



SUFFOLK UNIVERSITY

CENTER FOR PUBLIC MANAGEMENT

**RYAN WHITE HIV/AIDS TREATMENT MODERNIZATION ACT
BOSTON EMA PART A PROGRAMS**

OUTCOMES MEASUREMENT SUMMARY

ANNUAL OUTCOMES REPORT

FY 2007: MARCH 2007 – FEBRUARY 2008

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**Nicole Rivers, MPA
Sandy Matava, MPA
Marisela Zapata, MPA Candidate
Terry Buss, PHD
Lauren M. Hajjar, MS, MPA Candidate
Sara Michael, MPA Candidate**

Beacon Hill
Eight Ashburton Place
Boston, MA 02108-2770

tel 617 573-8437
fax 617 227-4618

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EXECUTIVE SUMMARY

Suffolk University, in conjunction with the Boston Public Health Commission (BPHC), has been assessing the impact of Ryan White Part A services on people living with HIV/AIDS (PLWH) in the Boston Eligible Metropolitan Area (EMA) since 1996. Suffolk University's Center for Public Management (CPM) collects individual client level outcome data every six months from service providers and reports the results annually to BPHC.

This report evaluates outcome reports over the past three reporting periods: Year-End FY 2006 (September 2006 – February 2007), Mid-Year FY 2007 (March 2007 – August 2007) and Year-End FY 2007 (September 2007 – February 2008). During FY 2007, BPHC funded 51 agencies that provided services in 11 different service categories (case management, client advocacy, dental, drug reimbursement, food services, housing, mental health, peer support, primary medical care, substance abuse, & transportation). These providers submitted outcome reports on 4,083 unique clients in March 2007 – August 2007 and 4,307 unique clients in September 2007 – February 2008. Results are presented for three study groups: on-going clients, new clients, and 3-Year Cohort (FY 2005 – FY 2007).

The demographic profiles for new and on-going clients share similar characteristics. The average age for clients is 44 years old, and 67% of clients are male. In regards to race/ethnicity, 27% are Hispanic, 50% are White, and 30% are Black. English is the primary language for 75% of the clients. Thirty-eight percent of clients are HIV positive/Not AIDS, and 44% of clients are AIDS/CDC defined. Twenty-three percent of clients were referred into services by a health center and 19% of clients were referred by a case manager. Fifty-six percent of clients were exposed to HIV through heterosexual contact. Fifty-seven percent of clients have income levels equal to or below the federal poverty level, and 57% are permanently housed.

Medical outcomes (CD-4 Counts and HIV Viral Loads) continue to suggest that clients new to Ryan White Part A services and those continuing to receive services are in good to excellent health. However, a review of the 3-Year Cohort¹ shows that health outcomes are consistently higher than quality of life outcomes for PLWH in the Boston EMA.

Four out of 5 quality of life outcomes have increased or remained stable at the end of FY 2007, indicating good to excellent outcome scores for on-going clients. The only outcome score which shows a significant decline among new and on-going clients is the Impact of Side Effects from HIV Medications. On-going clients experienced a 26-point decline in the outcome from Year-End FY 2006 to Year-End FY 2007. This finding was investigated through discussions with providers and may be an indication of the complications experienced by the aging population with the disease.

A comparison of new versus on-going clients at the end of FY 2007 suggests that certain outcomes show a significant difference based on client status. During the September 2006 – February 2007 reporting period, on-going clients had higher scores than new clients for the following indicators: Access to Psychosocial Support (10 points higher for on-going clients) and Housing Status (13 points higher for on-going clients). It is important to note that this report examines two separate groups (new and on-going clients) and cannot capture client progress from new to on-going status.

¹ Clients who consistently received an outcome measurement report at least once in each fiscal year between March 2005 and February 2008.

INTRODUCTION

Since 1996, CPM has evaluated the delivery of Ryan White Part A services in the Boston EMA. CPM is responsible for collecting individual client outcome data from service providers every six months and reporting annually to the BPHC. During FY 2007, outcome data was collected across 11 different service categories, including: case management, client advocacy, dental, drug reimbursement, food services, housing, mental health, peer support, primary care, substance abuse, and transportation. In the first reporting period (March 2007 – August 2007), 5,275 outcome reports were collected from 51 different providers, which represented 4,083 unduplicated clients. In the second reporting period (September 2007 – February 2008), 5,887 outcome reports were collected from 49 different providers, which represented 4,307 unduplicated clients. The decrease in number of providers reporting in Year-End FY 2007 is explained by the implementation of a separate MAI fiscal year. The two agencies receiving MAI funding (and not Part A funding) began reporting outcomes separately during Year-End FY 2007.

Though this report focuses on findings from FY 2007, additional data presented in this report also encompasses several years of client outcome collection. This report presents new health and quality of life outcome data from the two reporting periods in FY 2007 (March 2007 – August 2007 and September 2007 – February 2008). The data collected from FY 2007 is compared to Year-End FY 2006 (September 2006 – February 2007) outcome data for new and on-going clients. Mid-Year and Year-End comparisons are also included to ascertain consistency between reporting periods within the current fiscal year and provide an additional point of reference for making comparisons over time. Also, additional years of outcome data are included in comparisons related to the 3-Year Cohort (March 2005-February 2008).

Below are definitions of the three study groups included in this report. (See Figure 1)

FIGURE 1. STUDY GROUPS²

Study Group	# of Unduplicated Clients	Definition
1. On-Going Clients	4,168	Clients who are continuing to use at least one Ryan White Part A service and have had a case review during FY 2007.
2. New Clients	947	Clients who have started using at least one Ryan White Part A service during FY 2007.
3. 3-Year Cohort	2,153	Clients who consistently received an outcome measurement report at least once in each fiscal year over a three-year period (March 2005 – February 2008).

² Clients may be included in both the new and on-going study groups if they began using a Part A service during the reporting period (new) while already utilizing another Part A service or services (on-going) in the current reported period.

STUDY GOAL

This report seeks to answer two questions:

- 1) Have the health and quality of life outcomes for new and on-going clients changed significantly over the past three reporting periods?³
- 2) Have the health and quality of life outcomes for clients in the 3-Year Cohort changed significantly over the past three fiscal years?⁴

METHODOLOGY

Development of the Outcomes Measurement System

In 1996, CPM began working with BPHC to develop an Outcomes Measurement System (OMS) to evaluate the impact of Ryan White Part A services on the health and quality of life of PLWH in the Boston EMA. Working with Part A providers, analysts developed outcome measures for each Part A service offered within the Boston EMA.

In 2001, two modifications were made to the OMS. First, the separate data instruments were merged into one instrument, yielding seven health and eight quality of life measures. Part A providers were required to report on five of the 15 outcomes which were most appropriate for each agency. Of the five, three were required to be health outcomes, including CD-4 Count and/or Viral Load. Second, analysts adopted unique and anonymous client identifiers that were developed by BPHC for clients utilizing Ryan White Part A services, allowing for the tracking of health and quality of life outcomes over time.

In 2004, the BPHC demographic database was integrated into the OMS, allowing more detailed analysis of the impact of Part A services on specific client populations.

In 2007, additional modifications were made to the OMS. Outcomes were merged from the previous instrument to yield four health and five quality of life measures. As of March 2007, Part A providers must report on all nine outcomes. The March 2007-August 2007 reporting period was the first reporting in which the revised outcomes measurement tool was implemented. In order to make comparisons between reporting periods, outcomes data from the new tool were matched to previous outcomes measures. The matching of previous outcomes to the current outcomes is detailed on page 9 of this report.

