a dataset generated April 2014 to allow for reporting delay.

This analysis includes adult and adolescent males are those aged 13 years of age or older with a current address within Georgia. The males in the analysis were diagnosed by December 31, 2011 and living as of December 31, 2012, including those missing race. MSMO were defined as men who reported ever having sex with a man only and no other risk reported. MSMW were defined as men who reported ever having sex with a man and ever having sex with a woman and no other risk factor reported.

The HIV Care Continuum definitions can be seen in Table 1. The term “linked to care” refers to having a CD4 or viral load (VL) within 3 months of diagnosis date, including the day of diagnosis for those diagnosed between January 1, 2011 and December 31, 2011, inclusively. The term “any care” refers to a male having one or more CD4 or VL in 2012. The term “retained in care” refers to having at least two CD4 or VL at least 3 months apart in 2012. Viral suppression (VS) refers to having a VL of less than 200 copies/ml in the most recent VL in 2012. Each stage in the continuum is independent of those preceding it; all percentages are of the total number of persons (N) diagnosed with HIV in each category.

Table 1: HIV Care Continuum definitions, Georgia, 2012

LINKED TO CARE	CD4 or viral load (VL) within 3 months of diagnosis date including the day of diagnosis for those diagnosed between 01/01/2011 and 12/31/2011, inclusively
ANY CARE	≥ 1 CD4 or VL in 2012
RETAINED IN CARE	≥ 2 CD4 or VL at least 3 months apart in 2012
VIRAL SUPPRESSION (VS)	VL<200 copies/ml in most recent VL in 2012

Data were extracted from eHARS using SAS version 9.3.¹² A univariate analysis was then performed by cross tabulating variables such as linked to care, any care in 2012, retained in care and viral suppression (VS) for men who have sex with men only (MSMO) and men who have sex with men and women (MSMW), stratified by race/ethnicity and age.

Results

Distribution of risk as extracted from case report forms

Of 11,471 females living with HIV in Georgia, 9% had injection drug use checked, 25% had sex with at risk or infected male checked, and 66% had no risk behavior boxes checked. Of the 34,304 males living with HIV in Georgia in 2012, 14,316 were categorized as men who have sex with men only (MSMO) and 6,360 were categorized as men who have sex with men and women (MSMW) based on the information provided on case report forms. Of the remaining 13,628, males with case report forms noting injection drug use (IDU) (N=1,491), sex with men and IDU (N=1,732), sex with female only (N=1,438), or no risk identified (N=8,967) were excluded.

HIV Care Continuum

Among 20,676 males living with HIV who were categorized as MSM, 14,316 (69%) were MSMO and 6,360 (31%) were MSMW. Figure 1 shows the HIV Care Continuum for MSMO and MSMW in Georgia 2012. The graph shows that out of 772 MSMO diagnosed with HIV in 2011, 77% (596) were linked to care within three months of diagnosis. Out of 14,316 MSMO living with HIV in 2012, 63% (9,004) received any care in 2012, 46% (6,613) were retained in care in 2012, and 45% (6,435) were virally suppressed in 2012. For MSMW, out of 219 who were diagnosed in 2011, 75% (165) were linked to care within 3 months of diagnosis. Out of 6,360 MSMW living with HIV in 2012, 60% (3,793) received any care in 2012, 43% (2,758) were retained in care in 2012, and 40% (2,538) were virally suppressed in 2012.

