

**Comparison of Two Dual Diagnosis Tracks:
Enhanced Dual Diagnosis versus Standard Dual Diagnosis Treatment
Report Date: July 17, 2003**

Objective: To compare treatment outcomes and treatment costs for four groups of dual diagnosis clients (see below for description)

Client Selection Criteria: This report is based on dual diagnosis clients who had an episode opening for either residential or out patient treatment in FY 2002. Only outpatient and residential clients were included in the analysis to ensure comparability among the dual diagnosis groups. In addition, only the last closed episode of FY 2002 is selected for the analysis. This report is based on data from 583 dual diagnosis clients who received treatment in the Adult System of Care in FY 2002.

The comparison groups (2 & 4) were selected using Mental Health Department data obtained under a data-sharing agreement with DADS Secondary Data Analysis Project.

Dual Diagnosis Groups: The 583 dual diagnosis clients treated in the Adult System of Care are categorized into four groups. The first group – clients in the dual diagnosis treatment program – represents the baseline group for comparison with other client groups that received a different combination of services.

- 1) DADS enhanced dual diagnosis treatment program: these clients were treated in a DADS dual diagnosis program.
- 2) In-treatment with assessment from MH: these clients were assessed at the Mental Health Department and/or were treated in EPS, but did not receive other Mental Health services. They were treated in DADS regular programs.
- 3) DADS enhanced dual diagnosis treatment program with psychiatric care: these clients were treated in a DADS dual diagnosis program and were seen by a DADS psychiatrist for psychiatric needs.
- 4) Treatment with assessment from MH with psychiatric: these clients were assessed at the Mental Health Department, but did not receive other Mental Health services. A DADS psychiatrist saw these clients for psychiatric needs.

Description of dual diagnosis clients and length of stay

DSM-IV Diagnosis: In order to compare the four dual diagnosis groups, DSM-IV diagnoses were obtained from the Mental Health Department. These data were obtained from the Mental Health Department under a data-sharing agreement developed for the DADS Secondary Data Analysis Project. Matches were obtained for 396 out of the 583 (68%) dual diagnosis clients in the analysis. Only 40% of the clients in DADS enhanced programs in DADS enhanced programs also seeing the DADS psychiatrist had been seen in Mental Health, so no diagnoses were available for them. Table 1 shows the breakdowns by DSM-IV Axis 1 diagnoses. (See Table 1) For clients in the DADS enhanced dual diagnosis program, anxiety disorders and other disorders occurred with the greatest frequency (20% each). For clients who received an assessment from Mental Health and DADS treatment, the most common diagnoses were medical & mental disorders (24%), schizophrenia and other disorders (17% respectively). Among DADS dual diagnosis clients who received enhanced treatment and psychiatric care, other disorders were the most frequent (29%) followed by schizophrenia (16%). Among clients who received an assessment from Mental Health and psychiatric care, the most frequent diagnosis was mood disorders (32%) followed by other disorders (27%).

Table 1. Distribution of DSM-IV Axis 1 diagnoses for four dual diagnosis groups - FY 2002

Group	AXIS 1 Diagnosis								TOTAL
	Delirium, Dementia	Mental Disorder, Med	Substance-Related Disorders	Schizophrenia	Mood Disorders	Anxiety Disorders	Adjustment Disorders	Other*	
<i>DADS enhanced dual dx treatment program</i>	4	20	10	10	20	23	4	23	114
% Across column	4%	18%	9%	9%	18%	20%	4%	20%	100%
<i>Treatment with assessment from MH</i>	8	49	6	35	32	25	14	35	204
% Across column	4%	24%	3%	17%	16%	12%	7%	17%	100%
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	4	8	3	9	5	8	3	16	56
% Across column	7%	14%	5%	16%	9%	14%	5%	29%	100%
<i>Treatment with assessment from MH with psychiatric care</i>	0	5	0	1	7	3	0	6	22
% Across column	0%	23%	0%	5%	32%	14%	0%	27%	100%
TOTAL	16	82	19	55	64	59	21	80	396
% Across column	4%	21%	5%	14%	16%	15%	5%	20%	100%

