**Efficacy of a Community Health Center's HIV screening program following implementations of the CDC's Revised Recommendations of 2006**.

A quantitative analysis of the HIV Screening and Diagnostic rates pre- and post-implementation of universal HIV testing at the FQHC AltaMed Health Care Services in Los Angeles and Orange Counties.

**By: Emily Peters**

Physician Assistant Student, Class of 2014, Midwestern University
Primary Care Leadership Program, National Medical Fellowships and GE
August, 2013

**Note on Study Design:**

When given the opportunity to choose a project for the GE-NMF Primary Care Leadership Program, I knew I wanted to do something that involved HIV/AIDS care. Dr. Hochman, my AltaMed site mentor, suggested investigating AltaMed's progress after the implementation of universal HIV testing in 2010. After more investigating and interviews with leaders in the HIV care team, I realized that there have been some analyses on AltaMed's HIV screening and diagnostic rates. However, the analyses that were previously conducted were from counties, were not system-wide, and/or the results were not shared with the leadership team. Therefore, I decided to proceed with my project and do a system-wide analysis of the HIV screening and diagnostic rates that could eventually be shared with the entire AltaMed community.

**Introduction:**

Since human immunodeficiency virus (HIV) first made headlines in the United States in the 1980s, almost 600,000 Americans have lost their lives to AIDS and more than 56,000 people become infected with HIV annually.[i] And approximately 55% of adults in the U.S. have never received an HIV test.[ii] One may argue that this is not an alarming statistic since the average American does not participate

in high-risk behavior on a routine basis. However, the face of HIV/AIDS is changing and, unfortunately, the stereotypes of who is and who is not "safe" from HIV no longer applies. Although the most affected group still remains men who have sex with men (MSM), African Americans as well as heterosexual women of other ethnicities are becoming infected at higher rights. Unfortunately, many of these individuals are currently unaware of their infection. As of 2010, 19% of people living with HIV were not aware they are infected.[iii] Identifying patients with an unknown HIV infection is vital in the fight to stop the deadly pandemic because most individuals who become aware of their infection cease or reduce their high-risk, dangerous behavior. Individuals who are aware of their HIV positive status have a transmission rate less than 1/3 that of individuals who are unaware of their status.[iv] Making an individual aware of his/her serostatus is important because it also allows the patient to be connected to care that could provide life-saving treatment. Because of the advancement of antiretroviral medication and treatment options, HIV testing is the gateway to improved health and survival among persons with HIV infection.

The Center for Disease Control and Prevention has created numerous initiatives to decrease the HIV infection rate here in the United States. In 2003, the CDC introduced an initiative that had two key strategies: to make HIV testing part of routine medical care on a voluntary basis and to incorporate universal testing into prenatal care.[v] The CDC revised these recommendations in 2006 to further reduce HIV transmission rates. The revised recommendations states that HIV screening should be performed routinely for patients ages 13-64, that individuals at higher risk should be screened annually, and that specific signed consent for HIV testing should not be required.[vii] Prior to universal screening for all patients, providers only offered testing to high risk patients or if there was a high suspicion for infection. However, providers and patients often incorrectly perceive HIV risk as low, resulting in missed opportunities for early HIV diagnosis.[vi] By offering HIV screening as a normal part of medical practice,

those infected individuals who may have previously perceived to be low risk are being identified and connected to invaluable, often life-prolonging care.[v]

AltaMed Health Care Services is the largest independent Federally Qualified Community Health Center in the United States and has served Los Angeles and Orange counties since the 1970s.[vii] The majority of AltaMed's patient population is Latino. This is relevant because in the County of Los Angeles Public Health's *2012 Annual HIV Surveillance Report*, Latinos represented the largest racial/ethnic group of individuals who were newly diagnosed with an HIV infection in 2010 (45%).[viii] Recognizing the need to increase their HIV screening and thereby decrease the overall transmission rates in their patient population, AltaMed has implemented universal HIV testing following the USPSTF Grade A recommendation. In 2010, AltaMed received funding from the Gilead Sciences to implement universal testing at three pilot sites in Los Angeles County. In 2012, Gilead Sciences extended their funding to facilitate universal testing at all Los Angeles clinic sites. For the Orange County clinics, AltaMed receives funding for HIV screening from the California State Office of AIDS. Prior to the implementation of universal HIV screening, AltaMed encouraged testing for High-Risk patients (MSM, drug users, those obtaining STD testing) as well as pregnant females.

