

Assessing the Dual Diagnosis Capability of Addiction Treatment Services: The Dual Diagnosis Capability in Addiction Treatment (DDCAT) Index

Mark P. McGovern, PhD
Aurora L. Matzkin, MA
Julienne Giard, MSW

ABSTRACT. *Background:* Addiction treatment systems and services are increasingly challenged to provide effective treatments for persons with co-occurring disorders. Evidence-based practices are still being developed, and practice benchmarks remain vague in guiding treatment providers in enhancing services, or in delineating standards with which to evaluate the quality of existing care for persons with dual disorders.

Mark P. McGovern is affiliated with the Department of Psychiatry, Dartmouth Medical School, Lebanon, New Hampshire.

Aurora L. Matzkin is affiliated with the Center for Evaluative Clinical Sciences, Dartmouth Medical School, Hanover, New Hampshire.

Julienne Giard is affiliated with the Department of Mental Health & Addiction Services, State of Connecticut, Hartford, Connecticut.

Address correspondence to: Mark P. McGovern, Department of Psychiatry, Dartmouth Medical School, Suite 202, 2 Whipple Place, Lebanon, NH 03766 (E-mail: mark.p.mcgovern@dartmouth.edu).

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The American Society of Addiction Medicine (ASAM) proposed a taxonomy of addiction treatment program dual-diagnosis capability, and provided a conceptual model of services for persons with co-occurring substance use and psychiatric disorders.

Method: This article describes the development and application of the Dual Diagnosis Capability in Addiction Treatment (DDCAT) Index, which is designed to assess the dual diagnosis capability of addiction treatments services, and is based upon the ASAM taxonomy: Addiction Only Services (AOS), Dual Diagnosis Capable (DDC) or Dual Diagnosis Enhanced (DDE).

Results: The DDCAT has been found to have acceptable psychometric properties (internal consistency, inter-rater agreement, kappa) and is sensitive to change. Three case examples illustrate its use in assessing the dual diagnosis capacity of treatment services, and in measuring the targets and impact of change strategies.

Conclusions: The DDCAT has demonstrated practical value for addiction treatment systems and treatment service providers. Validity studies are in progress testing the relationship between the index and patient level outcomes. doi:10.1300/J374v03n02_13 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2007 by The Haworth Press, Inc. All rights reserved.]

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BACKGROUND

In the Report to Congress on co-occurring disorders, the quadrant model was used to frame the heterogeneous populations and differential service settings for persons with varying degrees of substance use and psychiatric severity.¹ Substantial advances have been made in developing effective integrated treatments for persons with severe and persistent mental illnesses and substance abuse problems in mental health settings (Quadrant II and IV).²⁻⁶ More research and evidence-based practices are needed for persons with substance dependence and less severe psychiatric disorders in addiction treatment settings (Quadrant III).⁷⁻⁹ With the evidence-base still developing, conceptual models and preferred practices loosely guide addiction treatment providers in

designing or improving an array of services that respond to the myriad needs of a diverse patient population.^{7,10}

The American Society of Addiction Medicine (ASAM) recently introduced a taxonomy of addiction treatment programs based upon dual diagnosis capability (ASAM-PPC-2R).¹¹ This model has promising implementation advantages since many community providers are already familiar with the ASAM-PPC-2R for patient placement and level of care determination.¹² The categories of program dual diagnosis capability are: Addiction Only Services (AOS), Dual Diagnosis Capable (DDC), and Dual Diagnosis Enhanced (DDE). Broadly defined, AOS programs target services to persons with primary substance use disorders who have no or minimal co-occurring problems. DDC programs offer services to persons with psychiatric comorbidity but who are relatively stable in symptoms and severity. DDE programs are programs that can be responsive to persons of varying, including severe, levels of psychopathology, regardless of acuity or stability.

Since co-occurring psychiatric disorders are common in addiction treatment settings, Minkoff and colleagues¹³ suggest that all programs should be at least DDC. On the other hand, even when clinically indicated, the expense of offering psychiatric care at DDE level is arguably cost and policy prohibitive for many programs and systems. In routine addiction treatment settings, AOS programs may continue to be the most common. In part because, despite pressures to develop a dual diagnosis capability, few professional staff and financial resources are available to deliver services for persons with co-occurring disorders in addiction treatment settings.

While the ASAM taxonomy has provided the field with a roadmap, there have been no objective studies of the classifications or validation of the model itself. Objective data are therefore needed to guide practice and to assess outcomes.

