September 2010 | RDA Report 4.81
Olympia, Washington

Bending the Health Care Cost Curve by Expanding Alcohol/Drug Treatment

David Mancuso, PhD and Barbara E.M. Felver, MES, MPA

In collaboration with the Washington State Department of Social and Health Services, Aging and Disability Services Administration, Division of Behavioral Health and Recovery, David Dickinson, Director and Alice Huber, Administrator, Evaluation and Quality Assurance

SENATE BILL 5763, The Omnibus Treatment of Mental and Substance Abuse Disorders Act of 2005 provided expanded funding for alcohol or other drug (AOD) treatment of approximately $32 million for adults and $6.7 million for youth in the 2005-07 Biennium. The expansion for adults was targeted for persons enrolled in Medicaid or General Assistance Unemployable (GA-U, now Disability Lifeline) medical coverage, and was funded primarily by assumed savings in medical and long-term care costs, based on research documenting the potential health care cost savings associated with AOD treatment. Treatment Expansion funding for adults was increased to about $40 million in the 2007-09 Biennium. This report provides information on the progress of the AOD Treatment Expansion through the 2009 Fiscal Year.

Key Findings

- The AOD Treatment Expansion initiative has delivered a significant increase in AOD treatment penetration in the SSI-related Disabled Medicaid and GA-U populations.
- As predicted by the initial modeling for the Treatment Expansion initiative, the increase in AOD treatment penetration has coincided with a significant relative reduction in rates of growth in medical and nursing facility costs for Medicaid Disabled and GA-U clients with substance use problems.
- By “bending the curve” in health care costs, the AOD Treatment Expansion achieved an impressive return on investment (ROI) in its first two biennia. Although it is challenging to isolate the impact of the AOD Treatment Expansion from other contemporaneous policy initiatives, under relatively conservative assumptions we estimate an ROI of 2:1 in the first four years of implementation, based on the observed trends in health care and AOD treatment costs. That is, there were two dollars in medical and nursing facility costs saved per dollar invested in expanded AOD treatment (all funds).
- Capping Treatment Expansion funding in the 2009-11 Biennium will cause AOD treatment penetration rates to decline, as funding levels fail to keep pace with caseload growth. This may cause unbudgeted increases in health care costs for Medicaid clients with substance use problems. Additional AOD treatment funding in the Security Lifeline Act will mitigate the shortfall for Disability Lifeline (GA-U) clients. However, the Act also increases emphasis on transitioning Disability Lifeline clients to Medicaid Disabled coverage, putting increasing pressure on the capped AOD Treatment Expansion funding for Medicaid Disabled clients. This problem would be fixed by funding AOD treatment through a caseload and per cap expenditure forecast process that would ensure funding keeps pace with caseload growth.

Background

SENATE BILL 5763, The Omnibus Treatment of Mental and Substance Abuse Disorders Act of 2005 provided expanded funding to the DSHS Division of Behavioral Health and Recovery (DBHR) for alcohol or other drug (AOD) treatment of approximately $32 million for adults and $6.7 million for youth in the 2005-07 Biennium. The expansion for adults was targeted for persons enrolled in Medicaid and GA-U medical coverage, and was funded primarily by assumed savings in medical and long-term care costs, based on research documenting the potential health care cost savings associated with AOD treatment. Due to the slower than anticipated ramp-up of the Treatment Expansion, supplemental budget actions reduced Treatment Expansion funding from the originally budgeted amounts. The original budget allocation for the adult target populations for SFY 2007 was reduced from $20.4 million in the original appropriation to $10.6 million, while expansion funding for youth in SFY 2007 was reduced from the original $3.36 million to $469,000. Treatment Expansion funding for adults was increased to approximately $40 million in the 2007-09 Biennium.

This report provides information on the progress of the AOD Treatment Expansion in achieving medical and long-term care cost offsets through its first two biennia. Because of the interest in health care cost offsets, this report focuses on adult Medicaid Disabled adults and GA-U clients. The analyses in this report rely on linked client-level information from several data sources:

- Extracts from DBHR's TARGET management information system were used to measure AOD treatment admissions and activities.
- Fee-for-service medical claims data from the Medicaid Management Information System (MMIS) were used to measure medical and nursing home service costs and to identify AOD treatment activities that were not reported into the TARGET system.
- The OFM "span" eligibility file provided client medical coverage spans.
- The DSHS Research and Data Analysis Division Integrated Client Database provided linked client identifiers across information systems.

We focus on the impact of treatment funded through DBHR, excluding private and state Department of Corrections-paid services. Alcohol or other drug treatment includes four service modalities: outpatient treatment, residential treatment, opiate substitution treatment, and case management. Detoxification and assessment services are not considered to be AOD treatment. Patients are counted as receiving treatment services when they are admitted to treatment or engage in formal treatment activities.

THE TARGET POPULATIONS

MEDICAID DISABLED ADULTS—Includes clients receiving DSHS medical coverage through the Disabled, Blind and GA-X medical programs. Includes both categorically needy and medically needy coverage. Includes clients who are dually eligible for Medicare, as well as those eligible for Medicaid only. Medical cost offset analyses will focus on Medicaid-only clients because most medical care for dual eligibles is paid for by the Federal Medicare program. Nursing home cost offset analyses will include dual eligibles.

MEDICAID AGED—Includes both categorically needy and medically needy coverage. Because this relatively small population (in terms of need for AOD treatment) is primarily dually eligible for Medicare, this group is not a focus of this report.

OTHER MEDICAID ADULTS—Includes clients age 18 and above receiving DSHS medical coverage through the Family Medical, Pregnant Women, and Children's Medical coverage groups. This group is not included in medical cost offset analyses because most clients are enrolled with a managed care plan through the Healthy Options program. Therefore, savings from reduced medical service utilization that may result from increased use of AOD treatment would tend to accrue to Medicaid managed care plans.

