



Evaluation of New York's HIV Special Needs Plan Program: Cost and Usage Impacts

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I. Executive Summary

The Lewin Group, in collaboration with the New York State Department of Health (NYSDOH) AIDS Institute, has conducted an evaluation of New York State's Medicaid HIV Special Needs Plan (HIV SNP) program. The study focused on the following impact areas:

- inpatient hospital costs and utilization;
- prescription drug costs and utilization;
- trends in overall medical costs; and
- the program's effect on cost and HIV SNP enrollees' service utilization compared to Medicaid spending had the HIV SNP initiative not been implemented.

The key findings in each of these areas are summarized below.

Inpatient Hospital Cost and Utilization: Inpatient impacts were assessed for a group of HIV SNP enrollees (n = 536) with at least six months of Medicaid fee-for-service (FFS) coverage followed by six consecutive months of HIV SNP coverage. At a minimum, these persons have 12 months of continuous health benefit coverage – at least six in Medicaid FFS followed by at least six in an HIV SNP. Impacts were also assessed for a subgroup of 282 persons with at least 12 months of FFS coverage and a subsequent 12 months of SNP enrollment. HIV SNP enrollee service costs and utilization while enrolled in an HIV SNP were compared with these same persons' pre-enrollment service costs and utilization in the FFS setting; the observed trends were then contrasted with a large control group of HIV-infected New York Medicaid beneficiaries. The key findings from these assessments are:

- Inpatient costs per member per month were lowered dramatically. Per member per month (PMPM) inpatient costs were lowered by 44% - 52% after adjusting for the control group's observed trends. (The change for the HIV SNP enrollees -- ignoring the control group's experience -- was a 26% - 38% reduction during the while-enrolled period relative to the pre-enrollment period.)
- The rate of hospital admissions (i.e., inpatient admissions PMPM) decreased by 22% - 27%.
- Average length of stay per admission (ALOS) was lowered by 11% - 16%.
- The bed day usage rate (bed days PMPM), a combination of the two measures above, was lowered by 34% - 35%.
- Average costs per admission were lowered by 28% - 35%. Some of the unit price reductions are explained by HIV SNPs using lower-cost hospitals more often for persons during the while-enrolled period than during the pre-enrollment period.

Prescription Drug Cost and Utilization: Pharmacy costs are carved out of the HIV SNPs' benefit package and are not their financial responsibility. However, access and adherence to an appropriate medication regimen is a critical component of HIV treatment. Pharmacy impacts were therefore assessed for a group of persons (n = 1,110) with at least six months of Medicaid fee-for-service (FFS) coverage prior to HIV SNP enrollment, as well as at least six months of

subsequent HIV SNP enrollment. (The sample size for the pharmacy analysis is larger than for the inpatient analysis because data did not need to be collected from the health plans as pharmaceuticals are “carved-out” of the HIV SNP capitated benefit package and are billed on a FFS basis.)

- PMPM pharmacy costs increased 11% - 13% between the final six months of FFS coverage and the initial 6 months of HIV SNP coverage.
- Longer-term analyses suggest a 2% - 7% increase in pharmacy costs after adjusting for the control group’s PMPM pharmacy cost trends.
- The proportion of persons filling at least one prescription per month was 2.3 - 5.0 percentage points higher during the first six months of HIV SNP enrollment than in the six-month period prior to HIV SNP enrollment.

These findings all suggest improved access and adherence to appropriate medication regimens under the HIV SNP model. The pharmacy findings also demonstrate that New York’s Medicaid FFS program is providing Medicaid recipients with HIV disease with good access to medications. In the FFS setting, pharmacy costs averaged well over \$1,000 PMPM in the pre-enrollment period, and approximately 80% of the persons filled at least one prescription in a typical month. Thus, the HIV SNP program generated improvements against an already strong performance baseline.

Medical Cost Trends: The control group of Medicaid recipients with HIV disease who are not enrolled in an HIV SNP experienced an average annual inpatient PMPM cost increase of 16%; the HIV SNP population experienced far less cost inflation as enrollment duration progressed. We compared PMPM medical costs during the second 12 months of HIV SNP enrollment to the first 12 months (a span of two years) for three subgroups of beneficiaries. Medical costs for each subgroup were relatively stable over the twenty-four-month period. One subgroup experienced a decrease of 7% from the first to the second year of SNP enrollment; another experienced an increase of 5%, and the third an increase of 4%. These figures – as well as the inpatient findings – all suggest that the HIV SNP model is considerably more effective than the FFS setting in containing the medical costs for Medicaid recipients with HIV disease.

Overall Program Effect on Costs and Utilization: The impacts quantified above were used to estimate overall impacts of the HIV SNP program on Medicaid spending. The assumptions used are summarized below:

- Inpatient costs are assumed to be 31.5% - 44.6% lower in the HIV SNP setting.
- Pharmacy expenses were assumed to be 2% - 6% higher in the HIV SNP setting.
- All other covered medical costs were assumed to be 0% - 10% lower in the HIV SNPs.
- All HIV SNP administrative costs and operating gains were assumed to represent an added cost of the HIV SNP program (relative to FFS).

Using the low end of the range of the above assumptions, the HIV SNP program created net costs for Medicaid during calendar year 2008 of \$1.9 million, an increase of 1.7% in the funds being expended for the HIV SNP enrollees’ covered months. Alternatively, using the high end

of the assumptions in the above ranges, the HIV SNP program achieved a net Medicaid savings in calendar year 2008 of \$10.2 million or 8.2% of the funds being expended on the enrolled individuals. The midpoint of these two figures represents our best estimate of the calendar year 2008 program impacts; the HIV SNP program achieved calendar year 2008 Medicaid savings of \$4.2 million (or 3.3% of expenses).