Figure 1: HIV Care Continuum, MSMO and MSMW, Georgia, 2012

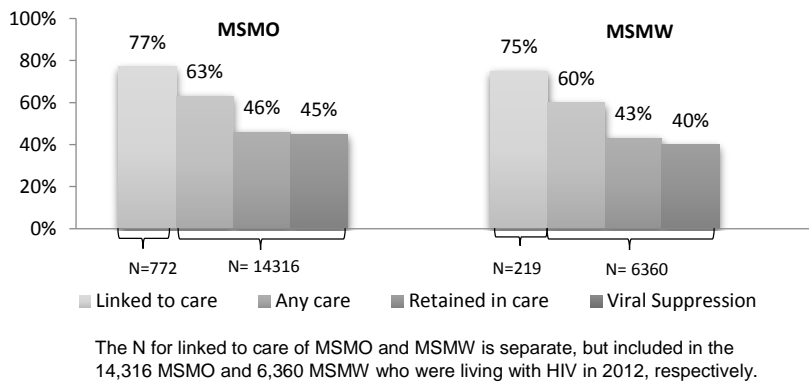


Figure 2 shows viral suppression among MSMO and MSMW by race in Georgia in 2012. Given that Georgia overall has 41% viral suppression, this graph shows that black MSMO and MSMW fall below that number. The biggest disparities exist between the MSMO and MSMW of Other/Unknown race/ethnicity (57% vs. 48%) and Hispanic/Latino men (55% vs. 47%). American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander represent less than 1% of all persons living with HIV in Georgia and are included in Other/Unknown category. The majority of Other/Unknown are mixed race or no race reported. Additionally, Figure 3 shows viral suppression among MSMO and MSMW by age. Both MSMO (33%) and MSMW (31%) in the 13-24 age group fall below the viral suppression for Georgia overall, as well as MSMW (39%) in the 25-34 age group. The biggest disparity exists between MSMO and MSMW in the 55 years old and older age group (63% vs. 53%). The figure shows that viral suppression increases with increasing age in both MSMO and MSMW.

Figure 2: Viral suppression among MSMO and MSMW, by race, Georgia, 2012

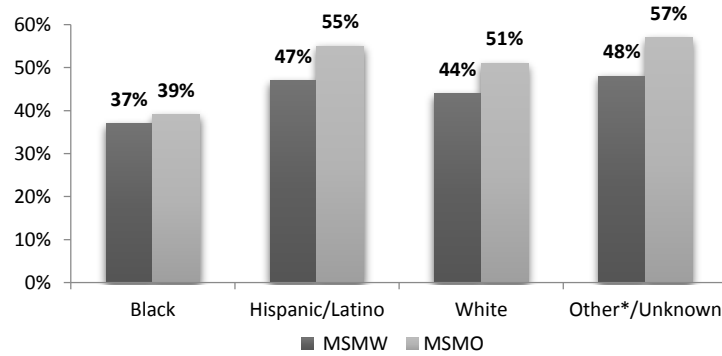


Figure 3: Viral suppression among MSMO and MSMW, by age, Georgia, 2012

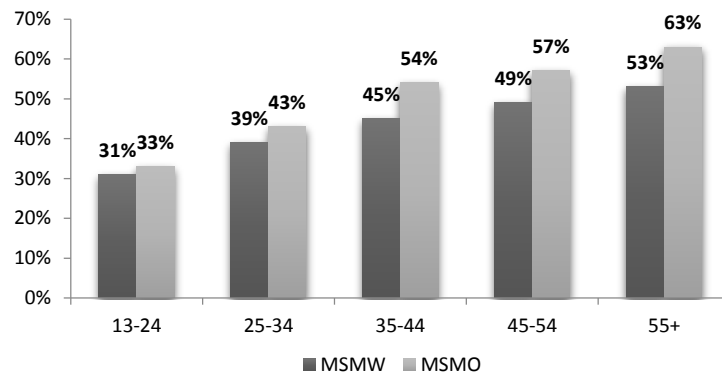


Table 2 shows the percentages of MSMO and MSMW at the linked to care, any care, and retained in care stages of the HIV Care Continuum by race and age. With few exceptions, MSMO have slightly higher linkage to care, any care and retention in care than MSMW by race/ethnicity and age. Black men have the lowest percentages along the HIV Care Continuum when compared to other race/ethnicities of MSMO. Hispanic/Latino MSMW have 54% linkage to care, the lowest of any race/ethnicity for MSMO and MSMW. The table also shows that linkage, any care, and retention increase with increasing age in both MSMO and MSMW.

