

# Factors Predicting Retention in Care and Health Outcomes Among HIV Patients

Merlene Ramnon PhD, MPH, MSN, RN

Florida Department of Health, Palm Beach

## Abstract

The purpose of this study was to determine the factors that predict retention in care and health outcomes among HIV patients. Retention in care has been a major concern for many health care providers and it is very important that HIV patients retain into care therefore, health care providers need to include regular prevention services and be aware of the factors that affect retention in care to prevent HIV transmission. The study also sought to determine patients who achieved medical care by completing two or more health care /provider visits in a year, patients who achieved viral load suppression and patients who were more likely to spread HIV and or other STDs were other factors assessed in this study. Data from 2017 Needs Assessment Survey was used to answer the research questions. Logistic regression analysis and Analysis of Variance statistical tests were conducted to determine statistical significance. The results generated may be used to provide implementation strategies that may be beneficial to health care providers, stakeholders, and community partners by linking and maintaining HIV patients into care.

## Introduction

The prevalence of persons living and diagnosed with HIV infection in the United States in 2010 to 2014 increased in number and rate (Center for Disease Control & Prevention (CDC), 2016).

Number of persons living with diagnosed HIV infection in the United States at the end of 2014 were 955, 081; the prevalence diagnosed with HIV infection rate was 299.5 (CDC, 2016).

In 2015, persons aged 25–29 years had the highest rate (33.4), followed by persons aged 20–24 years (31.2) (CDC, 2016).

Consistent reduced viral load is associated with reduced morbidity and mortality and a lower likelihood of transmitting HIV to sex partners (CDC, 2011).

In 2015 and 2016, the number of new AIDS cases reported in Palm Beach County was 302; 48.6% were male and 51.4% were female.

Palm Beach County is an ethnic and racial diverse county.

Data trends from 2010 -2015 reveal that the total number of new HIV cases and new AIDS cases in Palm Beach continue to decrease.

Also decreasing in this period (2010-2015), is the number of age adjusted HIV/AIDS deaths in Palm Beach County.

In 2015, Florida ranked sixth in the rates of primary and secondary syphilis among the 50 states.

In 2015 Florida was ranked 25<sup>th</sup> among the 50 states in Chlamydia; 454.8 per 100,000 and 21<sup>st</sup> among the 50 states in gonorrheal infection.

## Objectives

To determine the factors that predict retention in care and health outcomes among HIV patients

## Background

Retention into HIV care provides the opportunity to monitor HIV drug therapy, prevent HIV associated complications, and distribute additional services (Yehia et al 2015).

Only 50-75% of HIV infected persons in the United States linked to care have met the national retention care in standards (Yehia et al, 2015).

Retention care in standard, stipulates two or more provider visit in a year.

Geng et al. (2011) argued that research is needed to assess and improved retention into care for HIV infected persons with the use of sampling based approaches and a casual analytic structure.

## Significance of the Study

This study contributes to the body of research specifically to HIV patients' retention in care.

The likely benefits of identifying the factors that contribute to retention in care can advance healthier outcomes for HIV patients by achieving viral load suppression and decreasing the spread of HIV and other STDs among HIV patients.

## Methodology

- Quantitative cross sectional study.
- 2017 Palm Beach County Needs Assessment Survey.
- Secondary-deidentified data.
- Sample size 357 Survey Participants.
- Surveys collected from September 2016-January 2017
- FDOH IRB approval granted before data Collection.
- Participants not at risk, de-identified data.
- Demographic and clinical data reviewed.
- Ethical practices followed by securing data.
- Only the data needed to conduct study were utilized.

## Study Variables

Independent Variables: Age, Educational Level, Race, Gender, Condom Use, Unprotected sex, Sexual Orientation, Blood Tests-Viral Load, Medical care type facility.

Dependent Variables: Medical Care/In Care x 1 year = 2; Out of Care x 1 year=1, No response=3  
Miss HIV Meds x 1 month=1, Not Miss HIV meds x 1 month= 2, No response=3.  
Hospitalization = Hospital admission=1, No hospital admission=2 No Response=3

## Research Questions

- RQ1: Is there a statistical significant association between age of HIV patients, retention in care and health outcomes, in Palm Beach County?
- RQ2: Is there a statistically significant association between HIV patients at risk to sexually transmitted diseases as evidenced by condom usage and retention in care and health outcome in Palm Beach County?
- RQ3: Are MSM patients who attend health department clinics and or other health care facilities more likely to retain in care than other groups of HIV patients in Palm Beach County?
- RQ4: Do patients knowledge of viral load test predict retention in care in Palm Beach County?