GENERAL ASSISTANCE-UNEMPLOYABLE (GA-U)—The GA-U program provides cash and medical benefits for low-income adults (age 18 to 64) without dependents who are physically or mentally incapacitated and expected to be unemployable for 90 days or more. The Security Lifeline Act (Chapter 8, Laws of 2010) changed the name of the GA-U program to "Disability Lifeline" and made fundamental changes to the program including the imposition of time limits and AOD treatment participation requirements as a condition of eligibility.

YOUTH—Youth expansion funds were earmarked for youth living in households under 200 percent of the federal poverty level. Includes a relatively small number of patients aged 18 to 20 served by youth treatment providers. Because no cost offsets were budgeted for youth treatment, youth are not a focus of this report.

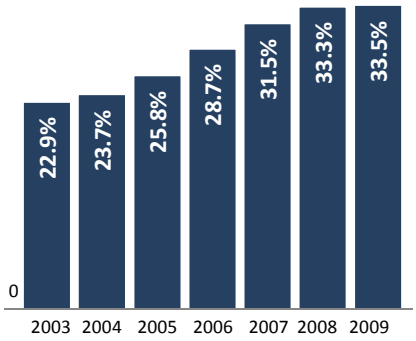
The Expansion has delivered historic increases in AOD treatment penetration

AOD Treatment Penetration Rate Trends

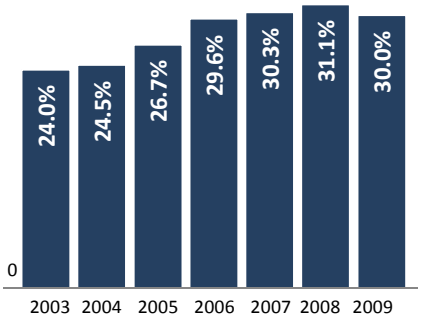
SFY 2003 TO SFY 2009 PENETRATION

Proportion of clients with an alcohol/drug problem who receive treatment

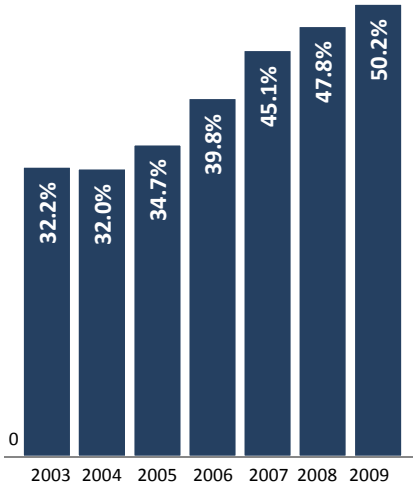
Medicaid Disabled Adults



Other Medicaid Adults



GA-U Clients (Disability Lifeline)



The AOD Treatment Expansion was funded on the research-based prediction that increasing alcohol/drug treatment penetration (the proportion of clients with substance use disorders who receive AOD treatment) would dampen the rate of growth of medical and nursing home costs in the Medicaid Disabled and GA-U target populations.

Therefore, the success of the Treatment Expansion critically depends on whether the initiative resulted in meaningful increases in AOD treatment penetration rates in the key target populations. That is, the proportional increase in the number of clients receiving treatment must significantly exceed the caseload-driven growth in the number of clients in the medical coverage target populations who are estimated to need AOD treatment.

Among Medicaid Disabled adults, the number of patients receiving AOD treatment increased from 7,012 in SFY 2004 to 11,514 in SFY 2009. Accounting for growth in the population of Disabled Medicaid clients, and expressing the number served as a proportion of the population estimated to need AOD treatment, the AOD penetration rate for Medicaid Disabled clients increased from 23.7 percent to 33.5 percent over the same time period. (See Table 1 in the Technical Appendix for detailed calculations.)

The pattern is similar for other Medicaid adults (primarily pregnant women and parents in TANF-related Family Medical households). Treatment penetration increased from 24.5 percent in SFY 2004 to 31.1 percent in SFY 2008. The penetration rate fell to 30 percent in SFY 2009, as a slight increase in the number receiving treatment was offset by a larger relative increase in the eligible medical population. The decrease in treatment penetration in SFY 2009 coincided with the elimination of TANF funding to station chemical dependency professionals in community service offices. Note that no medical cost offsets were assumed in this population because most clients are in managed care.

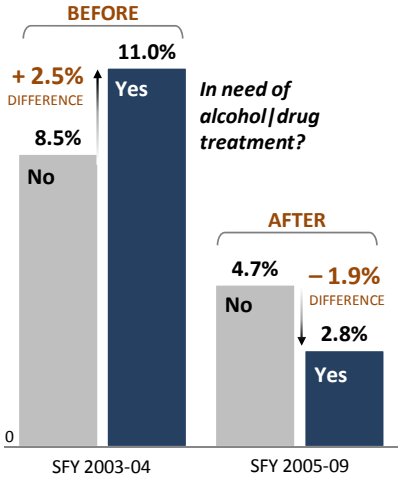
The increase in AOD treatment among GA-U clients has been particularly striking, with treatment penetration rising from 32 percent in SFY 2004 to 50 percent in SFY 2009. Because many patients who received AOD treatment while enrolled in GA-U subsequently move to SSI-related Medicaid coverage, the success in engaging GA-U patients in AOD treatment has had longer-term beneficial impacts on cost savings and health outcomes for the Medicaid Disabled population.