One recent study utilized the ASAM taxonomy to assess addiction treatment providers' perceptions of their program's dual diagnosis capability.¹⁴ Using survey method, and with brief definitions of the categories given, providers were asked to rate their program at AOS, DDC, or DDE. Nearly all (92.9%) of the 456 providers sampled were able to place their program in the AOS (23.0%), DDC (65.3%) or DDE (11.6%) categories. These categories were significantly associated with other variables assessed in the survey, such as clinician-estimated rates of psychiatric comorbidity, clinical practices, and perceptions about barriers to effective treatments for co-occurring disorders. Although the survey data yielded rapid and useful information for system screening

and planning purposes, there was less than 50% agreement within programs about the identified dual diagnosis service category. Akin to a clinical process, this finding, via a screening measure (i.e., survey), warrants a more detailed and objective follow-up assessment.¹⁵

Two existing indices of dual diagnosis capability are presently available to guide treatment programs and regulatory agencies in understanding the dual diagnosis capability of their services. One measure is the Integrated Dual Disorder Treatment (IDDT) fidelity scale.¹⁶ This scale is often misapplied to addiction treatment programs because it is available and raters have been trained in its use. Since the IDDT fidelity measure has been developed to assess programs for people with severe mental illnesses (Quadrant II and IV), the developers do not recommend its application in addiction treatment populations (Quadrant III) or settings. The second measure, developed by Minkoff and Cline, is actually a set of instruments for use in a system assessment of co-occurring disorder capacity: (1) The Comorbidity Program Audit and Self-Survey for Behavioral Health Services (COMPASS), (2) the Comprehensive Continuous Integrated System of Care outcome Fidelity and Implementation Tool (COFIT-100), and (3) the Co-occurring Disorders Educational Competency Assessment Tool (CODECAT).¹⁷ These measures are proprietary, and at present, no psychometric properties have been reported. Anecdotal reports and inspection of these instruments find them to be valuable as a program self-assessment strategy, in order to stimulate consensus and motivation for system change. The COMPASS measures were developed for both mental health and addiction treatment systems, but much like the IDDT fidelity scale, appear more relevant for mental health settings and patient populations (Quadrant II and IV).

The fidelity scale methodology has distinct advantages over self-assessment and provider survey of treatment services. These include the reduction of self-report bias, as well as a more comprehensive sampling of data from multiple sources via interviews, review of documents, and ethnographic observation. Another major advantage is the clarity obtained in devising operational definitions, both for clinical research purposes and provider practice-guideline perspectives. Disadvantages include the time needed to complete fidelity scale assessments, and the need to develop a protocol and measure that satisfy acceptable psychometric standards of reliability and validity.

Given the lack of available measures and methods to assess the dual diagnosis capability of addiction treatment services and patient populations (Quadrant III), the potential usefulness of a fidelity scale is evident.

Further, with the widespread adoption of the patient placement criteria, the ASAM model has the potential for effective translation into community treatment settings.

Using the ASAM taxonomy as the conceptual framework, the next section outlines the development of a fidelity measure to assess the dual diagnosis capability of addiction treatment services.

METHOD

The DDCAT Index

The Dual Diagnosis Capability in Addiction Treatment (DDCAT) index consists of 35 items, rated on a 5-point ordinal scale from 1-AOS to 3-DDC to 5-DDE. The range reflects an increasing level of dual diagnosis capability on each particular item. Items are arranged on 7 dimensions: (1) Program Structure; (2) Program Milieu; (3) Clinical Process: Assessment; (4) Clinical Process: Treatment; (5) Continuity of Care; (6) Staffing; and (7) Training (see Table 1). Each item has objectively defined anchors on the 5-point scale based upon the presence of and evidence for specific practices, the frequency of specific practices, and the level of systematization observed.

Ratings are made based upon data gathered during a site visit to an addiction treatment program. Three primary data sources are used: (1) Interviews (agency directors, clinical leadership, clinicians, support staff, patients), (2) direct observation (administrative and supervision processes, clinical processes, ethnographic observation of milieu), and (3) review of documented materials (medical records, policy & procedure manuals, program brochures, intake/screening forms). These data are gathered over a half-day to assess a single program (within an agency) or a full day to assess multiple (2 to 3) programs (within an agency).

Ratings are made on each of the 35 items, and scores (average of items) are derived on each of the 7 dimensions. These dimensions are depicted in a graphic profile to assist in interpreting relative strengths and weaknesses in dual diagnosis capacity. AOS, DDC, or DDE criteria are established based upon at least 80% of items scoring at or above that level. For example, to meet criteria for DDC, a program must score a 3 or above on at least 28 of the 35 items. To meet criteria for DDE, a program must likewise score a 5 on at least 28 of the 35 items. Given the scale begins with 1, all programs will meet 100% of criteria for AOS.