To facilitate HIV screening as part of routine medical care, AltaMed utilizes a two-step process involving the back office staff and the medical providers at all AltaMed clinics. Once a patient is escorted to the examination room by the back office staff, he/she is offered a Rapid HIV Screening test. If the patient gives verbal consent, the staff proceeds with the rapid testing using Clearview® Complete HIV ½ Rapid Test procedure. If the patient opts out of the initial HIV screening, the medical staff documents such in the patient's electronic medical record. When the medical provider begins their medical interview with the patient, he/she is to discuss HIV screening and once again encourage and offer HIV testing, this time in the form of a blood draw. If there is a preliminary positive test result using

either testing modality, confirmation through Western blot is conducted. If the results of the Western Blot are positive, the results are disclosed with the patient, a HIV Care Coordinator is called, and the patient is linked to care.[ix]

**Methods:**

This study was conducted as a cross sectional analysis, using information regarding HIV screening and diagnosis from patients' charts. Due to contact and investigation of patient records, an IRB expedited review from Midwestern University (Glendale, AZ) was obtained.

Data collected was conducted in collaboration with the Medical Informatics department at AltaMed Health Services. The student submitted a data request (Appendix I) and the Medical Informatics team generated a report based on the request. Individual chart review was conducted in order to analyze patient demographics.

Although the CDC released their revised recommendations in 2006, AltaMed did not implement universal screening until 2010. Therefore, to establish screening and diagnostic rates prior to CDC's revised recommendations, the time period from the implementation NextGen®, AltaMed's electronic medical record software, in July 2009 to June 30th, 2010, served as the baseline. The intervention period was from July 1st, 2010 until June 30th, 2013 and it was divided into three different periods (July 1st, 2010 to June 30th, 2011; July 1st, 2011 to June 30th, 2012; and July 1st, 2012, to June 30th, 2013). For both the baseline and the intervention periods, the denominator was the number of unduplicated patients seen by location and seen by provider. The numerators were the number of unduplicated HIV tests obtained/completed by location and by provider and the number of HIV positive results obtained. Further information including age, sex, orientation, city of residence, and ethnicity was requested.

**Results:**

As was expected, the HIV screening and diagnostic rates increased in a linear fashion from our baseline period to our third intervention period.

For our baseline period from July 1, 2009 to June 30, 2010, a total number of 51,612 patients were seen and 3,704 of those patients received an HIV test. In the first year after the universal testing policy was enacted, the number of total patients seen rose to 57,447. 17, 091 of those patients were tested for HIV. From July 1, 2011 to June 30, 2012, the second year of universal testing, 26,620 of the 69,329 patients seen were tested for HIV. In the last year of the study, 80,855 patients were seen and 33,878 of them received an HIV test (Appendix II, Figure 1).

This showed that AltaMed's screening rate increased from 7.18% in baseline to 29.75% in year 1, 38.40% in year 2, and 41.9% in year 3 (July 1, 2012-June 30, 2013). (Appendix II, Figure 2).

AltaMed's rate for unique patients diagnosed with HIV was 0.38% in the baseline period. In the first year, the rate dropped to 0.16%. After that, the diagnostic rate rose to 0.51% and 0.56% in the following two intervention years. (Appendix II, Figure 3).

Additional information regarding the unique HIV positive patients was collected and the results regarding age, sex, and sexual orientation can be seen in Appendix III, Table 1. These results showed that homosexual men between the ages of 30-39 years were the most screened and tested positive.

**Discussion:**

There was an increase in screening and diagnostic rates in each subsequent year following the implementation of the universal testing. This was expected by the research team. AltaMed showed a substantial increase in its screening rates in the three years of intervention, increasing by roughly 10% each subsequent year. For comparison to national average, in the CDC's *HIV Testing in*

*the United States Baseline Report 2002-2006: Baseline Report September 2012*, the six surveys used in the report found that the percentage of adults who had even been tested ranged from 36.0% to 54.5% in 2006[x]. AltaMed falls within this range for all but the first year of universal testing, although it does not reach the high end of the range. This could be a point of improvement for the AltaMed organization.