## Results

Statistical Tests: SPSS, ANOVA, Linear Regression

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimates	Durbin-Watson
1	.832 <sup>a</sup>	.691	.686	.41264	1.893

a. Predictors: (Constant), Bloodtest viral load <200?, Bloodtest viral load > than 1000  
b. Dependent Variable: Medical Care

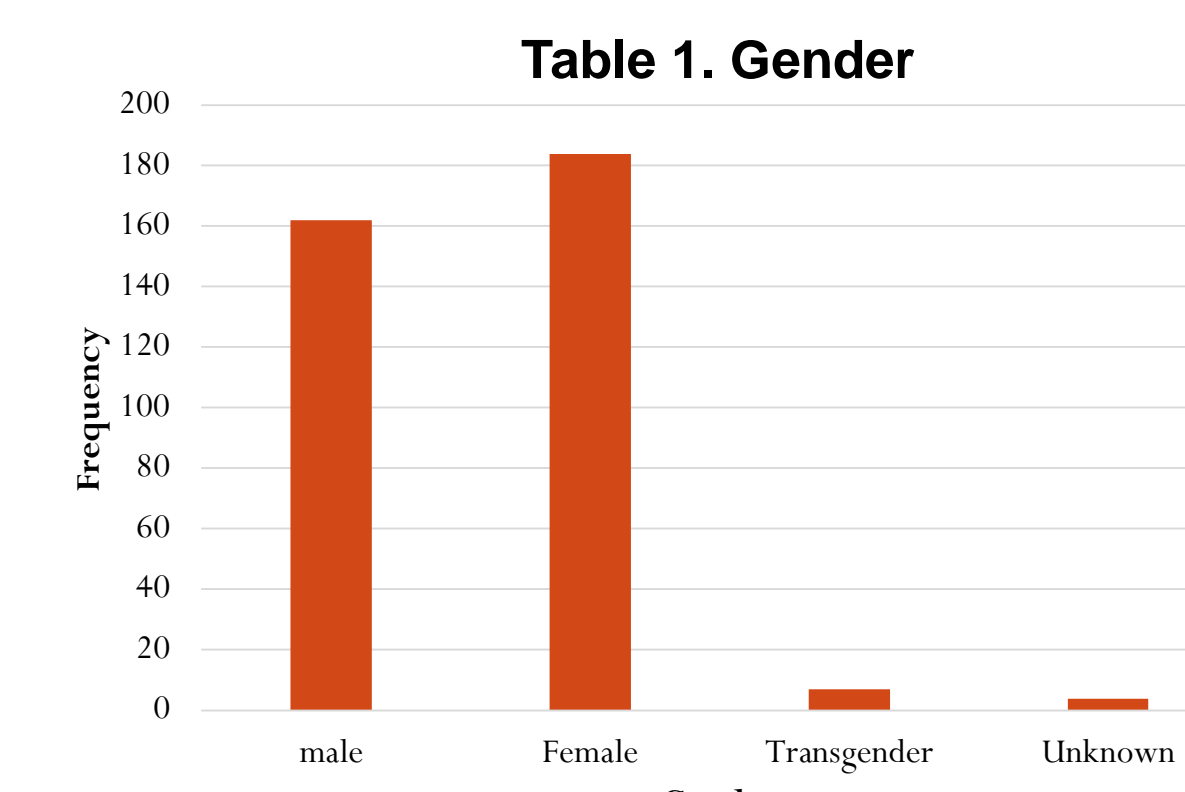