Treatment Expansion has reduced growth in medical and nursing home costs

Relative Growth in Medical and Nursing Home Costs Before and After Treatment Expansion

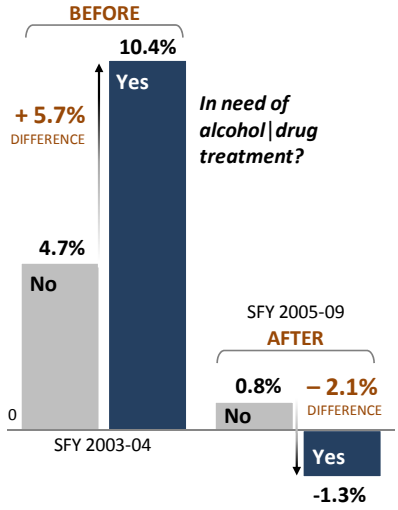
Medical Costs for Medicaid Disabled Adults *(excludes duals)*

Average Annual Percent Change PMPM



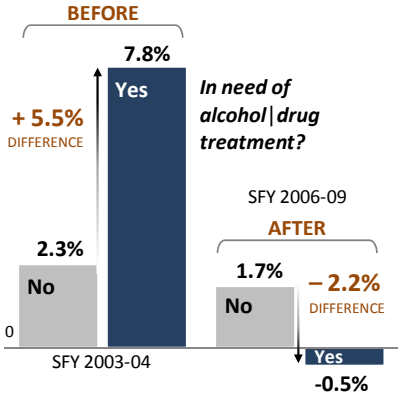
Skilled Nursing Facility Costs for Medicaid Disabled Adults *(includes duals)*

Average Annual Percent Change PMPM



Medical Costs for GA-U Clients

Average Annual Percent Change PMPM



The increase in treatment penetration achieved by the AOD Treatment Expansion initiative has coincided with an unprecedented relative reduction in the rate of growth of health care costs for Medicaid Disabled and GA-U clients with substance use problems. This relative reduction in growth in health care costs in the target populations has generated large cost offsets. The appendix describes in detail the difference-of-difference evaluation design behind the savings estimates reported here.

Prior to the AOD Treatment Expansion initiative, medical costs for Medicaid Disabled clients ***with*** substance use problems were rising significantly more rapidly (11 percent annually) than medical costs for Medicaid Disabled clients ***without*** substance use problems (8.5 percent annually). Under the AOD Treatment Expansion initiative, this relationship has reversed. Since SFY 2005, medical costs have been growing more slowly for clients ***with*** substance use problems (2.8 percent annually) than for clients ***without*** substance use problems (4.7 percent annually), as an increasing proportion of the clients ***with*** substance use problems have entered AOD treatment. The same pattern of significant relative reductions in rates of growth in costs for clients with substance use problems has been observed in the areas of skilled nursing facility costs for Medicaid Disabled patients and medical costs for GA-U patients (see charts at left).

The relative reductions in health care costs in the AOD Treatment Expansion target populations has "bent the cost curve" relative to the trend one would have expected if the relative cost growth rates observed prior to Treatment Expansion had been maintained. As described in detail in the appendix, we use a conservative linear forecast model, which assumes that significant narrowing of baseline cost trends between clients ***with*** and ***without*** substance use disorders would have occurred in the absence of the Treatment Expansion, to estimate the savings associated with the initiative.

This conservative linear forecast model, combined with the observed rate of growth in costs for clients without substance use problems, is used to form the "Expected Trend" in costs for clients with substance use disorders in the charts on page 5. The difference between the "Expected Trend" and "Actual" pmpm cost trend lines is an estimate of the pmpm cost savings observed over the broad population of clients with substance use disorders in the targeted medical coverage population in the specified cost area (for example, medical costs for Medicaid Disabled clients).

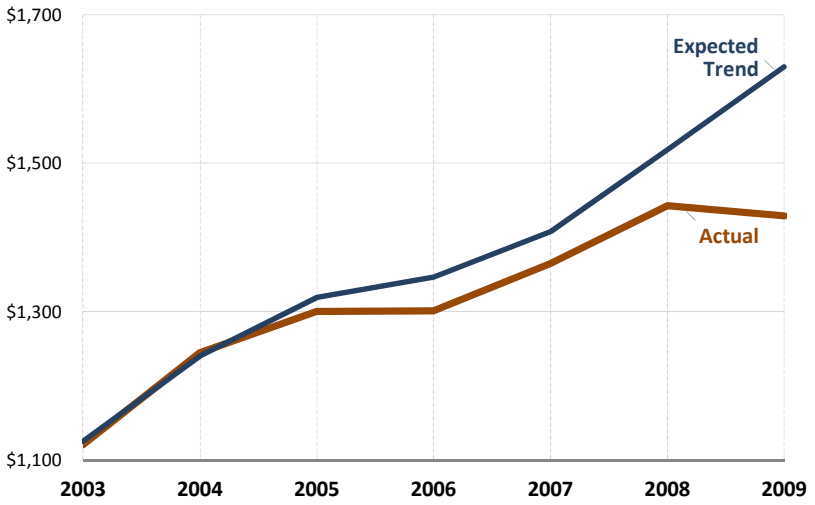
Treatment Expansion has "bent the curve" in medical and long-term care costs