Table 2: HIV Care Continuum, Georgia, 2012

	%	LINKED TO CARE		ANY CARE		RETAINED IN CARE	
		MSMO (N=772)	MSMW (N=219)	MSMO (N=14,316)	MSMW (N=6,360)	MSMO (N=14,316)	MSMW (N=6,360)
RACE/ ETHNICITY	Black	74	74	61	58	42	41
	Hispanic/Latino	78	54	73	68	56	53
	White	89	74	61	58	48	46
	Other*/Unknown	81	90	75	70	57	48
AGE	13-24	72	66	60	57	39	37
	25-34	75	78	60	58	44	43
	35-44	85	82	68	61	53	45
	45-54	90	82	69	67	55	52
	55+	94	100**	74	67	63	56

*American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander represent <1% of all persons living with HIV in Georgia and are included in Other/Unknown. The majority of Other/Unknown are mixed race or no race reported.

** N= 5 for the MSMW 55+ age group that was linked to care in 2011

The N for linked to care of MSMO and MSMW is separate, but included in the 14,316 MSMO and 6,360 MSMW who were living with HIV in 2012, respectively.

Expanding further, Table 3 shows the percentages of MSMO and MSMW that are virally suppressed among those who are retained in care. While it shows that 78% of MSMO and 73% of MSMW are virally suppressed among retention in care, it may be more helpful to think of these numbers in terms of what percentage of MSMO and MSMW are not virally suppressed, despite being retained in care. In this case, 22% of MSMO and 27% of MSMW are not virally suppressed. By race/ethnicity, 30% of black MSMO were retained in care, yet not virally suppressed. By age, the lowest percentage can be seen in the 13-24 age group of MSMW, with 38% who are not virally suppressed.

Table 3: Viral Suppression among those Retained in Care

	%	MSMO	MSMW
		78	73
RACE/ ETHNICITY	Black	70	71
	Hispanic/Latino	79	74
	White	87	81
	Other*/Unknown	80	79
AGE	13-24	63	62
	25-34	78	72
	35-44	84	79
	45-54	86	80
	55+	89	85

Discussion

We found that MSMW had slightly lower linkage to care, any care, retention in care, and viral suppression than MSMO. However, this analysis provides an opportunity to discuss MSM as a whole. When it comes to the numbers seen at each stage of the HIV Care Continuum, it is important to wonder why they are what they are. Much speculation can be drawn about what keeps MSM from being linked to care or reaching an undetectable viral load.

The numbers for MSMO and MSMW in Georgia at the first stage of the HIV Care Continuum (77% vs. 75%) are discouraging when considering of MSM diagnosed with HIV in the United States 2010, 77.5% were linked to care.¹³ There is not much of a difference between the national percentage and the percentages in Georgia two years later. One possible reason for low linked to care percentages is that MSM are unaware of their HIV status. In 2011, NHBS reported that only 49% of MSM aged 18-24 were aware of their positive HIV status.¹³ Reasons for why MSM do not know their status vary as well. According to the 2011 MSM cycle of the National HIV Behavioral Surveillance study, among the 152 men surveyed who said they had not been tested for HIV during the past 12 months, 46% of men surveyed gave the reason “thought to be a low risk for HIV infection,” 25% said they had “no particular reason” for not being tested, 19% were “afraid of learning that they were infected with HIV,” and 11% “didn’t have time.”²

As MSM are highly affected by HIV, both MSMO and MSMW should be getting tested regularly and taking all precautions when it comes to HIV. Yet, Kaiser Family Foundation states that 56% of gay and bisexual men included in their survey reported they were never

recommended to get tested for HIV by a doctor. Even more (61%) said they rarely or never discussed HIV with their doctor.¹⁰ Additionally, NHBS stated that “many MSM said they have never told a health care provider about their sexual orientation.”² If MSM do not know the about the serious risk of HIV and they are not getting tested and diagnosed, they are endangering themselves and others.

Multiple hypotheses relating to both MSMO and MSMW can be postulated when looking at Table 3 as it pertains to the retained in care and viral suppression stages of the HIV Care Continuum. Although these men were retained in HIV care, and had had at least two CD4 or VL at least 3 months apart in 2012, they had not achieved VS, (a VL of less than 200 copies/ml in the most recent VL in 2012). The disparity between MSMO and MSMW in VS among those retained in care highlights unidentified events between the retention and VS stages of the HIV Care Continuum. One possible event is a lack of adherence to antiretroviral therapy (ART). If these men are regularly seeing a health care provider to get a CD4 or VL but are not accurately or routinely taking their ARTs, they may not become virally suppressed. Another possibility is that there is a lack of continuity among health care providers. For example, if a man goes to one health care provider and they prescribe ARTs but the next time he sees another health care provider who prescribes different ARTs, this man may not become virally suppressed due to a lack of effectiveness of these ARTs given the prescription change. Another possible reason is due to “churning,” or the process of going back and forth between being insured and uninsured.¹⁵ This lack of stability can lead to the inability for a person to remain retained in care or to keep up with their ARTs and become virally suppressed.