The HIV diagnostic rate had an interesting pattern in our analysis. There was a higher diagnostic rate in the baseline period than there was in the first year of intervention. This was not expected because more tests offered theoretically means more positives identified. However, we believe this is due to a flaw in the data collection and not due to the actual data. During the baseline period, a different EMR code may have been used for HIV screening and positive results. This made it difficult to properly search for and collect the total number of positive HIV results. That could have affected our data collection making the data from the baseline period lower than what it really was

Additional data from this study shows that during the four years of study, the MSM population was the most effected in both screening and diagnosis. This is in line with the national reports.[xi]

Other limitations to this study includes being unable to obtain information regarding additional high risk behavior like intravenous drug use or ethnicity. We were also unable to obtain CD4+ counts and, therefore, could not tell whether the patients were early or late testers. This would have helped researchers to project whether or not the patient had been infected for a prolonged period and whether or not the infection was missed in past medical visits. Due to time restraints, researchers were unable to analyze data regarding the clinic location of screening tests and positive results. This would have been interesting to explore whether more individuals were being tested at primary care clinics or at some of the specialized clinics like AltaMed's Mobile clinic.

**Conclusions and Recommendations:**

The goal of this study was to analyze and report on the HIV screening and diagnostic rates following the implementation of the CDC's recommended universal HIV testing. In the years following implementation, AltaMed succeeded at screening a higher percent of the patient population and identifying more cases of positive HIV infections. The National HIV/AIDS Strategy has a goal of decreasing the number of individuals unaware of their serostatus from roughly 20% to 10% by the year 2015[xii]. This scholar report should be utilized by the organization to create future screening rate goals in order to aid the National HIV/SAIDS Strategy in achieving their goal. This report should also be used as a springboard for further investigation into possible areas of improvement in the delivery of universal testing, like improving the HIV testing prompt in the NextGen system used at AltaMed. Additional reports should be generated to assess the screening and diagnostic rates based on ethnicities and neighborhoods. Comparison of HIV screening and diagnostic rates from other primary care clinics or community health centers should be done when such studies are discovered.

# APPENDIX I

Request for Data from Medical Informatics Team

**Request #1: Baseline**

- Denominator: # of unduplicated patients seen by Location EXCLUDING ancillary provider
  - July 1st, 2009 – June 30th, 2010
- Denominator: # of unduplicated patients seen by Provider EXCLUDING Ancillary Provider
  - July 1st, 2009 – June 30th, 2010
- Numerators: By location and by provider
  - # of unduplicated (max one test per patient) <u>HIV tests obtained/completed for the period above</u>.
    - HIV tests = rapid oral swabs and blood testing
    - In the cases where a test was offered, I request further information:
      - MRN
      - Age
      - Sex
      - Sexual Orientation
      - City of residence
      - Clinic at which test given
      - *Chief complaint or reason test was offered.*

    **THIS INFORMATION MAY HAVE TO BE DONE BY CHART REVIEW.**
    **We may randomly have to select charts from the overall list**

  - The TOTAL number of unduplicated <u>HIV POSITIVE results</u>
    - For all the positive results, I request to see the following information:
      - MRN
      - Age
      - Sex
      - Sexual Orientation
      - City of residence
      - Clinic at which test given
      - CD4 Count
  - Whether patient was linked to care within 3 mo. of diagnosis
    **THIS INFORMATION MAY HAVE TO BE DONE BY CHART REVIEW.**
    **Because of the low volume, all charts can be reviewed**

**Request #2: Intervention**

- Denominators: # of unduplicated patients seen by Location EXCLUDING ancillary provider
  - July 1st, 2010 – June 30th, 2011
  - July 1st, 2011 – June 30th, 2012
  - July 1st 2012 – June 30t, 2013
- Denominators: # of unduplicated patients seen by Provider EXCLUDING Ancillary Provider for the following time periods:
  - July 1st, 2010 – June 30th, 2011
  - July 1st, 2011 – June 30th, 2012
  - July 1st 2012 – June 30t, 2013