Data Collection

Part A providers — case managers, client advocates, etc. — are instructed to complete nine outcomes using the outcome measurement tool for each individual client within the agency every six months. Exceptions to this include a response of “Not Applicable” for questions that refer to a client’s adherence to, and the side effects of, prescribed HIV-

³ Past three reporting periods: Year-End FY 2006: September 2006 – February 2007, Mid-Year FY 2007: March 2007 – August 2007, and Year-End FY 2007: September 2007 – February 2008

⁴ Past three fiscal years: FY 2005: March 2005 – February 2006, FY 2006: March 2006 – February 2007, and FY 2007: March 2007 – February 2008

related medical therapies (Outcomes 4 and 5). If a client is not prescribed HIV-related medical therapies a response of “Not Applicable” would be indicated for both outcomes. To ensure confidentiality, a unique identifier is used for a client’s outcome measurement report.⁵ By utilizing these unique client identifiers, a client’s health and quality of life status and service utilization can be tracked over time.

In addition to unique client identifiers and outcome scores, providers also include:

- Report date
- Agency name
- Agency contact name and phone number
- Client status (new intake or on-going)
- Intake date for new clients
- Part A services utilized

Providers participate in a yearly training that includes verbal and written instructions (available in the Provider Manual) on completing and submitting outcome forms. BPHC staff assists in coordination of technical assistance for agencies related to outcomes submission and Suffolk staff provides individualized training on electronic submission and paper report completion.

Outcome measurement reports are collected for both *new* clients⁶ and *on-going* clients.⁷ It should be noted that on-going clients from different reporting periods are not necessarily the same clients. Clients may be included in both the new and on-going study groups if they received outcome measurement reports from multiple providers and/or for different services. For example, a client may receive food services at an agency for three years, but begin accessing a peer support group at another agency in the most recent reporting period.

⁵ This 13 digit code consists of the first three letters of the client’s mother’s first name, the six digit date of birth, and the last four digits of the client’s social security number. Client codes for undocumented clients or clients missing information are generated by employing Xs and 9s in the above fields.

⁶ New clients: Clients who have started using at least one Ryan White Part A service during the current reporting period

⁷ On-going clients: Clients who are continuing to use at least one Part A service and have had a case review during the current reporting period

Outcome Measures

Ryan White Part A funding provides an array of medical and supportive services designed to improve and/or maintain the health status and quality of life of PLWH to the highest level possible.

There are four health outcome measures for PLWH in the Boston EMA. The optimal outcome for each health indicator is shown in Figure 2.

FIGURE 2. HEALTH OUTCOME MEASURES

Health Outcome Measures	Optimal Outcome
1. CD-4 Counts	Client has a CD-4 count greater than 500
2. Viral Load	Client has an HIV Viral Load of less than 75 or an undetectable level
3. Maintenance of Primary Medical Care	Client has kept all scheduled primary medical care appointments in the past 6 months
4. Adherence to Prescribed HIV Related Medical Therapies	Client always adheres to HIV-related medical therapies as prescribed

There are five quality of life outcome measures for PLWH in the Boston EMA. The optimal outcome for each quality of life indicator is shown in Figure 3.

FIGURE 3. QUALITY OF LIFE OUTCOME MEASURES

Quality of Life Outcome Measures	Optimal Outcome
5. Impact of Side Effects from HIV-related Medical Therapies	Client has no side effects or side effects are not impacting activities of daily living
6. Mental Health Status	Client shows no indication of mental health problems
7. Access to Psychosocial Support	Client is fully connected to psychosocial support when needed
8. Level of Self Sufficiency	Client is able to manage all day to day activities
9. Housing Status	Client has stable and satisfactory housing

Outcome Calculations

Analysts employed a four-step process in calculating outcome scores:⁸

Step 1: Each of the four measurement levels was assigned a descending numeric score (9=crisis, 0=no need). (See example below.)

Outcomes: To improve and/or stabilize...	Client's Level of Need			
	Crisis Score=9	High Need Score=6	Moderate/Low Need Score=3	No Need Score=0
1. CD-4 counts	<input type="checkbox"/> Less than 50	<input type="checkbox"/> 50 - 199	<input type="checkbox"/> 200 – 500	<input type="checkbox"/> >500

⁸ If a client receives an outcome measurement report from more than one provider the scores are averaged. Clients can receive multiple outcome reports if they are receiving services at multiple providers.

Step 2: Numeric scores ranging from 0-9 were computed.

Step 3: Mean scores were generated.

Step 4: Mean scores were adjusted to a 100-point ascending scale (0=crisis, 100=no need/achieved outcome) by subtracting the mean from 9.00 and then multiplying the result by 11.1.

Calculating Health & Quality of Life Status

Analysts measured Health Status by averaging Outcomes 1 to 4, then executing Step 4 above. (Outcome 1: CD-4 Counts, Outcome 2: Viral Load, Outcome 3: Maintenance of Primary Medical Care, Outcome 4: Adherence to Prescribed HIV Related Medical Therapies)

Analysts measured Quality of Life Status by averaging Outcomes 5-9, then proceeding with step 4 above. (Outcome 5: Impact of Side Effects from HIV-related Medical Therapies, Outcome 6: Mental Health Status, Outcome 7: Access to Psychosocial Support, Outcome 8: Level of Self-Sufficiency, Outcome 9: Housing Status)

Interpreting Outcome Scores

All outcomes have four measurement levels ranging from crisis level (having a poor health or quality of life status) to achieving the optimal/desired outcome level (having an excellent health or quality of life status). The criterion a client must meet at each measurement level is detailed in the outcome measurement tool.

In this report, outcome scores are reported on a 100-point scale. A score of 100 indicates that a client has reached the optimal goal. Outcomes scores that are less than 100 are categorized as good (score: 68-99), fair (score: 34-67), and poor (score 0-33).

Reported Outcome Score	Health/Quality of Life
100	EXCELLENT... Achieved outcome goal. May need continued services to maintain goal achievement.
68-99	GOOD... Making significant progress towards outcome goal. Needs some additional services to reach the goal.
34-67	FAIR... Making some progress toward reaching the outcome goal. There is a significant need for additional services.
0-33	POOR... In crisis and in need of substantial additional services.

Comparisons of the New Tool to the Old Tool

In an effort to use all outcome data collected with the previous tool in future comparisons, analysts attempted to match the 15 outcomes from the 2001 Outcomes Measurement Tool with the nine outcomes from the 2007 Outcomes Measurement Tool. Decisions on which outcomes to match were based on a qualitative interpretation. In order to include as much of the historical data as possible, all outcomes from the previous tool were matched to outcomes in the new tool, including some outcomes from the previous tool which we merged. Applied statistical protocol determined that these comparisons were not highly

correlated, and thus not an accurate indicator of outcome changes between FY 2006 and FY 2007.

In order to address concerns about the validity of comparing historical data collected with the old tool to data collected with the new tool, additional testing was done to determine other options for linking outcomes from the new tool with the old tool. In the process of this analysis three of the outcomes reported on in the previous tool (Level of Depression, Coping Skills and Level of Stress, and Knowledge about HIV/AIDS) could not be matched successfully to any of the outcomes on the new tool and thus were removed from FY 2007 comparisons.

Before excluding the removed outcomes from future comparisons, weak correlations between outcomes from the old tool and new tool were considered, along with the logical role of these old outcomes within the new tool. Through these discussions, BPHC staff agreed that it was logically sound to remove these outcomes from future comparisons. The results of additional testing suggested that the following matching below (excluding the three outcomes) had higher correlations, and therefore were more reliable. Figure 4 below depicts the final outcome comparisons which are used when comparing FY 2007 data to previously collected outcomes data.