It is worth noting that the program currently experiences substantial diseconomies of scale in administrative costs due to modest enrollment levels under the voluntary enrollment program design model. During calendar year 2008, total program enrollment averaged just above 3,000 persons. Thus, it is a significant accomplishment for the HIV SNP program to achieve taxpayer savings at such modest enrollment levels. As the HIV SNP program continues to gain enrollment (program-wide enrollment through August 2009 is 5,934 persons and the NYSDOH is seeking to require HIV-infected persons to enroll in capitated health plans, where such plans are available, in the near future), the current administrative scale diseconomies will diminish, and the program's Medicaid savings impacts should increase substantially.

Summary: The HIV SNP program's impacts have been highly favorable along every dimension assessed. The program's care integration model appears to effectively manage enrollees' health, achieves massive inpatient cost savings, and provides overall savings to the Medicaid program.

II. Background on New York's HIV SNP Program

Since the beginning of the AIDS epidemic, New York State has developed innovative strategies for the delivery and financing of medical care and supportive services for persons living with HIV/AIDS (PLWHAs). Beginning with the establishment of designated AIDS centers in 1986, the New York State Department of Health (NYSDOH) has fostered the development of inpatient, outpatient, chronic care, and supportive HIV/AIDS service providers to create a continuum of care for PLWHAs. This continuum has been supported through reimbursement systems that make enhanced payments to providers of HIV/AIDS-related services to Medicaid recipients.

New York State continued these efforts by establishing HIV Special Needs Plans (SNPs) as part of the state's managed care initiative. HIV SNPs are intended to ensure that all Medicaid recipients with HIV disease are able to participate in fully-capitated managed care plans designed to meet their unique health and medical needs.

HIV SNPs focus on the health, medical, and psychosocial needs of Medicaid recipients with HIV disease. In order to achieve these goals, these plans are required to establish an accessible, comprehensive, and coordinated system of care that incorporates agencies with substantial experience providing care to PLWHAs, including HIV specialist primary care providers. The HIV SNPs also provide support for Medicaid recipients with HIV disease and build upon integrated systems of psychosocial services, particularly those provided by community-based organizations. Through a comprehensive model of benefits coordination, HIV SNPs promote access to essential support services, such as treatment adherence and housing and nutrition assistance, and reach multi-cultural/non-English speaking communities.

Since 2003, three HIV SNPs in New York City have been operational and accept enrollees. (Two additional HIV SNPs were operational in 2003 but withdrew in 2005.) Through August 2009, 5,934 persons were enrolled in the three HIV SNPs. Individuals eligible to enroll in an HIV SNP are Medicaid recipients with HIV disease regardless of current health status and who are eligible for Medicaid under either the state's Temporary Assistance for Needy Families (TANF) Program or Safety Net (SN) Program, the federal need-based Supplemental Security Income (SSI) program for aged, blind, or disabled persons, or through certain other income criteria. Uninfected children of eligible adults under the age of 19 are also able to enroll. Medicaid recipients who also have Medicare coverage (i.e., "dual eligibles") are not eligible to enroll, and persons who obtain Medicare coverage while enrolled are required to disenroll from the HIV SNP program.

Medicaid recipients in New York State with HIV disease currently have three coverage options: a) enrolling in an HIV SNP; b) enrolling in a "mainstream" Medicaid managed care organization; or c) continuing to receive services through fee-for-service Medicaid. However, the NYSDOH has indicated its intention to require Medicaid recipients with HIV disease, initially those residing in New York City, to enroll in either an HIV SNP or a mainstream Medicaid managed care plan in the near future, eliminating the option for this subgroup to remain covered outside of a coordinated care setting in regions where managed care plans exist.

Each HIV SNP is paid on a capitated basis through which they are placed at risk for the costs of all services included in the capitation rate. Some Medicaid-covered benefits provided to HIV SNP enrollees – most notably prescription drugs – are carved out of the HIV SNP capitation rates and continue to be paid for directly by the state’s Medicaid program on a fee-for-service basis. The capitation rates paid to each HIV SNP are established on an actuarially sound basis and are updated annually.

III. Data Sources and Methodology

The methodology for assessing inpatient and pharmacy impacts centers on the comparison of cost and utilization trends during the fee-for-service coverage period to those while enrolled in a HIV SNP, hereafter referred to as the pre-enrollment and while-enrolled periods, respectfully. The following sections will highlight the selection of the study population, the analytical model, and estimated cost savings for the New York Medicaid program.

A. Study Time Frame & Data Sources

The data used for this study were initially provided to The Lewin Group for the primary purpose of capitation rate setting for calendar year 2008. (Lewin serves as the actuarial consulting firm establishing annual capitation rates for the HIV SNP program.) The three currently participating HIV SNPs provided monthly medical cost and monthly inpatient claims data for over 3,700 individuals enrolled in one or more of the HIV SNPs between January 2005 and June 2007.

The NYSDOH provided detailed fee-for-service Medicaid data for more than 30,000 PLWHAs for September 2002 – August 2007. The information provided by NYSDOH included all fee-for-service claims and monthly eligibility managed care enrollment information. The NYSDOH data included information on all persons enrolled in the HIV SNP initiative, with the exception of the HIV SNPs' uninfected child enrollees.

