

## **Processes and Outcomes of Substance Abuse Treatment Between Two Programs for Clients Insured Under Managed Care**

**Donna McNeese-Smith, R.N., Ed.D., C.N.A.A.,<sup>1</sup> Adeline Nyamathi, A.N.P., Ph.D., F.A.A.N.,<sup>1</sup> Douglas Longshore, Ph.D.,<sup>2</sup> Mary Wickman, R.N., Ph.D.,<sup>3</sup> Scott Robertson,<sup>4</sup> Jeanne Obert, M.F.T., M.S.M.,<sup>5</sup> Michael McCann, M.A.,<sup>5</sup> Kenneth Wells, M.D., M.P.H.,<sup>2</sup> and Suzanne L. Wenzel, Ph.D.<sup>6</sup>**

<sup>1</sup>University of California at Los Angeles School of Nursing,  
Los Angeles, California, USA

<sup>2</sup>RAND/UCLA

<sup>3</sup>California State University, Fullerton, California, USA

<sup>4</sup>Glendale Adventist Alcohol and Drug Services

<sup>5</sup>Matrix Institute

<sup>6</sup>RAND Corporation

**Abstract:** The purpose of this research ( $N = 160$ ) was to describe and compare substance abuse treatment in two programs under managed care: one residential (RT) and one outpatient (OP). Clients in both settings improved significantly from before to after treatment in relation to substance use and quality of life. However, intensity of treatment (hours of care/week) was much greater in RT and days of sobriety were significantly higher after treatment in RT than in OP ( $p = .04$ ). Intensity was negatively related to incidents of substance use during treatment (SUdT), which predicted substance use after treatment; SUdT averaged .2 for RT, and 1.6 for OP ( $p = .0001$ ). Importantly, treatment was completed by 74 patients (over 90%) from RT, with 8 dropping out, and 53 (almost 70%) of those in OP completed treatment while 25 dropped out. Intensity, as seen in the RT program, rather than duration, was more effective in substance use reduction and treatment completion.

**Keywords:** Alcohol abuse treatment, drug abuse treatment, managed care, residential versus outpatient treatment, substance abuse treatment

Address correspondence to Dr. Donna McNeese-Smith, Associate Professor School of Nursing UCLA, Box 956917, Los Angeles, CA 90095-6917, USA.  
E-mail: dmcneese@ucla.edu

Managed care (MC) has brought pressure to decrease costs of private, insured substance abuse treatment (SAT) by not reimbursing most inpatient programs, and decreasing reimbursement to residential care, resulting in outpatient programs (OP) providing 93% of all private treatment (1, 2). These treatment shifts could have profound ramifications as 18.3% of the population experiences a substance abuse (SA) problem (3), which contributes to human suffering and reduced work productivity of those impacted (4, 5).

Simpson and colleagues reported that duration was the predictor of good SAT outcomes in a variety of settings; in fact poor outcomes were related to treatment exposure of less than 90 days (6, 7). In contrast, two studies revealed that brief, intensive treatment had good outcomes including reduced substance use (8, 9). Because of this apparent conflict, there is a need to identify the differential effects of substance use and quality of life after treatment, from separate settings under MC that can provide a focus on intensity versus duration.

The present research studied a primarily employed population, insured under MC, with the aim of describing and comparing SAT processes, and their outcomes, in two different types of private treatment program: residential (RT) and outpatient (OP).

## METHODS

This study uses a longitudinal, repeated measures design to examine SAT within two private Southern California programs, with multiple contracts to provide treatment to clients insured under MC. Data were collected in 2001–2003. The RT setting was hospital-owned, in a community setting, and combined detoxification, day, and outpatient treatment totaling less than 30 days; all services were abstinence-based. Group therapy and small amounts of individual therapy were included, as well as urine testing. The OP had settings located throughout five counties and provided structured outpatient SAT in primarily a four-month treatment episode. Treatment was abstinence-based, using cognitive-behavioral group therapy, social support, family education, and urine and breath testing.

Demographic variables of the convenience sample of adults 18 and older (160), were stratified to increase females and those of ethnic minority status (Table 1). Seventy-two percent (115) used two or more drugs; 51% (82) received treatment in RT, and 49% (78) in OP. Differences between programs were significant for ethnicity (more African-Americans in RT), for education (higher education in OT), and a trend for greater dependency ( $p = .06$ ) among RT clients.