FIGURE 4. OUTCOME COMPARISONS: NEW TOOL VS. OLD TOOL

New Tool	Old Tool
Outcome 1: CD-4 Count	Outcome 1: CD-4 Count
Outcome 2: Viral Load	Outcome 2: Viral Load
Outcome 3: Maintenance of Medical Care	Outcome 5: Ability to Maintain Medical Care
Outcome 4: Adherence to Prescribed HIV Related Medical Therapies	Outcome 6: Ability to Adhere to Medical Therapies
Outcome 5: Impact of Side-Effects from HIV-related Medications	Outcome 14: Level of Side Effects from Medications
Outcome 6: Mental Health Status	Outcome 13: Level of Crisis Intervention
Outcome 7: Access to Psychosocial Support	Outcome 10: Level of Support Network
Outcome 8: Level of Self Sufficiency	Outcome 7: Ability to Advocate
Outcome 9: Housing Status	Outcome 9: Ability to Maintain Housing

Data Quality

Upon receipt, Suffolk staff review each outcome measurement report for missing or inconsistent information. After data entry, the project supervisor randomly selects reports and cross-references them with the database for data input errors. Providers also receive reports detailing clients entered into the database to check that Suffolk entered unique identifiers for the clients correctly. These reports ensure consistency in data collection as well as provide a reference to agencies on future client outcome reporting.

Survey Reliability

For the FY 2007 Mid-Year Report, statistical tests were used to determine the reliability of the new tool.⁹ There are two fundamental questions addressed when assessing survey reliability: How much of the variability in outcome scores is due to measurement error and; How much is due to variability in true scores? Results reported in the FY 2007 Mid-Year Report indicated a moderate degree of internal consistency.¹⁰ This type of reliability often helps researchers interpret data, predict the value of scores, and predict the limits of the relationship among variables. Reliability measures how consistently providers are interpreting and applying the outcome measurement levels when assessing individual outcomes. Statistical tests used to measure the reliability of the new tool included a Guttman Split half, an unequal-length Spearman-Brown, and Cronbach's alpha. Both the Guttman and Spearman-Brown tests provide correlation estimates of internal reliability of the tool while Cronbach's alpha measures for internal consistency¹¹ within the tool. Split half computations yielded a Guttman Split half correlation of .6660 and an unequal-length Spearman-Brown correlation of .6710. To confirm split-halves reliability, Cronbach's alpha yielded a standardized alpha of .6980 for nine items.¹²

It was noted in the FY 2007 Mid-Year Report that the moderate level of internal reliability might be due to an unequal balance between the reporting of poor and excellent outcome measures. In the old tool, outcomes with more positive results were more likely to be picked by providers (e.g. high percentage of clients in good or excellent status for CD-4 Counts) whereas in the new tool all nine outcomes are assessed, including those which may not yield a high percentage of good or excellent outcomes (e.g. Impact of Side Effects from HIV-related Medical Therapies). This may yield poor correlations between the outcomes.

In June of 2008, the reliability testing was again conducted using the full set of data collected in FY 2007 (March 2007-August 2007 and September 2007-February 2008 reporting periods). Results indicated a higher level of reliability with the tool. Specifically, the Guttman Split half reliability yielded a correlation from .6660 to .7620¹³ and the unequal-length Spearman-Brown improved from .6710 to .7850. To confirm split-halves reliability, Cronbach's alpha yielded a standardized alpha of .7700 for nine items which also increased from the previously reported .6980.

Results of the reliability testing indicate a moderate to high level of internal reliability for the new tool at the 95% confidence level. In split-half reliability measurement, the higher the intercorrelations among items (the closer the score is to 1.00), the higher the reliability that the items are consistently measuring the same underlying construct. Since the Outcome Measurement Tool is designed to measure an array of constructs related to both health and quality of life outcomes a score of 1.00 is not expected.

⁹ The new tool was utilized for the first time during the March 2007-August 2007 reporting period (Mid-Year)

¹⁰ Internal consistency measures how consistently individuals respond to the items within a scale

¹¹ These tests are used to determine whether or not items assessing the same general constructs produce comparable scores

¹² A result closer to 1.00 indicates greater survey tool reliability

¹³ A result closer to 1.00 indicates greater survey tool reliability

The increase in reliability scores may be due in part to the increase in the number of outcome measurement reports (two reporting periods vs. one reporting period) or because of improved consistency in reporting among providers. In other words, providers are now more familiar with the tool due to additional training and use as compared to the previous reporting period.

Statistical Notes

An Independent Samples *t* Test was employed to determine whether or not there was a statistically significant change in outcome scores between fiscal years. Since each sample consisted of a different set of clients, the Levene test was used to determine whether or not the sample variances were equal before using the *t* test. If equal variances are assumed incorrectly, the likelihood of making a Type I error increases. In other words, there is a risk that a researcher will report a change as statistically significant when in fact it is not. If the Levene test indicates that variances are not equal than the *t* test assuming unequal variances is used.

Statistical significance indicates that there is a high probability that a result is not likely due to chance alone. An observed difference between two groups is considered statistically significant when a statistical test determines that chance accounts for this difference 5% or less of the time. In other words, there is a 95% certainty that the observed results cannot be explained solely by chance.

In this report, researchers marked statistically significant relationships with a single asterisk (*) for $p < .05$, indicating there is less than a 5% chance that the results fall outside the data presented.

DATA SUMMARY

In order to provide a more comprehensive and varied analysis, data in this report is displayed in several different formats:

- Figure 4 provides a summary of the outcome data for each of the two reporting periods in FY 2006 and FY 2007.
- Figures 5-7, and 10-15 detail outcome data for the last three reporting periods (September 2006 – February 2007, March 2007 – August 2007, and September 2007 – February 2008).
- Figures 8, 9, & Appendix A detail year-end data (September 2007 – February 2008) for FY 2007.
- Figures 16-18 represent outcomes for the same PLWH over time using the most recent data available in each fiscal year (cohort).

Figure 4 details outcome data for two fiscal years (FY 2006 and FY 2007) from two different reporting periods (March – August and September – February). In the last reporting period of FY 2007, analysts collected 5,887 outcome measurement reports representing 4,307 unduplicated clients. The decrease in number of outcome reports and unduplicated clients between FY 2006 and FY 2007 is likely attributed to the changes in the new tool, which requires providers to report only on active clients, not inactive clients or

closed cases. Between Mid-Year and Year-End 2007, three agencies did not submit outcome measurement reports for clients. This is attributed to the separation of Minority AIDS Initiative (MAI) funding from Part A funding. Agencies receiving MAI funds began reporting on clients separately from Part A services during July of 2007, which falls in the middle of the Part A fiscal year.

FIGURE 4. SUMMARY OF OUTCOME DATA (FY 2006 AND FY 2007)

Fiscal Year	Reporting Period	Number of Outcome Reports	Number of Unduplicated Clients	Number of Providers
MID-YEAR FY 2006	MARCH 2006- AUGUST 2006	8,223	5,792	53
YEAR-END FY 2006	SEPTEMBER 2006- FEBRUARY 2007	8,994	5,899	52
MID-YEAR FY 2007	MARCH 2007- AUGUST 2007	5,275	4,083	51
YEAR-END FY 2007	SEPTEMBER 2007- FEBRUARY 2008	5,887	4,307	49

Figure 5 details, by service category, the number of funded providers, the number of outcome reports submitted, and the number of unduplicated clients. In Year-End FY 2007, 18 of the 49 Part A providers (37%) delivered case management services. Among the 11 service areas, food service providers contributed the most outcome reports for the largest group of unduplicated clients. They submitted 1,697 of 5,887 (29%) outcome reports for 1,386 out of 4,307 (32%) unduplicated clients.

FIGURE 5. NUMBER OF PROVIDERS/REPORTS SUBMITTED/UNDUPLICATED CLIENTS BY SERVICE
Year-End FY 2006, Mid-Year FY 2007, and Year-End FY 2007

Service Category	Number of Providers			Number of Outcome Reports Submitted			Number of Unduplicated Clients		
	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007
1. Case Management	19	19	18	1,337	1,503	1,201	1,308	1,459	1,180
2. Client Advocacy	5	5	5	1,179	401	640	1,074	377	614
3. Dental ¹⁴	1	1	1	2,239	530	404	2,192	526	400
4. Drug Reimbursement	1	1	1	181	162	139	180	162	135
5. Food Services	12	9	9	1,458	1,150	1,697	1,321	1,058	1,386
6. Housing	12	12	12	969	483	937	885	444	878
7. Mental Health	12	9	9	435	362	377	433	356	371
8. Peer Support	11	11	11	1,167	904	1,251	1,070	824	1,020
9. Primary Care	8	8	8	630	480	440	630	479	437
10. Substance Abuse	6	5	5	177	161	128	145	148	116
11. Transportation	10	10	9	1,009	848	947	944	808	881

¹⁴ Note: Approximately 57% of outcome measurement reports submitted for dental services were for inactive clients which did not contain outcome data. The drop in number of outcome reports between the reporting periods is attributed to changes in the new tool. Reporting requirements in the new tool require providers to report only on active clients, not inactive clients or closed cases.

