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## Drug Abuse Treatment in Adolescents Should Address Co-Occurring Mental Health Problems

Research Findings  
Vol. 19, No. 6 (May 2005)

By **Lori Whitten**, *NIDA NOTES* Staff Writer

Adolescent substance abuse patients with co-occurring emotional and behavioral problems are more likely than peers without coexisting psychiatric conditions to relapse in the year following treatment, a NIDA-funded study has found. "We must improve identification of co-occurring psychiatric disorders among substance-abusing teens and move away from a 'one size fits all' approach to therapy, or treatment gains will remain limited for these vulnerable youth and their families," says Dr. Cynthia Rowe of the University of Miami School of Medicine in Florida, who led the study.

Following 182 adolescents for a year after substance abuse treatment, Dr. Rowe and her colleagues found that those with co-occurring externalizing disorders—a combination of aggressive and delinquent behaviors including persistent lying, stealing, fighting, and destroying property—recovered more slowly than those without psychiatric disorders. Youths with externalizing and internalizing disorders—acting out mixed with anxiety and depression—obtained the least favorable treatment outcomes. Dr. Rowe says this combination of symptoms often relates to multiple problems in life and indicates psychiatric severity—the best predictor of substance abuse treatment outcomes in adults. "Our results mirror those seen in adults: People with more severe psychiatric problems show a significantly diminished response to substance abuse treatments of known effectiveness," says Dr. Rowe.



All the youths had been referred to substance abuse treatment, almost 85 percent by the juvenile justice or child service systems; they ranged in age from 12 to 17 at the beginning of the study. Participants received manualized treatment—cognitive behavioral therapy (CBT) or Multidimensional Family Therapy (MDFT)—in weekly office-based sessions for an average of 10 weeks. At the outset of the study, the participants' reports of substance abuse frequency in the past month averaged 12.7 days; by the end of the treatment, this figure dropped by 2.5 days. Six months after treatment, past-month substance abuse had fallen another 2.5 days; at the 12-month followup, abuse incidence had dropped an additional 2.5 days. The rates and patterns of change, however, varied depending on coexisting psychiatric disorders.

Substance abusers with no cooccurring disorders (12 percent of the study population) showed the best long-term outcomes. Although initially unresponsive to treatment, they markedly and rapidly reduced substance abuse between the 6- and 12-month followups—changing at a rate approximately 1.5 times that of peers with co-occurring externalizing disorders (35 percent of the study population), who also were initially unresponsive to treatment and also recovered. Youth demonstrating mixed externalizing and internalizing symptoms (48 percent of the study population) showed the opposite pattern. Initially improving in response to therapy, they had relapsed to pretreatment levels of substance abuse a year later. The responses did not differ in

patients participating in CBT and MDFT. The other 5 percent of substance-abusing adolescents were diagnosed with internalizing disorders only, a group too small to analyze, so the researchers did not include them in the analysis.

Dr. Melissa Racioppo of NIDA's Division of Clinical Neuroscience, Development and Behavioral Treatment says CBT and MDFT are very effective treatments for most adolescent substance abusers (see "[Family-Based Treatment Programs Can Reduce Adolescent Drug Abuse](#)"). Poorer treatment outcomes among people with co-occurring psychiatric disorders suggest that therapists may need to tailor substance abuse treatment for the patient's particular psychiatric condition, although the necessary level of specificity is not clear. "To adapt treatments for people with co-occurring psychiatric disorders, researchers must link particular therapeutic processes with outcomes," she adds—something that Dr. Rowe and her colleagues plan to do in future studies.

"Looking within the therapeutic process may help us discover what must happen to realize recovery from substance abuse. Effective components of therapy may vary for adolescents with different co-occurring mental health problems, and identifying such mechanisms of change may help us develop better interventions," says Dr. Rowe.

### Girls Had More Severe Problems

Most (82 percent) of the study's participants were boys; however, girls were overrepresented in the group with the least favorable treatment outcomes. More girls (83 percent) than boys (44 percent) displayed externalizing and internalizing disorders. Dr. Rowe says the pattern is familiar to clinicians across the country—there are typically more girls among the substance abuse patients with pronounced problems and disorders.

"By the time a girl with substance abuse problems is referred to treatment, she is usually in considerable distress and experiencing severe psychiatric symptoms and relationship problems. Family, school, and legal problems will continue unabated without better identification, referral, and treatment of these vulnerable girls," says Dr. Rowe.