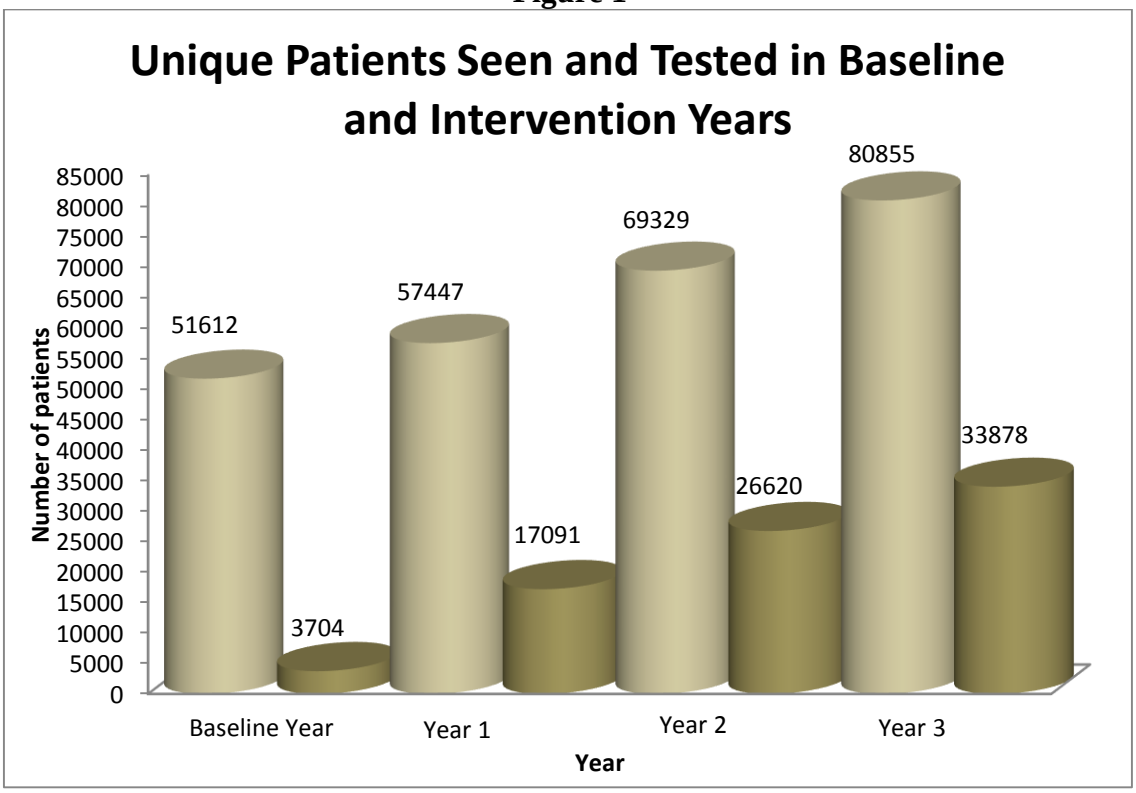
- Numerators: By location and by provider for each period above
    - Number of unduplicated (max one per patient) HIV tests obtained/completed
        - HIV tests = rapid tests and blood HIV Screen
    - Number of unduplicated POSITIVE HIV TESTS
    - For all the positive results, I request to see the following information:
        - Patient MRN
        - Age
        - Sex
        - Sexual Orientation
        - City of residence
        - Clinic at which test given.
        - CD4 Count
        - Whether patient was linked to care within 3 mo. of diagnosis

      **THIS INFORMATION MAY HAVE TO BE DONE BY CHART REVIEW**
      **Because of the low volume, all charts can be reviewed**

    - Number of unduplicated (max one per patient) HIV tests accepted (from template AM79_HIV_test_alert_pop) for each period
    - Number of unduplicated (max one per patient) HIV tests declined (from template AM79_HIV_test_alert_pop)
    - Count of reasons for decline test

## APPENDIX II

**Figure 1**




.