For all stages of the HIV Care Continuum, the health of MSMO and MSMW may be affected by stigma and discrimination. According to NHBS, 24% of men surveyed experienced

name-calling and insults in the past 12 months because of their attraction to men and 12% were treated unfairly at work and/or school because of their sexual orientation.² When it comes to HIV, 50% of the 558 men surveyed by NHBS agreed that most people in Atlanta would discriminate against someone with HIV. Additionally, NHBS found that 27% of men surveyed agreed that “most people in Atlanta think that people who got HIV through sex or drug use have gotten what they deserve.”² These numbers only reflect men in metro Atlanta, but the impact stigma and discrimination have on MSM is not restricted to Atlanta. In 2014, KFF found that 56% of gay and bisexual men surveyed stated HIV-related stigma as a major reason for difficulty in controlling the spread of HIV.¹⁰ These are alarming statistics that should be considered by cities all over, especially given the rate of HIV among MSM.

Lastly, MSM may not know about the available treatment and prevention options if they are not active in the HIV Care Continuum. Per their 2014 survey, KFF reported that only 26% of gay and bisexual men knew about pre-exposure prophylaxis, or PrEP, only 46% were aware that people living with HIV should start ARTs as soon as they are diagnosed, and only 25% knew about treatment as prevention.¹⁰ Awareness of PrEP and treatment as prevention are an important component of honest disclosure and negotiation of safe practices with sexual partners. For example, in a serodiscordant couple, harm reduction approaches could include viral suppression for the HIV positive partner and /or PrEP for the HIV negative partner. We can imagine how different the numbers would look along the HIV Care Continuum if MSM knew there were ways to treat and prevent the spread of HIV and onset of AIDS.

Effect on women

MSMW who are not in care and not virally suppressed increase transmission risk not only to other men, but also to women. Singh et al found that in 2011, 26.4% MSM diagnosed

with HIV in the United States also had sex with women.⁹ Women account for one in four people living with HIV in the Georgia. Most women (66%) living with HIV in Georgia have no risk reported on the case report form and were unaware of their sexual partners' risk.¹⁶ National emphasis on MSM as a risk group for HIV without further distinction of MSMO and MSMW marginalizes the risk to women of transmission from bisexual men. Reporting the Care Continuum stratified by MSMO and MSMW can raise awareness of HIV risk among women.

Implications

The National HIV/AIDS Strategy includes a target of 85% linkage to care and an increase of viral suppression by 20% for MSM in 2015.¹ Numbers for 2012 in Georgia suggest that reaching these goals is possible, but there is much to be done as it regards to keeping persons living with HIV in care. HIV prevention messages for MSM should include the importance of honest discussions with sexual partners, both male and female. There is also a need to promote the use of HIV services among MSMW as well as MSMO. Further research is needed to identify the specific needs and circumstances of MSMW and address the barriers to care for MSMW. There is also a need for further research regarding “churning.”

With viable treatment and prevention options available, we should expect to see HIV rates decrease and the goal of the National HIV/AIDS Strategy to be met. It is important that future research includes information about available options for HIV treatment and prevention. It is also important that health care providers make these options known and available to patients.

Limitations

This analysis is not without limitations. This analysis may be subject to incomplete reporting and missing data for race/ethnicity. The risk ascertainment on case report form may

have been incomplete. Some men who had male and female sex partners may be misclassified as MSMO. Those persons for whom we are missing data on sexual behavior may be different from MSMO and MSMW identified and included in this analysis. Missing viral load reports leads to an underestimation of viral suppression. Persons who have migrated to other states may appear as out of care with no viral suppression. This analysis had never been done previously in Georgia, thus it lacks comparability. While this is a limitation, it also creates a path for future research regarding a high HIV morbidity state and the group most affected by it.

