Memphis Transitional Grant Area
Ryan White Part A
Priority Setting and Resource Allocations, FY2016

Part I

HIV/AIDS Epidemiological Profile

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HIV Disease: represents all new diagnoses with HIV infection regardless of the stage of disease.

AIDS (Stage 3 HIV infection): persons with HIV disease who have one of the following:
- a CD4+ count less than 200 or
- CD4+ percentage less than 14% or
- one of the 27 AIDS-Defining Conditions
  – Candidiasis of bronchi, trachea, or lungs
  – Candidiasis of esophagus†
  – Kaposi sarcoma†
  – Pneumocystis jirovecii pneumonia†
  – Mycobacterium tuberculosis of any site, pulmonary,‡§ disseminated,† or extrapulmonary†

HIV+ persons are reported to surveillance systems twice: once at initial diagnosis and again at AIDS diagnosis.
Incidence: the number of new cases of HIV in a specified time period.
- ex. **314 HIV disease cases were diagnosed in the Memphis TGA in 2015.**

Incidence rate: Number of new cases of HIV expressed per unit of population.
- ex. **23.6 HIV disease cases per 100,000 people were diagnosed in the Memphis TGA in 2015.**

HIV incidence helps us understand how HIV is spreading now and how to more effectively focus prevention efforts.
Prevalence: the proportion of a population known to be living with HIV or AIDS.

- Typically expressed as a percentage of the population at a point in time.
- ex. 7,212 PLWHA in the Memphis TGA as of December 31, 2015 (0.55% of the total TGA population).
- PLWHA=“persons living with HIV or AIDS”

Prevalence provides a snapshot of the burden of infection in a given population and helps us more effectively focus care efforts.
Socio Demographics of the Memphis TGA Population

- Geographical Location
- County Populations
- Race/Ethnicity
- Poverty
- Educational Attainment
- Health Insurance Coverage
The Memphis Transitional Grant Area (TGA) encompasses the eight counties from three states (Tri-State Area). At the end of 2014, Memphis TGA total Population = 1,328,441

Data Source: ArcGIS; U.S. Census Bureau, 2010-2014 5-Year American Community Survey.
The largest proportion of the Memphis TGA population reside in Shelby County (70.5%), followed by DeSoto County in Mississippi (12.5%) and Crittenden County in Arkansas (3.8%).

Data Source: ArcGIS; U.S. Census Bureau, 2010-2014 5-Year American Community Survey.
In the end of 2014, 17% males and 14% females do not have health insurance coverage in the Memphis TGA.

Data Source: ArcGIS; U.S. Census Bureau, 2010-2014 5-Year American Community Survey.
Scope of HIV Epidemic in the Memphis TGA

- Incidence
- Prevalence
- Deaths
- Co-Infections
- STDs
Memphis MSA has a low number of estimated new infections, but an HIV incidence rate was more than two times higher than total MSAs’ rate. (Ranked 6th among the 381 metropolitan statistical area of residence—United States)
In 2014, New HIV diseases rates of Memphis MSA more than 2 times higher than that of MSAs and ranked 6th among the 381 metropolitan statistical area of residence—United States; new HIV rates were even higher in Shelby county, 31.6 per 100,000 persons.

New AIDS diagnoses rate in the Memphis TGA was more than 3 times higher than the new AIDS diagnoses rate (6.6 per 100,000 population) among all MSAs in the United States in 2014. (Ranked 2nd among the 381 metropolitan statistical area of residence—United States )

Shelby county accounted for 89% of new HIV cases, followed by DeSoto county (5%), and Crittenden county (3%) in Memphis TGA, in 2015*.

Source: ArcGIS; (eHARS), TN; AR, MS; *: Preliminary data, subject to change
New HIV, AIDS and Death Cases, Three Year Rolling Average, West TN 3 Counties, 1985-2015*


Source: Enhanced HIV/AIDS Reporting System (eHARS), TN; *: Preliminary data, subject to change
HIV disease diagnoses and AIDS diagnoses should never be added together. HIV disease diagnoses are based on year of initial disease diagnoses. AIDS diagnoses are based on the year of AIDS diagnosis.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
The proportion of new HIV cases among females slowly decreased from 29% in 2011 to 21% in 2015, and the proportion slowly increased among males from 71% in 2011 to 79% in 2015 in the Memphis TGA.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
Blacks are disproportionately impacted by HIV infections. Although almost half of the TGA populations are Blacks (46%), they accounted for 86% of newly diagnosed HIV cases in 2015.