Dr. Racioppo emphasizes the need for more research on differences in how boys and girls develop and manifest behavior problems. Troubled youth often have experienced family conflict and instability in relationships, but boys and girls may react differently. Studies indicate that females tend to turn their stress inward, developing anxiety and depression, which are often unnoticed by adults. Dr. Racioppo says girls tend to act out in ways that don't necessarily grab the attention of adults—through sexual behavior, for example—whereas boys externalize in ways that are more obvious, such as fighting. "To improve identification and treatment outcomes of adolescents with co-occurring psychiatric disorders, we need to study gender differences in the root causes and expression of behavioral and emotional problems," she says.

### Source:

- Rowe, C.L.; Liddle, H.L.; Greenbaum, P.E.; and Henderson, C.E. Impact of psychiatric comorbidity on treatment of adolescent drug abusers. *Journal of Substance Abuse Treatment* 26(2):129-140, 2003. [[Abstract](#)]

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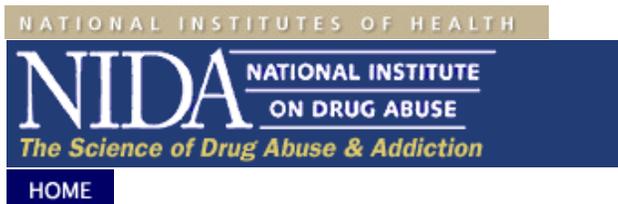
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## Adults With Co-Occurring Depression and Substance Abuse Benefit From Treatment of Depression

Research News  
Vol. 19, No. 4 (December 2004)

New evidence is overturning the long-held view that patients with co-occurring mental health and substance use disorders must achieve abstinence from drugs before treatment for depression can begin. There were sound reasons for adhering to this view, including clinician concern about drug interactions and recognition that depressive symptoms brought on by substance abuse are difficult to separate from clinical depression itself. As the field continues to refine screening tools that distinguish the disorders, however, new treatment approaches are being developed and assessed.

In a study that reinforces the need to revisit traditional management of these conditions, NIDA-funded researchers Drs. Edward Nunes and Frances Levin of Columbia University in New York City reviewed 33 years of published literature on the treatment of depression in the context of ongoing substance abuse. They found that antidepressant treatment is not sufficient for these patients, and they emphasize the need to integrate the treatment of depression and substance abuse. The investigators examined 44 placebo-controlled clinical trials published from 1970 to December 2003; 14 followed a rigorous methodology and were included in the study. Drs. Nunes and Levin used meta-analysis—a technique that synthesizes data from similar studies and determines how much particular factors affect outcomes—to examine the effects of antidepressant medication in approximately 850 patients with co-occurring substance abuse. They found that treating the depression of patients with co-occurring substance abuse conveys moderate benefit. Patients who responded to the antidepressant treatment also showed a reduction in substance abuse. However, cessation rates were generally low, even among studies demonstrating positive effects of antidepressants. Drs. Nunes and Levin suggest that clinicians first treat the depression with an evidence-based psychosocial intervention, followed by antidepressant medication if the depression does not improve.

"The study provides quantitative evidence on the benefit of treating depression in those with co-occurring substance abuse and supports integrated treatment of both disorders. Cognitive behavioral therapy is a good first approach for treating these patients, but the findings show the efficacy of antidepressant medications for patients with coexisting depression and substance abuse," says Dr. Ivan Montoya of NIDA's Division of Pharmacotherapies and Medical Consequences of Drug Abuse. Some clinicians worry that treating a patient's depression distracts attention from treating their co-occurring substance abuse. But Dr. Montoya says, "Patients may attach less stigma to seeking treatment for depression than substance abuse. Clinicians are increasingly finding that they have an opportunity to treat substance abuse in patients who present with depression; now, they have quantitative evidence to support the decision of concurrent treatment."

### Source

Nunes, E.V., and Levin, F.R. Treatment of depression in patients with alcohol or other drug dependence: A meta-analysis. *JAMA* 291(15):1887-1896, 2004. [\[Abstract\]](#)

**Volume 19, Number 4 (December 2004)**

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## Economists Offer Program for Costing Out Drug Abuse Treatment

Research Findings  
Vol. 19, No. 5 (January 2005)

By Marion Torchia, *NIDA NOTES* Contributing Writer

NIDA-supported economists are offering drug treatment program administrators a comprehensive program to estimate their costs. The Drug Abuse Treatment Cost Analysis Program (DATCAP) features materials and a method to capture and put dollar values on the full range of treatment resources. Along with analyzing their own economic operations, administrators eventually will be able to use a nationwide DATCAP database to compare their costs with those of similar programs, become more efficient, and achieve better treatment outcomes. Dr. Michael T. French of the University of Miami in Coral Gables, Florida, one of the system's designers, says that ultimately, the database should provide answers to the questions asked by cost-conscious public agencies and insurers: How much do today's drug treatment programs cost? What are the most cost-effective treatment approaches? Which programs return the greatest net benefits?