Medical and Nursing Home Cost Trends

Medicaid Disabled Adults with identified AOD treatment need

Medical Expenditures pmpm

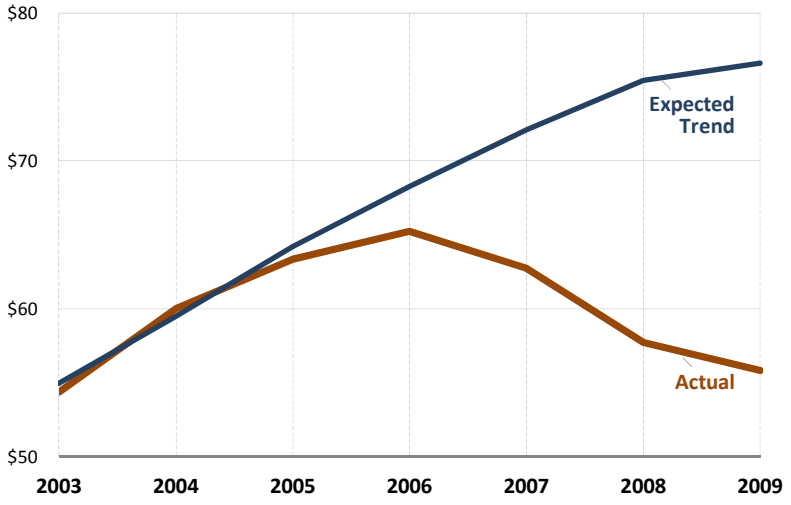
Excludes dual eligibles



Medicaid Disabled Adults with identified AOD treatment need

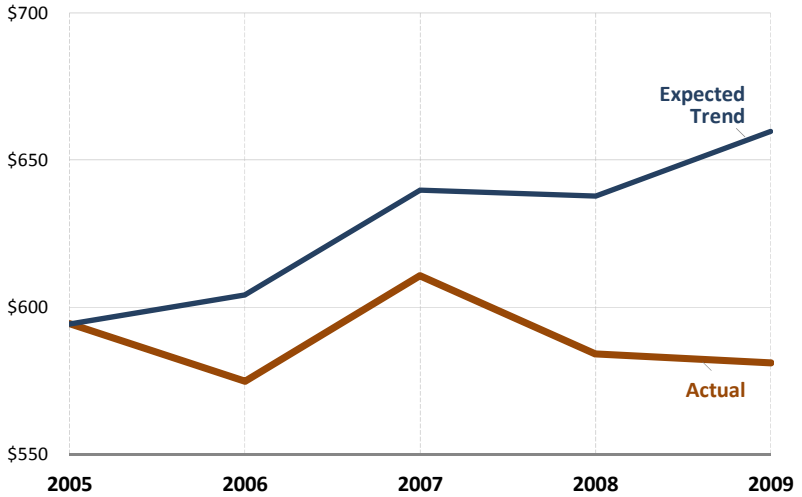
Aging and Adult Services Nursing Home Expenditures pmpm

Includes dual eligibles



GA-U (Disability Lifeline) Clients with identified AOD treatment need

Medical Expenditures pmpm



Treatment Expansion has achieved a significant return on investment

Treatment Cost, Cost Offsets and Return on Investment

We estimate the return on investment (ROI) from the AOD Treatment Expansion initiative in its first two biennia by comparing the estimated medical and nursing home savings to the increase in AOD treatment costs associated with the initiative. It is important to note that health care cost savings result from an increase in AOD treatment penetration, rather than an increase in the absolute number of clients in treatment. Therefore, the relevant AOD treatment costs for the ROI calculation are the costs associated with treatment above the level necessary to maintain stable AOD treatment penetration in a growing medical caseload. The cost calculations in the table below were derived by applying the average annual treatment cost per client in the Treatment Expansion target populations to the number of clients in treatment above the level necessary to maintain baseline (FY 2004) rates of treatment penetration. The detailed calculations are described in Table 2 in the Technical Appendix.

By "bending the curve" in health care costs, the Treatment Expansion initiative has achieved a significant return on investment. We estimate an ROI of 2:1 in the first four years of implementation (all fund sources), based on the observed trends in health care and AOD treatment costs. That is, there were two dollars in medical and nursing facility costs saved per dollar invested in expanded AOD treatment. From a State General Fund perspective, the ROI would be somewhat lower due to the impact of the Institutions for Mental Disease exclusion on funding of residential AOD treatment that comprises roughly 30 percent of total AOD treatment costs.

Capping AOD Treatment Expansion funding in the 2009-11 Biennium will cause treatment penetration rates to decline, as funding levels fail to keep up with underlying medical caseload growth. This may cause unbudgeted increases in health care costs for Medicaid clients with substance use problems, as AOD treatment penetration declines. Additional AOD treatment funding in the Security Lifeline Act will mitigate the funding shortfall for Disability Lifeline (GA-U) clients. However, emphasis on quicker transitions for Disability Lifeline patients to Medicaid enrollment will put increasing pressure on the limited AOD Treatment Expansion funding for Medicaid Disabled clients. Including AOD treatment funding in the forecast process for Medicaid enrollees would address this problem by ensuring that AOD treatment funding keeps pace with caseload growth.

A two-dollar return per dollar invested . . . .

	Treatment Costs Associated with Increased Penetration above SFY 2004 Baseline			
			GA-U (Disability Lifeline) Medical Savings	
		Medicaid Disabled Skilled Nursing Facility Savings		
	Medicaid Disabled Medical Savings			
SFY 2006	$8,365,576	$752,436	$1,117,406	$8,754,315
SFY 2007	$8,752,190	$2,568,900	$1,371,234	$11,909,113
SFY 2008	$16,447,831	$5,361,223	$2,640,657	$14,892,548
SFY 2009	$48,422,203	$6,789,913	$4,833,062	$16,288,973
4-year totals			**$107,422,631** *Sum of first three columns*	**$51,844,948** *Total from above*
			Return on Investment	**$2.07**

Bending the Health Care Cost Curve by Expanding Alcohol/Drug Treatment

TECHNICAL APPENDIX

Methods

The AOD Treatment Expansion was funded primarily through assumed savings (cost offsets) in medical and nursing home costs for Medicaid Disabled and GA-U patients. Savings assumptions were based on estimates from the SSI Cost Offset Study[1] and related analyses conducted during the legislative session.[2] Statistical models comparing how costs evolve over time for treated and untreated clients with substance use problems were used to estimate the impact of treatment on medical and long-term care costs. Although the statistical models included a rich set of variables to control for differences between treated and untreated clients, the budgeted cost offsets could differ from actual cost savings—in particular due to potential biases in the estimates introduced by the non-random entry of clients into AOD treatment. That is, clients entering treatment may be systematically different from clients with AOD problems who do not enter treatment—different in ways that are related to changes over time in health care costs but that cannot be measured with available data and therefore cannot be directly controlled for in the statistical models.