Source: (eHARS), TN; AR, MS; U.S. Census Bureau, 2010-2014 5-Year American Community Survey; *: Preliminary data, subject to change
The trends of new HIV diagnoses were shifted to adolescents and young adults. The proportion of new HIV Diagnoses steadily increased from 49% in 2011 to 63% in 2015 among the adolescents and young adults aged 15-34 years old in the Memphis TGA.

Source: ArcGIS; (eHARS), TN; AR, MS; *: Preliminary data, subject to change
The majority of new cases 43% were infected through male sex with male exposure. The second largest transmission category were heterosexual contact (25%). Infection through IDU were increasing trend (3%, n=10 cases), and unidentified risk category were 29% in 2015.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
The proportion of **Late HIV Diagnoses** has been decreasing from 27% in 2013 to 12% in 2015. Of 282 newly diagnosed HIV cases, 12% cases had an initial AIDS diagnoses within three months of their HIV infection diagnoses in the 12 month measurement period, in 2015.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
New AIDS cases were significantly decreased more than 50% since 2011. New AIDS rates sharply decreased from 25 (per 100,000 persons) in 2013 to 10 (per 100,000 persons) in 2015. The proportions of new AIDS cases were shifted from younger age group to older age group. ie: The proportion of new AIDS cases decreased from 61% among the age group 15-34 years old in 2013 to 41% in 2015; and increased among the age group 45-54 years old from 14% in 2013 to 24% in 2015.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
As of 2015, a total of 7,212 individuals were currently living with HIV disease in Memphis TGA. The largest number of people living in Shelby County (88%), followed by DeSoto MS (4.6%) and Crittenden AR (3%). Rest of the counties in Memphis TGA accounted for 5% PLWH in the TGA.

Data Source: ArcGIS; eHARS TN, MS, AR. *: Preliminary data, subject to change
The majority of persons living with diagnosed HIV infection were concentrated in northwest and southwest part of Shelby county. Outside Shelby county, ZIP code 38671 in DeSoto county and zip code 72301 in Crittenden county were the highest number of PLWHA (109 – 230 cases) concentrated areas in the Memphis TGA in 2015.

Data Source: ArcGIS; eHARS TN, MS, AR.. *: Preliminary data, subject to change
In 2015, we had a total of 16 providers. There were four outpatient providers in Shelby County and one in AR. (All outpatient providers also provide supportive services.) There were 11 providers of supportive services who do not provide outpatient medical. All in Shelby County, except the one in DeSoto, MS.

Source: ArcGIS; Enhanced HIV/AIDS Reporting System (eHARS), TN; *: Preliminary data, subject to change
The trends of PLWHA were shifted from younger age group to older age group. The proportion of the older age group 55+ years old steadily increased from 14% in 2011 to 20% in 2015, and the proportion of younger age group 15-34 and 35 – 44 years old decreased from 28% in 2011 to 25% in 2015, in the Memphis TGA.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
The darkest shaded area represents the highest rates of PLWHA, which are mainly southwest and northwest of Shelby county.

Source: ArcGIS; (eHARS), TN; *: Preliminary data, subject to change
The darkest shaded area represents the highest rates of new HIV diagnosed ZIP code area, which are in downtown and southwest Memphis.

Source: ArcGIS; (eHARS), TN; *: Preliminary data, subject to change
The positive correlation between the rates of HIV/AIDS prevalence and the rates of HIV incidences by ZIP code area shows that these ZIP code areas should be considered to be highly prioritized for resource allocation in terms of HIV testing and care.

Source: ArcGIS; (eHARS), TN; *: Preliminary data, subject to change
The positive correlation between the rates of HIV/AIDS prevalence and the rates of HIV incidences by ZIP code area shows that these ZIP code areas should be considered to be highly prioritized for resource allocation in terms of HIV testing and care.

Source: ArcGIS; (eHARS), TN; *: Preliminary data, subject to change
TB rates were more than 12 times, P&S Syphilis rates were 65 times, Gonorrhea rate were almost 6 times, and Chlamydia rates were more than 2 times higher among the PLWHA than among the general population in West TN three counties in 2015.

Source: Enhanced HIV/AIDS Reporting System (eHARS), TN; PRISM, TN; NEDSS, TN
Indicators of HIV Risk

- Black/African American, MSM
- Black Women of Childbearing Age
- Adolescents and young Adults
- Hispanics
- Incarcerated
Non-Hispanic Blacks
New HIV, New AIDS, Late HIV Diagnoses, West TN Counties, 2015*

In the Memphis TGA, Black, Not-Hispanics accounted for 86% of new HIV diagnoses, 86% of new AIDS Diagnoses, 79% of late HIV diagnoses in 2015. New HIV diseases burden are among the not-Hispanic Blacks.

