Evaluation of the California Implementation of the SAMHSA Integrated Dual Disorders Treatment Model in Eight Programs

California Institute for Mental Health

Submitted by
Daniel Chandler, Ph.D.
Project Evaluator

with Project Staff Neal Adams, Marc Bono, Karin Kalk, Carmen Masson, Vicki Smith, Dan Souza and Alice Washington

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California Institute for Mental Health
2125 19th Street, 2nd Floor
Sacramento, CA 95818
(916) 556-3480
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PROJECT PARTICIPANTS

The California Integrated Dual Disorders Treatment Project included the following persons. We are grateful for their participation and support.

Steering Committee (CiMH, DMH and DADP)
Alice Washington
Bill Holland
Carmen Masson
Dan Chandler
Joan Hirose
Karin Kalk
Marc Bono
Neal Adams
Ron Bettencourt
Sandra Naylor Goodwin
Vicki Smith

Alameda
Barbara Majek
Evelyn Crespo Mena
Gary Spicer
Janet Biblin
Leslie Preston
Leslie Taylor
Mark Shotwell
Mary Thomas
Michael Lisman
Rick Crispino
Terry Rubin-Ortiz
Vickie McClary

Los Angeles
Allen Mogos
Cathy Warner
Debbie Innes-Gomberg
Katty Kallender
Marv Southard
Rod Staner
Steve Starkman
Verda Bradley

Stanislaus
Adrian Carroll
Cherie Dockery
Denise Hunt
Elizabeth Oakes
Mark Morris
Mel Snow
Patricia Ortega-Ruiz
Susan Gold
Susan Salinas

Ventura
Barbara Kellner
Dennis Cain
Linda Gertson
Linda Shulman
Melanie Roy
Michael Ferguson
Robert Soliz
Scott Vanderzee
Teddy Wood

We are grateful to the staff members at each site who welcomed us for fidelity reviews and who provided information about the IDDT implementation. We are also grateful to the clients at each site whom we interviewed about their experiences with the program. We thank Kim Mueser, an IDDT developer, for providing a highly useful workshop.

A PDF version of this report is available from CiMH at: www.cimh.org
SECTION I: CALIFORNIA'S PARTICIPATION IN THE SAMHSA EFFORT TO DISSEMINATE EVIDENCE-BASED PRACTICES IN PUBLIC MENTAL HEALTH

The Center for Mental Health Services in the Substance Abuse and Mental Health Services Administration (SAMHSA) is recommending five psychosocial service models as part of an initiative to increase the use of evidence-based practices in mental health services.

The practices are Assertive Community Treatment (ACT), Integrated Dual Disorders Treatment (IDDT), Family Psychoeducation, Supported Employment, and Illness Management and Recovery. These five practices were selected in 1998 by a consensus panel of researchers, administrators, consumers and family members. SAMHSA commissioned the development of resource guides called Toolkits1 and funded the National EBP Project which tested implementation of the practices in 53 sites in eight states.2 Preliminary results from a first round of implementation trials are available. California participated in a second round.

SAMHSA's purpose in funding the Round II demonstration projects—in which California participate—is to further understand the factors helping or hindering EBP implementation and the role of the Toolkit in facilitating implementation. California and other states are interested in what kinds of improvements in outcome are associated with the model.

A second round of three-year implementation evaluations was funded by SAMHSA in September of 2003. The grant announcement states that funds are to be used a) for providing state-of-the-art training and continuing education to those implementing the EBP and b) for evaluating the implementation of the EBP in at least two sites. In some respects, funding of this second round was premature as the fidelity scales were not scheduled to be fully validated until 2008. However, states were disappointed that wide-scale implementation of the EBPs would have to wait for years, and SAMHSA responded with this round of funding. In this round, California is implementing IDDT in eight programs in four counties. Other states implementing IDDT are Vermont, Hawaii, North Carolina and Louisiana. Unlike Round I, which had an overall research strategy, each state developed its implementation and evaluation plans separately.

As in Round I, the grant specifications contain no requirement for measuring outcomes, but all Round II IDDT grantees—including California—report they are measuring outcomes as well as evaluating implementation.

1 The current technical name is: Implementation Resource Kits. The California project referred to them as "Toolkits," in line with the web address of the site where they can be downloaded: http://mentalhealth.samhsa.gov/cmhs/communitysupport/toolkits/

2 The EBP Project is described at: http://www.samhsa.gov/samhsa_news/VolumeXI_2/article3.htm See also: SAMHSA's Evidence-Based Practices Implementation Resource Kits: The Next Generation. Presentation at the 16th Annual NRI Research Conference, Baltimore, Maryland ✪ February 12-14, 2006. Vijay Ganju, Director, Center for Mental Health Quality & Accountability, NASMHPD Research Institute, Inc., 703.739.9333 ext. 132, vijay.ganju@nri-inc.org
The California IDDT demonstration is being jointly conducted by the state Department of Mental Health and the California Institute for Mental Health.

The SAMHSA grants were made to state mental health authorities. In California this was the state Department of Mental Health. Neal Adams, M.D., then the adult services medical director for the Department, was the Principal Investigator for the project. The grant was developed and submitted through a collaboration with the California Institute for Mental Health, which has an explicit commitment to helping counties implement evidence-based mental health practices.\(^3\)

For the IDDT implementation project, CiMH—under contract with the DMH—provided project administration staff and contracted with the IDDT trainer and the project evaluator. This project used methods, namely the Development Team approach, which have been proven successful in other CiMH-county collaborative implementation efforts.\(^4\)

The four participating counties volunteered to be part of the demonstration project.

As the first step in preparing an application for the Round II SAMHSA funding, CiMH called a meeting of interested counties. The decision to apply for IDDT rather than one of the other EBPs was made based on a vote of counties attending. All interested counties were included in the demonstration. The participating counties and programs were:

Table 1: Participating Counties and Programs

<table>
<thead>
<tr>
<th>County</th>
<th>Program in Year 1</th>
<th>Program in Year 2</th>
</tr>
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<tbody>
<tr>
<td>Alameda</td>
<td>Bonita House</td>
<td>Casa del Sol</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>Hollywood Clinic</td>
<td>South Bay Clinic</td>
</tr>
<tr>
<td>Stanislaus</td>
<td>Turlock Regional Center</td>
<td>West Modesto Regional Center</td>
</tr>
<tr>
<td>Ventura</td>
<td>Conejo Clinic</td>
<td>Oxnard Clinic</td>
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Counties received free training and their expenses were paid for attendance at project meetings, but no county received funding for the actual implementation of IDDT.\(^5\)

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\(^3\) See the CiMH plan for implementing "values-based evidence-based practices" at: [http://www.cimh.org/technical_assistance/child_values.cfm](http://www.cimh.org/technical_assistance/child_values.cfm)


\(^5\) This was a requirement of the grant, but also accorded with the desires of the project team and counties as long-term implementation based on short-term grants is often problematic despite maintenance of effort requirements.
The initial study design called for two programs in each of the four participating counties, with implementation in a program already having moderate fidelity in year one and implementation in low fidelity programs in year two.

The study design was designed to test a number of hypotheses:

a) Hypothesis 1. It would be possible to bring moderately advanced programs up to high fidelity in a relatively short time

The first site in each county was therefore intended to represent programs that had a start on achieving fidelity to the IDDT model. For example, the initial programs chosen all had some integrated substance abuse services rather than relying on parallel or consecutive substance abuse programming.

b) Hypothesis 2. Once the first four programs achieved high fidelity, they could and would offer assistance to low fidelity programs in the same county—for example, by facilitating job shadowing.

In the event, the linked first two hypotheses could be tested only in part because changes in two of the counties resulted in selecting programs that did not fit this model: in Ventura and Los Angeles, "basic" or low-fidelity programs had to be chosen to be in the first round of training and implementation while more advanced programs were in the second round. In Stanislaus County and Alameda County the original design obtained.

c) Hypothesis 3. A county-wide implementation committee would help resolve implementation problems for the study sites and move the practice more widely into county programs.

Each county designated a "lead" person from the county administration who was charged with establishing an oversight and dissemination committee.

d) Hypothesis 4. Client outcomes of service will be positively associated with achieved fidelity.

In none of the sites was it possible to create a control group (much less one with randomized assignment to study group), so improvement in outcomes is based on using each client's baseline measures as a control. The outcome measures include: a) clinical measures of psychiatric functioning, b) measures of substance use/abuse, c) administrative data based measures of crisis and inpatient utilization, d) measurement of attrition, and e) when possible, comparison of outcomes for those remaining in the program and those who attrited. Clinician ratings were performed every six months, starting with a baseline rating at the time training began.
In addition to these major hypotheses, a number of specific evaluation questions were to be investigated. These include:

- Is the IDDT model "culturally competent?" Practically, this meant answering three separate questions: Are outcomes comparable for persons of different racial/ethnic background? Does the cultural competence of clinic staff make a difference in outcomes for minority clients? Is IDDT able to be implemented in a bilingual, bicultural Latino clinic?

- How are outcomes associated with a) fidelity ratings, b) satisfaction with training, c) organizational functioning measures?

- Are particular types or amounts of service associated with better outcomes?

**Implementation of the IDDT model was supported by training, fidelity reviews, technical assistance, and a "development team."**

- A three-hour training was provided monthly for a year (48 hours total) to each site by Marc Bono, Ph.D. In some sites only the site IDDT team was trained, in others all clinic staff were trained, and in Ventura training was opened up to all outpatient clinicians. Training materials were provided, and the training is now available on DVDs for use in "refreshers" or in further dissemination of the model.

- Every six months two senior project team staff members visited each site and conducted a fidelity review using a California version of the Round I fidelity instrument. (See below for how the California version differed from the Round I instrument.)

- A major implementation tool was the "development team" made up of all CiMH project staff and staff from each county and each individual site. The development team is designed to facilitate communication, ensure some degree of uniformity, and provide peer support. The major activities of the development team were:

  1. Quarterly meetings. For the most part these meetings dealt with on-going practical issues of implementation. An early meeting however brought in experts for a workshop in organizational change. And in the early part of the second year Kim

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6 The Office of Minority Health and Health Disparities located in the Centers for Disease Control and Prevention defines minorities as: "Racial and ethnic minority populations are defined as American Indian and Alaska Native, Asian, black or African American, Hispanic or Latino, and Native Hawaiian and Other Pacific Islander." (http://www.cdc.gov/omhd/Populations/definitions.htm) We follow this usage, and following the Census Bureau we refer to the "majority" population as "White." (The White Population, 2000, available at: http://pdfdownload.capt.de/pdf2html.php?url=http%3A%2F%2Fwww.census.gov%2Fprod%2F2001pubs%2Fc2kbr01-4.pdf&images=yes

7 CiMH has used development teams extensively in helping counties introduce evidence-based practices. The version used in the IDDT Project was an early variant and differs in major ways from the current model. See Todd Sosna and Lynne Marsenich, The California Institute for Mental Health Community Development Team Model Supporting the Model Adherent Implementation of Programs and Practices, 2006.
Mueser, Ph.D., a main developer of the IDDT model came for a two day meeting with the development team.

