Medicaid Cost Outcomes

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Medicaid Costs Declined Among Emergency Department Patients who Received Brief Interventions for Substance Use Disorders through WASBIRT

Medicaid-Only Aged, Blind or Disabled, April 2004-March 2006

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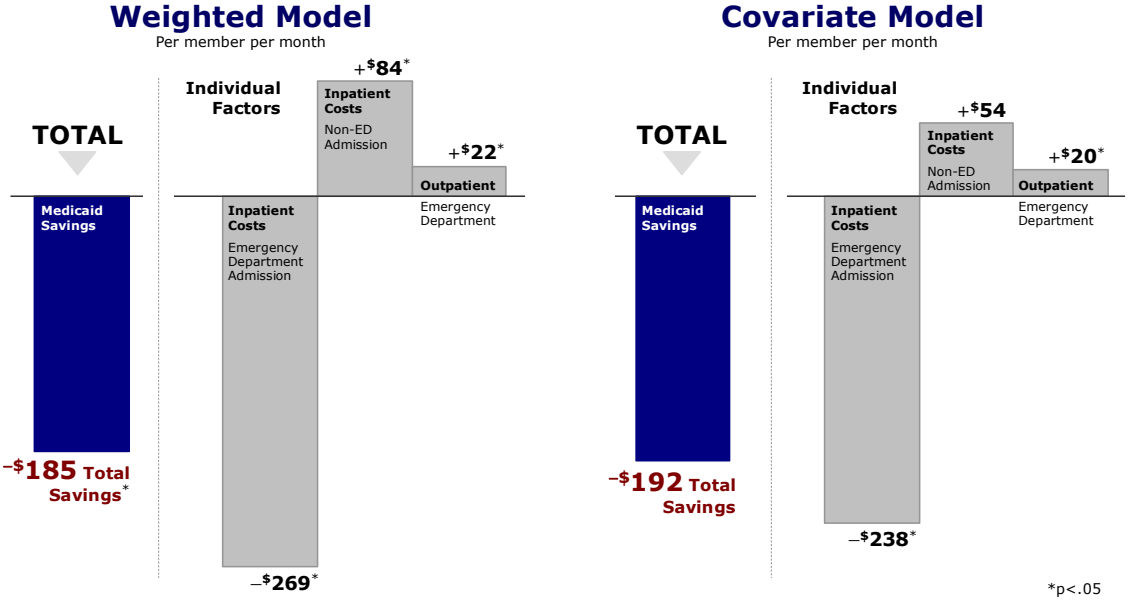
CHANGES IN MEDICAID COSTS for 1,315 disabled Medicaid clients who received at least a brief intervention through the Washington State Screening, Brief Intervention, and Referral to Treatment (WASBIRT) Project were compared to changes in costs for 8,972 Medicaid clients who did not receive an intervention through this program. Differences in Medicaid costs for the two groups before and after an Emergency Department visit were examined using two-stage, propensity-score adjusted regression models.[1] Two models were used to estimate the degree of change in Medicaid costs: one in which the propensity score was used as a weighting factor and another in which the propensity score was included as a covariate in the regression equation.

Reductions in Medicaid Costs

The reductions in costs for patients who received at least a brief intervention were substantial:

- The reduction in **total Medicaid costs** after receiving the brief intervention ranged from **−$185 per member per month (pmpm)** (p<.05) to **−$192 pmpm** (p=.08), depending on the regression model.
- Most of the Medicaid cost reductions were due to declines in the **costs associated with inpatient hospitalizations from Emergency Department admissions** which ranged from **−$238 pmpm** (p<.01) to **−$269 pmpm** (p<.01), depending on the regression model.



[1] The first stage regression model produces the propensity score which represents the estimated likelihood that a Medicaid patient in the comparison group would receive a brief intervention based on his or her background characteristics relative to the characteristics of those who received an intervention. In the second stage regression equation, the propensity score is employed either as a weighting factor or as a covariate. Results from both models are shown in order to provide a potential range of cost reduction estimates.

Overall reductions in costs for the clients who received at least a brief intervention were moderated by small increases in costs associated with outpatient Emergency Department treatment.

- **Outpatient Emergency Department** costs increased for the group that received an intervention relative to those who did not by **$20 to $22 pmpm** ($p<.0001$), depending on the statistical model.

Analyses based on one of the two statistical models indicated that costs associated with inpatient hospitalizations in which the patient was not admitted from the Emergency Department may have increased somewhat for patients who received at least a brief intervention relative to similar patients who did not receive one.