Source: (eHARS), TN; PRISM, TN; *: Preliminary data, subject to change
In 2015, 48% of new HIV cases among males were infected through MSM and MSM & IDU contact in West TN counties.

Source: (eHARS), TN; PRISM, TN; *: Preliminary data, subject to change
Adolescents and young Adults
New HIV, New AIDS, Late HIV Diagnoses, West TN Counties, 2015

The majority of the New HIV, New AIDS, and Late HIV Diagnosis were among the adolescents and young adults aged 15-34 years old (62%, 43%, and 29% respectively) in 2015*

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Source: (eHARS), TN; PRISM, TN; *: Preliminary data, subject to change
Adolescents and young Adults
Rates of New HIV Case (per 100,000 persons) by age group in United States and Memphis TGA, 2014

According to the CDC HIV Surveillance Report 2014, in the Memphis TGA, newly diagnosed HIV rates among young adults 20-24 years old were almost 2.5 times higher and among youth 15-19 years old were more than 3.5 times higher than that of among the same age groups in the Nation.

Total 236 Babies Born to HIV infected mothers, 2009-2013

In the West TN three Counties, between 2009 and 2013, 236 babies born from HIV infected mothers. Of these, 86% were diagnosed as pediatric seroreverters, 2% were diagnosed as pediatric HIV cases, and 90% were born to Non-Hispanic Black mothers.

Source: (eHARS), TN; PRISM, TN; *: Preliminary data, subject to change
In the West TN three Counties, between 2009 and 2013, although the number of babies born to HIV infected mothers were increased, with the increased number of pediatric seroconverters, the proportion of pediatric HIV/AIDS cases were decreased.

Source: (eHARS), TN; PRISM, TN; *: Preliminary data, subject to change
References and Notes

- All 2015 data are preliminary and subject to revision. Use of preliminary data is restricted to planning purposes for the Ryan White Planning Council and may not be released to the general public or media.
- Prevalence estimates are based on current residence variable in eHARS.
- Questions? Need more data? Contact:

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  HIV/STD/TB Epidemiologist  
  Shelby County Health Department  
  Tel: 901-222-9234  
  Sulaiman.Aizezi@Shelbycountytn.gov

**HIV/STD Data:**
- Shelby County Health Department, Epidemiology Section, 814 Jefferson Ave, Memphis TN 38103.
- Arkansas Department of Health, HIV/AIDS Registry Section, 4815 W. Markham, Little Rock AR 77205. The HIV/AIDS Registry Section is fully funded by a Cooperative Agreement with the Centers for Disease Control and Prevention (CDC).
- Mississippi Department of Health, STD/HIV Office, P.O. Box 1700 Jackson, MS 39215.

**National HIV/STD Data:**
Part II

Unmet Need, HIV Testing, and HIV Continuum of Care

Memphis TGA, 2015

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Chief of Epidemiology
Shelby County Health Department
Outline

- Level of unmet need among the PLWHA population in the Memphis TGA

- Estimated number of persons unaware of their HIV+ status in the Memphis TGA
  - HIV testing data
  - Memphis TGA EIIHA (Early Identification of Individuals Living with HIV/AIDS) Strategy

- HIV Continuum of Care
Definition of Unmet Need

• How many PLWHA are not receiving Primary Medical Care?

“Primary Medical Care” as defined by HRSA as having one of the following during a calendar year:
  – CD4+ count or
  – viral load or
  – provision of ARVs
Unmet Need Data Sources and Limitations

Data Sources

- CD4 and viral load tests in eHARS
- CD4 and viral load tests in CAREWare
- Lists of persons receiving ADAP, IAP

Limitations:

- Collect and Integrate data
- Matching data

*Persons not Ryan White eligible may not be included in the unmet need framework.*
In 2015, total 29% of PLWHA did not receive medical care, 58% of PLWHA in Crittenden County, followed by 35% of PLWHA in North MS Counties, and 28% of PLWHA in West TN Counties did not receive medical care.

Source: (eHARS), TN; ADAP, IAP, RW CAREWare; *: Preliminary data, subject to change
The Unmet Need percentage among the PLWHA in the West TN three Counties has steadily and continually decreased 55% between 2011 and 2015 (41% in 2011 to 28% in 2015); higher number of PLWA (81%) received medical care compared to the PLWH (64%) in 2014.