TABLE 1. DDCAT Dimensions, Definitions and Number of Items per Dimension

DDCAT Dimensions	Content of Items	# of Items
I. PROGRAM STRUCTURE	Program mission, structure and financing; Format for delivery of mental health services.	4
II. PROGRAM MILIEU	Physical, social and cultural environment for persons with psychiatric problems.	2
III. CLINICAL PROCESS: ASSESSMENT	Processes entry into services, screening, assessment and diagnosis.	7
IV. CLINICAL PROCESS: TREATMENT	Processes for treatment including pharmacological, and psychosocial evidence-based formats.	10
V. CONTINUITY OF CARE	Discharge and continuity for both substance use and psychiatric services	5
VI. STAFFING	Presence, role and integration of staff with mental health licensure or certification	5
VI. TRAINING	Proportion of staff in and program training strategy for co-occurring disorders.	2

RESULTS

Preliminary Studies, Reliability, and Sensitivity to Change

Guidelines for constructing fidelity measures for mental health and rehabilitation services have been defined.^{18,19} In addition, a framework for developing adherence and competence scales for behavioral therapies has also been articulated.^{20,21} Synthesizing these methodologies, we developed a working draft of the measure. The first version of the DDCAT was developed in 2004. It was organized in a format similar to the IDDT fidelity scale. Criterion items were developed based upon the ASAM taxonomy, expert consensus about evidence-based and preferred practices for persons with co-occurring disorders in addiction treatment, modifications of items from the IDDT and COMPASS scales, and a review of the scientific literature. The initial version (DDCAT 1.0) consisted of 60 items, and was constructed over time via multiple drafts and revisions based on expert review and feedback. It was then pilot tested as a self-assessment measure with a sample of addiction treatment providers ($n = 24$). Community treatment program and clinician feedback and field-testing resulted in a reduction of items (54) and

greater clarity in scoring.²² The revised version was further tested with addiction treatment programs across two states ($n = 14$) and two studies. In the first study, the program DDCAT categories (AOS, DDC, or DDE) were compared with previous self-assessed reports of dual diagnosis capability.²³ Of seven programs both surveyed and assessed using the DDCAT, only two were concordant. The remaining five programs scored lower in capability on the DDCAT versus self-assessment. This suggests that either the tendency for self-report is to over-estimate capability or the DDCAT provides more objective definitions and stringent criteria for each category.

In the second study, reliability coefficients were calculated and found to be acceptable. Across all items, the inter-reliability was found to be acceptable (percent agreement between raters: 76%; median kappa coefficient: 0.67). The median alpha coefficient across the seven dimensions was 0.81, ranging from 0.73 (Clinical Process: Assessment) to 0.93 (Program Structure). On this sample of programs, both DDCAT and IDDT Fidelity Scale ratings were also obtained. The correlation between the IDDT Fidelity Scale Total and the DDCAT Total Score was 0.69 ($p < 0.01$). The relationship between the IDDT Fidelity Scale total score ranged from 0.38 (Clinical Process: Assessment) through 0.82 ($p < 0.01$) (Clinical Process: Treatment). Four of the seven dimensions were correlated with the IDDT Total score at a $p < 0.05$ level, whereas three (including Clinical Process: Assessment) were not. The median correlation coefficient was 0.62. These comparisons between the DDCAT and IDDT measures suggest some overlap but also independence, supporting the construct validity of the DDCAT.²⁴

Based upon the psychometric studies and item analyses, the DDCAT was reduced to 35 items, and scoring further refined (Version 2.4).

Using the current version of the DDCAT, a cohort of addiction treatment programs ($n = 16$) was assessed at baseline and at 9-month follow-up.²⁵ The programs received 1 of 3 enhancement strategies: (1) DDCAT assessment + feedback only; (2) DDCAT assessment + feedback + training; or, (3) DDCAT assessment + feedback + training + implementation support. All enhancement strategy groups increased dual diagnosis capability, but the assessment + feedback + training + implementation support condition had significantly greater improvements on two DDCAT dimensions. Using the Kruskal-Wallis test of significance between mean ranks and chi-square statistics, we found Clinical Process: Assessment ($\chi^2 = 8.18$; $df = 2$; $p < 0.01$) and Training ($\chi^2 = 10.36$; $df = 2$; $p < 0.001$) differed by enhancement condition. The results from this small study supported the application of the DDCAT to