B. Creation of the “Study Population” for Pre-Enrollment versus While-Enrolled Comparisons

Our approach to discerning inpatient and pharmacy cost impacts focused on comparing the same persons' pre-enrollment FFS experience with their experience while enrolled in an HIV SNP. Given this methodology, it is important to isolate those HIV SNP enrollees who had a meaningful amount of both FFS and SNP coverage months. Therefore, we required that each person included in these analyses had substantial continuous FFS coverage prior to enrolling in an HIV SNP, followed by substantial continuous HIV SNP coverage. Our analyses created two groups of individuals: (1) the “6/6” group with six or more consecutive months in both the pre-enrollment and while-enrolled periods and (2) the “12/12” group with 12 or more months in both periods. Persons with discontinuous coverage were excluded from the study. Additionally, to prevent potential distortions in our comparisons, individuals with the following characteristics were also excluded from the study:

- Any gaps in Medicaid coverage
- Any months of prior mainstream Medicaid managed care coverage
- Any months of Medicare coverage

C. Criteria for Establishing the Control Group

An appropriate control group of non-HIV SNP enrollees who are infected with HIV was deemed to be an integral part of the methodology. A wide array of factors could influence HIV SNP enrollees' service cost and utilization trajectories relative to the pre-enrollment fee-for-

service period – only one of which is HIV SNP enrollment itself. The control group is important for quantifying the trends in costs and usage that are occurring independent of coordinated care program interventions. As an example, if we were to see that inpatient costs during the while-enrolled period were 10% lower than in the pre-enrollment period for our study population but that the same 10% reduction occurred in the control group, we would likely conclude that the HIV SNP program had essentially no impact on inpatient costs.

The control group is comprised of 26,126 Medicaid recipients with HIV disease who only have Medicaid fee-for-service experience. Consistent with the selection criteria for the study group, all recipients with any mainstream Medicaid managed care or Medicare coverage were excluded from the control group. All individuals in the control group have at least 24 months of continuous Medicaid coverage. Cost and utilization trends from the control group will be applied to the Medicaid fee-for-service utilization and cost trends of all those persons that eventually enrolled in an HIV SNP and are part of the 6/6 and/or the 12/12 study cohorts.

An adjustment was made to the control group to account for service costs and utilization during the last six months of life. The last six months of life are typically extremely expensive for PLWHAs. To minimize the distortions that can occur due to high end-of-life expenditures, the control group excludes cost and utilization for the last six months of Medicaid eligibility if coverage ended prior to the most recent month of available Medicaid fee-for-service data.

IV. Data Findings for the Control Group

Tables 1 and 2 depict the control group's cost and utilization trends from September 2003 through August 2006 for inpatient and pharmacy services, respectively. These tables indicate that costs and utilization for these services were increasing over time for the control group members. Inpatient PMPM costs increased from \$706 in the initial year to \$950 in the third year, an average annual rate of increase of 16%. The rate of admissions increased 10.8% per year for these persons and the rate of bed day usage increased 13.9% per year.

Table 1: New York Medicaid Fee-For-Service Inpatient Cost & Utilization Trends for the Control Group Medicaid Recipients With HIV Disease (n=26,126)

Timeframe	Member Months	Inpatient Costs PMPM	Admissions PMPM	Average Cost Per Admit	Inpatient Days	ALOS
Sept 2003 - Aug 2004	300,384	\$706	0.054	\$13,103	151,334	9.35
Sept 2004 - Aug 2005	313,512	\$726	0.057	\$12,661	165,897	9.23
Sept 2005 - Aug 2006	313,512	\$950	0.066	\$14,358	204,736	9.87
Average Annual Change		16.0%	10.8%	4.7%		2.8%

Source: Lewin Group tabulations using NYSDOH claims and eligibility data files.

Table 2 indicates that pharmacy PMPM costs in the control group population increased by an average of 10.2% per year over three years while the percent of people with any prescription drug claims also increased over the same period. Both measures suggest that a growing share of Medicaid recipients with HIV disease are accessing and adhering to their prescribed medication regimen.

Table 2: New York Medicaid Fee-For-Service Pharmacy Cost & Utilization Trends for the Control Group Medicaid Recipients With HIV Disease (n=26,126)

Timeframe	Months of Medicaid Coverage	Total Pharmacy Cost	Pharmacy Cost PMPM	% of People With Rx Claim(s) In Average Month During the Year
Sept 2003 - Aug 2004	300,384	\$330,735,251	\$1,101	71.8%
Sept 2004 - Aug 2005	313,512	\$389,381,121	\$1,242	75.8%
Sept 2005 - Aug 2006	313,512	\$418,992,058	\$1,336	77.7%
Average Annual Change			10.2%	

Source: Lewin Group tabulations using NYSDOH claims and eligibility data files.

V. Inpatient Hospital Comparisons for Study Group

Inpatient costs and utilization, including the number of admissions and lengths of stays, as well as pharmacy usage were tabulated for each person included in the 6/6 and 12/12 study groups. Costs and usage were tabulated relative to the month of SNP enrollment. For example, the month of enrollment was flagged as “While-Enrolled Month 1,” the next month was flagged as “While-Enrolled Month 2,” etc.... Similarly, the month immediately prior to HIV SNP enrollment was flagged as “Pre-Enrolled Month 1,” the previous month for that individual was flagged as “Pre-Enrolled Month 2,” etc... This tabulation approach allows a direct comparison of cost and utilization trends during periods before and after HIV SNP enrollment, as well as tracking the cost and usage dynamics in different pre-enrolled periods and/or within different while-enrolled periods.

Detailed inpatient claims occasionally were missing key data elements or posed other anomalies. We used the following criteria for special circumstances:

- Separate claims without gaps in dates of service (i.e. consecutive days) were considered one admission.
- Situations where persons were transferred between hospitals (but without a gap in dates of service) were considered one admission.
- For inpatient cases without a discharge date, length of stay was estimated by dividing the amount paid by \$1,263 – the average observed payment per day.

The 6/6 study group for inpatient services includes 536 individuals with six or more uninterrupted months of FFS Medicaid prior to enrolling and at least six months of HIV SNP coverage. The 12/12 study group for inpatient services is a subset of the 6/6 group and includes 282 persons. The relatively small sample size restricts our ability to irrefutably ascribe similar trends to the larger group of current HIV SNP enrollees; recent enrollment growth has catapulted total enrollment to almost 6,000 SNP enrollees in the summer of 2009. More data will become available as all three plans continue to enroll more members and sustain individual enrollment for more than six months.