Source: (eHARS), TN; ADAP, IAP, RW CAREWare; *: Preliminary data, subject to change
In 2015, 1,794 PLWHA in the West TN 3 Co. did not receive medical care. Of them, 71% were male, 82% were Blacks, 72% were adults aged 25-54 years old, 40% were identified as MSM.

Source: (eHARS), TN; ADAP, IAP, RW CAREWare; *: Preliminary data, subject to change
Trends of Unmet Need by Zip Code, Shelby County, 2013

Unmet Need 2013, 29%

# of Cases
- 0 - 66
- 67 - 131
- 132 - 197
- 198 - 262

Data Source: eHARS, TN
Trends of Unmet Need by Zip Code, Shelby County, 2014

Unmet Need 2014, 27.8%

# of Cases
- Yellow: 0 - 66
- Orange: 67 - 131
- Brown: 132 - 197
- Maroon: 198 - 262

Data Source: eHARS, TN
Trends of Unmet Need by Zip Code, Shelby County, 2015

Unmet Need 2015, 27.7%

# of Cases
- Yellow: 0 - 66
- Orange: 67 - 131
- Brown: 132 - 197
- Dark Brown: 198 - 262

Data Source: eHARS, TN
Identifying the Unaware

• HIV Testing Data
• Memphis TGA EIIHA Strategy
  (Early Identification of Individuals Living with HIV/AIDS)

• Unaware Estimate
Number of HIV Tests Conducted at Prevention/Expanded Sites, Memphis TGA, 2011-2015

There were almost 2,000 more HIV tests conducted in 2015 compared to the tests conducted in 2014. However, about 25 fewer HIV cases were identified in 2015 compared to 2014 in Memphis TGA.

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
In 2015, 43,357 HIV tests were conducted with 1.59% test positivity in Memphis TGA. Of all counties in Memphis TGA, the highest number of tests (36,605, 84%) were conducted and the highest number of positive tests (n=656) and highest test positivity (1.79%) were reported in Shelby county.

Source: (eHARS), TN; AR, MS;
HIV Tests at Publicly Funded Test Sites in West Tennessee Counties, 2015

<table>
<thead>
<tr>
<th>Test Sites</th>
<th># of tests (N)</th>
<th># of positives (N)</th>
<th>Test Positivity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Department</td>
<td>24,215</td>
<td>449</td>
<td>1.9%</td>
</tr>
<tr>
<td>Community Based Organizations (CBOs)</td>
<td>3,961</td>
<td>138</td>
<td>3.5%</td>
</tr>
<tr>
<td>Hospitals</td>
<td>9,588</td>
<td>72</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total</td>
<td>37,764</td>
<td>659</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

*Prevention and expanded test sites include Shelby Co. Health Dept., LeBonheur HIV Community Network, Greater Memphis Planned Parenthood, Partnership to End AIDS Status (PEAS), Friends For Life, Children and Family Services, Memphis Gay Lesbian Community Center; Hospitals include: Regional One and Methodist Hospitals

In 2015, total 37,764 tests were conducted in West Tennessee Counties; 659 tests were positive with 1.7% positivity, and 217 new HIV cases were diagnosed. The health department sites administered the highest number of tests (n=24,215) with 1.9% positivity.

Source: (eHARS), TN; AR, MS;
With the continual increase of Linkage to Care from 22% in 2008 to 67% in 2015, the percentage of Unmet Need decreased from 73% in 2008 to 27.7% in 2015. The Increase of linkage to care and reduction of Unmet Need are the testament to successful prevention and care measures.

Source: (eHARS), TN; AR, MS;
Stages of HIV Continuum of Care
(CDC Recommended Definition)

- **Estimated HIV Infection**
  - *Total number of PLWHA including the persons unaware of their HIV infection status*

- **Diagnosed with HIV Infection**
  - *The number of people currently diagnosed and living with HIV*

- **Linkage to HIV Medical Care**
  - *The number and percentage of persons who attended a routine HIV medical care visit within 3 months of HIV diagnosis*

- **Retention in HIV Medical Care**
  - The number and the percentage of diagnosed individuals who had two or more documented viral load or CD4+ tests, performed at least three months apart in the observed year.

- **Antiretroviral Therapy (ART)**
  - The number and percentage of people receiving medical care and who have a documented ART prescription in their medical records in the observed year.

- **Viral Load Suppression**
  - Percentage of individuals whose most recent HIV viral load within the observed year was less than 200 copies/ml.