**Figure 2**

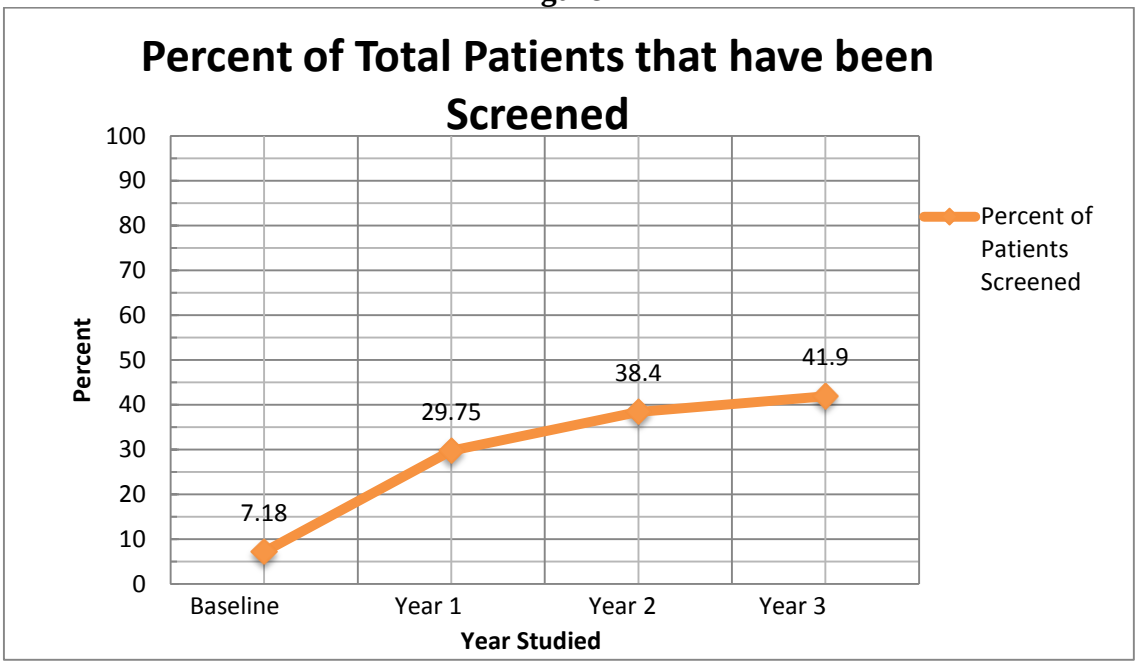
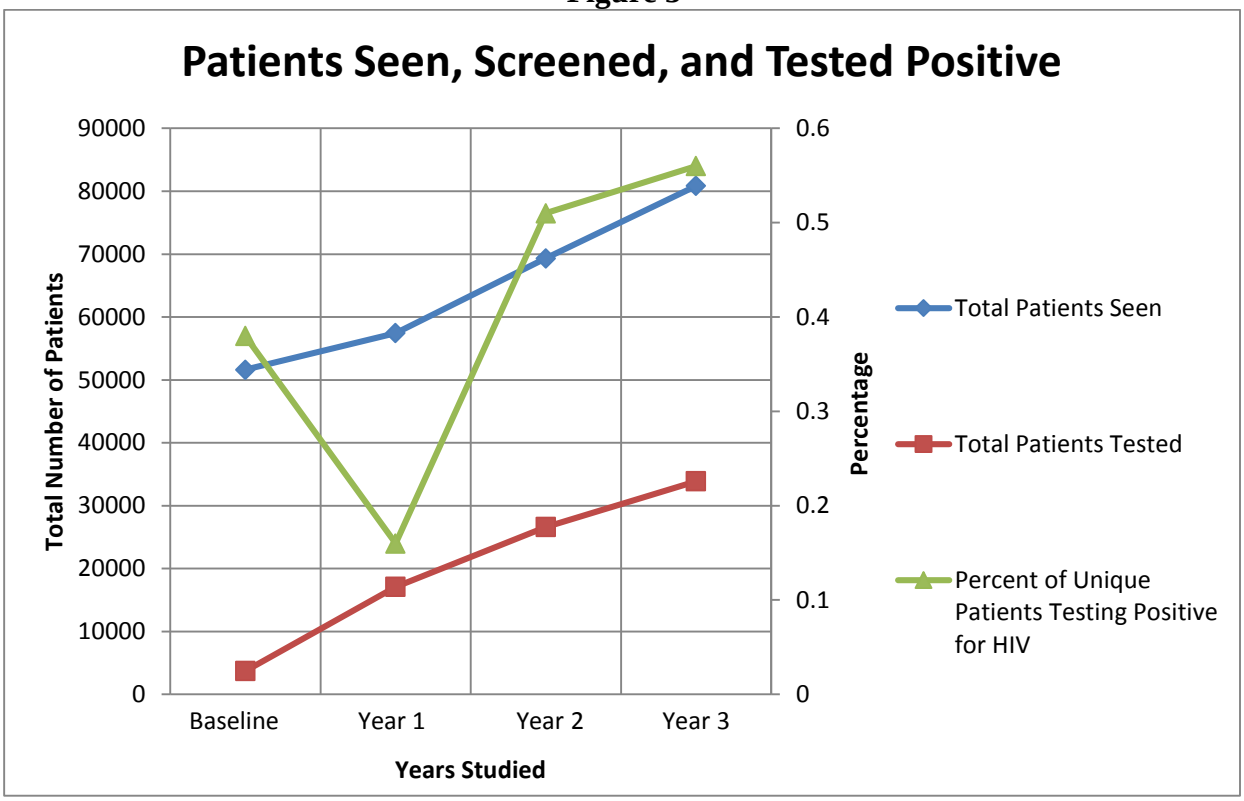