Figure 6 details by individual outcome the number of providers selecting each outcome, the number of times the outcome was selected, and the number of unduplicated clients represented by each outcome.¹⁵

FIGURE 6. NUMBER OF PROVIDERS/TIMES OUTCOMES SELECTED/UPDUPLICATED CLIENTS BY OUTCOMES

Year-End FY 2006, Mid-Year FY 2007, and Year-End FY 2007

Outcomes Category	Number of Providers			Number of Times Outcomes Selected			Number of Unduplicated Clients		
	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007	Year-End FY 2006	Mid-Year FY 2007	Year-End FY 2007
1. CD-4 Count	48	51	49	6,988	5,145	5,805	4,699	3,998	4,248
2. Viral Load	40	51	49	5,703	5,011	5,797	4,144	3,920	4,247
3. Maintenance of Primary Medical Care	20	51	49	1,459	5,066	5,803	1,396	3,963	4,258
4. Adherence to Prescribed HIV Related Medical Therapies	17	51	49	862	4,781	5,714	817	3,772	4,229
5. Impact of Side Effects from HIV-related Medications	10	48	48	465	3,807	5,286	462	3,054	3,942
6. Mental Health Status	15	49	48	1,810	4,182	5,423	1,474	3,341	4,001
7. Access to Psychosocial Support	20	49	48	1,800	4,317	5,423	1,552	3,415	3,998
8. Level of Self Sufficiency	26	49	48	2,490	4,324	5,427	1,953	3,428	4,007
9. Housing Status	25	51	49	1,853	5,089	5,836	1,596	3,971	4,279

¹⁵ Please note that clients can receive multiple outcome reports if they are receiving services at multiple providers.

RESULTS

Results from the outcome data collected during the Mid-Year FY 2007 (March 2007–August 2007) and last reporting period of FY 2007 (September 2007-February 2008) are broken down by the major study groups and presented below.

On-Going & New Clients Overview

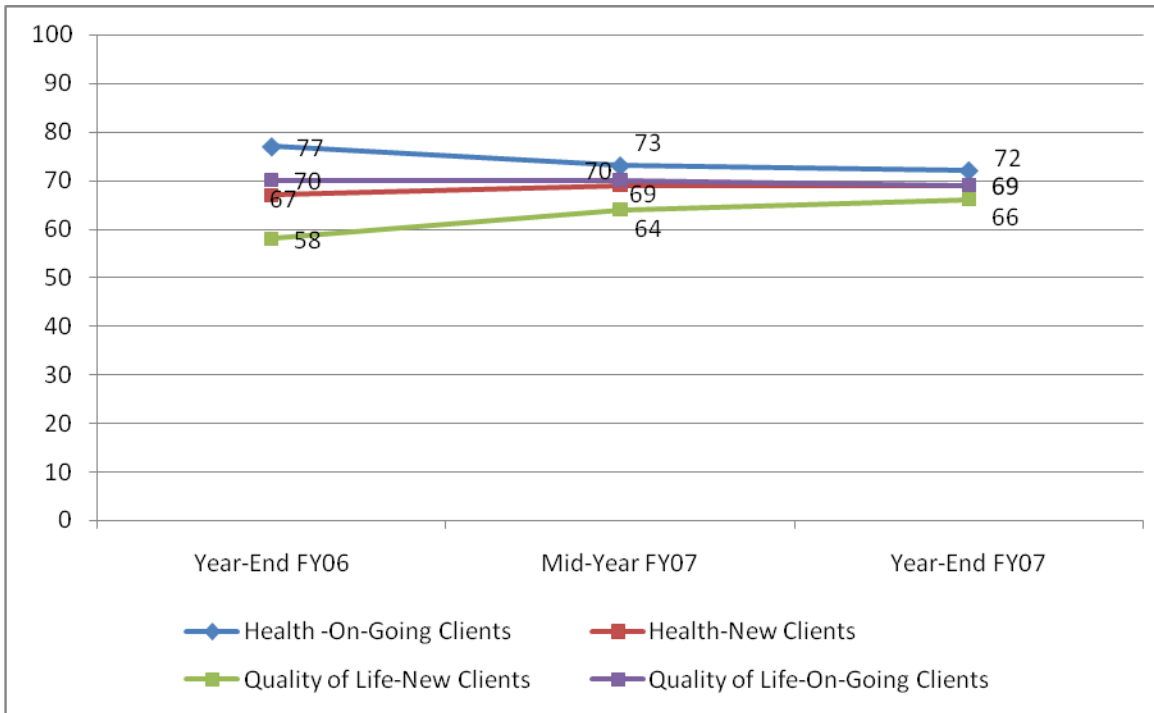
Demographic Profile (Year End FY 2007)

	On-Going Clients	New Clients
Age	Average age of 44	Average age of 45
Gender	67% male, 32% female, 1% transgender	71% male, 28% female, 1% transgender
Hispanic	27% Hispanic	30% Hispanic
Race	50% White, 30% Black, 27% unknown or unreported, 3% other	37% White, 39% Black, 33% unknown or unreported, 13% other
Diagnostic Information	38% HIV positive/not AIDS, 44% AIDS/CDC Defined, 15% HIV/AIDS Status Unknown, 2% unknown or unreported	40% HIV positive/not AIDS, 38% AIDS/CDC Defined, 18% HIV/AIDS Status Unknown, 1% HIV indeterminate (under age 2), 3% unknown or unreported
Income	57% with income levels equal to or below federal poverty level	65% with income levels equal to or below federal poverty level
Housing	58% permanently housed, 19% not permanently housed, 15% unknown or unreported, 8% other	43% permanently housed, 28% not permanently housed, 13% unknown or unreported, and 16% other,
Referrals	Fourteen percent (14%) of new clients were self-referred, 19% by a case manager, 23% by a health center, and 28% other	Sixteen percent (16%) of new clients were self-referred, 22% by a case manager, 16% by a health center, and 31% other
Transmission Category	30% MSM, 27% IDU, and 56% heterosexual contact	26% MSM, 40% IDU, and 66% heterosexual contact

Comparing the last three reporting periods, average health and quality of life outcome scores have remained relatively constant over time. (Figure 7) Health Status for all clients, as well as Quality of Life Status for on-going clients, has remained in the good range. Quality of Life Status for new clients has remained in the fair range.