- **Inpatient costs not originating in the Emergency Department** were **$84 pmpm** ($p<.05$) higher for those who received at least a brief intervention according to the weighted regression models **but were not statistically significant in the covariate model** ($p=.37$).

The modest increases in costs associated with outpatient Emergency Department care and possibly with scheduled inpatient treatment are offset by reductions in the cost of inpatient care so that overall Medicaid costs decline more for patients who received at least a brief intervention than for those who did not.

Reductions in Days of Hospitalizations

Reductions in hospitalization costs appear to be due to fewer days of hospitalization for visits stemming from Emergency Department admissions. The number of days of hospitalization resulting from Emergency Department admissions was shorter for disabled Medicaid clients who got at least a brief intervention than for similar clients who did not.

- **Inpatient hospitalizations resulting from Emergency Department admissions** declined by **– .077 days pmpm** ($p<.05$) based on the covariate model to **– .085 days pmpm** ($p<.005$) based on the weighted model.

The reduction in the length of hospital stays per month would translate into about 1300 fewer Medicaid-paid hospital days per year for the 1,315 patients who received at least a brief intervention through this project.

Increases in Outpatient Emergency Department Admissions

Increases in monthly outpatient Emergency Department costs for patients who received an intervention for substance use disorders appear to be associated with a slight increase in the number of outpatient Emergency Department admissions for disabled Medicaid clients who received a brief intervention.[2]

- **Outpatient Emergency Department admissions** were significantly higher in the follow-up period for those who received at least a brief intervention compared to admissions for those who did not receive an intervention, with weighted average admissions per member per month equaling **.60 versus .47 pmpm ($p<.0001$)**, respectively.
- **Inpatient hospital admissions** in the follow-up period were not significantly different for patients who received at least a brief intervention (.05 pmpm) compared to those who did not (.06 pmpm). This was true regardless of whether the hospitalization resulted from an Emergency Department admission or it did not.

The increased use of the Emergency Department by the patients who received a brief intervention is not likely to be related any increased substance use since analyses of survey data collected six months after the intervention have revealed a significant decline in substance use and an increase in abstinence (Estee and He 2007). Outpatient Emergency Department care may serve as the primary source of medical attention for many working age disabled Medicaid clients. Therefore, the increased use of the Emergency Department after receiving a brief intervention could reflect a person's attempts to obtain help for other medical conditions as they begin to address their substance use.

[2] Regression models produced propensity scores that were used to compute weighted average number of admissions per patient per month of Medicaid eligibility.

Estimated Cost Outcomes

Potential reductions in total Medicaid costs could be as high as **$2.7 to $2.8 million** a year for working age disabled clients who would receive at least a brief intervention if the WASBIRT program were to continue in the future once federal funding ends in September 2008. Assuming the program continues through FY 2008 at the current rate of screening and intervention that were achieved in FY 2007, then about 22,000 patients would be screened in the nine participating hospitals. Of the patients screened, roughly 1,200 would be disabled Medicaid clients who would receive at least a brief intervention.

Future Directions

Future analyses will include estimates of the possible costs of sustaining WASBIRT services with some or all of the hospitals that participated in the federally funded WASBIRT project. The estimated reductions in Medicaid costs do not represent cost offsets since the cost of delivering WASBIRT services in the future have not yet been determined.

Further analyses are needed to provide a better understanding of the possible relationship between receiving brief interventions and the apparent tendency to seek additional care. For example, preliminary analyses in progress for the clients examined in this report indicate that the likelihood of entering chemical dependency treatment within six to 12 months of an Emergency Department visit was 1.8 times higher for patients who received a brief intervention than for those who did not ($p<.0001$). Increased rates of admission to hospital Emergency Departments may reflect a similar motivation to seek much needed care. Additional factors such as treatment for an injury versus other medical conditions, patient demographics, or a person's chemical dependency treatment history will be explored to determine the extent to which they may contribute to the relative effectiveness of brief interventions.

TECHNICAL NOTES

Project Description

Between April 2004 and March 2006, the Washington State Screening, Brief Intervention, Referral and Treatment (WASBIRT) Program screened 34,762 patients for substance use disorders in nine large hospitals in Washington State, primarily in Emergency Departments. Chemical Dependency Professionals provided at least a brief intervention to over half (52 percent) of these patients based on the level of risk for substance use disorders revealed by the patients' answers to standardized screening instruments for alcohol and other drugs.