2. Monthly phone calls. A conference call was schedule once a month for all participants. These calls were used both for practical tasks such as scheduling and planning the quarterly meetings and for substantive trouble-shooting.

3. The development team organized and put on a statewide conference at the end of the grant period to introduce other counties to IDDT and issues of implementation.

- Technical assistance around clinical issues was provided by the trainer during supplementary visits to the sites. Technical assistance around organizational issues of implementation was provided by Karin Kalk, MA, a specialist in project management. Both types of technical assistance were offered and promoted to all sites, but provided only as requested by site administrators.

*In reviewing the findings of the project, it is useful to keep in mind a timetable of major milestones.*

**Table 2: Project Activities**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tr>
<td>September 2003</td>
<td>Grant awarded by SAMHSA</td>
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<tr>
<td>February 2004</td>
<td>Grant funds became available and first development team meeting held</td>
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<tr>
<td>Spring 2004</td>
<td>Initial site visits to each county by project staff; interviews with county decision makers</td>
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<tr>
<td>Summer/Fall 2004</td>
<td>Initial &quot;baseline&quot; measurements of study participant psychiatric and substance abuse status for first four agencies; baseline fidelity reviews for these same agencies; organizational functioning and cultural competence scales completed</td>
</tr>
<tr>
<td>September 04/August 05</td>
<td>Year of training for four initial agencies</td>
</tr>
<tr>
<td>Summer/Fall 05</td>
<td>Initial &quot;baseline&quot; measurements of study participant psychiatric and substance abuse status for second four agencies; baseline fidelity reviews for these same agencies</td>
</tr>
<tr>
<td>September 05/August 06</td>
<td>Year of training for second four agencies</td>
</tr>
<tr>
<td>September 06</td>
<td>Final development team meeting</td>
</tr>
<tr>
<td>February 2007</td>
<td>Statewide conference presenting results of IDDT implementation demonstration</td>
</tr>
<tr>
<td>June/July 2007</td>
<td>Last clinician ratings; collection of administrative data for entire study period</td>
</tr>
<tr>
<td>September 2007</td>
<td>Final evaluation report</td>
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SECTION II: THE EVIDENCE BASE FOR IDDT

One of the activities of the project evaluator was to conduct an extensive literature review of the co-occurring disorders outcome literature. Although a number of articles dealing with implementation of integrated dual disorders treatment were included in the SAMHSA Toolkit, the articles did not include a literature review. Knowing the quality and amount of evidence supporting a practice is critical for persons attempting to implement the practice. It motivates staff if they know that other programs have achieved success. It is also important in providing a context for the outcomes found in each program implementing the practice—expectations should be in line with what a substantial body of research has shown to be feasible. The review below is current through early 2007. Earlier versions were distributed to project and agency staff, and this version has been made available by CiMH to any county or agency interested in IDDT.8

**Brief description of IDDT**

**Target group:**

The IDDT Toolkit is designed to assist persons with both a severe mental illness and a serious substance abuse problem. No materials in the Toolkit focus on older adults or youth or other subpopulations such as those with extensive criminal justice histories or persons who are homeless. The Toolkit is not diagnosis specific, though studies in the evidence-base do focus on particular diagnostic subgroups.

**Practice components:**

Integrated treatment basically means that both psychiatric and substance abuse treatment are provided at the same time, at the same place, and by the same team. Specific IDDT components are listed in the fidelity scale and include9:

1a. **Multidisciplinary Team:** Case managers, psychiatrist, nurses, residential staff, mental health clinicians, and vocational specialists work collaboratively on mental health treatment team

1b. **Integrated Substance Abuse Specialist:** Substance abuse specialist works collaboratively with the treatment team, modeling IDDT skills and training other staff in IDDT

2. **Stage-Wise Interventions:** Treatment consistent with each client’s stage of recovery (engagement, motivation, action, relapse prevention)

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8 Actually, literature reviews of all five SAMHSA EBPs (excluding medications management) were conducted and are available at: [http://cimh.org/projects/evidence_based.cfm](http://cimh.org/projects/evidence_based.cfm)

9 California’s SAMHSA IDDT implementation project modified the fidelity scale to some degree, adding access to wet, dry and damp housing, for example. The revised scale is available from CIMH.
3. **Access for IDDT Clients to Comprehensive DD Services:** Includes residential treatment, Supported Employment, Illness Management and Recovery and ACT or Intensive Case Management.

4. **Time-Unlimited Services:** Unlike many substance abuse programs, services are intended to be on-going.

5. **Outreach:** Assistance in the community with housing, medical care, crisis management and legal aid. Assertive contacts to assist with initial engagement or with persons who have stopped attending.

6. **Motivational Interventions:** Clinicians who treat IDDT clients use techniques to increase motivation to change and reduce resistance.

7. **Substance Abuse Counseling:** Clients who are in the action stage or relapse prevention stage receive substance abuse counseling that include: Teaching how to manage cues to use and consequences to use; teaching relapse prevention strategies; drug and alcohol refusal skills training; problem-solving skills training to avoid high-risk situations; challenging clients’ beliefs about substance abuse; and coping skills and social skills training.

8. **Group Dual Disorders Treatment:** DD clients are offered group treatment specifically designed to address both mental health and substance abuse problems.

9. **Family Education and Support on Dual Disorders:** Clinicians provide family members (or significant others) education, coping skills training, collaboration with the treatment team and support.

10. **Participation in Alcohol & Drug Self-Help Groups:** Clients in the action stage or relapse prevention stage attend self-help programs in the community.

11. **Pharmacological Treatment:** Psychiatrists for IDDT clients prescribe psychiatric medications despite active substance use.

12. **Interventions to Promote Health:** Examples include: Teaching how to avoid infectious diseases; helping clients avoid high-risk situations and victimization; securing safe housing; encouraging clients to pursue work, medical care, diet, and exercise.

13. **Secondary Interventions for Substance Abuse Treatment Non-Responders:** Program has a protocol for identifying substance abuse treatment non-responders and offers individualized secondary interventions, such as clozapine, naltrexone, or disulfiram; long-term residential care; trauma treatment; intensive family intervention; and intensive monitoring.
14. High intensity services. Although not in the SAMHSA toolkit, a low client to staff ratio is included by Mueser, Drake and colleagues in their handbook version of the fidelity scale.\textsuperscript{10}

Evidence for IDDT vs. evidence for integrated psychiatric and substance abuse treatment

What constitutes the evidence-base for Integrated Dual Diagnosis Treatment? In the broad sense, one could say it is all studies which document the effectiveness of an integrated approach to persons with co-occurring psychiatric and substance use disorders. More narrowly it should be the studies from which the IDDT fidelity scale was derived—that is, those high quality random controlled trials for which good outcomes correlate with high fidelity ratings. However, there is only one published study of outcomes from a program that included all of the elements in the IDDT Toolkit model (based on a high score on the fidelity scale), and it focuses exclusively on jail recidivists.\textsuperscript{11} Instead the IDDT fidelity scale (unlike the scales for the ACT, SE, and Family Psychoeducation fidelity scales) is derived from “principles of treatment” rather than specific successful programs. Outside of the study of forensic clients mentioned above, there is not an evidence base at this point for the specific program that is prescribed in the IDDT fidelity scale. Although there are now a number of “high fidelity” programs in existence (in EBP Project states), none of these have reported outcomes. We have, necessarily, used the broad definition of integrated dual diagnosis treatment (lower case) as the focus for finding and assessing literature reviews. More detail on these points is available in the CIMH systematic review of the literature on dual disorders outcomes in the Appendix.

Extent of evidence for integrated psychosocial treatment of dual disorders

A. Systematic Reviews

1. A summary of each literature review of integrated treatment is included in the appendix. The New Hampshire-Dartmouth Psychiatric Research Center group has published three major (comprehensive) reviews (in 1998, 2004 and 2005) and at least six other less comprehensive reviews using a narrative format. There are also two well-done systematic reviews focusing specifically on randomized controlled trials of integrated treatment (Ley and Donald). There is a poorly done meta-analysis (Dumaine), and limited reviews that cover the sketchy literature on integrated treatment for older adults and for the criminal justice population. Finally, there is a systematic review from 2005 of just motivational interviewing (Bechdolf). All of the reviews except those of Ley, Donald, Bechdolf and Dumaine are narrative rather than systematic and do not facilitate a weighting of design, extent and quality of evidence. For this reason CIMH has also done a comprehensive, systematic review.


2. Summary of review findings

- New Hampshire-Dartmouth Psychiatric Research Center group overall summary as of 2004-06 publications:

  “...Integrated treatment is merely a rubric for sensible structural arrangements to ensure access, rather than a specific intervention. The research on integrated treatment still lacks specific manualized interventions, studies of specific interventions, replications of positive studies, and a research consensus on key elements of fidelity.”

  Recent research offers evidence that integrated dual disorders treatments can be effective…” [Our 2004 review found] relatively strong evidence for the principle of integrating mental health and substance abuse treatments. Between 1994 and 2003, 26 controlled studies were reported in this area, and most showed evidence for the effectiveness of a more integrated approach over a less integrated approach. Based on the current state of the evidence [in 2006], what is ethical and evidence-based to include in usual care for patients with co-occurring disorders—clinical case management, cognitive behavioral therapy, referral to self-help, or illness self-management? Unfortunately, the evidence is not yet strong enough for numerous specific dual-disorders interventions to make this decision. Although [in 2006] more than 40 controlled studies show advantages for specific interventions, there have been few replications. In many cases, the experimental intervention represents a closer integration of mental health and substance-abuse treatments than the control intervention, but there is little consistency across studies in terms of designs, patients, interventions, and outcome measures. Many of the studies are quasi-experimental rather than experimental, different types of patients are included in studies, many of the interventions are complex amalgams, and outcomes and measures vary considerably. Thus, after 20 years of research, there remains a lack of strong and clear evidence regarding effective engagement, treatment, and rehabilitation interventions for people with co-occurring disorders.”

- Ley and Donald summary of randomized controlled trials:

  Ley (2000): “There is no clear evidence supporting an advantage of any type of substance misuse programme for those with serious mental illness over the value of standard care. No one programme is clearly superior to another.”

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Donald (2005): “Only one of the 10 studies compared integrated with parallel approaches, and none directly compared integrated with sequential approaches…. Notably, the one study that compared integrated with parallel treatment reported no significant differences between the two management approaches for either psychiatric symptomatology or substance use outcomes. In the seven studies based in mental health services, only three reported significantly improved outcome measures for psychiatric symptomatology or reduction in substance use. Therefore, in relation to symptomatology at the very most it can be stated that the evidence is equivocal in regards to the efficacy of integrated treatment within this setting…. A superior benefit of integrated treatment over standard treatment is also not supported by the two studies that investigated the effects of integrated treatment based within drug and alcohol services.” Note: not all of these studies were of seriously mentally ill persons and some were inpatient programs.

Bechdolf et al summary of randomized controlled trials of motivational interviewing.