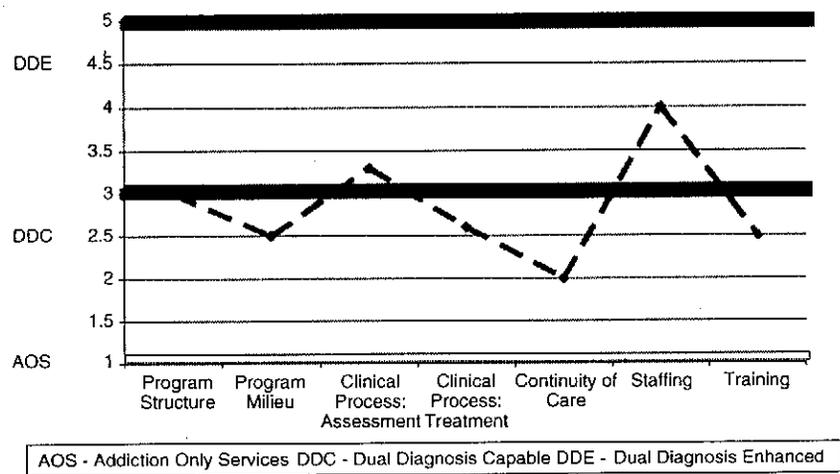
measure change initiatives and to serve as an objective yardstick to guide the change process itself.

In addition to the psychometric properties of the DDCAT, the index has thus far been perceived to be practical and constructive for addiction treatment program leaders, clinicians, and state agency officials. Benefits include the identification of concrete ways to improve services and procedures, more efficient use of staff training time and funds, and specificity and direction to considerations for new staffing patterns and roles.

Three Case Examples of Addiction Treatment Programs Use of the DDCAT

Figure 1 depicts Case #1, the DDCAT profile of a single intensive outpatient program in Louisiana. Overall, the program met criteria for DDC level services. Inspection of the graphic portrayal of the dimensions reveals considerable variability in the capacity of the program to address persons with co-occurring disorders. This has been described as the "the pieces are all in place" profile. The profile indicates that Program Structure and Staffing, two resource-driven dimensions, can clearly support services to persons with co-occurring disorders. However, the

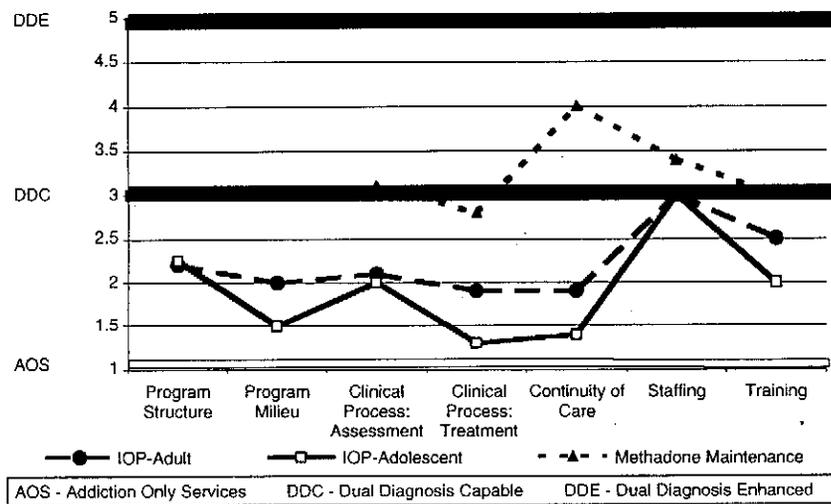
FIGURE 1. DDCAT profile for a single intensive outpatient program.



lower scores on Clinical Process: Treatment, Continuity of Care, and Training identify specific areas for improvement so performance can match capacity.

Figure 2 illustrates Case #2, the DDCAT profiles of three programs within a single addiction treatment agency in Indiana. The programs include an outpatient methadone maintenance program, an intensive outpatient program for adults, and an intensive outpatient program for adolescents. Although the methadone maintenance program did meet overall criteria for DDC services, relatively lower scores on Clinical Process: Assessment and Clinical Process: Treatment suggest opportunities of more systematic approaches. In contrast, neither the adult nor adolescent intensive outpatient programs met criteria for DDC, and presently offer AOS services. Although there are many areas for the agency leadership to target program improvements, there are also observable areas of strength, such as in having the staff resources to provide more capable services. Examining these program profiles empowers the agency's administrative and clinical leadership to affirm the work of the methadone maintenance program and to consider specific strategies to improve the capability of the drug-free outpatient programs.