* "Other" includes the following: Childhood & Adolescent Disorders, Somatoform Disorders, Impulse Control Disorders, Personality Disorders, Additional Codes and Old DX Coding

Length of Stay: The average length of stay in out-patient and residential treatment for each group is shown in Table 2. Clients in the DADS dual diagnosis treatment program with psychiatric care had the longest average length of stay (130 days) for residential and outpatient treatment combined. The same group also had the longest average length of stay in residential (37 days) and outpatient (176 days). The overall average length of stay for this group (130 days) was over twice as high as the average for all four groups combined (70 days). Clients who had an assessment from Mental Health and psychiatric care had the lowest average overall length of stay (30 days) and also the shortest mean length of stay in outpatient treatment (21 days) though not in residential treatment (31 days).

Table 2. Average (mean) length of stay in treatment in four dual diagnosis groups– FY 2002

Dual Diagnosis Group	Average Length of Stay (in days)		
	Residential	Outpatient	Outpatient & Residential
<i>DADS enhanced dual dx treatment program</i>	29	106	70
Number of cases	N=131	N=153	N=284
<i>Treatment with assessment from MH</i>	29	65	49
Number of cases	N=77	N=109	N=186
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	37	176	130
Number of cases	N=31	N=62	N=93
<i>In treatment with assessment from MH with psychiatric care</i>	31	21	30
Number of cases	N=11	N=9	N=20
TOTAL	30	103	71
Number of cases	N=333	N=250	N=583

Psychosocial functioning at admission: Psychosocial functioning at admission is measured with the BASIS 32 instrument. Only 327 out of 583 (56%) clients could be matched to their admission BASIS forms. (The remainder could not be matched due to errors on identifiers used to match cases or because the form was not administered). Because of the low number of matched cases, clients were categorized into two groups only for this table: 1) *enhanced dual diagnosis treatment* and 2) *DADS treatment with assessment from mental health*.

A mean composite score and scores for five subscales in BASIS 32 were calculated for each group. (See Table 3) BASIS scores 0 to 4 with the low score representing “No difficulty” and a high score representing “Extreme difficulty.” There were no statistically significant differences on BASIS total scores between the two groups. However, the two groups differed significantly with respect to scores on the psychosis subscale. Client in *DADS treatment with assessment from mental health* group had a significant higher average score on the psychosis subscale than clients in the enhanced dual diagnosis treatment track. This indicates that the comparison group, which was constructed, based on Mental Health services utilization had more severe mental health psychotic symptoms and may be directly comparable to dual diagnosis clients in the DADS system of care.

Table 3. Mean BASIS total score and score on the psychosis subscale

Dual Diagnosis Group	Total Score	Psychosis
Enhanced dual diagnosis treatment	1.31	1.01
DADS treatment with assessment from mental health	1.49	1.24*

*Significant at .05 level

Treatment Outcomes for Dual Diagnosis Clients

Treatment Outcomes: This section describes five outcomes at discharge: (1) discharge status, (2) drug use at discharge, (3) employment status at discharge, (4) visits to EPS (Emergency Psychiatric Services) and (5) client satisfaction. Data for discharge status, drug use and employment status at discharge are from the DADS OSCAR system. Data for EPS were obtained under a data-sharing agreement between the Mental Health Department and the DADS Secondary Data Analysis Project. Client satisfaction data were obtained by matching cases from OSCAR with the HCIA system that warehouses the CSQ8 data.

Table 4. Discharge status for four dual diagnosis groups – FY 2002

Dual Diagnosis Group	DISCHARGE STATUS		
	Satisfactory	Unsatisfactory	TOTAL
<i>DADS enhanced dual dx treatment program</i>	183	101	284
% Across column	64%	36%	100%
<i>Treatment with assessment from MH</i>	93	93	186
% Across column	50%	50%	100%
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	67	26	93
% Across column	72%	28%	100%
<i>Treatment with assessment from MH with psychiatric care</i>	14	6	20
% Across column	70%	30%	100%
TOTAL	357	226	583
% Across column	61%	39%	100%

Discharge Status: Across all four groups, about 6 in 10 clients (61%) received satisfactory discharges. (See Table 4) However, DADS dual diagnosis clients who received enhanced treatment with psychiatric care were the most likely to have a satisfactory discharge (72%) and clients who received assessment from Mental Health and psychiatric care had a similarly high percentage of satisfactory discharges (70%). Clients who received an assessment from Mental Health and treatment had the worst outcomes with only 50% receiving satisfactory discharges. Clients in DADS enhanced dual diagnosis did relatively well with 64% receiving satisfactory discharges.