In conclusion, MSM are terribly affected by HIV, and a substantial proportion of MSM also have sexual contact with women, who may not be aware of their partner's HIV risk status. Although the differences may not be statistically significant, it is notable that MSMW were lower than MSMO in nearly every Care Continuum measure stratified by age and race. This analysis was unable to consider further the determinants of poorer retention in care and viral suppression among MSMW, but possibilities may include greater perception of stigma, ambivalence about HIV care and increased denial affecting ART adherence for MSMW as compared to MSMO. In order to see a drop in HIV rates within this group, the outside factors that negatively influence a person's progress along the HIV Care Continuum toward an undetectable viral load must be understood and addressed.

IV

REFERENCES

1. The White House Office of National AIDS Policy. (2010, July). National HIV/AIDS Strategy for the United States.
2. Georgia Department of Public Health. (2013) HIV Behavioral Surveillance Fact Sheet: 2011 Survey of Men who have Sex with Men who reside in Metropolitan Atlanta.
3. CDC. HIV Surveillance Supplemental Report, Vol. 17, No. 4; December 2012.
4. Branson BM, Handsfield HH, Lampe MA, et al. Revised recommendations for HIV testing of adults, adolescents and pregnant women in health-care settings. *MMWRMorbMortalWhlyRep*. 2006;55(no.RR-14):1-17.
5. HIV in the United States: At a glance. (n.d.). Retrieved December 4, 2014, from <http://www.cdc.gov/hiv/statistics/basics/>
6. Prevention benefits of HIV treatment. (2013, April). Retrieved December 4, 2014, from <http://www.cdc.gov/hiv/prevention/research/tap/>
7. Hall HI, Frazier EL, Rhodes P, et al. Differences in human immunodeficiency virus care and treatment among subpopulations in the United States. *JAMA Intern Med* 2013;173:1337
8. Adult HIV confidential case report form [PDF]. Retrieved from <http://chfs.ky.gov/NR/rdonlyres/36B936F0-AD69-4B95-83A7-FE4E37201364/0/AdultProofFinal.pdf>
9. Singh, S., Hu, X., Wheeler, W., & Hall, H. I. (2014). HIV diagnoses among men who have sex with men and women—United states and 6 dependent areas, 2008-2011. *American Journal of Public Health*, 104(9), 1700-1706. <http://dx.doi.org/10.2105/AJPH.2014.301990>
10. Hamel, L., Firth, J., Hoff, T., Kates, J., Levine, S., & Dawson, L. (2014, September). HIV/AIDS in the lives of gay and bisexual men in the United States. Kaiser Family Foundation.
11. Centers for Disease Control and Prevention Division of HIV/AIDS Prevention. (2013). Turning the tide on HIV.
12. SAS Institute Inc. 2011. SAS® 9.3 System Options: Reference, Second Edition. Cary, NC: SAS Institute Inc.
13. Centers for Disease Control and Prevention. (2014, September). Morbidity and Mortality Weekly Report: Vol. 63. Men living with diagnosed HIV who have sex with men: Progress along the continuum of HIV care — United States, 2010 (Report No. 38) (S. Singh, H. Bradley, X. Hu, J. Skarbinski, H. I. Hall, & A. Lansky, Authors).
14. Christopoulos, K. A., Massey, A. D., Lopez, A. M., Geng, E. H., Johnson, M. O., Pilcher, C. D., . . . Dawson-Rose, C. (2013). "Taking a half day at a time:" Patient perspectives and the HIV engagement in care continuum. *AIDS Patient Care STDS*, 27(4), 223-230. <http://dx.doi.org/10.1089/apc.2012.0418>
15. Bergal, Jenni. "Millions Of Lower-Income People Expected To Shift Between Exchanges And Medicaid." Kaiser Health News. The Washington Post, 6 Jan. 2014. Web. 01 Dec. 2014. <http://kaiserhealthnews.org/news/low-income-health-insurance-churn-medicaid-exchange/>
16. Georgia Department of Public Health, HIV/AIDS Epidemiology Program HIV Surveillance Summary, Georgia, 2012, <https://dph.georgia.gov/data-fact-sheet-summaries>, Published March 2014, [Accessed December 2014]