**Table 1.** Demographics and baseline characteristics; processes, and outcomes in two settings

Characteristics	Total 160 N (SD%)	Resident/DT/ OP(82) N (SD%)	Outpatient(78) N (SD%)	p-value
Age	36.3 ± 10.4	37.4 ± 9.7	35.1 ± 11.0	.18
Gender				
Male	91 (56.9%)	44 (53.7%)	47 (60.3%)	.40
Female	69 (43.1%)	38 (46.3%)	31 (39.7%)	
Ethnicity				
White	103 (64.4%)	47 (57.3%)	56 (71.8%)	.06
Black	13 (8.1%)	10 (12.2%)	3 (3.9%)	.05
Latino	34 (21.3%)	21 (25.6%)	13 (16.7%)	.17
Other	10 (6.3%)	4 (4.9%)	6 (7.7%)	.46
Living status				
Single	105 (65.6%)	54 (65.9%)	51 (65.4%)	.95
Education				
Some college	111 (73.0%)	51 (65.4%)	60 (81.1%)	.03
Employment				
Has a job	110 (68.8%)	55 (67.1%)	55 (70.5%)	.64
Smoking status				
Not a smoker	38 (23.9%)	21 (25.6%)	17 (22.1%)	.60
Before treatment	Total 160 Means	Resident/DT/ OP(82)	Outpatient (78)	p-value
TCU	6.8 ± 2.2	7.1 ± 1.9	6.5 ± 2.4	.06
Quality of life	2.7 ± .7	2.6 ± .6	2.8 ± .7	.10
Symptomatology	2.9 ± .8	2.8 ± .7	2.9 ± .8	.50
Functional status	3.5 ± .6	3.4 ± .6	3.5 ± .7	.43
Substance use before treatment (drug use score)	3.9 ± 1.8	4.2 ± 1.8	3.7 ± 1.8	.05
Days of sobriety before treatment	4.6 ± 8.0	4.1 ± 7.5	5.2 ± 8.7	.43
Processes of treatment	Means 130	Resident/DT/ OP(82)	Outpatient (78)	p-value
Total hours	124.9 ± 86.5	188.04 ± 65.3	47.7 ± 23.3	<.0001
Intensity	34.8 ± 29.4	59.9 ± 12.5	4.0 ± 1.7	<.0001
Duration	51.8 ± 42.8	22.1 ± 7.6	88.3 ± 39.9	<.0001
Substance use during treatment	.9 ± 2.0	.2 ± .6	1.6 ± 2.8	<.0001

(Continued)

**Table 1.** Continued

Outcomes	Means 130	Residential/DT/ OP(82)	Outpatient (78)	p-value
Substance use after treatment (drug use score)	.6 ± 1.2	.5 ± 1.3	.7 ± 1.1	.28
Days of sobriety after treatment	28.2 ± 4.5	28.9 ± 3.3	27.2 ± 5.5	.04

Data were collected from SAT clients after admission, and approximately 30 days after treatment completion. The design allowed an evaluation of total hours of treatment, intensity, and duration of treatment, and incidents of SUDT, as well as the relationship of these process variables to outcomes of treatment. Details are available through the corresponding researcher.

### Instruments and Measurements

Substance Use (range 0–8) was measured by the TCU Drug History Form (10), Severity of Dependency (range 1–9) by the TCU Drug Screen II, and process variables were totaled directly from the record; duration was calculated by days from start to end of treatment, and intensity was calculated by dividing total hours of treatment by duration in weeks.

Outcome variables: Completion of Treatment was measured from the medical record and Substance Use after Treatment was measured through use of the Substance Use Score from the TCU Drug History Form, and through determination of Days of Sobriety/30 days following treatment completion.

The TOP instrument (11) measured a Quality of Life Subscale (range 1–5) before and after treatment as well as Symptomatology, Level of Functioning, and Client Satisfaction with Services after treatment. It also measured incidents of substance use during treatment (SUDT) which was verified by the medical record.

Data analyses were performed, using SAS, 9.1. Descriptive statistics were used to describe clients' characteristics, and processes and outcomes of treatment. Regressions were performed to determine significant differences between treatment settings in various outcome measures. Correlations were used to identify relationships and determine necessary covariates. Examination of the data revealed a lack of normal distribution, so SUDT, treatment completion, and substance use after treatment

Table 2. Logistic regression comparing Residential/DT/OP to Outpatient Program during and after treatment (N = 130)

	Residential/ DT/ OP Prgm	Outpatient Program	OR (CI)	P-value
No substance use during treatment	60 (84.5%)	28 (50.0%)	5.75 (2.29, 14.44)	.0002
No substance use after treatment	61 (85.9%)	36 (64.3%)	3.03 (1.17, 7.83)	.02
Completed tx	74 (90.2%)	53 (68.8%)	4.61 (1.78, 11.89)	.002
Very satisfied	54 (76.1%)	50 (90.9%)	.40 (0.13, 1.25)	.12

\*Adjusted for race, education, and pre-treatment score.

were recoded *yes/no*. Client satisfaction was coded *yes* if the score was 4 or more. All models were adjusted for ethnicity, education, and scores before treatment and significance was set at  $p = .05$ .