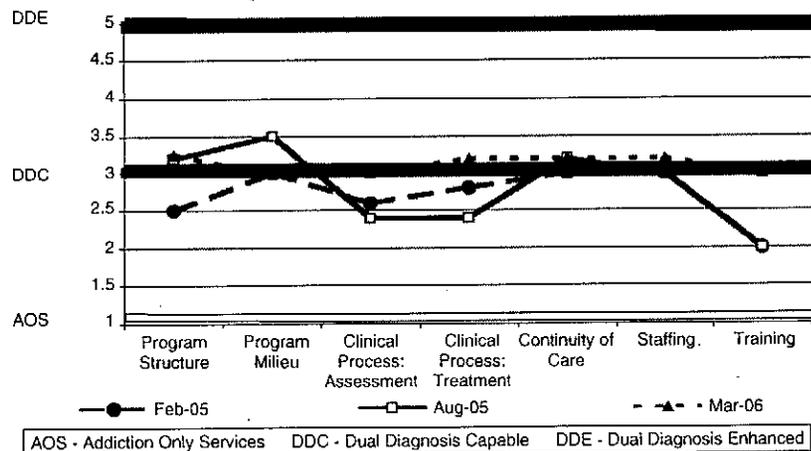
FIGURE 2. DDCAT profiles for three programs within a single agency.



Finally, Case #3 is shown in Figure 3. This represents a single program in Connecticut assessed using the DDCAT at three points in time over an 18-month period. This program is a residential program for addicted women and their children (less than 5 years of age). The DDCAT profile depicts a process of gradual but measurable enhancement of services without additional resources. This profile is reinforcing of the program's concerted efforts to offer higher quality care to the women and children they serve. At the last assessment, the program has met overall DDC criteria, through staff training and implementation support in systematic assessment and evidence-based treatments for co-occurring disorders. Concerted efforts to de-stigmatize mental health problems in the milieu and in program policies were also made.

Taken together, these three case examples illustrate the DDCAT utility in assessing addiction treatment services, offering specific guidance to both programs and agencies, identifying targets of specific avenues for change, and providing documentation of the impact of efforts to leverage improvements. Finally, the graphic profile component has been widely reported to be helpful and reinforcing to both administrators and clinicians alike.

FIGURE 3. DDCAT profiles for a single program over time: Women and children residential program.



CONCLUSIONS

The development and application of the DDCAT index has shown promise in offering pragmatic benchmarks and guidelines to community addiction treatment providers and systems. Providers who have been assessed using the DDCAT have valued the experience and report the concrete guidance has been instrumental in their plans and initiatives to enhance services. One clinician noted that it was as if she had the answers to the test and could plan and study accordingly. Persons interested in fostering change at the systems level are likewise utilizing the DDCAT on a programmatic basis, but also as a measure of the overall capability of the system of care. System wide initiatives, such as through the SAMHSA Co-occurring State Incentive Grants (COSIG), have implemented the DDCAT as the primary measure for addiction treatment services. States using the DDCAT within the COSIG initiatives include: Connecticut, Hawaii, Louisiana, Missouri, New Mexico, and Texas. Other state agencies (Indiana and Illinois) are just beginning to implement the DDCAT within co-occurring disorder service enhancement initiatives.

A manual for administration and scoring of the DDCAT has been developed. Also a descriptive toolkit is available. The toolkit provides case examples and concrete suggestions for each DDCAT item and dimension, enabling AOS programs to obtain practical guidance to achieve DDC, and DDC programs to become DDE.

Continuous refinement is necessary for all measures and instruments. The DDCAT needs improvement in scoring and in considerations about item weighting. Presently, administration and scoring can be easily learned by via several training formats, including simply reading the manual. However, several items are less clear than others. Also, in terms of scoring and overall criterion setting, each item is weighted equally. This may not reflect the differential importance of certain items relative to other less important ones. Further item analysis, factor analyses, and refinement of the measure will strive to reduce the number of items, and either refine items to have equivalent weights or develop a scoring algorithm to reflect the differential significance of items.

Finally, at this stage of the development of the DDCAT index, no data linking either dimension ratings or program dual diagnosis capability category have been linked to patient level outcomes. Research is presently underway examining patient outcomes (treatment acceptance, retention, and effectiveness) as a function of DDCAT scores and

categories. One may hypothesize that the more dual diagnosis capable services will produce significantly better outcomes for persons with co-occurring disorders. These investigations will also help identify those dimensions of both the DDCAT and treatment services associated with patient improvement and quality of care.

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