This excellent review of four RCTs found of the four studies one had positive follow up data while two did not; for follow-up in SA treatment one was positive, one negative. The authors concluded: “…At present [2005] the evidence for supporting MI in DD is not clear. This may be due to the methodological problems mentioned above or it may be that there is, in fact, no effect. Therefore, there is an urgent need for further research of MI in DD.” The 2002 RCT by Hulse is not considered by Bechdolf; since results were positive it would improve the rating given here somewhat.

B. CIMH Review Results (the full review is attached as Appendix 1)

Results are presented in relationship to 9 hypotheses:

Hypothesis 1: Receiving concurrent mental health and substance abuse care is more effective than mental health care alone (or substance abuse care alone). Finding: Of 8 randomized controlled studies of integrated outpatient care with SMI clients, two confirmed the hypothesis. In these, follow-up was short or differences had greatly diminished at 18 months.

Hypothesis 2: Integrated or comprehensive integrated services are better than non-integrated (parallel) services. Finding: Few studies have actually compared integrated and parallel services. Of the five that did, none were of high quality. Three supported integrated services, one supported parallel services.

Hypothesis 3: Some forms of integrated dual disorders treatment are better than other forms. Finding: two excellent studies showed that integrated treatment done in ACT teams was not superior to integrated treatment done by intensive case managers.

Hypothesis 4: Integrated or comprehensive integrated services are effective in themselves (no control or comparison group). Findings: since design is paramount, these studies (though some are done very well) can not support causal inference. There are 14 fairly
comprehensive studies with at least two of high quality. Only one did not confirm some positive outcomes in an integrated program. There are also several small pilots with mixed results. There is also one study of services for an offender population that also offered (weak) positive results for parallel treatment.

**Hypothesis 6:** Special mental health dual disorders treatments that do not include specialized substance abuse treatment are better than standard treatments. Findings: Three mental health programs (including ACT and ICM) for dual disorders that did *not* include substance abuse treatment per se were not more effective than usual care.

Hypothesis 7: Residential and other intensive programs can effectively serve the dually diagnosed. Findings: Of studies done on 14 residential program with some kind of integrated care (primarily therapeutic community but also inpatient) only one failed to show some positive results.

**Hypothesis 8:** The theoretical components of the IDDT model have empirical support. Findings: Seven studies tested motivational interviewing with dual disorders clients. Of these, two were of high quality and had positive results. One was of high quality with negative results. The others were of low quality. Another program tested a 10 session intervention of motivational interviewing and cognitive behavioral therapy with a negative result. Six studies tested dual diagnosis groups, only one was of high quality; three had positive and two negative results. Three studies tested “dual” 12-step self-help groups; they were of low quality but had positive results.

**Hypothesis 9:** Taken altogether, the effectiveness of comprehensive IDDT services measured in the SAMHSA fidelity scale is supported by substantial evidence. Findings: Only the forensics program evaluated by Chandler actually tested a high fidelity program (using the SAMHSA fidelity scale). However, a total of 22 programs (all included in one or more of the hypotheses above) can be seen as addressing several of the elements in the IDDT model. Of these, 10 did and 12 did not confirm effectiveness of the integrated approach being tested. None of the studies combined excellent design and quality with strong findings (either positive or negative).

C. Consensus Panel Recommendations Regarding Integrated Treatment of Co-Occurring Disorders

The SAMHSA IDDT Toolkit is a result of the consensus panel convened by Robert Wood Johnson.\(^\text{16}\)

An ad hoc group of psychiatrists has recently developed a consensus recommendation on treatment of persons with schizophrenia and substance use disorders.\(^\text{17}\) It includes both psychosocial and pharmacological recommendations.

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\(^\text{15}\) The TIP 42 CSAT consensus publication on dual disorders supports a modified therapeutic community.

\(^\text{16}\) Members were Robert Drake, Kim Mueser, Leonora Cola and Fred Osher.

In 2002 Canadian health ministry an “expert panel” on co-occurring disorders. In addition to recommendations regarding the SMI population (which are for integrated treatment) it includes recommendations for anxiety disorders, eating disorders and personality disorders.

The Treatment Improvement Protocol 42 published by CSAT contains consensus recommendations. In addition, this TIP contains a very detailed presentation of techniques, competencies, and evidence for integrated approaches, including but not limited to the SMI population. It and the Mueser et al. text on IDDT should be the starting point for administrators considering integrated services for co-occurring disorders.

Ken Minkoff, M.D., a national expert on co-occurring disorders, worked with a consensus panel that led to a SAMHSA report, updated in 2001 and available on the web at: http://www.bhrm.org/guidelines/ddguidelines.htm

D. Evidence regarding adaptability to cultural and other subpopulations

1. **Culture.** There are no studies showing outcomes of the IDDT model itself in different cultural settings or different subpopulations. In the California SAMHSA demonstration project one Latino site (Latino staff and clients) achieved high fidelity but some adaptations were necessary. (See below.)

2. **Older adults.** There is not an evidence base for integrated treatment (lower case) specific to older adults with SMI. For older adults with anxiety disorders and mood disorders, there is a modest evidence base for both sequential and integrated treatment.

3. **Forensic clients.** There is inconsistent evidence that integrated treatment positively affects arrests and jail utilization.

4. **Homeless.** There is inconsistent evidence that integrated treatment is effective in homeless dually disordered persons. There is modest evidence that parallel treatment is effective.

E. What outcomes can be expected?

Given how broad the integrated treatment literature is and the very mixed results obtained in different studies, it is not possible to describe “typical” results. Instead we briefly describe

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the results obtained by the IDDT Toolkit developers in rural sites in New Hampshire\textsuperscript{21} and in an urban program in Connecticut\textsuperscript{22} for which the developers trained staff and provided extensive consultation. Both were quite comprehensive and included the main elements of IDDT; both studies were well done and have results over at least three years; neither study had a “usual care” or “parallel” control group (they compared ACT to intensive case management but did not find differences). Below are two measures of substance abuse change at the two programs.

1. Remission (no longer meeting substance use diagnosis criteria) after three years
   - New Hampshire: 60% for bipolar; 40% for schizophrenic disorders; stable remission of at least 6 months=22% combined.
   - Connecticut: 33% (at last measure, not necessarily for 6 months)

2. Abstinence after three years
   - New Hampshire: 16% (abstinent at least 6 months)
   - Connecticut: 14% (abstinent at last measure, not necessarily for 6 months)

\textit{Conclusion: While substantial evidence supports integrated treatment (in the broad sense), evidence is very limited for the IDDT model itself.}

CiMH, in line with others assessing evidenced based practices, judges practices to be Effective, Efficacious, Promising, or Emerging, Not Effective, or Harmful.\textsuperscript{23}

Based on the reviews described above, we judge that integrated treatment as a broad approach is Promising. The lack of positive randomized controlled trials and the great inconsistency among studies leads to this rating.

Because of studies showing the effectiveness of at least some of the elements of the actual IDDT model, we rate IDDT as Emerging despite a lack of studies of the model itself.

IDDT project staff did not consider the limited evidence supporting the IDDT model to be a serious problem for two reasons—both of which are likely to play a role when any county or program considers implementing IDDT.

\textit{Match with experience.} The trainer in the project had a great deal of experience with integrated treatment, and in his view the IDDT model corresponded closely with what he has personally found to be successful. Thus he was able to promote the model whole-heartedly based on his own experience. Other dual diagnosis specialists involved in the project at different sites shared

\textsuperscript{21} There are multiple articles describing this research; see the CIMH literature review for citations and a summary table of measures and effect sizes.


\textsuperscript{23} See the description at: http://cimh.org/library/evaluatingtheevidence.pdf
his view that IDDT approaches were highly consistent with what they already considered to be best practices. In part this is due to the fact that a number of aspects of IDDT—including motivational interviewing, stages of treatment/change, and use of 12 step groups—are very widely practiced in the substance abuse treatment community. Finally, most clinicians find a number of tools used in IDDT (such as the "pay-off matrix") to be intuitive and useful.

*Best alternative.* While the evidence for IDDT is limited, the approach is "the best available." Not only are there no competing comprehensive models of service for persons with serious and persistent mental illness as well as serious substance abuse, but (as noted above) the IDDT approach has been endorsed by consensus panels.

The primary means of ensuring that programs implementing the EBP practices achieve good outcomes is the use of fidelity scales. In Round I, fidelity was most difficult to achieve in IDDT programs.

- ACT and the Supported Employment fidelity scales were developed in the 1990s and can discriminate between the EBP and similar programs. Both also have evidence of correlation of fidelity scores with outcomes. Fidelity scales for Family Psychoeducation, IDDT and Illness Management and Recovery were developed for the EBP project. They have high inter-rater reliability but there are no studies yet showing they predict good outcomes.

- Although some of the difference may be related to differences in the fidelity scales, the national EBP project showed some practices to be far easier to implement at a high level of fidelity. The two displays below show the number of successful implementations and the average fidelity that was achieved after two years. The practices that achieved success (an average fidelity rating of 4.0 or better) did so within the first six months of the implementation effort. IDDT had the lowest successful implementation rate.

**Figure 1: High Fidelity, IDDT vs. Other EBPs**

<table>
<thead>
<tr>
<th>National EBP Project: 2-Year Rates of Successful Program Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Successful (Fidelity &gt;4)</strong></td>
</tr>
<tr>
<td>ACT</td>
</tr>
<tr>
<td>SE</td>
</tr>
<tr>
<td>IDDT</td>
</tr>
<tr>
<td>IMR</td>
</tr>
<tr>
<td>FPE</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

24 That is, IDDT is specialized for "Quadrant IV" in the NASMHPD categorization of co-occurring disorders services.
Figure 2: Fidelity Achieved in Two Years, IDDT vs. Other EBPs

<table>
<thead>
<tr>
<th>Fidelity Scale Mean</th>
<th>SE (n = 9)</th>
<th>ACT (n = 13)</th>
<th>FPE (n = 4)</th>
<th>IMR (n = 12)</th>
<th>IDDT (n = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.44</td>
<td>4.17</td>
<td>4.00</td>
<td>3.58</td>
<td>3.43</td>
</tr>
</tbody>
</table>
SECTION III: IMPLEMENTATION IN THE CALIFORNIA SITES

In this section we present a qualitative overview of the implementation successes and challenges in each site, each county, and the project as a whole. We attempt to provide enough detail about each county and program so that persons unfamiliar with them will have a sense of the major events in the project.

Training

The core of the CiMH approach to implementation was to offer a year-long series of monthly trainings totaling 48 hours. Thus, to a considerable extent implementation efforts built on the foundation provided by the training. Below we present a summary of the evaluations of the training completed by participants. More detail is available in Appendix 5.

Training in IDDT principles and practice was conducted by Marc Bono, Ph.D., a clinical psychologist with a specialization in co-occurring disorders and many years of experience in IDDT-like and other dual diagnosis programs. While there are some differences in evaluation by site and professional affiliation, the overall ratings in both years were very high.