The expansion of AOD treatment provides a "natural experiment" that makes possible the use of alternative models to estimate the impact of AOD treatment on medical and nursing home expenditures that may be more robust against the selection bias critique of the original savings estimates used in the legislative process. We use an evaluation approach that combines difference-of-difference and intent-to-treat design elements to reduce potential biases in the measurement of treatment impacts. We compare the percent deviation from expected cost trends for clients affected by the expansion (clients *with* alcohol/drug problems), relative to the percent deviation from expected cost trends for clients not affected by the expansion (clients *without* alcohol/drug problems). The difference-of-difference component helps control for common confounding factors affecting changes in expenditures, such as secular trends in service utilization or changes in reimbursement rates. The intent-to-treat component helps mitigate the problem of selection bias that is created by the non-random entry of clients to treatment. By examining changes in costs for *all* clients with substance use disorders, as opposed to only those who choose to enter treatment, we eliminate measurement bias that could occur if clients entering AOD treatment tend to experience smaller increases in costs over time, independent of any impact of treatment on costs.

We compare the percent deviation from expected cost trends, rather than using a simple pre/post difference-of-difference model, because medical costs have historically grown more rapidly for clients with alcohol/drug problems, compared to clients without alcohol/drug problems. (This is visually depicted in the charts on page 4 of the report.) Therefore, the simple pre/post difference-of-difference calculation would tend to **underestimate** the true Treatment Expansion effect. We compare "percent-change" deviations from the trend forecast, rather than "level-change" deviations from the trend forecast, because key confounding factors are expected to have a common proportional effect on costs. For example, we would expect changes in reimbursement rates to tend to have a common proportional impact, but a larger absolute impact on the client group with higher "baseline" expenditure levels. Given that medical costs tend to be higher for clients with substance use disorders than for other clients with similar DSHS medical coverage, comparing "level-change" deviations from the trend forecast in medical costs would tend to **overestimate** the Treatment Expansion effect.

The key challenge for our approach is the potential confounding effects of other interventions disproportionately affecting clients with AOD problems. One potential confounding issue is that AOD treatment penetration rates increased significantly in the year prior to Treatment Expansion, primarily due to earlier increases in criminal justice related treatment funding. We discuss this issue in detail below.

Another "confounding intervention" is the Screening, Brief Intervention, and Referral to Treatment pilot project (WASBIRT). This project stationed chemical dependency professionals in several hospital emergency rooms across the state and provided screening, brief intervention, and referral to treatment for patients with substance use problems. WASBIRT was implemented in March 2004, ramped up significantly in SFY 2005 (the year prior to Treatment Expansion), and continued into the 2007-09 Biennium. WASBIRT served many patients in the Treatment Expansion target populations, and helped facilitate the increase in AOD treatment penetration observed during this period.

[1] 2003. Estee and Nordlund. Washington State Supplemental Security Income (SSI) Cost Offset Pilot Project: 2002 Progress Report, DSHS Research and Data Analysis Division, www1.dshs.wa.gov/rda/research/11/109.shtm.

[2] 2005. Kohlenberg, Mancuso, and Nordlund. Alternative Health and Nursing Home Cost Offset Models, DSHS Research and Data Analysis Division, www1.dshs.wa.gov/rda/research/11/125.shtm.

A third "confounding intervention" is the implementation of the GA-U managed care pilot in King and Pierce counties in December 2004. The partial capitation of the GA-U medical benefit beginning in the middle of SFY 2005 narrowed pmpm medical expenditure differences between GA-U clients with AOD problems and GA-U clients without AOD problems, making it problematic to use data prior to December 2004 as the baseline period in our analysis of GA-U clients. In addition, an expanding mental health benefit was added to the King and Pierce managed care pilot in approximately December 2007.

To mitigate the risk of overestimating the impact of Treatment Expansion on costs, we made conservative assumptions about the relative changes in health care cost trends that would have been observed (in the absence of Treatment Expansion) between clients with AOD problems and clients without AOD problems. This is discussed in more detail in the next section.

Technical Issues

CLIENT POPULATIONS AND SERVICE AREAS EXAMINED FOR POTENTIAL COST OFFSETS

Cost impact analyses focus on:

- HRSA Medical Assistance expenditures for Medicaid-only Disabled adults.
- HRSA Medical Assistance expenditures for GA-U clients.
- ADSA nursing home expenditures for Medicaid Disabled adults, including clients dually eligible for Medicare.

Clients dually eligible for Medicare were excluded from the medical cost analyses because most medical costs for dual eligibles are paid for through the Federal Medicare program. Aged clients were excluded because they comprise a very small proportion of the Treatment Expansion target population. Other Medicaid adults were excluded because they are infrequent users of nursing home services and because most are enrolled in managed care. Thus, savings associated with reduced service utilization by other Medicaid adults would tend to accrue to Healthy Options plans, and would not be captured directly as savings in the DSHS budget.

KEY DEFINITIONS

Our evaluation design requires separating clients with Medicaid Disabled and GA-U medical coverage into two groups: clients **with** identified substance use problems and clients **without** substance use problems. For each client in the medical coverage group and for each month of coverage used in our analysis, we identified whether the client had a recent indicator of a substance use problem using flags in the client's administrative records including:

- Diagnosis of a substance use disorder in an MMIS paid claim.
- AOD treatment or detox encounters reported in DBHR's TARGET management information system.