FIGURE 7. AVERAGE HEALTH & QUALITY OF LIFE OUTCOME SCORES FOR ON-GOING vs. NEW CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

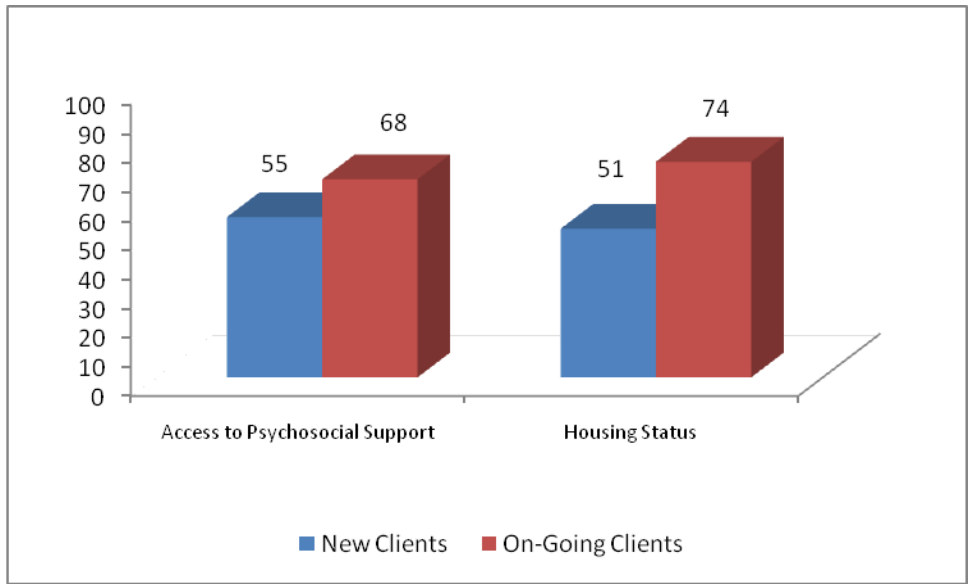


Outcome Score is:
100= excellent
68-99=good
34-67=fair
0-33=poor

On-Going vs. New Clients

According to outcome data for FY 2007 (March 2007 – February 2008), new clients had significantly lower outcome scores than on-going clients for two outcomes: Access to Psychosocial Support (13 point difference) and Housing Status (23 point difference). A possible explanation for this may be that new clients face unique challenges and may not yet be fully connected to the continuum of care Ryan White Part A services provides. (See Figure 8)

FIGURE 8. STATISTICALLY SIGNIFICANT DIFFERENCES IN OUTCOMES BETWEEN ON-GOING & NEW CLIENTS
(FY 2007: March '07-Feb. '08)



Outcome Score is:
100= excellent
68-99=good
34-67=fair
0-33=poor

On-Going Clients

At the end of FY 2007 (September 2007-February 2008), the majority of on-going clients continue to be in good or excellent health according to medical indicators. Specifically, 83% of clients were reported to have a CD-4 count of 200 or greater, and 82% were reported to have a Viral Load of less than 10,000. (See Figure 9)

FIGURE 9. HEALTH MEASURES: CD-4 COUNTS AND VIRAL LOADS FOR ON-GOING CLIENTS
(Year-End FY 2007: Sept. '07-Feb. '08)

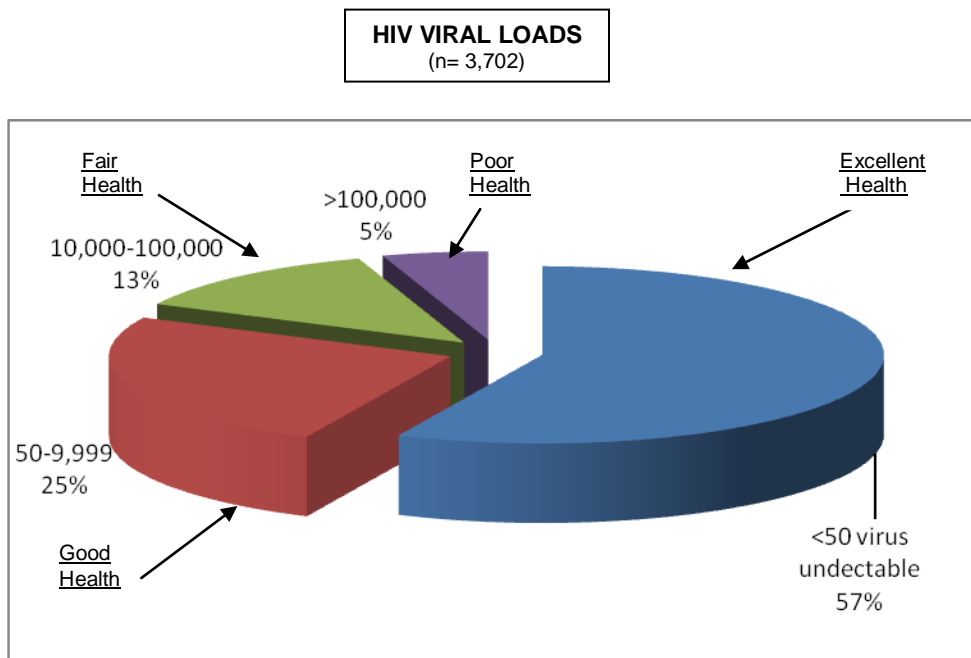
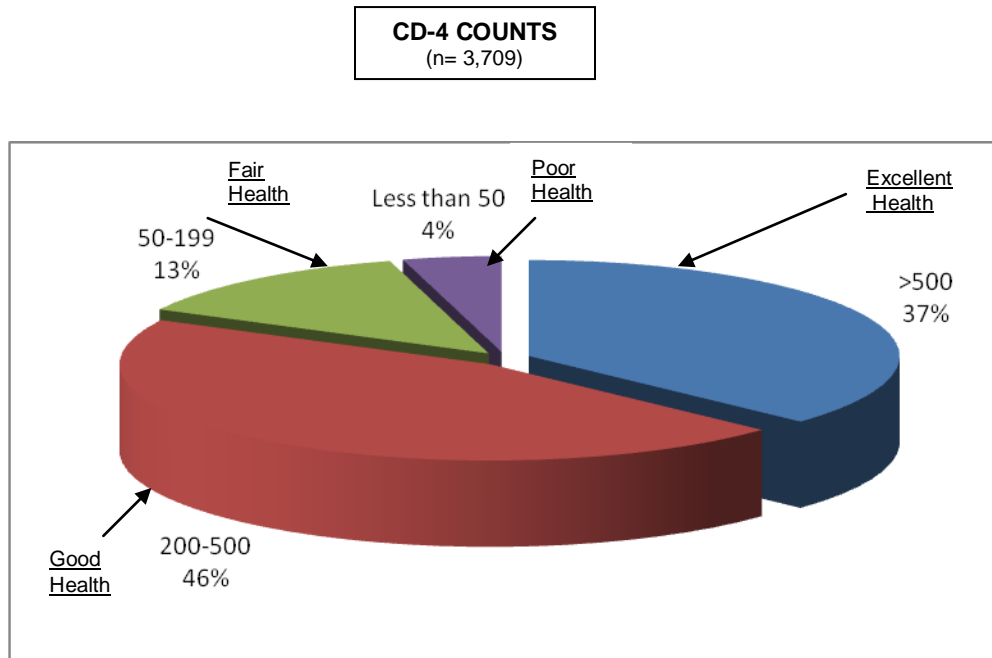


Figure 10 compares individual health outcome scores for on-going clients during the last three reporting periods (Year-End FY 2006, Mid-Year FY 2007 and Year-End FY 2007). Though some outcomes experienced a slight drop, there were no statistically significant differences, indicating that overall health outcome scores remained relatively constant from Year-End FY 2006 to Year-End FY 2007.

FIGURE 10. HEALTH OUTCOME SCORES FOR ON-GOING CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

Health Outcomes	On-Going Clients								Optimal Outcome Goal
	Year-End FY 2006 (# of unduplicated clients=3,665)		Mid-Year FY 2007 (# of unduplicated clients=3,538)			Year-End FY 2007 (# of unduplicated clients=4,168)			
	# of unduplicated clients	Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	
1. CD-4 Counts	3,495	73	3,467	71	-2 ↓	3,709	72	-1 ↓	100 = CD Count >500
2. Viral Load	2,971	76	3,400	76	No Change	3,702	78	-2 ↓	100 = <75/virus undetectable
3. Maintenance of Primary Medical Care	887	88	3,426	72	-16 ↓	3,708	71	-1 ↓	100 = Kept all scheduled primary medical care appointments in the past 6 months.
4. Adherence to Prescribed HIV Related Medical Therapies	640	69	3,291	73	4 ↑	3,731	65	-8 ↓	100 = Always adheres to HIV-related medical therapies as prescribed.
AVERAGE HEALTH OUTCOME SCORE		77		73	-4 ↓		72	-1 ↓	100 = Optimal Outcome Score

Outcome Score is:
100=excellent
68-99=good
34-67=fair
0-33 =poor

Figure 11 compares individual quality of life outcome scores for on-going clients during the last three reporting periods. Impact of Side Effects dropped significantly from good (outcome score=82) in Year-End FY 2006 to fair (outcome score=56) in Year-End FY 2007. Because a high outcome score reflects a low impact of side effects, it is observed that on-going clients have reported a higher impact of side effects from HIV related medications on their activities of daily living from FY 2006 to FY 2007. Due to the new requirement of reporting on all nine outcomes, it is important to note the dramatic increase in number of clients assessed from Year-End FY 2006 to Year-End FY 2007, especially for the Impact of Side Effects from HIV-related Medications outcome. However, aggregate quality of life outcome scores for on-going clients remained positive and consistent from Year-End FY 2006 to Year-End FY 2007.