Table 3. Educational Level

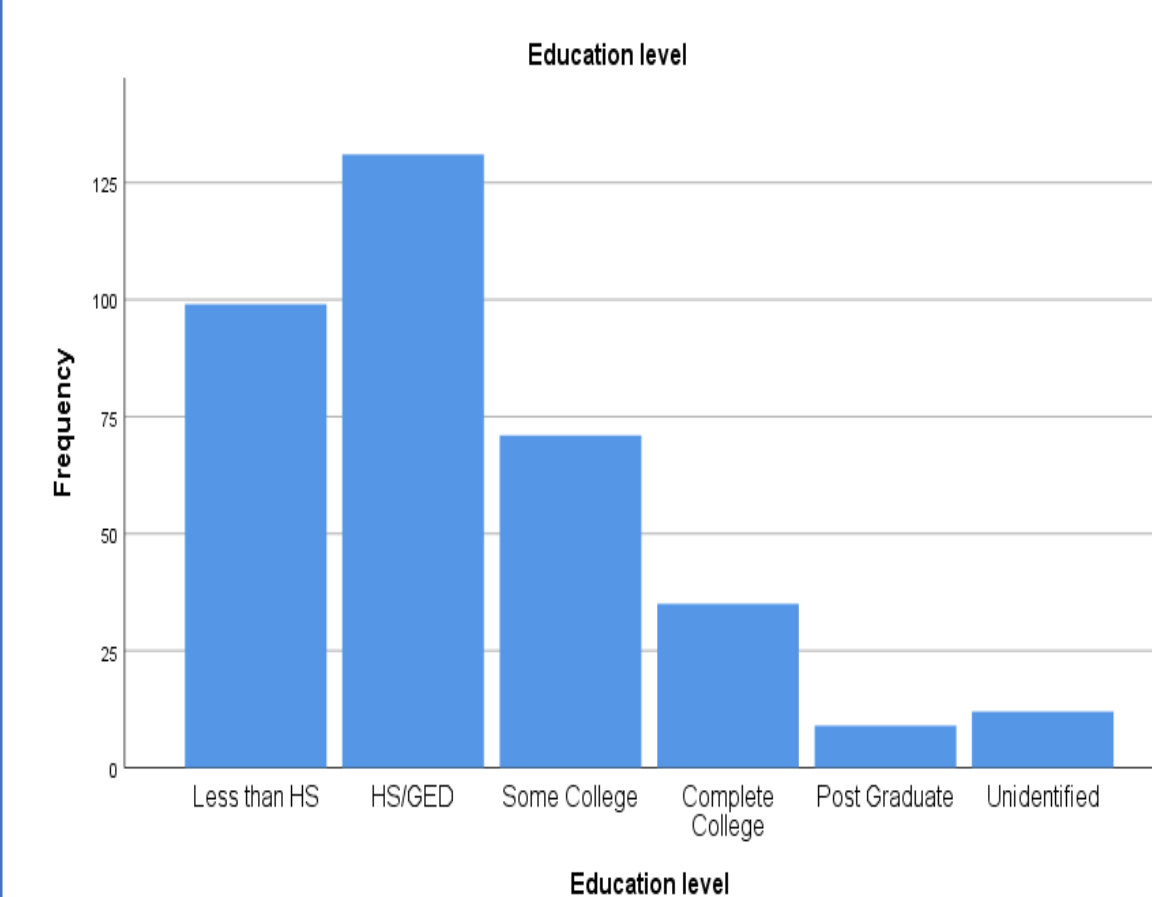


Table 2. Race

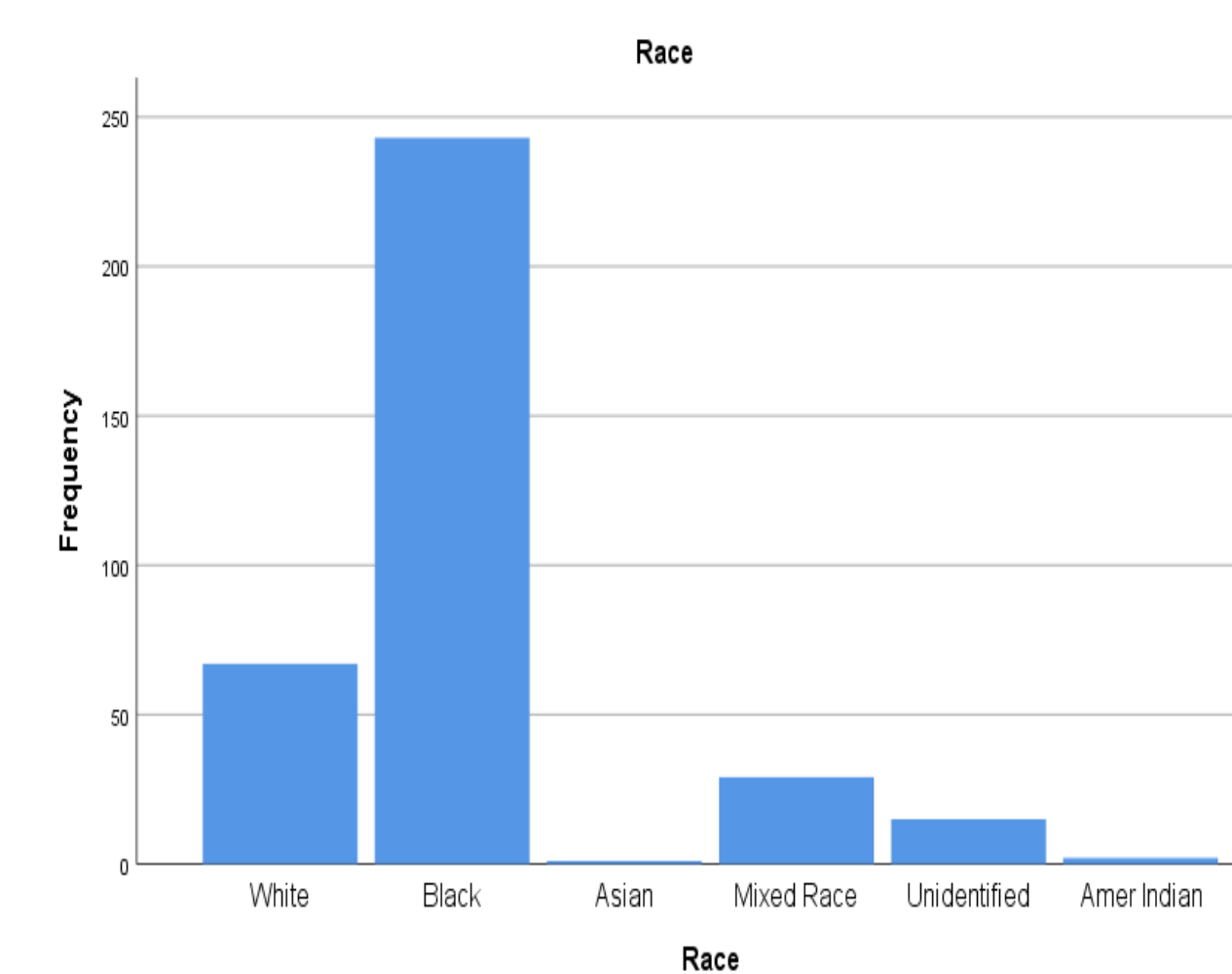
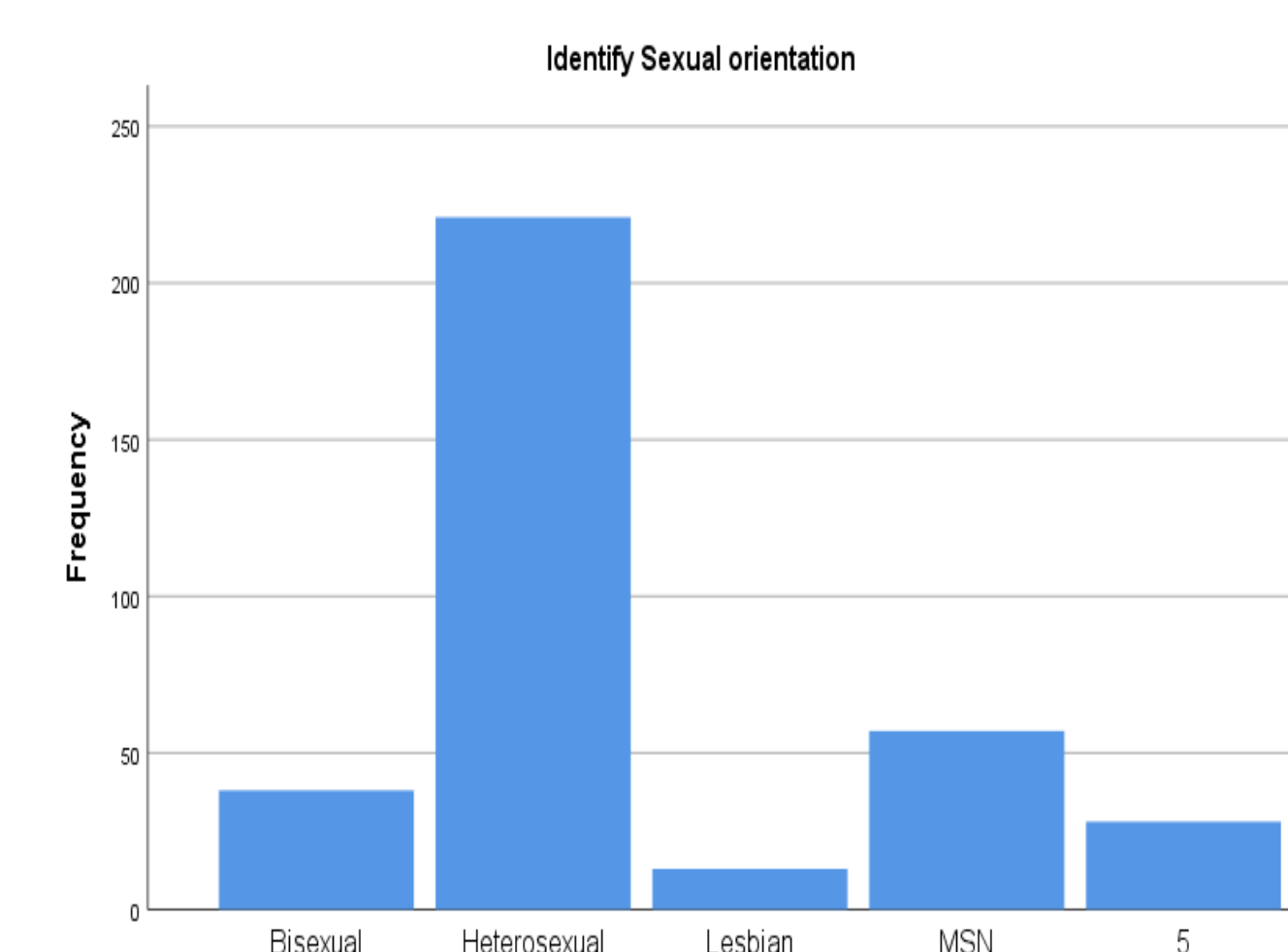