We looked for these indicators in the two-year period of time leading up to the measurement month. We used a two-year "look-back" window to ensure that by the end of Fiscal Year 2007, all clients entering AOD treatment during the 2005-07 Biennium would still be counted in the "AOD problem" trend line at the end of the Biennium. This ensures that any impacts on costs for clients who entered AOD treatment at the beginning of the expansion period (July 2005) would continue to be associated with impacts on the "AOD problem" group through the end of the biennium.

The expectation is that by expanding the proportion of the "AOD Problem" group to have recently received AOD treatment (increasing the AOD treatment penetration rate), Treatment Expansion would dampen the rate of growth of pmpm medical and nursing home costs in the Medicaid Disabled and GA-U target populations.

The Medicaid Disabled estimation model is based on a linear trend forecast derived from the monthly trend in pmpm medical and nursing home costs in the 24 month period ending June 2004. We discuss the selection of this baseline time period in the next section. Note that the linear baseline trend projection provides a conservative estimate of the relative reduction in costs for clients with AOD problems. This is because medical and nursing home costs were growing significantly more rapidly for clients with AOD problems in the 24-month baseline period. For example, medical costs for Medicaid-only Disabled clients with AOD problems were growing at 11 percent per year over this time period, compared to 8.5 percent growth for the balance of clients in this medical coverage group (that is, the

clients without identified AOD problems). Using a linear rather than geometric baseline trend projection assumes that the relative rate of growth in costs for clients with AOD problems would have fallen to a significant degree in the absence of any focused intervention to reduce the growth in costs for these clients.

For example, the linear trend projection assumes that the baseline relative pmpm medical cost growth rates for Medicaid Disabled patients would have converged to 6.8 percent annual growth for clients with AOD problems and 6.1 percent for clients without AOD problems over the SFY 2008 to SFY 2009 time period. One could characterize the assumed convergence in rates of growth as accounting for the impact of other contemporaneous interventions disproportionately affecting clients with AOD problems over this time period (for example, WASBIRT, GA-U managed care and mental health benefit expansion, expansion of the Patient Review and Coordination Program, and the Narcotic Review Program).

In the tables that follow, actual and forecast expenditures are rolled up to the fiscal year level to simplify the presentation. Monthly cost trends were derived from MMIS paid claims and OFM "span file" eligibility data. Medical costs were lag adjusted using lag factors provided by HRSA staff. MMIS claims-based reimbursement amounts for inpatient costs incurred at hospitals participating in the Certified Public Expenditure program were adjusted to reflect the estimated full cost of the impatient stay.

ESTABLISHING THE BASELINE PERIOD

Fundamentally, we are evaluating whether increasing the **AOD treatment penetration rate** "bends the curve" in medical and nursing home expenditures for Medicaid Disabled and GA-U clients. The AOD treatment penetration rate is the proportion of patients who need alcohol/drug treatment who receive AOD treatment in a one-year period. Analysis of the trends in AOD treatment penetration in the key adult target populations indicates that there was a significant increase in treatment penetration in SFY 2005—the year **before** the expansion funded by The Omnibus Treatment of Mental and Substance Abuse Disorders Act of 2005.

- For adult Medicaid Disabled clients, treatment penetration increased by 2 percentage points from 23.7 percent in SFY 2004 to 25.8 percent in SFY 2005. This is about two-thirds of the annual increase in AOD treatment penetration experienced in the first two years of Treatment Expansion.
- For GA-U clients, AOD treatment penetration increased by 2.7 percentage points from 32.0 percent in SFY 2004 to 34.7 percent in SFY 2005. This is about half of the increase experienced from SFY 2005 to SFY 2006, and again from SFY 2006 to SFY 2007.

This earlier expansion was primarily due to an increase in criminal justice related AOD treatment funding. A significant proportion of Medicaid Disabled and GA-U clients with substance abuse problems are involved in the criminal justice system and therefore it is not surprising that a large increase in criminal justice related treatment would have a significant impact on treatment penetration in these populations. From the perspective of measuring cost offsets, this means that the SFY 2004 to SFY 2005 expenditure trend is not an appropriate pre-expansion baseline, because SFY 2005 expenditures were likely impacted by the significant increase in AOD treatment penetration that occurred in that year due to the increase in criminal justice related AOD treatment funding.

The rapid ramp-up of the WASBIRT pilot project in SFY 2005 also argues against using SFY 2005 as part of the baseline. Consequently, for Medicaid Disabled clients we shifted the period used to form baseline expenditure trend forecasts to the SFY 2003 to SFY 2004 period. This allows us to use the expansion that occurred in SFY 2005 as an additional test of the cost offset model: if the cost savings assumptions underlying Treatment Expansion are correct, then we should see impacts on medical and nursing home cost trends beginning in SFY 2005.

The partial capitation of the GA-U medical benefit in King and Pierce counties beginning in December 2004 artificially narrowed pmpm medical expenditure differences between GA-U clients **with** AOD problems and GA-U clients **without** AOD problems, making it problematic to use data prior to December 2004 as the baseline period in our analysis of GA-U clients. As a consequence, we used the last seven months of SFY 2005 to establish the baseline expenditure level for GA-U clients.

COST OFFSET ESTIMATES FOR MEDICAID DISABLED CLIENTS

For clarity, we also walk through the detailed calculation of HRSA medical expenditure savings for Medicaid-only Disabled clients for the FY 2006 to FY 2009 time period. Table 3 contains the detailed calculations.