Year 1

The first year of trainings (3 hours a month for 12 months) was conducted at Bonita House in Alameda, at Hollywood Clinic in Los Angeles, for Conejo Clinic in Ventura, and at the Turlock Regional Center in Stanislaus. Participant evaluations of individual training sessions were submitted inconsistently, so a the end of the trainings an overall retrospective rating was requested from participants. Overall, 79% rated the training as Very Good or Excellent. Positive change in amount of knowledge varied by site, with the greatest change reported by Hollywood and least by Bonita House (which had most co-occurring disorders experience). Particular strengths were in giving concrete examples and sharing personal experience; involving participants was rated lower.

Year 2

In the second year of trainings—conducted at South Bay in Los Angeles, West Modesto in Stanislaus, Oxnard in Ventura, and Casa del Sol in Alameda—ratings were obtained on each training at the time of the training (a total of 641 ratings). Aggregating the ratings over all 12 trainings, 24% of staff judged the training to be Excellent, 49% Very Good, 22% Good and 5% Fair. The ratings of the different trainings did not vary a substantially, but assessment and treatment planning rated lower than motivational interventions and group dual diagnosis treatment. In general line staff rated trainings higher than did managers and psychiatrists. The rank order of highest satisfaction among sites was Oxnard and South Bay (same score), West Modesto, La Clinica. The aspect of the trainings rated highest was providing concrete examples; presentation of the evidence-base for elements of IDDT was rated lowest—though again these differences are not large. Comments by staff members at Year 1 sites who attended the Year 2 trainings indicated they improved in usefulness in the second year.
Site specific findings

All sites completed the initial year of training. However, implementation of elements of the IDDT model thereafter varied greatly by site—in large part due to the statewide and county contexts for implementation.

California context. In 2004 voters in California passed a major reform of the mental health system (the Mental Health Services Act called here the MHSA). While the MHSA contained a maintenance of effort provision and provided funds for new services, as implemented over the past three and a half years it disrupted IDDT implementation. This occurred in different ways in different counties but was generally due to:

- IDDT was implemented in existing programs rather than the newly (and better) funded MHSA services that are only getting off the ground three years later. While funds for these programs were not cut, there was no cost of living increase in the past three years, in effect slashing service dollars for existing services such as outpatient and inpatient. For IDDT implementation, funding cuts seem to have had the greatest effect in Ventura County (early in the project) and Stanislaus County (later in the project). Ventura initially thought MHSA funds could not be used for IDDT; recently they found an approach they believe will work and have now submitted an MHSA application for IDDT funding in two other parts of the county. Ventura also obtained federal grant funding for its Oxnard program.

- A second factor related to the MHSA that affected all four counties was the tremendous amount of time, effort and attention that went into the planning and implementation of MHSA services. This made it difficult to sustain the intensity of IDDT implementation efforts since resources were being directed elsewhere. Ironically, IDDT fits extremely well into the MHSA service design and with different timing might have found its place in the array of new MHSA services. In fact, Stanislaus County has provided IDDT training to all of its new MHSA Full-Service Partnership (ACT teams) staff and their plan includes an IDDT component in each of these teams. Alameda County is using MHSA funds to develop a full-time coordinator of integrated mental health and substance abuse services. On the whole, though, the demonstration sites suffered rather than benefited from the MHSA effort during the grant period, though this may turn around as more MHSA implementation occurs.

Alameda County has initiated a comprehensive approach to co-occurring disorders. Both IDDT programs were successful in implementing the model to high fidelity. It is unclear if more IDDT programs (based on the fidelity scale) will be implemented.

Alameda County approach to co-occurring disorders. The county is located in the Bay Area and has a population of 1.5 million. The largest city is Oakland. Alameda is distinctive among the four participating counties due to the very large dependence (85%) on contracted services rather

\[25\] "Los Angeles County, which runs the nation's largest public mental health system, will receive more than $125 million in Proposition 63 money this year to fund an array of innovative programs. But at the same time, a $70-million shortfall in the county's core mental health budget has resulted in long waiting lists at many clinics. Some patients have had their number of visits with therapists cut in half; others no longer receive counseling at all." Los Angeles Times. Sunday, September 16. While Cash From Proposition 63 Flows Into Premium Mental Health Services, Budgets For Traditional Care Have Suffered.
than those provided by the county. (There are 800 contracts administered by the department; the
total budget is $280 million annually.) The providers vary widely in their sophistication about
dual disorders. For the last eleven years, mental health department has also had administrative
responsibility for substance abuse services. The combined department is called Alameda County
Behavioral Health Care Services. As in other counties, system integration between mental health
and substance abuse services is held back by billing problems. Major mental health services are
provided by regional teams. Bonita House is a regional team specializing in co-occurring
disorders; La Clinica is a regional team specializing in bilingual services for Latinos.

Prior to the beginning of the project there had been some county-wide efforts towards serving
co-occurring disorders. All the regional teams were expected to do so (rather than "turfing" to
substance abuse services), and there were two dual disorders programs other than Bonita House.
(One of these, CHANGES, is a high fidelity IDDT program.\(^{26}\)) A few substance abuse programs
were open to serving severely mentally ill persons and had staff capability to do so. In the last
three years, many more substance abuse programs have added mental health clinicians to their
staff, and adolescent services have increased their capacity to serve persons with co-occurring
disorders.\(^{27}\) During the course of the project, a county implementation committee met regularly
and had representation from all relevant services (including the Director's office). Staff from
Bonita House and La Clinica served a special role, including helping develop (as yet
unimplemented) training curriculum. The committee went far beyond oversight of the IDDT
programs to evaluate the best policy directions for making co-occurring services more available
in both mental health and substance abuse sectors. The most concrete result of the committee's
deliberations is a three year “Dual Recovery” plan for increasing co-occurring disorders services
within Behavioral Health Care Services. In the first year (just starting) a new co-occurring
disorders coordinator position has been created and hired using MHSA funds. In addition, the
county has met with Ken Minkoff and Chris Cline to develop a scope of work that will utilize
their consultation to help BHCS establish a common vision, language and strategy for the
integration of co-occurring disorder treatment into all services. In addition the Minkoff and Cline
consultation is anticipated to be a major contributor to the MHSA mandate for systems
transformation and will assist BHCS in the development of a continuous quality improvement
approach within the organization.

In summary, Alameda County has made some strides with the integration of mental health and
substance abuse services, but they have been struggling with the integration of these services for
many years. The IDDT project has served as a stimulus for the county to take a broad and long-
term perspective on the issues. At the present, however, there are no plans to implement full
IDDT service models in other programs.

\textit{County oversight and support of the IDDT project}. Initially the county liaison for the IDDT
project was a staff (rather than line) position. When that person retired early in the project, the
director of adult clinical service, Michael Lisman, assumed the liaison role and began attending

\(^{26}\) The forensic component of the CHANGES program was evaluated in a randomized controlled trial. (Chandler, D.,
disorders. \textit{Community Mental Health Journal}, 42(4), 405-425.) There is also a non-forensic part of the program
focused on "high utilizers."

\(^{27}\) This was made possible because increased funds were available through the use of EPSDT; until MHSA services
began coming on line funding for new adult services was frozen.

18
development team meetings (as well as the county IDDT implementation committee meetings). He and the two strong clinical administrators from the project sites—Terry Rubin-Ortiz from Bonita House and Leslie Preston from La Clinica—were active and effective advocates for co-occurring services and IDDT in particular. They have been the primary force in creating the three year co-occurring disorders plan Alameda County Behavioral Healthcare has adopted.

**Bonita House.** Bonita House was the first dual disorders program in Alameda County. It provides both residential and case management services. The IDDT model was implemented for the case management services component, but had substantial "spillover" effects on the residential programs. Bonita House started with relatively high fidelity scores (3.6)\(^2\). (Fidelity is reported on a five point scale with high indicating more fidelity and 4.0 being a threshold level.) Our study design hypothesis was that it would be possible to quickly achieve very high fidelity and that this would aid the second site through the use of mentoring and shadowing of staff. Bonita House realized fairly early that certain elements of the fidelity scale would not be possible to implement given the resources allocated to the program. Here is a summary of major stages of implementation over three years:

- The agency initially focused on improving the assessment process in line with the process outlined in the Mueser handbook and in Marc Bono's training. This was made difficult by the requirement that all Alameda County programs use a standardized assessment form. Although there was some information recorded on substance use, it was a far cry from the integrated assessment envisaged in the IDDT model. Bonita House was successful in getting the county to permit use of a dual disorders-specific assessment instrument, but the process was draining and its implementation in the computer-based record system of the agency was arduous.

- A second stage focused on improving the clinical skills of non-licensed case managers. (A significant drawback for Bonita House, in the minds of the fidelity reviewers, is the resource-dictated lack of licensed mental health clinicians except in supervisory roles.) In addition to the training provided through the IDDT demonstration on stage-based treatment planning, motivational interventions, and dual diagnosis counseling and groups, Bonita House contracted for a much more intensive week-long training on motivational interventions. Staff consistently reported working more effectively with clients as a consequence of the training.

- The third stage of change is currently underway. From the beginning Bonita House was most interested in whether the IDDT model would help them engage clients who were "pre-contemplative." When paternity leave freed up some funds for a short period of time well

\(^2\) The summary contained in the first fidelity visit write-up said: "The Bonita House program is outstanding. The competence and dedication of staff are very impressive as is the tight but flexible management. Deviations from full IDDT fidelity fall primarily into two categories: techniques such as stage-wise interventions that will be addressed as part of the IDDT training, and issues around psychiatric coverage that are well known to you." The issues with psychiatric coverage are linked to funding, client choice, and county policies. They did not change over time.
into the second year of the program, Bonita House contracted with a former staff member to do intensive outreach to precontemplative clients who had been lost to regular contact. This approach was highly successful and made administrators realize that 80% of resources had been focused on active treatment, but that many clients are not yet in that state. The program has now been reorganized to have two teams, with two case managers on each team: one team focuses on outreach and engagement, the other on treatment and recovery.

To the fidelity reviewers, the two most striking things about implementation of IDDT at Bonita House were a) how difficult it was and how much time and effort it took considering the high initial fidelity, and b) how "right brain" the changes were. That is, introduction of IDDT thinking and procedures was not "linear." At the final fidelity review, after three years, the overall fidelity scale rating had increased from 3.6 to 3.9.

Casa del Sol at La Clinica. Casa del Sol was the second IDDT program implementation in Alameda County, starting one year after Bonita House. Founded in 1971, the non-profit La Clinica de La Raza provides a wide range of primary health care services and, through its clinic called Casa del Sol, mental health specialty services. Alameda County Behavioral Health Care contracts with Casa del Sol to be a primary access point, as well as specialty clinic, for Alameda County residents who require linguistic (Spanish) or cultural (Latino) specialty mental health services. Integrated mental health and substance abuse services are badly needed because there are no local programs that treat Spanish speakers with co-occurring substance abuse and mental health disorders. Services that do exist (12-Step self-help groups, drug/alcohol treatment programs) often insist on a goal of abstinence, some require abstinence as a pre-requisite to treatment, and they are not set up to treat individuals with severe mental illness.