Table 5. Sexual Orientation



## ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.009	2	3.005	17.663	0.000 <sup>b</sup>
Residual	60.047	353	.170		
Total	66.056	355			

a. Dependent Variable: Medical Care

b. Predictors: (Constant), Blood test viral load <200?, Blood test viral load > than 1000

Model	Unstandardized B	Coefficients Std Error	Standardized Beta	t	Sig.	95% CI
Constant	2.204	.060		36.579	.000	2.08 2.32 5 2
Blood Test Viral Load >1000	-.079	.031	-.161	-2.589	0.010	-.139 .019
Blood Test Viral Load <200	-.093	.033	-.178	-2.865	.004	-.158 .029

## Results

Retention in care and viral load tests regression model was statistically significant  
The regression model showed P < 0.01, p=0.000  
Viral Load test significantly predicted retention in care.  
•Linear Regression was performed to predict participants viral load results and retention in care.  
•The viral load test predicted retention in care.  
•Coefficients of Viral Load greater than 1000 and Less than 200 were statistically significant:  
•Viral Load >1000 p = 0.010;  
•Viral Load < 200 p = 0.004

## Summary

Limitations- time frame/secondary data/use data available  
Retention in care is critical  
Linear Regression was performed to predict participants viral load results and retention in care.  
The viral load test predicted retention in care.  
Coefficients of Viral Load greater than 1000 and Less than 200 were statistically significant:  
Viral Load >1000 p = 0.010;  
Viral Load < 200 p = 0.004  
Low viral load is indicative of better health outcomes  
Strategies to maintain and link care  
Many studies have attempted to address barriers to retain in care  
More work is needed to address the factors that impact retention in care.

## Acknowledgement

- Florida Department of Health- Research Excellence Initiative (Team leaders and Participants)
- Ryan White-Palm Beach County
- Palm Beach County Health Department::Medical Director-Dr. Alina Alonso & Center Administrator-Ms. Lawanta Stewart