FIGURE 11. QUALITY OF LIFE OUTCOME SCORES FOR ON-GOING CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

Quality of Life Outcomes	On-Going Clients								Optimal Outcome Goal
	Year-End FY 2006 (# of unduplicated clients=3,665)		Mid-Year FY 2007 (# of unduplicated clients=3,538)			Year-End FY 2007 (# of unduplicated clients=4,168)			
	# of unduplicated clients	Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score ¹⁶	
5. Impact of Side Effects from HIV-related Medications	381	82	2,656	67	-15 ↓*	3,227	56	-11 ↓*	100 = No side effects or side effects are not impacting daily living
6. Mental Health Status	1,165	64	2,863	70	6 ↑	3,443	72	2 ↑	100 = No indication of mental health problems
7. Access to Psychosocial Support	1,078	71	2,927	67	-4 ↓	3,441	68	1 ↑	100 = Fully connected to psychosocial support when needed
8. Level of Self Sufficiency	1,429	63	2,938	72	9 ↑	3,446	73	1 ↑	100 = Able to manage all day to day activities
9. Housing Status	986	72	3,445	74	2 ↑	3,376	74	No Change	100 = Stable and satisfactory housing
AVERAGE QUALITY OF LIFE OUTCOME SCORE		70		70	No Change		69	-1 ↓	100 = Optimal Outcome Score

Outcome Score is:
100 = excellent
68-99 =good
34-67 =fair
0-33 =poor

¹⁶ *Statistically significant, p<.05-95% level of certainty in the findings.

New Clients

Figure 12 compares individual health outcome scores for new clients during the last three reporting periods. Comparing Year-End FY 2006 to Year-End FY 2007, there were no significant changes in individual or overall health outcomes. Health Status remained in the good range for the majority of outcomes.

FIGURE 12. HEALTH OUTCOME SCORES FOR NEW CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

Health Outcomes	New Clients								Optimal Outcome Goal
	Year-End FY 2006 (# of unduplicated clients=1,304)		Mid-Year FY 2007 (# of unduplicated clients=729)			Year-End FY 2007 (# of unduplicated clients=947)			
	# of unduplicated clients	Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	
1. CD-4 Counts	1,226	70	702	67	-3 ↓	940	70	3 ↑	100 = CD Count >500
2. Viral Load	969	71	689	67	-4 ↓	979	72	5 ↑	100 = <75/virus undetectable
3. Maintenance of Primary Medical Care	247	81	708	69	-12 ↓	979	71	2 ↑	100 = Kept all scheduled primary medical care appointments in the past 6 months
4. Adherence to Prescribed HIV Related Medical Therapies	107	63	639	72	9 ↑	968	64	-8 ↓	100 = Always adheres to HIV – related medical therapies as prescribed
AVERAGE HEALTH OUTCOME SCORE		67		69	2 ↑		69	No Change	100 = Optimal Outcome Score

Outcome Score is:
100 = excellent
68-99 = good
34-67 = fair
0-33 = poor

Figure 13 compares individual quality of life outcome scores for new clients during the last three reporting periods. Although most of the quality of life outcomes remained constant, Impact of Side Effects from HIV-related Medications showed a decrease in Year-End FY 2006 compared to Year-End FY 2007. Again, this is likely due to the change in new tool requirements where providers must report on all nine outcomes for each client assessed during a reporting period. Level of Self Sufficiency and Housing Status outcomes improved from Year-End FY 2006 to Year-End FY 2007.

FIGURE 13. QUALITY OF LIFE OUTCOME SCORES FOR NEW CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

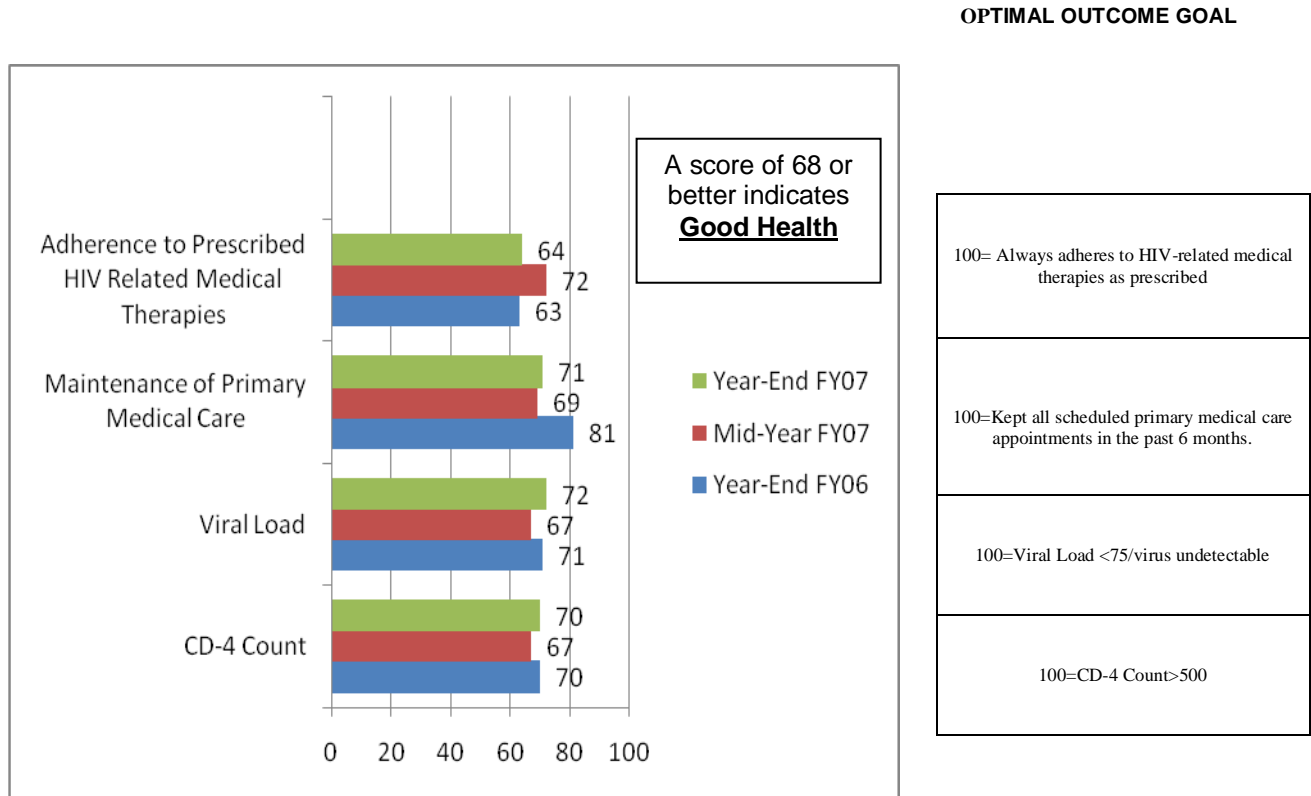
Quality of Life Outcomes	New Clients								Optimal Outcome Goal
	Year-End FY 2006 (# of unduplicated clients=1,304)		Mid-Year FY 2007 (# of unduplicated clients=729)			Year-End FY 2007 (# of unduplicated clients=947)			
	# of unduplicated clients	Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	# of unduplicated clients	Outcome Score	Change in Outcome Score	
5. Impact of Side Effects from HIV-related Medications	53	82	514	66	-16 ↓	943	60	-6 ↓	100 = No side effects or side effects are not impacting daily living
6. Mental Health Status	309	61	612	66	5 ↑	944	73	7 ↑	100 = No indication of mental health problems
7. Access to Psychosocial Support	346	56	625	63	7 ↑	946	58	-5 ↓	100 = Fully connected to psychosocial support when needed
8. Level of Self Sufficiency	532	58	630	72	14 ↑	945	77	5 ↑	100 = Able to manage all day to day activities
9. Housing Status	545	31	705	55	24 ↑	947	61	6 ↑	100 = Stable and satisfactory housing
AVERAGE QUALITY OF LIFE OUTCOME SCORE		58		64	6 ↑		66	2 ↑	100 = Optimal Outcome Score