Casa del Sol’s team of bilingual clinicians serve adults, children, adolescents, and their families. IDDT is focused on long-term clients but the IDDT approach is also used with shorter-term clients and in screening for all clients. At the onset of the IDDT implementation, staff were able to identify 30 persons with serious substance abuse out of an adult caseload of 120 adults with serious and persistent mental illness. All the staff are licensed mental health clinicians who also serve as case managers. At the onset of the IDDT training several staff already had extensive backgrounds in serving persons with co-occurring disorders, and it was expected all staff would address substance abuse because alternative services were so limited. A dual disorders treatment group was in existence. Family treatment, unlike the other programs, was the norm, and a great deal of outreach was already part of the program.

Casa del Sol has been successful in implementing much of the IDDT model. However, there is no IDDT "team" per se—all clinicians took part in the IDDT training and are expected to provide IDDT services. The program scored a 3.2 at baseline and a 4.1 at the final fidelity review two years later. The stages of implementation were:

- Training. A site implementation committee was established and worked with the trainer to make the training relevant to clinic and clinician needs. The aspects of adaptation related to cultural competence are discussed later. The other main issue was a general perception that the training was "canned" and set at a level well below the skill level of
the staff of experienced clinicians. No attempt was made to implement IDDT during the year long training but staff were actively engaged in figuring out how to make the IDDT tools work for their clients.

- Screening. The first major change was to change the screening form. This was done experimentally, in iterative stages, and used the principle in the DALI of "assuming" substance use rather than asking if it occurs. Staff report much higher rates of detection of co-occurring disorders using the new instrument.

- Institutionalizing the changes. Changes in thinking—for example, the greater use of stages of treatment and motivational interviewing—are being embedded in clinic culture by a) incorporation into the mission statement and clinic forms, b) by monitoring and reinforcement in hour long weekly clinical supervision sessions, c) by on-going peer review and case presentations focusing on co-occurring disorders, and d) by training of new staff.

In addition to the IDDT-specific changes, improved capacity has resulted from obtaining two vans to increase outreach, positive changes in the county vocational program used by *Casa del Sol* clients, and an increase in bilingual dual-disorder focused psychiatrist time. Although continued use of some of the IDDT tools is uncertain and adapting the model to the clinic clients and culture was difficult, IDDT clearly has increased clinical skills and clinic capacity overall to serve persons with co-occurring disorders.

*Los Angeles County has a long history of attempting to serve persons with co-occurring disorders. In neither of the two IDDT demonstration sites, however, has implementation been sustained.*

*Los Angeles County approach to co-occurring disorders.* The Los Angeles population of 9.9 million comprises roughly one fourth of the California population; its mental health program is allocated a proportionate amount of the 3.4 billion California mental health local assistance funds. The Los Angeles County Department of Mental Health (LAC-DMH) operates many services for those with severe mental illness but contracts for others. Substance abuse services are all contracted and are administered by a division in the Department of Health Services. The departments cooperate in several ways, and a number of very good programs for persons with co-occurring disorders exist—primarily in substance abuse contract agencies. Substance abuse staff are co-located in some other program and some integrated services have been jointly funded. When the IDD project began there were six mobile teams with integrated staff as well as an integrated jail treatment unit. LAC-DMH has long had a staff (rather than line) unit for co-occurring disorders that has focused primarily on training and education (such as sponsoring an annual conference). A large training bureau offers many trainings in co-occurring disorders but it is in general up to individual clinicians whether to attend them. Systematic information about the

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29 The trainer was faced with a difficult situation in that the audience for the training differed greatly by site. In Alameda County alone one site had all non-licensed staff while the other had all licensed clinicians.
extent of integrated services is lacking for either the time of onset of the IDDT project or later. However, a 2005 article pointed to limited amounts of integration.  

During the course of the IDDT project there was an ambitious plan for serving persons with substance abuse problems in the county mental health clinics, entitled the "Nine Point Module." It required very extensive documentation of co-occurring disorder services. It was implemented at the same time the first IDDT site went on-line and the multiple time demands may have affected implementation success of both initiatives at the Hollywood site. This initiative was later dropped and did not affect the second Los Angeles site.

**County monitoring and support of the IDDT project.** Initially the liaison to the IDDT project was the head of the co-occurring disorders unit (which is jointly funded with the Alcohol and Drug Program Administration), but when that person retired midway through the project, a District Chief with responsibility for one of the IDDT sites (Debbie Innes-Gomberg, Ph.D.) became the county representative to the development team. A county-wide implementation committee was established at the onset of the project but met infrequently and has not had a role in promoting IDDT dissemination. Despite the enthusiastic endorsement of IDDT by Debbie Innes-Gomberg and meetings between CiMH project staff, Dr. Innes-Gomberg, and site staff it was not possible to resolve the difficulties encountered in implementation at either site.

**The Hollywood Clinic.** Although by design the first Los Angeles program was intended to have fairly high fidelity to begin with, the Hollywood Clinic rated low (a mean of 2.1)—despite the participation of Alan Mogos, M.D., a highly competent dual disorders psychiatrist who was the team psychiatrist and attended the development team. An IDDT team was designated (one of four existing teams) and a full year of training was provided. However, within three months of the end of the training, the team was disbanded and there was no further implementation of the IDDT model as part of the project. The actual disbanding of the team was largely due to attrition of staff or to their being reassigned to other teams within the clinic. There was no plan for training new staff in IDDT at that point so no way to reconstitute a team. In addition, the outcomes study cohort of 57 clients had attrited to 26 clients still open at the clinic (54% attrition in a year) and only 18 of those remaining were still assigned to an IDDT-trained staff member. At about the same time the clinic manager changed, with someone with no co-occurring disorders assuming overall responsibility. Although there had been discussion about integrating IDDT into a new ACT team forming at the clinic, the lack of administrative support contributed to this not occurring.

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30 Gil-Rivas, V. and C. E. Grella (2005). "Treatment services and service delivery models for dually diagnosed clients: variations across mental health and substance abuse providers." *Community Mental Health Journal*. 41(3): 251-66. "This paper reports on a survey of administrators (n = 26) and staff (n = 248) in 10 mental health and 16 substance abuse programs in Los Angeles County providing services to individuals with co-occurring disorders. Although half or more of the administrators and staff reported that their programs had some degree of on-site service integration, there was a lack of agreement within most programs as to the extent of integration."

31 In part, the problem was that the level of commitment required for a county to agree to submit a grant application is of a different sort than the level of commitment required to successfully implement a demonstration program with acknowledged implications for system change. This was a particular problem because the Los Angeles Department of Mental Health District Chief who chose the two study sites retired prior to implementation. In Ventura County and Stanislaus County the project was viewed as the start of a system-wide change rather than as a time-limited demonstration. Alameda took an intermediate position.

32 There was discussion for some about transferring it to a soon-to-be funded ACT team, but the funding for the ACT team did not occur within the next six months.
The South Bay Clinic. The South Bay program had an active and effective co-occurring disorders program in existence when IDDT began (overall fidelity score of 3.3)—so that as noted before, in Los Angeles the study design was reversed, with the low fidelity program implemented first. The unique feature of the South Bay program was that it had an agreement with a residential substance abuse program a few doors down the street that persons with co-occurring disorders would come to the clinic for a dual diagnosis group, for individual dual diagnosis counseling, and for psychiatric medications. In some ways, the program was a combination of integrated and parallel treatment since clients also had to participate in the intensive substance abuse programming at the residential program. At least three staff had extensive dual disorders training and experience.

The full year of training was provided to staff, and during that year members of an IDDT "team" met once a month to process the training material. Once training was completed, however, no further steps toward implementing IDDT were taken despite a team leader, Steve Starkman, Ph.D., who was very interested and despite the support of Debbie Innes-Gomberg. Three factors appeared to be at work:

- The team leader is a clinician who has no administrative responsibility and thus could not "direct" the team. (Dr. Mogos in Hollywood also had not had line authority.)
- The "team" members were not actually a treatment team but a group comprised of one or two individuals drawn from each of the actual treatment teams (including an ACT team).
- The clinic director who volunteered the program for the IDDT demonstration left prior to the start of the training; her replacement was lukewarm toward IDDT and then took an extended leave. So administrative support within the clinic was lacking.

In both Los Angeles sites, another factor was at work. Clinicians were extraordinarily pressed for time. They carry a caseload of over 100 clients each. The IDDT standard contained in the Mueser handbook gives the highest score (5 points) for caseloads under 20 and the lowest (1 point) for caseloads of 50 or more. While caseload is an imperfect measure of match of staff time to intensity of service need, interviews with staff at both sites confirmed that they do not have the ability spend the large amounts of time over a period of years that implementation of IDDT requires. IDDT would be a better fit at the Full-Service Partnerships being developed through the MHSA.

Stanislaus County has a history of integrating substance abuse and mental health services. One of the two sites implemented to a high level of fidelity; the other to a lower level. There are strong on-going efforts to incorporate IDDT in all adult services, but particularly those funded through the MHSA.

Stanislaus County approach to co-occurring disorders. Stanislaus County is a fast-growing central valley agricultural county. In recent years, population growth has been fueled by persons who work in the Bay Area looking for affordable housing. The total population of the county is 510,000 with the population of the two IDDT sites, Turlock and Modesto, being 63,000 and 207,000, respectively.
Since the 1970s Stanislaus county has had an integrated mental health and substance abuse administration. This includes an integrated management information system and integrated charts. In 1997 substance abuse staff were co-located with mental health programs and some were designated as co-occurring disorders specialists. Persons with co-occurring disorders may get services from either program or both. The extent to which co-occurring services are integrated vs. simply co-located varies by program; there was more integration at Turlock than at West Modesto, for example. All regional adult outpatient programs are county-operated, so there is a great deal of administrative control over the system as a whole.

Despite strong leadership, commitment to integration, and a proactive approach, Stanislaus has suffered from funding cuts described above. Some regional outpatient programs have been closed, others have reduced staff and caseloads, and they have all undertaken serious restructuring so that many clients are now referred to a psychiatric medications and self-help track. At the same time, new intensive MHSA programs are coming on line, and IDDT will be integrated into them.

Stanislaus County monitoring and support for IDDT. Stanislaus County entered the IDDT project with a commitment to introducing IDDT throughout the adult system of care. From the beginning a high level administrative oversight committee monitored the IDDT implementation at the two demonstration sites, planned for implementation at additional sites, and coordinated IDDT-related activities in different areas of the organization (forms committee and training were two of the most important). It has also helped that the chief of adult services, Adrian Carroll, MFCC although a mental health clinician, started out in substance abuse services. In addition to supporting broad implementation of IDDT, most recently with the new MHSA ACT-like programs, the administration and oversight committee have introduced important ancillary programs. These include "double trouble" peer support groups and a co-occurring disorders track at the county substance abuse residential program. A set of IDDT-specific forms has been approved for use.