- The average Medical Assistance expenditure for Medicaid-only Disabled clients with identified AOD problems in FY 2006 was $1,301 pmpm, which was 11.6 percent below the $1,472 linear trend forecast based on the FY 2003-04 experience.
- The average expenditure for clients without AOD problems in FY 2006 was $790 pmpm, which was 8.6 percent below the $864 trend forecast based on the FY 2003-04 experience.
- If Medical Assistance expenditures for Medicaid-only Disabled clients with identified AOD problems had experienced the same rate of change as observed for clients without identified AOD problems (an 8.6 percent decrease relative to trend forecast), then the average Medical Assistance expenditure for Medicaid-only Disabled clients with identified AOD problems in FY 2006 would have been $1,347 pmpm.
- The difference between the actual expenditure ($1,301 pmpm) and the expected trend based on the experience of non-AOD problem clients ($1,347 pmpm) is $45.08 pmpm. This is the estimate of the reduction in pmpm medical expenditures averaged across all Medicaid-only Disabled clients with identified AOD problems in FY 2006.
- Accumulating the $45.08 pmpm estimate over the average monthly caseload of 15,463 Medicaid-only Disabled clients with identified AOD problems produces an estimated total cost savings of $8.4 million in FY 2006.
- An analogous series of calculations for FY 2007, FY 2008 and FY 2009 produces estimated savings of $8.8 and $16.4 million, and $48.4 million respectively.
- These estimates include unbudgeted savings resulting from the ongoing impact of the expansion in criminal justice related treatment that began in FY 2005.

We used the same technique to measure the impact of Treatment Expansion on nursing home costs for Medicaid Disabled patients (including patients dually eligible for Medicare). Total nursing home savings are estimated to be $752,000 in FY 2006, $2.6 million in FY 2007, $5.4 million in FY 2008, and $6.8 million in FY 2009. Table 4 contains the detailed calculations.

MEDICAL COST OFFSETS FOR GA-U CLIENTS

The partial capitation of the GA-U medical benefit in King and Pierce counties beginning in December 2004 artificially narrowed pmpm medical expenditure differences between GA-U clients with AOD problems and GA-U clients without AOD problems, making it problematic to use data prior to December 2004 as the baseline period in our analysis of GA-U clients. As a consequence, we used the last seven months of FY 2005 to establish the baseline expenditure level for GA-U clients, and compared FY 2006 to FY 2009 pmpm expenditures against this baseline. Medical Assistance expenditures for GA-U clients with AOD problems grew faster by 1 percent per annum from FY 2003 to the last seven months of FY 2005, compared to GA-U clients without AOD problems. In forming the expected trend in Medical Assistance expenditures for GA-U clients with AOD problems, we assumed that this relationship would continue to hold the FY 2006 to FY 2009 period. Based on the comparison of actual expenditures versus expected trend expenditures for GA-U clients with AOD problems, total GA-U medical cost savings are estimated to be $1.1 million in FY 2006, $1.4 million in FY 2007, $2.6 million in FY 2008, and $4.8 million in FY 2009. Table 5 contains the detailed calculations.

Table 1. Treatment Penetration Rates (Hierarchical Unduplication)

	STATE FISCAL YEAR						
Medicaid Disabled Adults	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Number of clients (unduplicated)	137,915	145,123	151,634	155,602	157,122	162,525	168,502
Estimated percent needing AOD treatment	20.4%	20.4%	20.4%	20.4%	20.4%	20.4%	20.4%
Estimated number needing AOD treatment	28,135	29,605	30,933	31,743	32,053	33,155	34,374
Number receiving AOD treatment	6,429	7,012	7,968	9,112	10,099	11,039	11,514
AOD treatment penetration rate	**22.9%**	**23.7%**	**25.8%**	**28.7%**	**31.5%**	**33.3%**	**33.5%**
Year to year change from SFY 2005 forward				*1,144*	*987*	*940*	*475*

	STATE FISCAL YEAR						
Other Medicaid Adults	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Number of clients (unduplicated)	229,855	240,393	244,796	243,782	239,700	237,733	250,177
Estimated percent needing AOD treatment	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%
Estimated number needing AOD treatment	30,341	31,732	32,313	32,179	31,640	31,381	33,023
Number receiving AOD treatment	7,291	7,785	8,641	9,521	9,597	9,770	9,901
AOD treatment penetration rate	**24.0%**	**24.5%**	**26.7%**	**29.6%**	**30.3%**	**31.1%**	**30.0%**
Year to year change from SFY 2005 forward				*880*	*76*	*173*	*131*

	STATE FISCAL YEAR						
General Assistance-Unemployable	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Number of clients (unduplicated)	11,054	13,250	15,946	18,400	19,540	20,193	23,690
Estimated percent needing AOD treatment	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Estimated number needing AOD treatment	3,316	3,975	4,784	5,520	5,862	6,058	7,107
Number receiving AOD treatment	1,067	1,271	1,660	2,196	2,646	2,897	3,571
AOD treatment penetration rate	**32.2%**	**32.0%**	**34.7%**	**39.8%**	**45.1%**	**47.8%**	**50.2%**
Year to year change from SFY 2005 forward				*536*	*450*	*251*	*674*

Table 2. Counts of Additional Clients Associated with Increased Treatment Penetration

	STATE FISCAL YEAR			
Medicaid Disabled Adults	**2006**	**2007**	**2008**	**2009**
Number served above baseline penetration rate	1,594	2,507	3,186	3,372
Average cost per client served	$2,492	$2,492	$2,693	$2,585
Total cost	**$6,247,975**	**$7,939,891**	**$9,081,757**	**$4,119,601**

	STATE FISCAL YEAR			
Other Medicaid Adults	**2006**	**2007**	**2008**	**2009**
Number served above baseline penetration rate	1,626	1,834	2,071	1,799
Average cost per client served	$2,597	$2,574	$2,729	$2,949
Total cost	**$4,223,449**	**$4,721,933**	**$5,652,231**	**$5,305,788**

	STATE FISCAL YEAR			
General Assistance-Unemployable	**2006**	**2007**	**2008**	**2009**
Number served above baseline penetration rate	281	612	795	1,105
Average cost per client served	$1,466	$1,535	$1,636	$1,721
Total cost	**$411,265**	**$939,205**	**$1,300,426**	**$1,901,428**