<i>Mean Patient Flow and Costs of Substance Abuse Treatment Programs</i>					
<b>Outpatient Programs</b>					
<i>Information gathered between 1993 and 2002 from 53 outpatient programs.</i>					
<b>Program Type (Number Surveyed)</b>	<b>Average Length of Stay, weeks (SD)</b>	<b>Average Daily Census (SD)</b>	<b>Total Annual Economic Cost (SD)</b>	<b>Weekly Economic Cost Per Client<sup>1</sup> (SD)</b>	<b>Economic Cost Per Treatment Episode<sup>2</sup> (SD)</b>
Methadone clinics (11)	99 (53)	388 (186)	\$1,684,254 (\$674,444)	\$91 (\$33)	\$7,358 (\$3,849)
Standard outpatient (14)	17 (9)	212 (188)	\$1,080,690 (\$757,227)	\$121 (\$85)	\$1,944 (\$1,960)
Intensive outpatient (6)	7 (8)	13 (9)	\$328,007 (\$411,364)	\$462 (\$243)	\$4,445 (\$6,302)
Adolescent outpatient (13)	13 (6)	8 (2)	\$48,170 (\$50,518)	\$194 (\$91)	\$2,678 (\$2,787)
Drug court (9)	46 (20)	205 (184)	\$539,660 (\$136,713)	\$82 (\$43)	\$3,463 (\$2,187)
<b>Residential Programs</b>					
<i>Information gathered during the same period from 32 residential programs.</i>					
<b>Program Type (Number Surveyed)</b>	<b>Average Length of Stay, weeks (SD)</b>	<b>Average Daily Census (SD)</b>	<b>Total Annual Economic Cost (SD)</b>	<b>Weekly Economic Cost Per Client<sup>1</sup> (SD)</b>	<b>Economic Cost Per Treatment Episode<sup>2</sup> (SD)</b>
Adult residential (18)	13 (14)	34 (21)	\$1,104,189 (\$643,053)	\$700 (\$343)	\$9,426 (\$11,023)

Adolescent residential (1)	8	22	\$1,307,064	\$1,138	\$9,347
Therapeutic community (5)	33 (22)	152 (265)	\$3,330,137 (\$4,821,587)	\$587 (\$194)	\$18,802 (\$12,409)
In-prison therapeutic community (8)	28 (12)	265 (288)	\$1,083,017 (\$1,587,030)	\$55 (\$11)	\$1,534 (\$947)

*Source: Roebuck, M.C.; French, M.T.; and McLellan, A.T. (2003).*

Notes: All amounts, including dollar amounts, are means. All costs are reported in 2001 dollars.

<sup>1</sup> Total annual economic cost divided by the average daily census, divided by 52.14 weeks.

<sup>2</sup> Weekly economic cost per client multiplied by the average length of stay.

## DATCAP Features

Administrators can download DATCAP survey forms and user manuals free of charge from [www.DATCAP.com](http://www.DATCAP.com). DATCAP's developers note, however, that most programs will require the services of an economist trained in cost analysis and program evaluation to obtain the most useful results.

DATCAP captures both accounting costs (the costs usually entered on an institution's financial statements, such as outlays for labor and supplies) and economic costs (all the resources a treatment center uses to serve its patients). Economic costs include resources that are partially subsidized or made available at no charge, such as volunteer labor. DATCAP's inclusive cost perspective permits comparison of treatment programs that have very different financial structures.

The program is adaptable to any treatment setting. By focusing on the cost of specific treatment methods rather than on entire programs, it can capture costs in settings that also offer other services. The same questionnaire is provided for inpatient and outpatient services.

"Program DATCAP" gathers detailed information about a program's resources, revenues, and expenses, and about its clients and the services they receive. "Brief DATCAP" is a less labor-intensive alternative to the full instrument. "Client DATCAP" surveys clients directly and assigns a dollar value to costs they incur as a result of getting treatment, such as travel and child care. Although the DATCAP project is still in its early stages, administrators who use it can identify costs they were unaware of and find opportunities to strengthen their operations.