Administrative staff changes have affected the IDDT programs. Adrian Carroll was the administrator of the Turlock program when the project began; he was promoted to chief of adult services before training started. The new administrator, Elizabeth Oakes, LCSW, did not have a substance abuse background and took over just as training was beginning. In the course of the next year and a half Ms. Oakes became highly versed in IDDT and assumed responsibilities for training and dissemination the model to other programs. However, midway in the training of the second site, the funding crunch caused contraction of the system and reallocation of administrators. Ms. Oakes replaced the previous West Modesto administrator and a new administrator, Susan Gold, Ph.D., with little IDDT background, was assigned to Turlock.

The Turlock Regional Center. The program serves Turlock and surrounds. Most staff have been in Turlock for several years, and the program is known as stable and a good place to work. When IDDT began it was a relatively high fidelity program (2.9) and, as noted, already had a dual diagnosis specialist who was conducting dual diagnosis groups and dual diagnosis counseling. The Turlock IDDT "team" consists of all clinicians and case managers as well as the substance abuse staff. They participated enthusiastically in the training and in implementation efforts in the following year. There was a set-back in implementation when the Dr. Gold initially took over and was charged with implementing IDDT at the same time she reorganized the Turlock clinic.
and closed two other regional clinics. At the final fidelity visit three years after the initial rating the implementation appears to be back on track with a final fidelity rating of 3.4.

In summary: There is evidence from leader, staff and client interviews that integrated treatment of dual disorders is embedded and part of the culture at Turlock Regional Services. While AOD staff are well integrated with other staff the services they provide are still somewhat separate and not fully integrated into an IDDT model. Mental health staff show a higher degree of integrating treatment for both disorders routinely in their work. A significant change brought by the IDDT model that was reported by staff and supported by client interviews is a patient, non-judgmental, "no wrong door" approach. This results in greater outreach and engagement efforts, use of harm reduction approaches, and easy access to previous services if relapse or risk of relapse occurs.

**The West Modesto Regional Center.** As noted above, Elizabeth Oakes was the administrator for the Turlock Regional Center and then, fortuitously, came to West Modesto half way through the training. West Modesto was much farther from an integrated program than was Turlock: The initial fidelity rating was 2.7. Although there was a designated dual diagnosis specialist and a dual diagnosis group run by a licensed mental health clinician, the West Modesto site had a very strong tradition of parallel treatment for persons with co-occurring disorders, which initially kept many staff from recognizing the nature and value of IDDT.

There have been essentially two stages in the West Modesto IDDT implementation. In the first stage training was accomplished and integrated tools and thinking were systematically introduced. In the second stage, there was some erosion of integrated services due to major budget reductions (as noted above) and high case loads. As of the last fidelity visit, the leadership and clinicians are still committed to an integrated approach and, to a lesser extent, to using IDDT tools and concepts. Staff report a much greater focus on engagement and taking the time clients need, particularly for South East Asian and Latino clients as a consequence of introducing IDDT. However, there is some evidence still of "parallel" thinking even among mental health staff and some AOD staff still reject harm reduction and insist on abstinence initially. Cutbacks in therapist staffing threatens group and individual dual diagnosis counseling leading to some reversion to using substance abuse groups for dual diagnosis clients rather than using the dual diagnosis group. The staff utilize services from the substance abuse residential program effectively. In summary, the IDDT team can realize increased fidelity to the model if given reasonable caseload size, more time for clinical supervision, and reinforced use of IDDT tools. The final fidelity rating after two years was 3.1.

**Ventura has made a strong commitment to implementing IDDT in all its mental health outpatient clinics. Implementation at one of the two IDDT project sites is to a very high level of fidelity while the other site has improved substantially.**

**Ventura County approach to co-occurring disorders.** Ventura County has a population of 800,000; it is located immediately north of Los Angeles County. In the early 1990s Ventura was a leader in providing integrated services. Not just mental health and substance abuse services but employment, housing, jail and other services were the province of integrated teams of clinicians. After that, however, county mental health services went through several year period of instability.
In the course of the IDDT project, the effort to provide integrated services had three phases.

- At the time Ventura became part of the project, the first site was a mental health clinic located next to and partially integrated with a substance abuse clinic. Six months into the project, and before training began, severe budget cuts caused major service reductions. The site we had intended to study was closed and the administrator who was the project liaison took early retirement.

- The Conejo clinic, a small outpatient clinic with a low initial fidelity rating (2.4), was chosen to be the replacement site. Its director, who had some dual disorders experience, also became the de facto liaison to the project. A year of training was completed with the new clinic staff—none of whom had significant dual disorders training or experience. Virtually no other steps were taken toward implementation of the IDDT model in this phase. After the training, the administration of the clinic changed again.

- The situation changed radically with the introduction of IDDT to the second site due primarily to an alliance between the new IDDT team administrator, Linda Gertson, Ph.D., a very experienced dual disorders clinician and Barbara Kellner, LCSW, Chief of Adult Services. Ms. Kellner determined all adult outpatient services staff should become proficient in the clinical skills of IDDT. To that end she opened up the IDDT training to all adult outpatient service staff. In addition she gave Dr. Gertson considerable discretion in starting up a new and model IDDT team within the Oxnard clinic. At the same time that Dr. Gertson was given leadership of the new Oxnard team she was assigned part-time to lead the IDDT team at Conejo and to be the liaison to the project development team. Over the six months after Dr. Gertson took over the Conejo team made large strides at implementing what they had previously been trained to do (fidelity rating of 4.0 at the final rating), and the Oxnard team was implemented to a very high level of fidelity (4.3 at the initial rating and 4.8 at the most recent).33

The approach taken in implementing IDDT in Oxnard was unique in California's eight sites and can provide a model for other counties in California and, indeed, any program wishing to implement IDDT with high fidelity. The Oxnard IDDT Team was created from scratch rather than by adaptation of existing program elements and staff. Experienced dual disorders clinicians were recruited, either for new hires or by asking for volunteers to transfer from other programs. Dr. Gertson used the IDDT Fidelity Scale as a template for designing the program. Because she was given broad authority to implement IDDT, Dr. Gertson was able to develop forms and systems to embed the implementation into on-going clinic procedures.

Some of the features of the Oxnard IDDT program are:

- There are five dual diagnosis groups for clients: two groups combine a structured educational curriculum with group therapy, a third group is for persons with lower cognitive skills, a fourth group has a concurrent focus on trauma. In addition, there is a group for family members that also combines psychoeducation and therapy.

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33 For the purposes of the outcomes study, this in effect meant that Conejo became a second year site. A new study cohort was assigned at the same time the study cohort for the Oxnard site was assigned.
An active case management program that provides concrete supports (transportation, benefits assistance) as well as outreach to those missing appointments. The case managers are also the housing specialists. One case manager spends much of his time reaching out to homeless persons in pre-engagement.

Finally, the program has been instrumental in getting two Dual Recovery Anonymous groups started and can use the services of an integrated residential substance abuse program when needed.

Recently a special IDDT treatment plan form was approved for use (without needing to duplicate the standard form).

An active Quality Improvement committee provides oversight.

A county-wide dual disorders permanent committee was recently established.

A year after implementation, a $2 million SAMHSA grant was obtained to expand the Oxnard IDDT services to the homeless population for five years. Recently, IDDT and the Oxnard program have been recognized by the superordinate Health Care Agency and by the local board of supervisors. CiMH nominated the program for a competitive SAMHSA Science to Service award—which it won. Ventura County has actively promoted co-occurring disorders in public forums, including focusing the May 2007 Mental Health Month on co-occurring disorders. A forum on dual disorders that attracted 340 audience members. Finally, as of June 2007, the new MHSA plan (not yet approved) includes funds to establish IDDT programs in two other areas of the county.

Project-wide findings

While individual county and site characteristics account for much of the variability in implementing IDDT, there are factors which appear to be common to several sites or counties.

Staff turnover threatens implementation of projects that take substantial periods of time to get up to speed. In Ohio, which has been implementing IDDT for several years, it is estimated it takes over three years to achieve high fidelity. Of the five evidence-based practices in Round I, the IDDT sites were the slowest to improve fidelity. Given this long time frame, when introducing IDDT into existing programs (a short ramp-up is possible when starting with a new team, as shown in Oxnard), the level of turnover and program change in California counties makes IDDT implementation problematic. This was a critical issue in every site except Casa de Sol and Oxnard. Moser and Bond reported that in Indiana IDDT sites: "Drafting IDDT program leaders was observed in other sites, resulting in high turnover in leadership. Several IDDT sites underwent multiple changes in the identified program leader during the first 15 months of implementation."

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There was also some staff turn-over in the implementation team: Karin Kalk replaced Vicki Smith as Project Manager approximately midway through the project; and Dan Souza joined the project in the second year, replacing Neal Adams as the second principal site reviewer.

- Sites that chose not to create a specialized team generally had more difficulty with implementation than sites having a small specialized team. Casa del Sol implemented into a large team as did Turlock, but both are quite stable, relatively small, and have very close working relationships among staff.

- Consistent with the organizational change literature, sites that had the most difficulty were generally in situations where there was not a strong leader/proponent at several levels in the organization. Clinic directors at both sites Los Angeles were not fully committed to the demonstration, and support at higher levels of administration was not sufficient to overcome this lack of commitment. During the time the Conejo site was not doing well with implementation, the clinic director was not an active proponent of IDDT. In the two Los Angeles sites we also found what Gary Bond found problematic in Indiana: the appointments of organizationally unempowered individuals as program leaders.\(^3\)\(^5\)

- Although we did not include staff ratios in our ratings (because there was nothing program sites could do to improve them), it seems very clear that the intense services required by the IDDT model cannot be delivered when caseloads are as high as they were in Los Angeles sites. In all of the other sites, caseloads ranged from 25-40. These were adequate to provide some level of outreach to clients in the engagement and persuasion stages of treatment. However, Elizabeth Oakes, who was administrator at both Turlock and West Modesto (at different times), believes that ACT level staffing is necessary to provide the necessary level of outreach; she thinks this level of outreach is beyond the capacities of outpatient programs. We are not sure that this is always true, but it was true in our experience unless special efforts are made to increase resources focused on the engagement level—as Bonita House did.\(^3\)\(^6\)

- The IDDT model was developed prior to recent research showing the effectiveness of residential services for persons with dual disorders (see the literature review above). There is no IDDT fidelity item requiring access to residential services with a co-occurring disorders track. However, three sites successfully created or used such residential services in conjunction with the IDDT programs. Stanislaus County administrators developed a co-occurring disorders "track" in the county-funded therapeutic residential treatment center. Staff reports and chart reviews support the great utility of this service when outpatient services are not working. South Bay's innovative provision of co-occurring services to residents in a neighborhood residential program also affirm the utility of this resource. Finally, Bonita House operates a number of dual diagnosis residential facilities as well as the case management program, with much interdependence between residential and outpatient programs. (Twenty-one of 145 study clients were also in residential programs.) Outcomes

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\(^3\) Moser and Bond. op cit.
\(^5\) An interesting light is thrown on this question by the introduction in West Modesto of the LOCUS level of care assessment instrument. Most of the persons that West Modesto staff classified as in the engagement stage had LOCUS ratings that would require a higher level of care than outpatient services.
from residential treatment programs often fall off precipitously following discharge if there is no follow-up consistent with the residential program approach. Conversely, access to residential programming for an outpatient program can be very helpful at key stages of treatment e.g. when an intense and controlled environment is necessary for a period of time. In this demonstration project, it appears to be the combination and synergy between them that is key.