Our tabulations indicate that large and immediate inpatient cost and utilization reductions occurred upon recipient enrollment in the HIV SNP program. Inpatient costs were substantially lower in the while-enrolled period for both the 6/6 and 12/12 groups. As shown in the tables below, PMPM inpatient costs decreased 38% between the pre-enrollment and while-enrolled periods for the 6/6 study group (Table 3), and a decrease of 26% occurred in the 12/12 study group (Table 4) between the same periods. These reductions occurred during the same time that PMPM inpatient costs were increasing an average of 16% per year for the control group of Medicaid recipients with HIV disease that was covered only by FFS. After adjusting for the control group’s fee-for-service cost trajectory, the PMPM cost savings attributable to the HIV SNP program is 44% – 52%. Thus, for persons who enrolled in the HIV SNP program from the FFS setting, we estimate that inpatient costs were reduced by approximately half.

Table 3. Inpatient Expenditures For 6/6 Study Group (n=536)

Period	Member Months	Total Inpatient Expenditures	Inpatient Costs PMPM
FFS Months 13 - 24	5,440	\$3,776,202	\$694
FFS Months 7 - 12	2,946	\$2,082,975	\$707
FFS Months 1 - 6	3,216	\$2,494,211	\$776
SNP Months 1- 6	3,216	\$1,434,464	\$446
SNP Months 7 -12	3,034	\$1,610,827	\$531
SNP Months 13 - 24	4,289	\$1,640,587	\$383
Aggregate Pre 1- 24	11,602	\$8,353,389	\$720
Aggregate Post 1- 24	10,539	\$4,685,878	\$445
Raw Percent Reduction			38%
Control Group Adjusted Percent Reduction*			52%

* This subgroup’s estimated costs in absence of the HIV SNP program in the “Aggregate Post 1-24” timeframe, based on the annual control group inflation trend of 16.0%, is \$934. This figure was derived by multiplying the “Aggregate Pre 1-24” PMPM costs of \$720 by an annual trend factor of 1.16, applied across 21 months (the number of months between the member month midpoints of the two time periods).

Table 4. Inpatient Expenditures For 12/12 Study Group (n=282)

Period	Member Months	Total Inpatient Expenditures	Inpatient Costs PMPM
FFS Months 13 - 24	3,258	\$1,482,813	\$455
FFS Months 7 - 12	1,692	\$845,202	\$500
FFS Months 1 - 6	1,692	\$892,386	\$527
SNP Months 1- 6	1,692	\$400,793	\$237
SNP Months 7 -12	1,692	\$597,342	\$353
SNP Months 13 - 24	2,995	\$1,303,509	\$435
Aggregate Pre 1- 24	6,642	\$3,220,402	\$485
Aggregate Post 1- 24	6,379	\$2,301,643	\$361
Raw Percent Reduction			26%
Control Group Adjusted Percent Reduction **			44%

**This subgroup’s estimated costs in absence of the HIV SNP program in the “Aggregate Post 1-24” timeframe, based on the annual control group inflation trend of 16.0%, is \$629. This figure was derived by multiplying the “Aggregate Pre 1-24” PMPM costs of \$485 by an annual trend factor of 1.16, applied across 23 months (the number of months between the member month midpoints of the two time periods).

Inpatient Utilization and Unit Costs

The observed inpatient PMPM cost reductions shown in Tables 3 and 4 can be attributed to a number of factors. As shown in Tables 5 and 6 below, after taking control group trends into account we estimate that the HIV SNP program lowered the admission rate by 22% - 27%, the

average length of stay by 11% - 16%, and the average cost per admission by 28% - 35%. These statistics demonstrate that, in concert with HIV SNP enrollment, enrollees experience fewer hospitalizations and that the hospitalizations that are occurring tend to be of shorter duration.

Table 5. Inpatient PMPM Utilization, 6/6 Study Group (n=536)

Period	Member Months	Admissions PMPM	Cost Per Admission	ALOS
FFS Months 13 - 24	5,440	0.049	\$14,304	9.5
FFS Months 7 - 12	2,946	0.052	\$13,526	7.4
FFS Months 1 - 6	3,216	0.057	\$13,794	7.2
SNP Months 1 - 6	3,216	0.051	\$8,671	7.8
SNP Months 7 -12	3,034	0.049	\$10,811	7.7
SNP Months 13 - 24	4,289	0.038	\$10,065	7.5
Aggregate Pre 1- 24	11,602	0.052	\$13,922	8.2
Aggregate Post 1- 24	10,539	0.045	\$9,824	7.7
Raw Percent Reduction		12%	29%	7%
Control Group Adjusted Percent Reduction		27%	35%	11%

Table 6. Inpatient PMPM Utilization, 12/12 Study Group (n=282)

Period	Member Months	Admissions PMPM	Cost Per Admission	ALOS
FFS Months 13 - 24	3,258	0.041	\$11,233	8.5
FFS Months 7 - 12	1,692	0.044	\$11,269	7.8
FFS Months 1 - 6	1,692	0.043	\$12,425	7.2
SNP Months 1 - 6	1,692	0.037	\$6,463	6.7
SNP Months 7 -12	1,692	0.042	\$8,413	6.4
SNP Months 13 - 24	2,995	0.041	\$10,685	7.7
Aggregate Pre 1- 24	6,642	0.042	\$11,501	8.0
Aggregate Post 1- 24	6,379	0.040	\$9,026	7.1
Raw Percent Reduction		5%	22%	11%
Control Group Adjusted Percent Reduction		22%	28%	16%

While the HIV SNP model’s inpatient utilization reductions are consistent with the objectives of the program’s highly tailored, HIV-specific care coordination model, the observed reductions in average cost per admission (28% - 35%) were somewhat unexpected. Further analysis of the inpatient unit cost differentials revealed the following findings:

- A shift of admission volume occurred from relatively high-cost facilities during persons' pre-enrollment period to relatively low-cost facilities during the while-enrolled period. Admission volume decreased in 48 hospitals, where average payments in the pre-enrollment period were \$14,198 per admission and \$1,741 per day. Admission volume increased in 32 hospitals, where average payments in the pre-enrollment period were \$12,920 per admission and \$1,506 per day. These volume shifts created a savings of 9% - 13% in overall inpatient spending during the while-enrolled period relative to the pre-enrollment period. (Data not shown.)
- Average costs per admission within the same hospitals decreased between the pre-enrollment and while-enrolled periods. Thirteen hospitals provided at least 10 pre-enrollment admissions to the 6/6 study cohort, and these hospitals accounted for 57% of all admissions. Across these facilities, the average cost per admission dropped from \$16,708 to \$8,651, a decline of almost \$8,100 per admission or 48%, between the pre-enrollment and the while-enrolled periods. Some of the large reduction in average costs for these admissions is likely attributable to the decline in average length of stay, which dropped from 8.63 days to 6.39 days, a decline of 2.24 days or 26% across these 13 hospitals' while-enrolled admissions as compared to their pre-enrolled admissions.

VI. Pharmacy Cost Comparisons

The appropriate use of prescription drugs and adherence to medication regimens are of particular importance for PLWHA. Pharmacy cost and utilization increased with HIV SNP enrollment and suggest improved compliance and access to necessary prescription drugs.

HIV SNPs appeared to have an immediate impact on pharmacy costs. As shown in Table 7 for the 6/6 subgroup and Table 8 for the 12/12 subgroup, per person pharmacy costs increased 11% – 13% between the final six months of fee-for-service coverage and the initial six months of HIV SNP enrollment. Longer-term impacts are smaller but demonstrate an overall 2% – 6% increase in prescription drugs cost once individuals enroll in a HIV SNP (Table 8).

Table 7: Pharmacy Costs and Usage Statistics, 6/6 Study Group

Period	# Months of FFS Coverage	Total Rx Cost	PMPM Rx Cost	Average % of People With Monthly Rx Claim(s)
Pre-Enrollment Months 25+	3,916	\$4,157,131	\$1,062	72.4%
Pre-Enrollment Months 13-24	8,127	\$9,496,419	\$1,169	75.5%
Pre-Enrollment Months 7-12	6,093	\$7,602,639	\$1,248	77.4%
Pre-Enrollment Months 4-6	3,330	\$4,250,328	\$1,276	77.5%
Pre-Enrollment Months 1-3	3,330	\$4,640,777	\$1,394	83.1%
While-Enrolled Months 1-3	3,330	\$5,046,489	\$1,515	84.3%
While-Enrolled Months 4-6	3,330	\$5,035,319	\$1,512	83.5%
While-Enrolled Months 7-12	6,037	\$9,241,069	\$1,531	82.9%
While-Enrolled Months 13-24	7,499	\$11,721,660	\$1,563	74.0%
While-Enrolled Months 25+	3,196	\$5,200,877	\$1,627	86.8%
Aggregate Pre-Enrollment (thru 24 months)	20,880	\$25,990,163	\$1,245	77.6%
Aggregate While-Enrolled (thru 24 months)	20,196	\$31,044,537	\$1,537	79.9%
Percent Change			23.5%	3.0%
Last Six Months of FFS	6,660	\$8,891,105	\$1,335	80.3%
First Six Months of SNP	6,660	\$10,081,808	\$1,514	83.9%
Percent Change			13.4%	4.4%

Table 8: Pharmacy Costs and Usage Statistics, 12/12 Study Group

Period	# Months of FFS Coverage	Total Rx Cost	PMPM Rx Cost	Average % of People With Monthly Rx Claim(s)
Pre-Enrollment Months 25+	1,727	\$1,839,861	\$1,065	74.8%
Pre-Enrollment Months 13-24	5,600	\$6,267,857	\$1,119	75.8%
Pre-Enrollment Months 7-12	4,182	\$5,162,683	\$1,235	79.6%
Pre-Enrollment Months 4-6	2,091	\$2,738,868	\$1,310	80.4%
Pre-Enrollment Months 1-3	2,091	\$2,923,529	\$1,398	84.3%
While-Enrolled Months 1-3	2,091	\$3,144,103	\$1,504	85.2%
While-Enrolled Months 4-6	2,091	\$3,141,797	\$1,503	83.3%
While-Enrolled Months 7-12	4,182	\$6,548,313	\$1,566	83.7%
While-Enrolled Months 13-24	5,898	\$9,644,299	\$1,635	83.8%
While-Enrolled Months 25+	2,011	\$3,562,959	\$1,772	88.9%
Aggregate Pre-Enrollment (thru 24 months)	13,964	\$17,092,937	\$1,224	78.9%
Aggregate While-Enrolled (thru 24 months)	14,262	\$22,478,512	\$1,576	83.9%
Percent Change			28.8%	6.3%
Last Six Months of FFS	4,182	\$5,662,397	\$1,354	82.4%
First Six Months of SNP	4,182	\$6,285,900	\$1,503	84.2%
Percent Change			11.0%	2.3%

VII. Cost Trends Between Early HIV SNP Enrollment Periods and Later HIV SNP Enrollment Periods

Another component of the assessment of medical cost impacts involved comparing early periods of HIV SNP enrollment with later periods of enrollment for the same individuals. The objective of this assessment was to see if the HIV SNP model appears to be stabilizing its members' service cost and utilization over time, or if HIV-infected Medicaid recipients' costs are moving upwards just as rapidly in the HIV SNP setting as appears to be occurring in the FFS environment. For this assessment, we created three study groups:

- Persons with at least six months of HIV SNP enrollment (n = 1,268)
- Persons with at least twelve months of HIV SNP enrollment (n = 774)
- Persons with at least 24 months of HIV SNP enrollment (n = 265)

Tables 9 - 11 present the annual trends for inpatient PMPM costs in each of these subgroups, respectively, as well as the progression in the total PMPM medical costs for which the HIV SNPs are responsible (which excludes carve-out services such as prescription drugs). As the creation of these study groups excluded persons with evidence of Medicaid managed care coverage prior to enrolling in the HIV SNP, the assessment could most accurately measure the progression of costs attributable to the HIV SNP managed care model.