RESULTS

Across Programs

The substance listed as most seriously abused by 46% (73) of these clients was alcohol, followed by methamphetamine 21% (33), marijuana 9% (14), cocaine 7.5% (12), and crack 6% (10). Over 81% (130) of the 160 clients who entered treatment were able to be interviewed after treatment. Of the 30 not interviewed after treatment, no significant differences in demographics or substance use were found.

Overall, substance use was significantly improved from before to after treatment; the mean score for substance use six months before treatment was 3.9 and .6 after treatment; days of sobriety before treatment was 4.6, and after treatment, 28.2/30. Quality of life and functional status improved significantly after treatment ( $p = .01$  and  $.0001$ ) while symptomatology showed a trend ( $p = .08$ ) toward improvement.

Between Programs

Processes were significantly different ( $p = .0001$ ) by settings with total hours of treatment: 188 for RT versus 48 for OP; intensity: 60 hours/week RT versus 4 for OP; duration: 22 days RT versus 88 for OP and SUDT: .2 for RT, and 1.6 for OP.

Outcomes also showed variation. While the mean score for substance use six months before treatment was 4.2 in the RT setting, and 3.7 in the

OP setting, significantly higher ( $p = .05$ ) in RT, both effectively decreased to .5 and .7, respectively, after treatment. Correlations showed SUDT was highly related to substance use 30 days after treatment (.759  $p = .000$  for RT; .583  $p = .000$  for OP) (Table 2). The odds for no SUDT were 5.75 times greater in RT than in OP and for no substance use after treatment were 3.03 times greater in RT. Days of sobriety before treatment did not differ significantly between settings; however, days of sobriety/30 after treatment (28.9 in RT and 27.2 in OP) were significantly different ( $p = .04$ ). Treatment was completed by 74 patients (over 90%) from the RT; 8 dropped out, and 53 (almost 70%) of those in OP completed treatment; 25 dropped out. The odds for completing treatment, in RT, were 4.6 times greater than in OP.

Quality of life was higher in OP before treatment. Linear regression compared RT with OP, for quality of life, symptomatology, and functional status subscores after treatment. Significant differences were only found for quality of life, higher in OP ( $p = .04$ ).

Intensity and duration were the major differences between the two programs; by controlling for these variables, all significance disappeared except for completion of treatment.

## DISCUSSION

Of the two major findings, the first was that clients across both programs had significant improvement in substance use scores, days of sobriety, treatment completion, and quality of life with SAT under MC. The second finding was that there are significant differences between the two programs in relation to both processes and outcomes. Those treated in OP had a significantly longer duration (88 days) of treatment. However, those RT clients, with an average of 22 days of residential, day, and outpatient treatment, had significantly more hours of treatment and intensity, less SUDT, and more days of sobriety after treatment. Quality of life was higher in OP, perhaps related to ethnicity and education. As expected, linear regression revealed that the major differences between the two programs were the intensity and duration of each program. Perhaps most defining, RT had significantly more clients that completed treatment. Only eight clients dropped out of RT, with over 90% completing treatment, while 25 dropped out of OP with 70% completing treatment. The drop-out of 33 clients was a great loss of human productivity, as clients and families report it is very difficult to get drop-outs back into treatment.

This present study indicates that intensity seems to be the significant factor affecting outcomes as opposed to duration (6, 7) within the MC

context. When hours of treatment/day are low, SUDT is more likely to occur, which then may result in MC approval of increased duration of treatment. However, it may be too late for clients if they have already begun to use substances during the treatment process; additional days of duration may not result in abstinence. Importantly, SUDT is highly correlated with substance use after treatment and is negatively correlated with days of sobriety after treatment. Results also indicate that SUDT actually negates the advantages of greater intensity. Ninety-eight percent of those who did not use substances during treatment did not use substances after treatment, while 72% of those who used substances during treatment used substances after treatment.

Substance use during treatment has often been viewed as a normal part of the course of addiction treatment, due to the chronic nature of the disease. Instead, preventing SUDT should be an essential focus. The findings of this study indicate that, with limited funds for treatment, it might be a better investment to provide greater intensity of treatment for a short period of time, such as in an RT program, at least with this employed, insured population. A longitudinal study to evaluate both treatments over a longer period of time will delineate the effects of increased intensity, with the goal of providing the best SAT outcomes possible, for the lowest cost under MC.

## ACKNOWLEDGMENTS

The authors wish to acknowledge the National Institute of Drug Abuse for funding this research (NIH DA 13403); the administrators and staff of the two treatment programs, who supported this research; and most of all, the clientele who participated in this research. Acknowledgment is also given to research assistants Kimberly Crook, Marie Earvolino M.S.N., and Melvin Moncrieff M.S.N., and to data analyst Jennifer Kotlerman M.S., and research consultant Dr. Priscilla Kehoe.

Most of all we wish to dedicate this article to our dear friend and colleague, Dr. Douglas Longshore, who contributed so much as a researcher.

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