ANNUAL TOTAL COST	**$11,909,113**	**$14,892,548**	**$16,288,973**	**$8,754,315**

Table 3. Medicaid-only Disabled Adult Medical Costs

NO TREATMENT NEED				
	Av. monthly caseload	PMPM Actual	2003-04 trend PMPM forecast	Percent deviation from trend
SFY **2003**	59,533	$684	$683	
SFY **2004**	61,599	$743	$744	
SFY **2005**	62,332	$781	$804	-2.8%
SFY **2006**	61,955	$790	$864	-8.6%
SFY **2007**	61,894	$819	$924	-11.4%
SFY **2008**	63,191	$877	$984	-10.9%
SFY **2009**	64,908	$935	$1,045	-10.4%

AOD TREATMENT NEED					
	Av. monthly caseload	Actual PMPM	2003-04 trend PMPM forecast	Percent deviation from trend	If change were same as comparison (counterfactual)
SFY **2003**	11,824	$1,121	$1,125		$1,125
SFY **2004**	12,760	$1,244	$1,241		$1,241
SFY **2005**	13,938	$1,300	$1,357	-4.2%	$1,319
SFY **2006**	15,463	$1,301	$1,472	-11.6%	$1,347
SFY **2007**	16,722	$1,364	$1,588	-14.1%	$1,408
SFY **2008**	18,260	$1,443	$1,704	-15.3%	$1,518
SFY **2009**	20,105	$1,429	$1,820	-21.5%	$1,630

ESTIMATE OF COST IMPACTS			
	Relative percent deviation from trend	Overall PMPM cost impact of relative deviation	Total cost impact of relative deviation
SFY **2005**	-1.4%	-$18.92	-$3,164,806
SFY **2006**	-3.1%	-$45.08	-$8,365,576
SFY **2007**	-2.7%	-$43.62	-$8,752,190
SFY **2008**	-4.4%	-$75.06	-$16,447,831
SFY **2009**	-11.0%	-$200.71	-$48,422,203

Table 4. Medicaid Disabled Adult Nursing Home Costs *(includes dual eligibles)*

NO TREATMENT NEED				
	Av. monthly caseload	PMPM Actual	2003-04 trend PMPM forecast	Percent deviation from trend
SFY **2003**	99,839	$61.31	$61.88	-0.9%
SFY **2004**	104,363	$64.17	$63.63	0.8%
SFY **2005**	107,263	$65.51	$65.38	0.2%
SFY **2006**	107,451	$66.78	$67.13	-0.5%
SFY **2007**	106,830	$67.29	$69.33	-2.9%
SFY **2008**	108,245	$68.01	$71.08	-4.3%
SFY **2009**	110,242	$66.90	$72.84	-8.2%

AOD TREATMENT NEED					
	Av. monthly caseload	Actual PMPM	2003-04 trend PMPM forecast	Percent deviation from trend	If change were same as comparison (counterfactual)
SFY **2003**	15,536	$54.37	$54.94	-1.0%	$55
SFY **2004**	16,742	$60.01	$59.50	0.9%	$59
SFY **2005**	18,213	$63.35	$64.08	-1.1%	$64
SFY **2006**	20,633	$65.24	$68.64	-4.9%	$68
SFY **2007**	22,808	$62.75	$74.31	-15.6%	$72
SFY **2008**	25,163	$57.72	$78.88	-26.8%	$75
SFY **2009**	27,166	$55.81	$83.44	-33.1%	$77

ESTIMATE OF COST IMPACTS			
	Relative percent deviation from trend	Overall PMPM cost impact of relative deviation	Total cost impact of relative deviation
SFY **2003**	-0.1%		
SFY **2004**	0.0%		
SFY **2005**	-1.3%	-$0.86	-$188,073
SFY **2006**	-4.4%	-$3.04	-$752,436
SFY **2007**	-12.6%	-$9.39	-$2,568,900
SFY **2008**	-22.5%	-$17.76	-$5,361,223
SFY **2009**	-25.0%	-$20.83	-$6,789,913

Table 5. GA-U Client Medical Costs, *Using SFY 2005 as baseline*

NO TREATMENT NEED				
	Av. monthly caseload	PMPM Actual	SFY 2005 PMPM Level	Percent deviation from SFY 2005
SFY **2003**	4,913	$446		
SFY **2004**	5,921	$456		
SFY **2005***	7,596	$429	$429	
SFY **2006**	8,423	$432	$429	0.6%
SFY **2007**	8,969	$453	$429	5.5%
SFY **2008**	9,069	$447	$429	4.1%
SFY **2009**	10,410	$457	$429	6.7%

AOD TREATMENT NEED					
	Av. monthly caseload	Actual PMPM	SFY 2005 PMPM Level Plus 1% Growth	Percent deviation from SFY 2005	If change were same as comparison (counterfactual)
SFY **2003**	1,724	$594			
SFY **2004**	1,970	$640			
SFY **2005***	2,670	$594	$594		$594
SFY **2006**	3,314	$575	$600	-4.2%	$604
SFY **2007**	3,897	$611	$606	0.7%	$640
SFY **2008**	4,307	$584	$612	-4.6%	$638
SFY **2009**	5,450	$581	$618	-6.0%	$660

ESTIMATE OF COST IMPACTS			
	Relative percent deviation from trend	Overall PMPM cost impact of relative deviation	Total cost impact of relative deviation
SFY **2006**	-4.9%	-$28.10	-$1,117,406
SFY **2007**	-4.8%	-$29.33	-$1,371,234
SFY **2008**	-8.7%	-$51.09	-$2,640,657
SFY **2009**	-12.7%	-$73.91	-$4,833,062

* SFY 2005 annualized, based on 7 months of cost information available post December 2004 implementation of GA-U managed care pilot in King and Pierce counties.