While the amounts in Tables 9, 10 and 11 all vary from one another, a consistent "story" emerges. As persons remain enrolled in their HIV SNP, their inpatient and overall PMPM costs have increased modestly -- if at all. For the largest study group of 1,268 persons, as shown in Table 10, the PMPM costs trended downward the longer these persons stayed enrolled in an HIV SNP. Inpatient PMPM costs decreased 14% and total HIV SNP PMPM costs decreased 7% between the first and second years of HIV SNP enrollment. This occurred at a time when the FFS control group population, as shown earlier in Table 1, experienced average annual inpatient PMPM cost increases of 16% per year.

The study group populations shown in Table 10 and Table 11 experienced modestly upward trends in their PMPM costs the longer these persons stayed enrolled in an HIV SNP. However, increases in inpatient PMPM costs between the first and second years of HIV SNP enrollment for each of these groups were far below the FFS control group's 16% inpatient PMPM cost trend.

The data in Tables 9 - 11 also show the importance of containing inpatient costs from the HIV SNPs' perspective. Even with the substantial inpatient cost reductions the HIV SNPs clearly appear to have achieved, the remaining inpatient costs still account for half or more of the HIV SNPs' total medical costs.

Table 9: Progression of Costs During HIV SNP Enrollment, Persons Enrolled in an HIV SNP for at Least Six Months (N=1,268)

Time Segment Relative to Initial Month of An Individual's Enrollment in an HIV SNP	Member Months	Inpatient PMPM	Total Medical Cost PMPM
SNP Months 1 - 3	3,765	\$464	\$822
SNP Months 4 - 6	3,775	\$474	\$833
SNP Months 7 - 12	5,613	\$481	\$866
SNP Months 13 - 24	5,640	\$406	\$784
Aggregate SNP 1 - 12 months	13,153	\$474	\$844
Aggregate SNP 13 - 24 months	5,640	\$406	\$784
Percent Change, Year 1 - Year 2		-14%	-7%

Table 10: Progression of Costs During HIV SNP Enrollment, Persons Enrolled in an HIV SNP for at Least Twelve Months (N = 774)

Time Segment Relative to Initial Month of An Individual's Enrollment in an HIV SNP	Member Months	Inpatient PMPM	Total Medical Cost PMPM
SNP Months 1 - 3	2,311	\$381	\$736
SNP Months 4 - 6	2,312	\$349	\$690
SNP Months 7 - 12	4,595	\$383	\$769
SNP Months 13 - 24	5,614	\$402	\$779
Aggregate SNP 1 - 12 months	9,218	\$374	\$741
Aggregate SNP 13 - 24 months	5,614	\$402	\$779
Percent Change, Year 1 - Year 2		7%	5%

Table 11: Progression of Costs During HIV SNP Enrollment, Persons Enrolled in an HIV SNP for at Least Twenty-Four Months (N = 265)

Time Segment Relative to Initial Month of An Individual's Enrollment in an HIV SNP	Member Months	Inpatient PMPM	Total Medical Cost PMPM
SNP Months 1 - 3	793	\$276	\$594
SNP Months 4 - 6	795	\$349	\$680
SNP Months 7 - 12	1,588	\$352	\$728
SNP Months 13 - 24	3,164	\$338	\$711
Aggregate SNP 1 - 12 months	3,176	\$332	\$683
Aggregate SNP 13 - 24 months	3,164	\$338	\$711
Percent Change, Year 1 - Year 2		2%	4%

VIII. Impacts of HIV SNP Program on Overall Medicaid Expenditures

The final component of this study involves estimating the HIV SNP program's financial impacts on Medicaid program expenditures. This assessment takes into consideration the following factors:

- the medical costs occurring under the HIV SNP program (including both covered and carved-out services), relative to the estimated medical costs that would have occurred in the absence of the program;
- the administrative costs incurred by the HIV SNPs; and
- the operating margins achieved by the HIV SNPs.

Table 12 presents the derivation of these estimates. The key assumptions used for each component are described below.

Table 12: Derivation of HIV SNP Program's Medicaid Cost Impacts, CY2008

Data Aggregated Across the Three HIV SNPs' CY2008 Year-End SNP Operating Report	Program-Wide Total	Low FFS Estimate	High FFS Estimate	High FFS Estimate	High FFS Estimate
		<i>Model A: 50% Inpatient Impact for HMO Transfers</i>		<i>Model B: Zero Inpatient Impact for HMO Transfers</i>	
PMPM Cost					
Inpatient	\$573	\$921	\$1,035	\$837	\$914
Other Medical	\$442	\$442	\$491	\$442	\$491
Total Medical	\$1,015	\$1,363	\$1,526	\$1,279	\$1,405
Administrative Cost	\$223	\$0	\$0	\$0	\$0
Operating Income (loss)	-\$7	\$0	\$0	\$0	\$0
Pharmacy	\$1,687	\$1,592	\$1,654	\$1,592	\$1,654
Total Cost	\$2,919	\$2,955	\$3,181	\$2,871	\$3,059
CY2008 HIV SNP Membermonths	38,834	38,834	38,834	38,834	38,834
Total Dollars					
Inpatient	\$22,261,284	\$35,773,799	\$40,211,697	\$32,519,208	\$35,492,841
Other Medical	\$17,157,847	\$17,157,847	\$19,064,274	\$17,157,847	\$19,064,274
Total Medical	\$39,419,131	\$52,931,646	\$59,275,953	\$49,677,055	\$54,557,115
Administrative Cost	\$8,675,928	\$0	\$0	\$0	\$0
Operating Income (Loss)	-\$272,852	\$0	\$0	\$0	\$0
Pharmacy	\$65,524,453	\$61,815,522	\$64,239,660	\$61,815,522	\$64,239,660
Total Cost	\$113,346,660	\$114,747,168	\$123,515,613	\$111,492,577	\$118,796,775