Selection Criteria

Eligibility:

- Medicaid-Only Aged, Blind or Disabled Clients (ABD)
- Medicaid Eligibility: at least 1 month of Medicaid-only ABD eligibility in 12 months before index event and at least 1 month after
- Dual Eligibility Exclusion: excludes ABD clients with **any** period of dual Medicaid-Medicare eligibility
- Age: 18-64
- Alive at end of post period (September 30, 2006)

WASBIRT Participants:

- Received at least a brief intervention
- May have also received brief therapy or chemical dependency treatment
- Screening period: April 2004 – March 2006
- Index Event: 1st screening for which at least a brief intervention was received
- Alcohol or Other Drug (AOD) Risk Level: excluded 79 participants whose risk score was below standard cutoffs even if they received a brief intervention

Comparison Group:

- Emergency Department Use: at least one ED visit between April 2004 and March 2006
- Index Month: Month in which ED visit occurs (if more than one ED visit, one is chosen randomly as the index)
- Contact with WASBIRT project: Primarily patients not screened by the WASBIRT project as well as patients screened through the project who did not receive a brief intervention, brief therapy, or chemical dependency treatment.
- County: resident of one of six WASBIRT counties (Clark, King, Pierce, Snohomish, Thurston, Yakima)
- Members of the comparison group were selected using a stratified random sampling method based on the month of the ED visit(s) of each patient and county of residence so that the distribution of comparison cases by county and ED visit would approximate that of the WASBIRT participants.

Regression Analyses

WASBIRT participants were compared to other aged, blind or disabled clients using a two-stage regression model. In the first stage, a logistic model was used to estimate the propensity (or probability) of receiving a brief intervention given the baseline characteristics of individuals and statistically relevant interactions between these variables:

- Demographics: age, gender, race/ethnicity, county of residence
- Prior AOD use indicators: potential need for AOD treatment based on diagnoses, arrests for alcohol or drug-related offenses, detoxification, or receipt of AOD treatment in the last 12 months
- Prior chronic disease risk scores: risk indicator based on diagnoses in Medicaid record in last 12 months
- Prior medical use: treatment for injuries, ED use, treatment for depression in the last 12 months
- Prior health conditions: diagnoses for liver disease, tobacco use disorders, injuries and poisoning in the last 12 months
- Prior mental health conditions: diagnoses for mental health disorders in the last 12 months
- Medicaid costs in the index month in which the ED visit occurred
- Medicaid costs in the month immediately preceding the index month
- Prior Medicaid eligibility: months eligible in last 12 months through aged, blind or disabled; GAU; or ADATSA

In the second stage, the propensity scores were used in two separate ordinary least squares regression models to estimate the effects of the intervention. In the first model, the propensity score was included as a weighting factor (Lunceford and Davidian 2004; Rubin 2001). In the second model, the propensity score was included as a covariate (Heckman *et al*. 1989; Rosenbaum and Rubin 1993). Both models included the variables described in the preceding list and the number of months of Medicaid eligibility in the outcome period.

Cost Outcome Measures

Medicaid cost outcome measures are based on what is commonly called a difference-of-differences approach. Changes in Medicaid costs before and after the WASBIRT brief intervention are compared to changes in Medicaid costs before and after the index emergency room visit for the comparison group. The outcome period ranged between six and 12 months after this index event.

Criteria for Level of Intervention

	RECOMMENDED INTERVENTION			
	Screen Only	BI Only*	BT	CD Tx
Screening scores				
AUDIT - Female	Less than 7	7-15	16-19	20-40
AUDIT - Male	Less than 8	8-15	16-19	20-40
DAST	0	1-4	5-7	8-10

*BI may also be given if the AUDIT score falls below 7 for females or 8 for males if there is evidence of binge drinking based on AUDIT questions, the patient has used alcohol 6 hours before an injury, the patient requests help, or the counselor identifies some other reason for offering a brief intervention (e.g., underage drinking).

References

Estee S and L He (2007) *Use of Alcohol and Other Drugs Declined Among Emergency Department Patients who Received Brief Interventions for Substance Use Disorders through WASBIRT*, DSHS, RDA, 4.60.WA.2007.1.

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Additional copies of this paper may be obtained from: http://www1.dshs.wa.gov/RDA/ or http://www1.dshs.wa.gov/dasa/ or through the Washington State Alcohol|Drug Clearinghouse by calling 1-800-662-9111 or 206-725-9696 (within Seattle or outside Washington State), by e-mailing clearinghouse@adhl.org, or by writing to 6535 Fifth Place South, Seattle, Washington 98108-0243.

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