*Source: https://www.aids.gov/pdf/hhs-common-hiv-indicators.pdf*
The Continuum of Engagement in Care for Persons Living with HIV/AIDS

PLWHA aware of their HIV+ status but not receiving “Primary Medical Care”

Source: National Quality Center; www.nationalqualitycenter.org
Unaware Estimate, Memphis TGA, 2015

Estimated Total # of PLWHA = 8,386*

• Extended Back Calculation Method uses Memphis TGA prevalence as of 2014
  • $P$ = Based on national proportion of persons not diagnosed = 14%
  • $N$ = Total number PLWHA in Memphis TGA = 7,212

• Total number undiagnosed = $P \div (P - 1) \times N = 14\% \div (1 - 14\%) \times 7,212 = 1,174$
• Total number of Estimated Infections in Memphis TGA = 7,212 + 1,174 = 8,386

Source: (eHARS), TN; AR, MS; *: Preliminary data, subject to change
The estimation of each stages of HIV continuum of care is based on the CDC recommended calculation method. (Marks G et al., 2010). 46% of PLWHA were not staying and getting in medical care, and almost half of the PLWHA were not achieving VL Suppression. According to the CDC HIV Continuum of Care Study, those who did not achieve VL suppression are accountable for the 9 in 10 new HIV infections in the Memphis TGA.

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Source: (eHARS), TN; ADAP, IAP, RW CAREWare; AR, MS; *: Preliminary data, subject to change
In the 2015 Calendar year, RW Part A program served for 4,369 clients, which comprises 61% of all PLWHA in the Memphis TGA. Of these, 91% clients resided in Shelby County, followed by 2% in Desoto, and 3% in Crittenden county.

Source: (eHARS), TN; AR, MS; RW CAREWare
## HRSA Recommended definitions for the Continuum of HIV Care

<table>
<thead>
<tr>
<th></th>
<th>Numerator Definition</th>
<th>Denominator Definition (for proportion)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RW client</strong></td>
<td>Client received at least 1 RW-funded service in calendar year [Includes HIV+, HIV-negative, HIV-indeterminate]</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Received RW-funded medical care or case management and HIV+</strong></td>
<td>Client received RW-funded medical care or case management services and was documented to be HIV+</td>
<td>RW client</td>
</tr>
<tr>
<td><strong>RW-funded medical care</strong></td>
<td>Received RW-funded medical care</td>
<td>RW client</td>
</tr>
<tr>
<td><strong>Retained in medical care</strong></td>
<td>Attended at least 2 RW-funded medical care visits that were at least 90 days apart</td>
<td>RW-funded medical care and had visit date available</td>
</tr>
<tr>
<td><strong>ART</strong></td>
<td>Received ART prescription at any time in the year</td>
<td>RW-funded medical care and had ART data and visit date available</td>
</tr>
<tr>
<td><strong>Viral load suppressed</strong></td>
<td>HIV-1 viral load &lt;200 copies/ml for the most recent value reported</td>
<td>RW-funded medical care and had viral load available</td>
</tr>
</tbody>
</table>

Source: [http://hab.hrsa.gov/data/reports/continuumofcare/continuumdefinitions.html](http://hab.hrsa.gov/data/reports/continuumofcare/continuumdefinitions.html)
Memphis TGA Ryan White Clients
HIV Continuum of Care (Clinical Outcome), 2015

In the 2015 Calendar year, 3,706 individuals received at least one RW-funded medical care visit and had viral load data available. Of these, 76% (*n* = 2,810) clients have achieved viral load suppression (viral load < 200 copies/ml at the most recent test).

Source: (eHARS), TN; ADAP, IAP, RW CAREWare
Lesson Learned from the HIV Continuum of Care

**CDC published HIV Continuum of Care Study** in Feb 23, 2015:

- **91.5 percent of new HIV infections** in 2009 were attributable to people with HIV who were not in medical care, including those who didn’t know they were infected.

- **Less than six percent of new infections** could be attributed to people with HIV who were in care and receiving antiretroviral therapy.

  - In other words, according to this research, **9 in 10 new HIV infections** in the United States could be prevented through early diagnosis and prompt, ongoing care and treatment.

Acknowledgement

- Benn Daley, HIV/STD Epidemiologist, Tennessee Department of Health
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- Steve Overman, Data Analyst, Memphis TGA Ryan White Program
- Sulaiman Aizezi, HIV/STD/TB Epidemiologist, Shelby County Health Department
Thanks for your attention

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