Inpatient Impacts: This study found PMPM inpatient costs have been reduced by 44% – 52% in the HIV SNP setting versus the FFS setting. These findings were based on persons who were covered under Medicaid FFS prior to joining the HIV SNP. However, 28% of HIV SNP enrollees had mainstream Medicaid managed care benefit coverage prior to enrolling in one of the HIV SNPs. This study has not had a means of assessing the inpatient impacts the HIV SNP program has had on persons who transitioned from a mainstream Medicaid managed care program to an HIV SNP. The estimated 44% - 52% reduction has therefore been applied to 72% of the SNP enrollees. Two assumptions are then used to estimate the inpatient impacts for the remaining 28% of SNP enrollees (i.e., those who were previously enrolled in a mainstream Medicaid managed care program). The low-end assumption is that no additional inpatient impacts were realized for persons joining an HIV SNP from a mainstream Medicaid managed care plan. The high-end assumption is that inpatient costs have been reduced by half the amount quantified for persons enrolling in an HIV SNP from the FFS coverage setting, or 22% - 26%. This high-end assumption reflects the expectation that a smaller inpatient impact would occur for persons joining the SNP from a mainstream Medicaid managed care plan health plan, but that the tailored HIV SNP model will create considerable reductions beyond those of the mainstream Medicaid managed care program. The overall inpatient cost reduction impact of the HIV SNP program on the full body of enrollees is therefore estimated to be between 31.5% and 44.6%. Table 13 presents these calculations.

**Table 13: Derivation of Average Inpatient Cost Impacts
Across Persons Joining HIV SNP from FFS and from Mainstream Medicaid MCOs**

Estimate of Inpatient Savings based on Prior Plan Experience; FFS (71.7%) or Mainstream Medicaid MCO (28.3%)	Low End	High End
HIV SNP Inpatient Savings v. FFS	44.0%	52.0%
<i>Weighted Average Impact Calculation Assuming No Impact Occurred for Mainstream MCO Transfers</i>		
FFS Only	44.0%	52.0%
Prior HMO Experience	0.0%	0.0%
Weighted Average, All Enrollees	31.5%	37.3%
<i>Weighted Average Impact Calculation Assuming 50% of FFS Impact Occurred for Mainstream MCO Transfers</i>		
FFS Only	44.0%	52.0%
Prior HMO Experience	22.0%	26.0%
50% Impact Model	37.8%	44.6%

Pharmacy Costs: Based on findings previously discussed, pharmacy costs for the HIV SNP enrollees are estimated to be 2% - 6% higher than would have occurred in the absence of the program. This is a positive finding in that it suggests improved access to and adherence to the medication regimens. Nonetheless, these added pharmacy costs need to be included in the estimate of the program's overall Medicaid cost impacts.

Other HIV SNP Medical Costs: The study did not directly analyze the effect of HIV SNP enrollment on costs for services other than inpatient hospital care and outpatient pharmacy. Given the large-scale inpatient reductions that have been quantified herein, it is quite possible that PMPM cost reductions also occurred for other services also covered by the HIV SNP benefit package. The analyses in Section VII indicate that the HIV SNPs' non-inpatient PMPM medical costs trended upwards at a modest annual rate of increase of 2% - 6%, which does suggest some impacts occurred given the control group's sharp cost trend.¹ This study estimates that HIV SNP non-inpatient PMPM cost reductions ranged from a low of 0% to a high of 10%.

Administrative Costs: Based on the HIV SNPs' reported financial statements, the three health plans collectively spent \$8.7 million for administrative services during calendar year (CY) 2008. These costs are all counted as an additional expense to the Medicaid program.² It is important to note that the health plans' administrative spending is necessary to implement the HIV SNP clinical model and to achieve the inpatient savings and other medical cost impacts that have occurred.

Operating Margins: Based on the HIV SNPs' reported financial statements, the three health plans collectively experienced a \$272,852 operating loss during CY2008. The capitation rate-setting effort typically seeks to provide the HIV SNPs with a collective operating margin of 2% - 3%, but this margin did not occur in the program during CY2008 as the plans collectively experienced a 0.2% operating loss.

Summary: The figures in Table 14 demonstrate the range of effects for all of the above estimates on the state's Medicaid program expenditures. The most pessimistic estimate - derived by using the most conservative assumptions where ranges were used -- is that the HIV SNP program created a net cost of \$1.9 million to the Medicaid program during CY2008. The most optimistic estimate -- derived by using the most favorable assumptions where ranges were used -- is that the HIV SNP program created a savings to the Medicaid program of \$10.2 million during CY2008. The midpoint between these two figures is that the HIV SNP program reduced Medicaid spending by \$4.2 million during CY2008. This midpoint figure represents the study's best estimate of Medicaid cost impacts.

¹ These figures were derived based on the information provided earlier in Tables 9-11 by subtracting inpatient PMPM costs from total PMPM costs to yield the HIV SNPs' non-inpatient PMPM costs.

² The NYSDOH incurs administrative costs for the HIV SNP program related to overall program monitoring and evaluation, annual capitation rate-setting, enrollment processing, encounter data processing, and other factors. At the same time, the HIV SNPs take on some functions that the NYSDOH would fulfill in the absence of the program, including claims processing and certain member services and provider services activities. No attempt has been made to quantify these NYSDOH administrative costs and savings -- it is estimated that the HIV SNP program creates no net change in overall NYSDOH administrative costs.