Table 5. Drug use at discharge among four dual diagnosis groups - FY 2002.

Dual Diagnosis Group	DRUG USE AT DISCHARGE			TOTAL
	Less drug use	Same level of use	Higher level of use	
<i>DADS enhanced dual dx treatment program</i>	222	37	25	284
% Across column	78%	13%	9%	100%
<i>Treatment with assessment from MH</i>	134	41	8	186
% Across column	72%	24%	4%	100%
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	78	8	7	93
% Across column	84%	9%	8%	100%
<i>Treatment with assessment from MH with psychiatric care</i>	14	4	2	20
% Across column	70%	20%	10%	100%
TOTAL	448	93	42	583
% Across column	76%	17%	7%	100%

Drug use at discharge: The vast majority of clients in all four groups reported using substances less frequently at discharge (76%). (See Table 5) However, as with discharge status, DADS dual diagnosis clients who received

enhanced treatment with psychiatric care did the best with 84% reporting less frequent substance use at discharge (as compared to use at admission). The smallest percentage of reporting reduced use occurred among clients who received assessment from Mental Health and psychiatric care (70%), which though smaller than other groups, was still a good outcome. Once again, clients in DADS enhanced dual diagnosis treatment program did comparatively well with 78% reporting reduced drug use at discharge.

Table 6. Employment status at discharge in four dual diagnosis groups – FY 2002

Dual Diagnosis Group	EMPLOYMENT STATUS AT DISCHARGE			
	Improvement in employment status	Same employment status	Deterioration in employment status	TOTAL
<i>DADS enhanced dual dx treatment program</i>	74	184	26	284
% Across column	26%	65%	9%	100%
<i>Treatment with assessment from MH</i>	39	114	33	186
% Across column	21%	61%	18%	100%
<i>DADS enhanced dual dx treatment program with psychiatric</i>	31	51	11	93
% Across column	33%	55%	12%	100%
<i>Treatment with assessment from MH with psychiatric</i>	3	13	4	20
% Across column	15%	65%	20%	100%
TOTAL	147	362	74	583
% Across column	26%	61%	13%	100%

Employment status at discharge: The majority of clients across all four groups exhibited no change in employment status (61%) and only a minority (26%) improved their employment status between admission & discharge. (See Table 6) (An improvement indicates a shift in status from unemployed to employed and part-time to full-time). Once again, clients in the DADS enhanced dual diagnosis treatment with psychiatric care performed best on employment, with 33% reporting an improvement. The worst performance on employment occurred among client from Mental Health who received psychiatric care – a higher percentage of these clients experienced deterioration in employment status (20%) than improvement (15%). Clients in DADS enhanced dual diagnosis treatment fared well in terms of treatment outcomes with 26% reporting improvement in employment status and only 9% reporting deterioration.

Emergency Psychiatric Service Utilization: DADS client data were linked to Mental Health Department data to calculate the average number of visits for emergency psychiatric services before, during and after substance abuse treatment. In all four groups, the average number of visits for EPS before substance abuse treatment was lower than the average after treatment (.49 visits versus .89 visits per client). (See Table 7) (Note: An average of less than 1 means that not all clients in a group used EPS during the relevant period). Clients who received DADS enhanced dual diagnosis treatment did the best in terms of EPS utilization with an average of only 0.41 visits after treatment. Clients who received an assessment from Mental Health and treatment did the worst, with an average of 1.70 visits to emergency psychiatric services after discharge from substance abuse treatment.