## The Nationwide Database

Dr. French hopes that as program administrators around the country begin to use DATCAP to track their own costs, they will see the advantage of reporting their findings to a central repository. "Only when everyone's costs are pooled will it be possible for a program to compare itself with other programs," he says.

To encourage wider participation in the ongoing research on DATCAP, its creators have published some early survey results. Among these, they found that among 85 programs surveyed between 1993 and 2002, methadone maintenance programs had lower labor costs (55 percent of total costs compared with 68 percent for standard outpatient programs) and relatively higher costs for supplies and materials. Not surprisingly, standard outpatient programs were much less expensive than intensive programs: The 14 standard programs reported a mean weekly economic cost per client of \$121; for the intensive programs, the weekly cost was nearly four times that amount—or \$462 per client. However, the intensive programs generally offered a shorter course of treatment, so their mean total cost for a client's treatment episode was only slightly more than twice the cost of the standard outpatient programs (\$4,445 versus \$1,944).

The new database has limitations, the authors caution. The programs were not selected randomly and are not geographically representative. Also, the costs of a small number of atypical programs sometimes skewed the results. Nevertheless, says Dr. French, the results of the 85 surveys constitute a rich new source of information. "The database will get better as new programs are added, and eventually the cost estimates will be updated continually on the DATCAP Web site," he says.

### Next Step: Link Cost to Outcome

Although program managers find it useful to compare their costs with those of their peers, policymakers are much more interested in the relationship between costs and the intended program outcomes. Cost-effectiveness analysis and cost-benefit analysis of drug abuse treatment have demonstrated encouraging results. One California study found that \$1 invested in substance abuse treatment saves taxpayers \$7 in future costs, including those related to crime and care for medical problems resulting from drug use. ["Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA)," California Department of Alcohol and Drug Programs, April 1994.]

In a recent study using DATCAP, Dr. Jody Sindelar and her colleagues at Yale University in New Haven, Connecticut, found that Philadelphia treatment programs that offered "enhanced care" produced better outcomes with regard to drug abuse compared with those that offered only standard care. However, standard care programs had better results with respect to other treatment outcomes.

Says Dr. Sindelar, "Looking at treatment programs with too narrow a focus may produce misleading results. Reduced drug use is certainly the most direct outcome of treatment, but it is not necessarily the only one, or even the most important one to society. We need to find ways to give appropriate weight to all the outcomes we believe are important. But we believe that combining DATCAP and ASI [Addiction Severity Index] is a good first step."

Dr. William S. Cartwright, an economist with NIDA's Division of Epidemiology, Services and Prevention Research, believes DATCAP is the beginning of something important. "We know more about where the hidden costs are, and we are able to link costs to outcomes. I hope this information will enable us to make better use of scarce resources, toward our shared goal of reducing drug abuse and the problems it causes."

#### Sources

French, M.T.; Salomé, H.J.; Sindelar, J.L.; and McLellan, A.T. Benefit-cost analysis of addiction treatment: Methodological guidelines and application using the DATCAP and ASI. *Health Services Research* 37(2):433-455, 2002. [\[Abstract\]](#)

Roebuck, M.C.; French, M.T.; and McLellan, A.T. DATStats: Results from 85 studies using the Drug Abuse Treatment Cost Analysis Program (DATCAP). *Journal of Drug Abuse Treatment* 25(1):51-57, 2003. [\[Abstract\]](#)

Sindelar, J.L.; Jofre-Benet, M.; French, M.T.; and McLellan, A.T. Cost-effectiveness analysis of addiction treatment: Paradoxes of multiple outcomes. *Drug and Alcohol Dependence* 73(1):41-50, 2004. [\[Abstract\]](#)

#### Techniques of Economic Analysis of Drug Treatment

- **Cost-Effectiveness Analysis:** A technique for evaluation of clinical outcomes. It asks whether one treatment produces a better outcome at the same cost as another, comparable outcomes at less cost, or if an enhanced outcome is "worth" the additional cost.
- **Cost-Benefit Analysis:** Decisionmakers use cost-benefit analyses in determining how to allocate their budgets. The "cost" part of the analysis estimates the dollars necessary to achieve each alternative policy goal—for example, reducing drug abuse by 10% or raising school test scores by 10%. The "benefit" part estimates the dollar value of all the positive effects of success—for example, reduced medical costs because of fewer health problems associated with drug abuse, or a better educated, more skillful workforce attracting new industry to the area. All other concerns being equal, the goal that produces the most benefits for the lowest cost gets budget priority.