## References

- Berrien, V.M., Salazar, J.C., Reynolds, E., & McKay, K. (2004). Adherence to antiretroviral therapy in HIV pediatric patients improves with home-based intensive nursing intervention. *AIDS Patient Care and STDs*, 18 (6), 355-363
- Center for Disease Control & Prevention: Division of HIV/AIDS Prevention of Care, National Center for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases and Tuberculosis Prevention. (2017). Prevention is care, care is prevention. Retrieved from, <https://www.cdc.gov/actagainstaids/campaigns/pic/talks/retention-care.html>
- Center for Disease Control & Prevention. (n. d). Compendium of evidence- base interventions and best practices for HIV prevention. Retrieved <https://www.cdc.gov/hiv/research/interventionresearch/compendium/lrc/index.html>
- Center for Disease Control & Prevention. (2016). Diagnoses of HIV infection in the United States and dependent areas, 2015. *HIV Surveillance Report*, 27. Retrieved from <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2015-vol-27.pdf>
- Center for Disease Control & Prevention (2011). Vital Signs: HIV prevention through care and treatment-United States. *Morbidity & Mortality Weekly Report*, 60(47), 1618-1623. Retrieved from [https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6047a4.htm?\\_cid=mm6047a4\\_w](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6047a4.htm?_cid=mm6047a4_w)
- Christopoulos, K. A., Riley, E.D., Tulsy, J., Carrico, A. W., Moskowitz, J.T., Hilton, J.F. (2014). A text messaging intervention to improve retention in care and virologic suppression in a U.S. urban safety-net HIV clinic: study protocol for the ConnectCare (C4C) randomized controlled trial. *Bio Medical Central Infectious Disease*. doi:10.1186/s12879-014-0718-6
- Dooley, S. W. (2008). Recommendation for partner services programs for HIV infection, Syphilis, Gonorrhea and Chlamydia infection. *Morbidity & Mortality Weekly Report*, 57(R09)1-63. Retrieved from <https://www.cdc.gov/mmwr/preview/mmwrhtml/r5709a1.htm>
- Drachler, M.D., Drachler, C. W., Teixeira, L.B., & Leite, J. C. D. (2016). The Scale of Self-Efficacy Expectations of Adherence to Antiretroviral Treatment: A Tool for Identifying Risk for Non-Adherence to Treatment for HIV. *PLoS ONE*, 11(2), e0147443. doi:10.1371/journal.pone.0147443
- Geng, E.H., Hash, D., Kambugu, A., Zhang, Y., Braistein, P., Christopoulos, K.A., Martin, J.N. (2010). Retention in care among HIV infected patients in resource- limited settings: Emerging insights and new directions. *Current HIV/AIDS Report*, 7(4), 234-244. doi: 10.1007/s11904-010-0061-5
- Horstmann, E., Brown, J., Islam, F., Buck, J., & Agins, B.D. (2010). Retaining HIV infected patients in care: Where are we? Where do we go from here? *Clinical Infectious Disease*, 50(5), 752-61. doi: 10.1093/cid/cir493
- Thompson, M.A., Mugavero, M.J., Amico, K.R., Cargill, V.A., Chang, L.W., Gross, R., Nacheva, J.B. (2012). Guidelines for improving entry into and retention in care and antiretroviral adherence for persons with HIV: Evidence-based recommendations from an international association of physicians in AIDS care panel. *Annals of Internal Medicine*, 156(11), 817-833. doi: 10.7326/0003-4819-156-11-201206050-00419. Retrieved <http://annals.org/aim/article/1170890/guidelines-improving-entry-retention-care-antiretroviral-adherence-persons-hiv-evidence>
- U.S. Department of Health & Human Services. HIV/AIDS glossary: Understanding HIV/AIDS, Viral Suppression. Retrieved <https://aidsinfo.nih.gov/understanding-hiv-aids/glossary/1650/viral-suppression>. U.S. Department of Health & Human Services. Understanding HIV/AIDS. Retrieved <https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/21/54/hiv-medication-adherence/>
- Ware, N. C. Wyatt, M. A., Geng, E. H., Kaaya, S. F., Agbaji, O. O., Muyindiki, W.R., Chalamera, G., & Agaba, P.A. (2013). Toward an understanding of disengagement from HIV treatment and care in Sub-Saharan Africa: A qualitative study. *PLoS Medicine*. Doi.10.1371/journal.pmed.1001369
- Weiser, J., Beer, L., West, B.T., Duke, C.C., Gremel, G.W., & Skarbinsky, J. (2016). Qualifications, demographics, satisfaction and future capacity of the HIVcare provider workforce in the United States, 2013- 2014. *Clinical Infectious Disease*, 63(7), 966-975. doi: 10.1093/cid/ciw442. Epub 2016 Jun 29. Retrieved <https://www.ncbi.nlm.nih.gov/pubmed/27358352>.
- Yehia, B. R., Stewart, L., Mompalair, F., Mody, A., Holtzman, C.W., Shea, J.A. (2015). Barriers and facilitators to patient retention in HIV care. *Biomedical Central*, 15, 246. doi: 10.1186/s12879-015-0990-0. Retrieved <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4485864/>