- In two of the four counties, the intended study design of first improving a relatively advanced program and they relying on that program to help implement IDDT in a relatively basic program did not happen. In the two counties (Alameda and Stanislaus) where the first and second year programs fit the intended profile, there was very limited confirmation of our hypothesis that there would be a transfer of knowledge from the first to the second program. What did occur in Stanislaus was the transfer of the Turlock program administrator to West Modesto, in effect bringing with her extensive experience with implementing IDDT. In Alameda, the Casa del Sol administrator participated in the first year trainings thus getting a leg up; but other than that, and activities of the oversight committee, there was little gain attributable to the start up pattern. There were some system changes (in Stanislaus and Ventura) but they might have occurred just as well if both programs had started at the same time. It also turns out that in general, IDDT takes much longer to implement to high fidelity in existing programs than we anticipated—even when they start at a fidelity rating of around a "3" as did Bonita House. Thus, after one year, there was less assistance that could be offered than we had anticipated.

- All but two of the programs were rated low on the provision of services to family members. None of the sites included family members or consumers on a site implementation committee. Had they done so, there might have been more emphasis on providing state of the art services to family members. And there might have been peer-led dual disorders groups, which only Bonita House had (since prior to the project). Ventura County is now exploring providing information about dual disorders and IDDT through the NAMI family education program in the county. And county staff note that new funding through the MHSA permits reimbursement for peer-led groups.

The IDDT model was implemented with high fidelity in the Latino Casa del Sol program. However, the training, tools, and approaches of IDDT must be modified significantly for Latino programs. Although some of the elements in the Toolkit are available in Spanish translation, the IDDT model that we attempted to implement (through training, the Toolkit and the Mueser handbook) was not "culturally competent."

Although the Toolkit states that the IDDT model is "culturally competent" we could find no empirical support for the statement. In fact, when we attempted to implement IDDT at Casa del Sol, a clinic serving only Latinos and for the most part persons who are monolingual in Spanish (many of whom are undocumented), we found that the IDDT model is culturally competent in only a very limited sense. CiMH nominated Casa del Sol for a Science to Service award for its 37

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37 Our efforts included asking Kim Mueser, an IDDT developer, if he knew of any "culturally competent" implementations with persons outside of the dominant culture. The IDDT progenitor programs were created in Vermont with a predominantly white population of clients.
efforts in "translating" IDDT for their clinic culture and clients. (See Appendix ). The following points are drawn from that nomination:

*Casa del Sol* did an outstanding job of "translating" the training and tools they were given so that the tools were more effectively used with primarily immigrant Latino clients.

- **Culture:** The IDDT Toolkit and the training CIMH provided did not attempt to address or reflect Latino culture, Latino values, issues of trans-culturation, or culturally based learning traditions of the Latino staff and clients. This was due to a conscious decision to test whether adaptation was necessary before adapting. At *Casa del Sol* culture is usually at the core of every discussion about treatment. Thus, for staff trying to understand the IDDT model, everything from videos shown (offered by CIMH in English, featuring white clients and staff) to diagnostic discussions that did not include current research regarding Latinos (example: cultural bases for "delusions,"\(^{38}\)) needed to be "reinterpreted" by *Casa del Sol* staff to align with the clients’ cultural views, values, and traditions. In essence, the experience of *Casa del Sol* taught CIMH that we must *start* with a model based in culture\(^{39}\), not simply translate from English.

- **Families:** Although "family psycho-education" is one element on the IDDT fidelity scale, clinicians working with Latino clients must include families as a core element of treatment. The expectation at *Casa del Sol* is that clinicians will involve families throughout the entire course of treatment. Every element of the IDDT model must be changed in small ways so that client interdependence with family is implied and utilized. *Casa del Sol* clinicians did this in both formal and informal ways, greatly increasing the emphasis on family work from that in the model.

- **Style:** The "collegial" approach implicit in the IDDT model (e.g. working on the clinical formulation with the client, sharing clinical formulations with the client, asking clients to participate formally in the treatment planning process including signing the completed plan, etc.) needed to be adapted to respect client and family cultural expectations of treatment, and treatment providers. For example, *Casa del Sol* staff developed an approach to respectfully include clients in treatment planning in a way which was consonant with client and family expectation of expertise on the part of the "doctor."

- **Reaching clients:** In order for IDDT concepts to be understood and accepted by their Latino clients, *Casa del Sol* staff constructed a set of *dichos* (proverbs/sayings) that resonated culturally while introducing IDDT concepts. This approach fits with the oral traditions of learning and communicating common to both Latino clients and staff. For example, the "pay-off matrix" (which looks at advantages and disadvantages of using substances and advantages and disadvantages of not using substances) was introduced with the dicho: “No hay mal que por bien no venga” (there is nothing so bad that something good cannot come).  


\(^{39}\) Leslie Preston, LCSW, points out that to speak of "a culture" is itself a great simplification. Not only does the Spanish language and Latino culture differ by country of origin, it is different for those from rural rather than urban backgrounds, and for men and women.
This *dicho* helped lower clients defensiveness and engage in a discussion about the advantages of alcohol/drug use, which was essential to successfully use the tool.

As a result of this trial, we have learned that the IDDT model can be appropriate and useful for Latino clients and staff, but to achieve optimal effectiveness it needs significant adaptation to make it more compatible with Latino culture.\(^{40}\) Staff were enthusiastic about such concepts as motivational interventions, stages of treatment, and integrated clinical assessments. They saw no conflict with the overall elements of the IDDT model—but the use of the model with Latino clients and its presentation to Latino staff must be significantly adapted to Latino culture and values, and culturally based learning traditions, which is a complex and time-consuming task. CIMH has realized that for the model to be "culturally competent" all of the materials and training will need to be consistently revised as to emphasis and approach.\(^{41}\)

**SAMHSA and the National EBP study investigators assumed that it would be useful to have a simply written statement of the model, customized for different audiences (administrators, clinicians, families, clients). At the California sites, the Toolkit itself did not turn out to be useful.**

- A significant problem was the lack of availability of the Toolkit itself. When formulating the grant proposal full versions of the Toolkit were not available and what was provided to us had to be returned/destroyed. A full version of the Toolkit was not made available by SAMHSA until many months after the start of the project.

- For most project staff, the Toolkit took second place to the handbook published by the IDDT developers in the summer of 2003.\(^{42}\) Two copies of this book were purchased by the project for each site, and it became known as "the Bible." The CiMH training also replaced some of the content of the Toolkit (such as material for staff about substance abuse). The Toolkit would probably be much more useful at sites attempting to implement IDDT on their own.

- There were components to the Toolkit that could have been useful to sites, but to our knowledge were not used. These were the descriptions of IDDT developed for consumers and family members. They could have been customized and turned into brochures, but none of the sites used them this way.\(^{43}\)

\(^{40}\) Casa del Sol staff emphasize that a culturally competent approach must consider that Latinos are from many countries and backgrounds and the adaptations must address the particular client populations being served.

\(^{41}\) For example, Carmen Masson, our bilingual-bicultural project consultant suggested that training tapes should feature staff and clients from diverse backgrounds in order to appeal to a wider audience and address cultural differences as well. The training tapes should also provide examples of assessment and counseling sessions conducted in Spanish.


\(^{43}\) In one county, a glossy and elaborate brochure was developed by the training bureau for families and consumers in the last year of the project. Unfortunately, it did not reflect the IDDT philosophy and will probably now need to be redone. Note that the Mueser handbook also contains hand-outs, brochures and various other resources that are not in the Toolkit. In fact, the California trainer relied greatly on the exposition and tools in the Mueser handbook.
The attempt to include outcome measurement as a mechanism for feedback was not successful.

- By design, clinicians were to rate clients in the study cohort each six months using the Multnomah Community Ability instrument, the AUS and the DUS. Although this was accomplished, it was rarely done in a timely way—partly due to problems with data entry at the sites. Thus, the reports produced by the evaluator were several months out of date and had little benefit for helping to track and intervene with clients.

- Several sites adopted the SATS as a measure to be completed frequently on an on-going basis. But none of the sites adopted the AUS and DUS as monitoring instruments.

Institutionalizing IDDT changes depends in the more successful sites on a) one-on-one clinical supervision to the model, and b) embedding concepts and practices in standard forms and processes (not extra).

- Fidelity reviewers were impressed that the sites with most success in achieving and maintaining fidelity were the sites that used individual supervision to reinforce IDDT concepts and improve clinical skills. Obviously this can only occur when the supervisor is well-versed and experienced in co-occurring disorders practice. In Oxnard, the one-on-one supervision has gradually changed to group and as-needed supervision as the team's skills improved and agreements developed regarding how to handle particular kinds of problems. So it appears that the one-to-one supervision is most important in initial stages of implementation and with clinicians who have relatively little experience in helping persons with co-occurring disorders.

- Co-occurring disorders treatment is very different from straight mental health treatment. Different information needs to be collected and it needs to be assessed and turned into treatment plans and actions in a different way. While changing forms has proven an ineffective way of causing change, forms can and should reflect change that has been made. Successful sites went to great efforts to get forms that reinforce and support IDDT practices accepted by the various forms committees governing clinics operation.

- The more a program made elements of the IDDT model routine the greater the likelihood of sustaining fidelity. For example, in Oxnard all incoming clients are first assessed by psychiatrists who were trained to screen for co-occurring disorders. A referral process was also developed. This made screening for co-occurring disorders and referral to the IDDT team a successful routine process for Oxnard.
How qualitative implementation findings compare to those reported in the round one national EBP study

Qualitative findings about implementation in round 1 have been reported in several places. We use a simple summary by Gary Bond as a point of comparison for the California findings cited above.  

As shown in the display below, most of the problems cited by Gary Bond did occur in California sites. However, there were differences, and if created without reference to this list, a list of the most important barriers in California would be somewhat different—as reflected in the points above. The list below is ordered by the importance of the elements in California.