**Figure 3**


Patients Seen, Screened, and Tested Positive
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0.6
0.5
0.4
0.3
0.2
0.1
0
Total Number of Patients
Percentage
Baseline
Year 1
Year 2
Year 3
Years Studied
Total Patients Seen
Total Patients Tested
Percent of Unique Patients Testing Positive for HIV

## APPENDIX III

## TABLE I

| | Baseline | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|
| **Under 20** | 1 | 0 | 5 | 3 |
| **20-29** | 4 | **10** | 31 | 41 |
| **30-39** | **6** | 9 | **42** | **61** |
| **40-49** | 3 | 6 | 37 | 59 |
| **50 or older** | 0 | 3 | 22 | 27 |
| | | | | |
| **Male** | **12** | **25** | **119** | **150** |
| **Female** | 2 | 3 | 18 | 39 |
| **Other** | - | - | - | 2 |
| | | | | |
| **Homosexual** | 4 | **12** | **53** | **71** |
| **Heterosexual** | 1 | 7 | 35 | 54 |
| **Bisexual** | 2 | 1 | 8 | 7 |
| **No response** | **7** | 8 | 41 | 59 |

Demographic and sexual orientation information for the total number of patients tested positive for HIV

## REFERENCES


[i] White House. The Administration of Barack Obama, Office of National AIDS Policy. (2010). *National HIV/AIDS Strategy for the United States*. Retrieved from website: http://www.whitehouse.gov/administration/eop/onap/nhas/

[ii] Rizza MD, S., MacGowan, MPH, R., Purcell, JD PhD, D., Purcell, JD Branson , MD, B., & Temesgen, MD, Z. (2012). HIV screening in the health care setting: Status, barriers, and potential solutions. *Mayo Clinical Proceedings*, *87*(9), 915-924. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3538498/?report=classic

[iii] Centers for Disease Control and Prevention. *HIV Testing Trends in the United States, 2000-2011.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; January 2013

[iv] Cherutich, P., Bunnell, R., & Mermin, J. Kenyan Ministry of Health , National AIDS/STI Control Program. (2013). *HIV testing: Current practice and future direction*. Retrieved from Springer Science Business Media website: http://www.ncbi.nlm.nih.gov/pubmed/23526423

[v] Centers for Disease Control and Prevention {Revised Recommendations for HIV testing of Adults, Adolescents, and Pregnant Women in Health-care settings}. MMWR 2006;55 (No.RR-14):1-24.

[vi] Duffus, W. MD PhD, & et al (2009). Risk-Based HIV Testing in South Carolina Health Care Settings Failed to Identify the Majority of Infected Individuals. *AIDS Patient Care and STDs*, *23*(5), 339-345. doi: 10.1089//apc.2008.0193

[vii] AltaMed Health Service Corporation. (2013). *AltaMed overview: AltaMed health care services in Los Angeles and Orange counties*. Retrieved from http://www.altamed.org/altamed_overview/overview

[viii] Division of HIV and STD Programs, Los Angeles County Department of Public Health. 2012 Annual HIV Surveillance Report. (2013) retrieved from http://publichealth.lacounty.gov/wwwfiles/ph/hae/hiv/2012AnnualHIVSurveillanceReport.pdf

[ix] Rosario, A. (2013, July 22). Interview by E Peters . Altamed's HIV Testing History.

[x] Center for Disease Control and Prevention, 2013

[xi] U.S Department of Health and Human Services: (2012, June 06). *U.S. statistics*. Retrieved from http://aids.gov.hiv-aids-basics/hiv-aids-101/statistics/

[xii] *National HIV/AIDS Strategy for the United States, 2010*