Table 7. Emergency Psychiatric Service (EPS) utilization in four dual diagnosis groups – FY 2002.

Dual Diagnosis Groups	Average # of visits to EPS		
	Before	During	After
<i>DADS enhanced dual dx treatment program</i>	0.24	0.14	0.41
<i>Treatment with assessment from MH</i>	0.97	0.68	1.70
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	0.17	0.21	0.55
<i>Treatment with assessment from MH with psychiatric care</i>	0.68	1.10	1.20
TOTAL	0.49	0.37	0.89

Client satisfaction with treatment services: Only 80 out of a total of 583 cases (14%) could be matched for the CSQ analysis. (The remainder could not be matched due to errors on identifiers or because the form was not administered). Therefore, client satisfaction data should be used with the caveat that these cases do not represent the dual diagnosis client population. Client Satisfaction is scored on a scale of 1 (low) through 5 (high). Overall, clients in all groups reported fairly high levels of satisfaction with treatment (mean score 3.6). (See Table 8) Clients with assessment from Mental Health with psychiatric care reported the highest level of satisfaction (average score 3.9) and clients other treatment tracks also reported high levels of satisfaction (3.5 to 3.6).

Table 8. Client satisfaction with dual diagnosis treatment – FY 2002

Dual Diagnosis Group	Average CSQ 8 Score*
<i>DADS enhanced dual dx treatment program</i>	3.5
<i>Treatment with assessment from MH</i>	3.5
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	3.6
<i>Treatment with assessment from MH with psychiatric care</i>	3.9
TOTAL	3.6

*Scores based on 80 cases only.

Dual Diagnosis Treatment Costs

Cost of treatment: Cost estimates shown in Table 9 were calculated from FY 2001 expenditures on substance abuse treatment. Cost of treatment are calculated using data from the FY 2001 Alcohol & Drug Cost Report to the State. However, figures have been adjusted by our fiscal staff to spread the costs of administration and overhead over both county and contract programs rather than being applied to just county programs. The average annual cost of treatment per client is estimated at \$4000.00, using FY 2001 cost data. (See Table 9) The highest average annual cost of treatment per client was for DADS enhanced dual diagnosis track with psychiatric care at \$6412.00. The next highest cost was incurred for treating clients in the enhanced dual diagnosis treatment program at an average annual per client cost of \$3518.00. The lowest average annual cost of treatment per client was for the group, which received an assessment from Mental Health and psychiatric services - \$1240.00.

Table 9. Average annual cost of treatment per client in four dual diagnosis groups-FY 2001

Dual Diagnosis Group	Average annual cost per client
<i>DADS enhanced dual dx treatment program</i>	\$3518.00
<i>Treatment with assessment from MH</i>	\$1269.00
<i>DADS enhanced dual dx treatment program with psychiatric care</i>	\$6415.00
<i>Treatment with assessment from MH with psychiatric care</i>	\$1240.00
TOTAL	\$4000.00

Conclusions: This report described client characteristics, length of stay, treatment outcomes and cost of treatment for dual diagnosis clients in four different treatment “tracks.” Clients from the DADS enhanced dual diagnosis track with psychiatric care had the best outcomes of all four groups:

- 72% had satisfactory discharge from treatment
- 84% reduced drug use at discharge (relative to admission)
- 33% had improved their employment status (changed status from unemployed to employed or part-time to full-time employment)
- Exhibited moderately low utilization of EPS after discharge from treatment

Clients in this treatment track had better outcomes at discharge in part because they stayed in treatment the longest (130 days). A separate statistical analysis that allowed us to isolate the effects of length of stay on outcomes at discharge showed that this factor was the only significant predictor of good outcomes for dual diagnosis clients. DADS enhanced dual diagnosis treatment with psychiatric care was also the most expensive treatment track. The average annual expenditure per client was over \$8000.00 for outpatient treatment and \$1742.00 for residential treatment. However, clients in the DADS enhanced dual diagnosis treatment track also had good outcomes; 64% had satisfactory discharge from treatment, 78% reported reduced drug use, 26% reported improvement in employment status and only moderate use of EPS.