Table 14: Summary of HIV SNP Program’s Medicaid Cost Impacts, CY2008

CY2008 New York Medicaid Program Savings (Loss) Due to HIV SNP Program		
	Dollars	Percent
Low estimate	(\$1,854,083)	(1.7%)
High estimate	\$10,168,953	8.2%
Midpoint estimate	\$4,157,435	3.3%

Note: Dollar figures represent all Medicaid funds (State and Federal share combined)

Two issues warrant mention with regard to the program’s expected cost impacts going forward. First, administrative costs as a percentage of revenue are likely to decrease substantially as enrollment in the program continues to grow. The program’s improving administrative scale economies are being considered in deriving capitation rates for the HIV SNP program and will therefore lead to increased savings to the Medicaid program in future years.

Second, profit margins are expected to be positive in each year, given that a reasonable operating margin is a necessary expectation for the HIV SNPs to take on the considerable medical cost risk they assume. All other things being equal, this will reduce the program-wide savings the program is creating. As shown in Table 13, achievement of a 2% - 3% operating margin by the SNPs would not eliminate the program’s midpoint level savings.

IX. Summary Observations

A. Key Findings

The HIV SNP program's impacts have been highly favorable along every dimension assessed. The program's care integration model appears to achieve significant inpatient cost savings and provides overall savings to the Medicaid program. The key findings are briefly summarized below.

- Inpatient costs were lowered dramatically as shown by a detailed assessment of the individuals' inpatient costs prior to and after enrolling in an HIV SNP. Per member per month (PMPM) inpatient costs were lowered by 44% - 52% after adjusting for a control group's observed trends. The change for the HIV SNP enrollees -- disregarding the control group's experience -- was a 26% - 38% reduction during the while-enrolled period relative to these same individuals' pre-enrollment experience.
- Lower inpatient costs resulted from declines in enrollees' admission rate, average length of stay, and average cost per admission. Inpatient admissions in the HIV SNP setting shifted, on average, to lower-cost hospitals than admissions that had occurred during the pre-enrollment period.
- Pharmacy costs increased following HIV SNP enrollment based on the same methodology used to quantify inpatient cost impacts. PMPM pharmacy costs increased 11% - 13% between the final six months of FFS coverage and the initial six months of HIV SNP coverage. Longer-term analyses suggest a 2% - 7% increase in pharmacy costs after adjusting for the control group's PMPM pharmacy cost trends. In addition, the proportion of persons filling at least one prescription per month was 2.3 - 5.0 percentage points higher during the first six months of SNP enrollment than in the six-month period prior to HIV SNP enrollment.
- The HIV SNP program is likely creating overall Medicaid program savings. The study's best estimate of the calendar year 2008 program impacts is that the HIV SNP program achieved calendar year 2008 Medicaid savings of \$4.2 million (or 3.3% of expenses).

B. Key Limitations of the Study

The most significant limitation to the study's findings is the HIV SNP program's low enrollment on which those findings are based. Other Medicaid managed care programs typically serve more than 100,000 covered persons, but the HIV SNP initiative is purposely focused on a small subset of New York's Medicaid population. Overall program enrollment is now under 6,000 persons, and enrollment during the data period used in this study was far smaller. The largest assessment was conducted on 1,110 persons; the smallest assessment was conducted on 282 persons.

A related limitation is the relatively short timeframe being assessed. The available data typically permitted assessing up to two years of pre-enrolled and two years of while-enrolled experience. A wider timeframe of analysis might yield different results, or provide important insight into the longer-term impacts the SNPs are having on their members.

C. Key Strengths of the Study

Notwithstanding the above limitations, this study also offers important methodological strengths. A particular strength of the analyses conducted is the availability of fee-for-service cost and usage data for the same individuals for whom their experience while enrolled in an HIV SNP is being assessed. In assessing managed care enrollment impacts, such pre-enrollment information is usually not available. However, the HIV-infected persons enrolling in the HIV SNP program often had substantial Medicaid FFS coverage prior to enrolling, creating a valuable pre-versus-post comparison opportunity that this study sought to take advantage of.

Second, the availability of a large (26,000+ persons) control group of New York Medicaid, FFS-covered, HIV-infected persons was extremely valuable to this analysis. Many things other than their HIV SNP enrollment could have affected the differences between the enrollees' "while-enrolled" experience versus their "pre-enrollment" experience. The control group analyses, using parallel population selection rules as used for the HIV SNP enrollee analyses (e.g., no observed periods of Medicare coverage or other managed care coverage months) greatly improves the study's ability to estimate the impacts that are attributable to the HIV SNP coverage model.

Third, the sample size limitations described above are made less troubling by the fact that several subgroups were created and assessed. For example, the 6/6 and 12/12 study groups created herein yielded similar findings to one another for both the inpatient and pharmacy impact analyses. It is also worth noting that data were available for *all* HIV-SNP enrolled persons during the study period. The subsets selected for the 6/6 and 12/12 groups were created solely for reasons of avoiding issues (e.g., Medicare coverage) that would clearly distort the data findings.

Taking all the above into consideration, the study's authors are confident that the direction and general magnitude of the findings represent valid estimates of the program's early-year impacts. It will be important to re-evaluate the HIV SNP program at regular time intervals going forward -- both to reassess this study's findings on the growing body of HIV SNP enrollees, and to begin assessing the impacts of longer-term SNP enrollment. The findings from these analyses can clearly be useful in shaping policy decisions pertaining to New York's HIV SNP initiative. More broadly, the findings can be of value to health policy-making efforts throughout the country in weighing coordinated care program design alternatives for the high-need subgroups that account for a large share of overall health spending.