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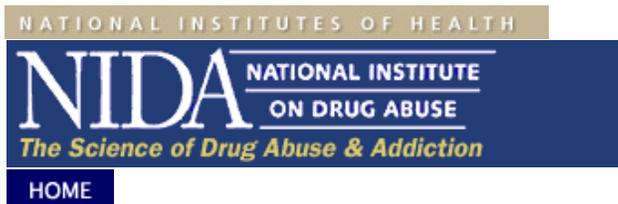
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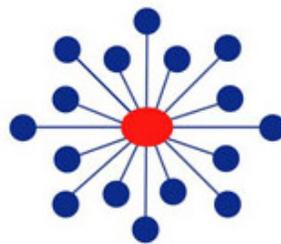
## CTN Update: Teamwork Develops Treatment Concept Into Study Protocol

Research News  
Vol. 19, No. 4 (December 2004)

By Barbara Shine, *NIDA NOTES* Contributing Writer

In NIDA's Clinical Trials Network (CTN), researchers and practitioners collaborate in the design as well as the execution of drug abuse treatment studies. Continuous collaboration with treatment providers, a distinguishing feature of the network, ensures a research focus on practical questions that arise in typical patient populations and community treatment settings.

A new study begins when a researcher or treatment provider identifies a clinical need and formulates a solution or intervention to meet it. Research ideas are accepted only if they coincide with public health priorities and meet two standards— feasibility and sustainability. A feasible research concept is one that can be tested in established, community-based treatment programs with varied patient populations. To meet the sustainability standard, the proposed intervention should be possible to continue in community treatment programs equipped with a realistic complement of resources after study completion. The concept proposal also must stand on a foundation of previous supporting research. Once it meets these criteria and gains approval within CTN and by NIDA, the proposal is ready to move on to protocol development and final NIDA approval and funding.



Clinical Trials Network

An example of the pragmatic approach to research design is the recently completed CTN-sponsored study "Motivational Incentives for Enhanced Drug Abuse Recovery." This work is based on the general idea that rewards—including supportive words, praise, money, or desirable objects—for a particular behavior promote like behavior in the future. Two protocols emerged: one for implementation in methadone maintenance clinics and another for study in clinics using treatments other than methadone maintenance.

"There were two key points to negotiate in designing these trials," says Dr. Maxine Stitzer of Johns Hopkins University School of Medicine in Baltimore, the principal investigator for both motivational incentive protocols. "The first was selection of the drug target. Previous incentive studies had targeted only one drug, but we targeted both cocaine and methamphetamine to address regional differences in stimulant abuse. We added alcohol as a primary target and opiates and marijuana as secondary drug targets to emphasize the importance of giving up all drugs, not just the particular one that brought the patients into treatment. Patients could draw chances to win prizes when their breath and urine samples were negative for target drugs."

"The second big issue was how much the prizes should be worth," says Dr. Stitzer. "Early studies in research centers cost upwards of a thousand dollars per patient for prizes; community treatment providers made it clear they needed an effective motivational approach that would not exhaust their much smaller budgets. People in our study drew chances to win a range of prizes—from bus tokens, to \$20 grocery vouchers, to compact disc players—that were more realistic for community treatment

centers."

Members of the protocol development group benefited from meeting with Dr. Nancy Petry, an investigator who conducted similar studies at the University of Connecticut in Farmington, and with several of her clinical staff and patients. "We really gained valuable insights and heard firsthand how the patients' motivations changed over the course of their treatment, from working for prizes to working for their own good," says Dr. Stitzer.

Once NIDA approved the motivational incentives protocol, investigators implemented the study in 14 treatment programs with a total of about 800 patients. Preliminary analysis of the data suggests that the addition of reward systems to standard therapy will improve outcomes for drug abuse patients. Once Dr. Stitzer and her team analyze and publish the results, clinicians will know whether motivational incentives are truly an effective adjunct to current therapies.

#### **For More Information...**

To learn more about CTN protocols, including studies that are now recruiting patients, visit the NIDA Clinical Trials Network Web site, [www.drugabuse.gov/CTN](http://www.drugabuse.gov/CTN). Both English and Spanish brochures for patients and physicians are available for download, and the site lists contact information for all regional research and training centers and clinical trials.

Dr. Petry's research is highlighted in "[Fishbowls and Candybars: Using Low-Cost Incentives To Increase Treatment Retention](#)" (*NIDA Science & Practice Perspectives*, Vol. 2, No. 1, p. 55), which is also available on NIDA's Web site.

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