Outcome Score is:
100 = excellent
68-99 = good
34-67 = fair
0-33 = poor

During the last three reporting periods, initial outcome reports for new clients indicated that most were in good health. Notably, at end of FY 2007, individual outcome scores showed that new clients met or exceeded good health in three of four health indicators by having scores above 68.¹⁷ (See Figure 14)

FIGURE 14. HEALTH OUTCOME SCORES FOR NEW CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)

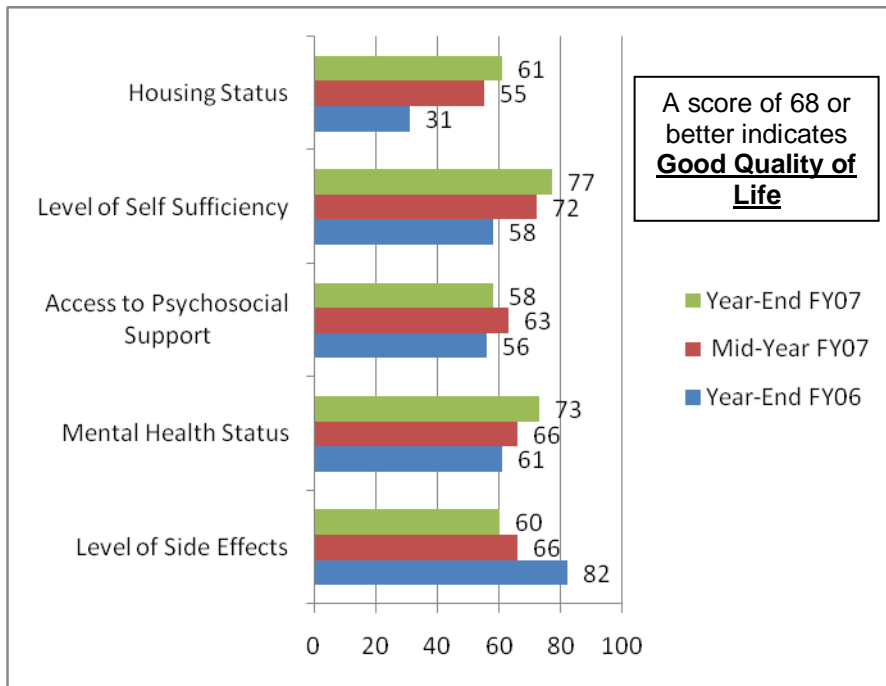


¹⁷ Please note that reporting periods incorporate all clients receiving services within the timeframe. The same clients are not necessarily included in each reporting period.

During the last three reporting periods, initial outcome reports for new clients demonstrated that most did not have a good quality of life status. Notably, at the end of FY 2007, individual outcome scores showed that new clients only met or exceeded two of five quality of life indicators for “good quality of life” with a score above 68.¹⁸ (See Figure 15)

FIGURE 15. QUALITY OF LIFE OUTCOME SCORES FOR NEW CLIENTS

Year-End FY 2006 (Sept '06-Feb '07), Mid-Year FY 2007 (Mar '07-Aug '07), and Year-End FY 2007 (Sept '07-Feb '08)



A score of 68 or better indicates **Good Quality of Life**

■ Year-End FY07
■ Mid-Year FY07
■ Year-End FY06

OPTIMAL OUTCOME GOAL

100 = Stable and satisfactory housing
100 = Able to manage all day to day activities
100 = Fully connected to psychosocial support when needed
100 = No indication of mental health problems
100 = No side effects or side effects are not impacting daily living

Outcome Score is:
100= excellent
68-99 =good
34-67=fair
0-33=poor

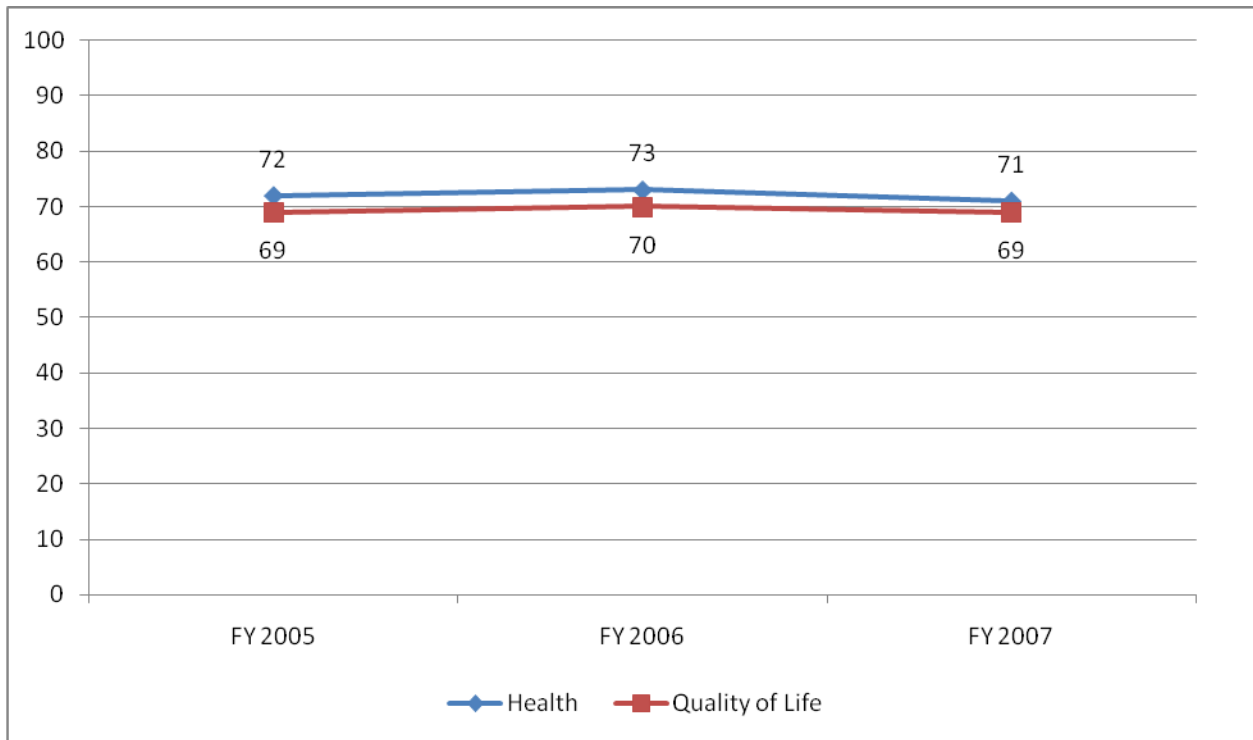
¹⁸ Please note that reporting periods incorporate all clients receiving services within the timeframe. The same clients are not necessarily included in each reporting period.

3-Year Cohort

A cohort is a group of individuals, identified by a common characteristic, who are studied over a period of time. The 3-Year Cohort includes clients who consistently received an outcome measurement report (at least once in each fiscal year) over a three-year period (March 2005 – February 2008). If a client receives more than one report in fiscal year the two scores are averaged.

In the cohort analysis of 2,153 unduplicated clients tracked from FY 2005 to FY 2007 (March 2005 - February 2008), health outcome and quality of life outcome scores remained relatively constant. (See Figure 16)

FIGURE 16. CHANGE IN HEALTH & QUALITY OF LIFE OUTCOME SCORES FOR THE COHORT
FY 2005 (Mar. '05-Feb. '06), FY 2006 (Mar. '06-Feb. '07), and FY 2007 (Mar. '07-Feb. '08)



Outcome Score is:
100= excellent
68-99 =good
34-67=fair
0-33=poor

Figure 17 compares individual health outcome scores for the cohort during the last three fiscal years. Notably, all health outcomes remained relatively constant over the last three years.

FIGURE 17. HEALTH OUTCOME SCORES FOR COHORT
FY 2005 (Mar. '05 – Feb. '06), FY 2006 (Mar '06 – Feb '07), and FY 2007 (Mar. '07 – Feb. '08)

Health Outcomes	Cohort (n= 2,153)				Optimal Outcome Goal	
	FY 2005	FY 2006		FY 2007		
	Outcome Score	Outcome Score	Change in Outcome Score	Outcome Score		Change in Outcome Score
1. CD-4 Counts	72	72	No Change	72	No Change	100 = CD Count >500
2. Viral Load	74	77	3 ↑	78	1 ↑	100 = <75/virus undetectable
3. Maintenance of Primary Medical Care	78	74	-4 ↓	71	-3 ↓	100 = Kept all scheduled primary medical care appointments in the past 6 months.
4. Adherence to Prescribed HIV Related Medical Therapies	69	73	4 ↑	64	-9 ↓	100 = Always adheres to HIV –related medical therapies as prescribed.
AVERAGE HEALTH OUTCOME SCORE	73	74	1 ↑	71	-3 ↓	100 = Optimal Outcome Score

Outcome Score is:
100 = excellent
68-99 =good
34-67 =fair
0-33 =poor

Figure 18 compares individual quality of life outcome scores for the cohort during the last three fiscal years. Similar to health outcomes, there were no statistically significant changes in quality of life outcomes, with the exception of Impact of Side Effects from HIV-related Medications, over the past three fiscal years.

FIGURE 18. QUALITY OF LIFE OUTCOME SCORES FOR COHORT
FY 2005 (Mar. '05 – Feb. '06), FY 2006 (Mar '06 – Feb '07), and FY 2007 (Mar. '07 – Feb. '08)

Quality of Life Outcomes	Cohort (n=2,153)				Optimal Outcome Goal	
	FY 2005	FY 2006		FY 2007		
	Outcome Score	Outcome Score	Change in Outcome Score	Outcome Score		Change in Outcome Score ¹⁹
5. Impact of Side Effects from HIV-related Medications	85	69	-16 ↓	57	-12 ↓	100 = No side effects or side effects are not impacting daily living
6. Mental Health Status	67	69	-2 ↓	70	1 ↓	100 = No indication of mental health problems
7. Access to Psychosocial Support	67	67	No Change	68	1 ↑	100 = Fully connected to psychosocial support when needed
8. Level of Self Sufficiency	65	72	7 ↑	73	1 ↑	100 = Able to manage all day to day activities
9. Housing Status	65	75	10 ↑	75	No Change	100 = Stable and satisfactory housing
AVERAGE QUALITY OF LIFE OUTCOME SCORE	70	70	No Change	69	-1 ↓	100 = Optimal Outcome Score

Outcome Score is:
100 = excellent
68-99 = good
34-67 = fair
0-33 = poor

¹⁹ Statistically significant, p<.05-95% level of certainty in the findings.

LIMITATIONS

With the exception of cohorts, new and on-going clients in different reporting periods do not necessarily reflect the same set of clients. Therefore, caution should be used when comparing average health and quality of life outcome measurement scores across fiscal years. Since “new” or “on-going” reflect client status at the time of reporting, client progress from new to on-going status cannot be captured in this report. Please see the “Impact of Part A Services on New Clients Over Time” report published in January 2008 for more information on progression of new client outcomes.

Reliability measures indicate that the new tool has a moderate to high level of internal reliability. However, outcome comparisons made between data collected with the new versus the old tool have several limitations. One limitation is that the new tool does not include the same outcome definitions as the old tool. For example, Maintenance of Primary Medical Care was previously quantified by the number of missed appointments a client had in six months. More than 12 missed appointments indicated a poor outcome. However, in the new tool, exact numbers of missed appointments have been replaced by more flexible options. This change in definitions occurred because clients missing all medical appointments may not have qualified to report a “poor” outcome if they had less than 12 appointments scheduled. These definitions have been changed to vary between “missed all appointments”, “kept some”, “kept most”, or “kept all appointments”. This change in the outcome definition allows for a more equal comparison between clients regardless of the number of appointments each client has had. However, providers may now be reporting slightly different outcome levels for clients according to the new definitions.

The number of clients assessed for each outcome also differs significantly in this report due to the change in outcome tools. Because providers are now required to report on all outcomes, many outcomes have a much higher number of clients assessed than in FY 2006. For example, Impact of Side Effects from HIV-related Medications was reported for 462 unduplicated clients at Year-End FY06 and 3,054 unduplicated clients at Mid-Year FY 2007, the next reporting period. Therefore, caution should be used when interpreting these outcomes.

It is important to note that the outcome data presented in this report has been provided by Part A service providers and does not include outcome or service data from providers funded through other state or federal funding sources. Therefore, the health and quality of life outcomes reported may not be fully representative of the PLWH population receiving medical or support services in the Boston EMA.

CONCLUSIONS

Overall, health outcome scores were consistently higher than quality of life outcome scores for both new and on-going clients receiving Ryan White Part A services. Medical outcomes (CD-4 Counts and HIV Viral Loads) collected over the past three reporting periods for PLWH living in the Boston EMA suggest that clients new to Ryan White Part A services, and those who are continuing to receive services, are in good to excellent health. However, quality of life indicators have remained consistently in the fair range.

At the end of FY 2007 (September 2007-February 2008) the outcome scores for on-going clients were significantly higher than those for new clients for the following individual outcomes: Access to Psychosocial Support (10-point difference) and Housing Status (13-point difference). In other words, the differences between clients that are new to Part A services and those receiving on-going services is most apparent in these two outcomes. Clients receiving on-going services have better access to psychosocial support and have more stable housing than clients who are new to at least one Part A service.

When comparing individual outcome scores over time, the only statistically significant change was in Impact of Side Effects from HIV-related Medications, which declined for both new and on-going clients between FY 2006 and FY 2007. The decline in this outcome shows that both new and on-going clients are reporting that side effects from HIV-related medications are impacting their activities of daily living significantly more than in previous years.

RECOMMENDATIONS FOR FUTURE RESEARCH

The most significant change in individual outcome scores was observed with on-going clients and the Impact of Side Effects from HIV-related Medications (26-point drop over the past two fiscal years). This finding could be further investigated to determine whether or not this is a reporting anomaly, an artifact of the tool conversion, or whether clients in the Boston EMA are actually experiencing an increased impact of side effects on their activities or daily living.

Further, it is also recommended that BPHC solicit feedback from Part A providers regarding interpretation and implementation of the new tool in FY 2008 to determine whether or not the tool is a reliable gauge of the health and quality of life of PLWH in the Boston EMA.

**APPENDIX A: OUTCOME MEASUREMENT TOOL & AGGREGATE YEAR-END FY
2007 (SEPTEMBER-FEBRUARY)
SURVEY DATA**