Table 3: Barriers to Effective Implementation in the National EBP Study (Round I)

<table>
<thead>
<tr>
<th>National EBP barriers</th>
<th>California perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of commitment from agency administration</td>
<td>As noted above, lack of commitment any where in the organizational hierarchy was a problem in California.</td>
</tr>
<tr>
<td>Lack of follow-up after initial training</td>
<td>California sites varied greatly on this dimension.</td>
</tr>
<tr>
<td>Staff turnover</td>
<td>This was a significant problem in California as well—particularly at the supervisory or clinic manager level.</td>
</tr>
<tr>
<td>“Productivity” standards that conflict with EBP</td>
<td>California staff felt &quot;pushed&quot; in some sites—feeling they did not have enough time to do IDDT or that IDDT was cutting down on direct client contact time. In other sites, however, staff reported that the attention to client needs and perspectives built into IDDT (for example, in the pay off matrix) gave them &quot;permission&quot; to take more time with clients.</td>
</tr>
<tr>
<td>Inappropriate supervisors</td>
<td>We can affirm the importance of skilled and experienced team leaders and individual supervision.</td>
</tr>
<tr>
<td>Lack of understanding of EBP model (specifically the misunderstanding that many elements of the model were already being provided adequately)</td>
<td>Because of the very extensive training done in California this was not a significant problem overall. It was most apparent in the &quot;trained incapacity&quot; to understand the integrated model evidenced by some substance abuse counselors. Some programs also erroneously viewed the limited work they do with families and the limited outreach they do as consonant with the model requirements. One significant misunderstanding was directly due to the omission of a caseload standard from the fidelity scale used in the National EBP study. There is nothing in the Toolkit that addresses the intensity of services the IDDT team will have to deliver or the best way to organize the team—both issues noted by Bond in Indiana and apparent at California sites.</td>
</tr>
</tbody>
</table>

44 Bond, G. R. (July 2006). Initial Findings from the National EBP Project in the USA Paper presented at the EBP Symposium at the University of Tokyo.
SECTION IV: MEASURING AND ACHIEVING FIDELITY TO THE IDDT MODEL

The SAMHSA fidelity scale

The SAMHSA IDDT researchers have taken an unusual approach to measuring “fidelity.”

The standard approach is summarized in this quote from a manual on EBP sponsored by the American College of Mental Health Administration:

Fidelity is adherence to the key elements of an evidence-based practice, as described in the controlled experimental design, and that are shown to be critical to achieving the positive results found in a controlled trial.

The three steps in developing a fidelity scale then are a) determining a program model or practice is effective (preferably through randomized controlled trials) and b) determining what components of the program are associated with the effective outcomes, and c) measuring the effective elements with a scale that, when scored high, indicates (based on further empirical trials) that the effective outcomes in the randomized research will be replicated in the field.

In contrast the SAMHSA approach has been to start with “principles” of IDDT that do not necessarily have an evidence base. This makes the SAMHSA IDDT fidelity scale in essence a test of fidelity to professional guidelines.

The scale as a whole is not yet validated by correlations with successful programs. However, there is evidence that some of the elements in the fidelity scale are associated with improved outcomes. A study by Drake and others of 87 clients that looked at implementation of integrated substance abuse treatment in seven ACT programs attempted to identify program elements associated with more or less success. The components that appeared associated with better outcomes were: staff continuity; multi-disciplinary staff; community locus; assertive engagement; continuous responsibility; dual disorders model. Four to five of these appear to match items in the 14 item IDDT fidelity scale: multi-disciplinary staff, dual disorders model (motivational interventions in stages and individual and group dual diagnosis counseling), and outreach (which might subsume community locus and assertive engagement).

Note that the SAMHSA ACT and Supported Employment fidelity scales are in line with the definition above: they are based on random controlled studies that show effectiveness and have at least some relationship to the components of the more successful programs.

Presentation by Gary Bond at the American Public Health Association meeting, November 15, 2003.

Only one high fidelity program has tested the IDDT model in a randomized controlled trial and it was limited to forensics clients. Results were generally disappointing. See Chandler, D., & Spicer, G. Integrated treatment for jail recidivists with co-occurring psychiatric and substance use disorders. Community Mental Health Journal, 42(4), 405-425.


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As noted in the literature review in Section B above, a number of specific items in the fidelity scale do have a separate evidence base (motivational interventions, group dual diagnosis treatment, dual diagnosis self-help groups) but these are not distinguished from or given more weight than others which have minimal evidence. Also some interventions with strong or fairly strong evidence (therapeutic residential program and contingency management) are not included in the model, reflecting the change in research knowledge since the fidelity scale was put together.

In a study of 11 IDDT programs in the national EBP demonstration, inter-rater reliability was .90.\(^5\) In the California IDDT implementation study, there was high inter-rater reliability but validity has been questionable on some items. That is, California raters agreed which of 5 scores to apply but found that descriptions embedded in the “anchors” of the fidelity scale items did not always match the range of variability they found in different programs.

*With permission of the SAMHSA contract monitor, we created a "California version" of the fidelity scale.*

In attempting to apply the General Organizational Index (GOI) and Fidelity Scale developed for Round I of the EBP study we encountered a number of conceptual problems and problems with the anchors of the scales. We also compared these versions of the scale with the fidelity scale in the handbook by Mueser, Drake and colleagues\(^5\) and found what appear to us to be significant differences. To some extent, these reflect the SAMHSA effort to make the GOI applicable to all six evidence-based practices; but the result for IDDT is a watering down of some criteria. The California version of the combined GOI and Fidelity scale, shown in the Appendix 1, does four things:

- It substitutes the Mueser and colleagues scale items when they are available and seem more appropriate (e.g., regarding having integrated treatment plans).

- It attempts to resolve conceptual lack of clarity, e.g. as to whether “comprehensive services” must be offered in the system or by the agency itself, or what to do when the same intervention appears in two different fidelity criteria.

- It substitutes “qualitative” anchors for quantitative anchors for items in which the quantitative anchors seem that they would be too difficult to rate reliably. Although the National EBP version relies much more heavily on “quantitative” anchors, the Indiana investigator Gary Bond said in response to a draft of the modified scale, “I like the way you have moved toward qualitative ratings of IDDT, that's actually how we do it in practice, the % was a mistake.” Bond also says: “I would make some changes to the version we are using in the National EBP Project, and add back in some items that were in the Mueser version. I think insisting on a small organizational unit (a team) and a small caseload size are two elements that should be part of the scale.” Note that the findings, cited above, in general confirm Bonds conclusions.

\(^5\) Presentation by Gary Bond, who is responsible for testing of the SAMHSA EBP fidelity scales, at the National EBP Meeting, Baltimore, MD, November 4, 2003.

\(^5\) Mueser, op cit.
In addition to modifying the GOI and Fidelity Scale, in the last year we added ratings for implementation measures suggested by the Toolkit (a site and county implementation team) and by a consumer member of the CiMH implementation team (consumer and family participation measures).

**The California approach to fidelity ratings was consultative rather than compliance oriented.**

- **Timing.** Fidelity reviews were usually scheduled at six months intervals. In some instances logistical factors required a longer period of time between reviews.

- **Raters.** As opposed to Round the I sites we are aware of, which used junior level raters, fidelity rating were done by the Evaluator and a senior member of the CiMH project team. The intent was not only to assure reliable ratings but to allow the project team to assess the fidelity scale and rating process and to understand the organizational processes behind the ratings themselves.

- **Feedback.** Each fidelity review was sent in draft form to the site a couple of weeks after the review. In addition to a numerical rating that corresponds to the anchors of the fidelity scale, narrative observations summarized what was learned and suggested possible ways of increasing fidelity in each domain. Sites were asked to notify the raters if they disagreed with ratings. Some ratings were revised through this process. Unlike some other states, there was no formal requirement of a "response" to the fidelity findings or a plan for improving fidelity. This approach reflects the fact that programs participated voluntarily in order to improve their performance and received no resources (other than training). That is, the model was a "program improvement" approach rather than a compliance approach.

- **Initial ratings.** At the initial rating there were some practices specifically related to the project that some sites understandably did not do prior to the initial training. We deferred some of these ratings at the initial fidelity rating but rated them if we could interpret current practices in terms of the fidelity anchors. For example, some sites may not have had a formal way of identifying persons needing secondary interventions, but they had available and used a number of the interventions listed in the item. In conducting the analysis of fidelity rating change over time we went back and rated the deferred items using the rating given that item at the second fidelity rating 6 months later.\(^5\)

- **Validity issues.** Two issues concerning validity arose, both of them highlighted by outcome results. As an introduction, here is a statement by a Kansas IDDT fidelity rater: "One thing I still think we are missing somehow in all our measuring is the "spirit" of IDDT. Like X County hits all the right numbers, but...they often miss the "spirit" of it." One of the California sites did well, achieving a "4" on the fidelity scale, but the ratings we gave were for the letter of the law; it was not surprising that outcomes for this site were not positive. Another site scored very high on "outreach," having dedicated case managers and a strong program manager; but again, the outcomes (attrition in this case) suggested that the "spirit"  

\(^5\) "Training" is an item on the GOI that we rated inconsistently at baseline, giving some sites credit for the CiMH training that had just started or was about to start but not crediting this for other sites. We have retrospectively changed to a "1" unless there was IDDT related training already happening.
or, more technically, "validity," of our ratings did not fully reflect the reality. We treated outcomes as separate from implementation (and the national EBP study did not measure them at all), but factoring them into fidelity ratings on relevant items would improve validity.

**California used the General Organizational Index developed in the national EBP project.**

The general organizational index was developed by the National EBP Project, round 1. It is a general scale intended to be used with all of the EBP implementations, not just IDDT. It covers elements that the national EBP designers believed were related to the capacity to successfully implement an evidence-based practice. Most of the items refer specifically to the EPB. For example, there are items regarding whether the mission statement of the agency is consistent with the EBP, whether the EBP is the subject of a quality assurance committee, whether training on the EBP is provided in updates and for new employees, whether staff get time and credit for learning and practicing the EBP, and whether the team leader has at least 10% of time for working with the EBP. Other elements are more generic, such as whether there is an individualized assessment and treatment plan, whether client choice in treatment is honored, and whether outcomes are measured. While some of these elements have clear face validity, the relationship of others to achieving fidelity is unclear, and in at least one case there is specifically no evidence that it makes a difference.53

Because so many of the items in the GOI do refer specifically to the EBP being implemented, it makes sense to consider it as an extension of fidelity.

**California created a 5-item scale to reflect elements specific to the implementation process.**

The Fidelity Scale measures implementation of the components of the model; the GOI measures implementation of supports for the model; but we also wanted to measure the extent to which implementation actions specific to this project were undertaken. All counties and sites participated in the Development Team, in outcome monitoring, and in the fidelity reviews. However, in the last year and a half of the project, we also measured the extent to which counties and sites had:

- Established high level and consistent administrative support as shown by activities such as integration of IDDT into multiple county-wide committees and programs such as the Training Bureau, sending staff to high performing IDDT programs for training, providing technical assistance to other IDDT programs, designing, printing and disseminating materials describing IDDT programs, explicit inclusion of IDDT in MHSA and other planning processes.
- Established a county implementation committee
- Established a site implementation committee
- Established ways for consumers to participate in implementation, such as by participating on a site committee; leading peer-support groups; disseminating information; or working as IDDT staff.

53 The Cochrane collaboration has reviewed the evidence that measuring outcomes and sharing them with clinicians can improve practice and has found no support for this belief.
Established ways for families to participate in implementation, such as by participating on a site committee; leading family-support groups; disseminating information; or working as IDDT staff.

The anchors for these items are included in Appendix__.

**California fidelity scores**

There are several important research questions concerning fidelity (including the GOI).

- Did fidelity increase over time? How much? How did baseline scores and the amount of change vary by site?

- Which elements in the fidelity scale were rated high or low at baseline and which improved most? Are these more clinical, more organizational, or more resource related?

- What factors appear to be associated with achieving, or not achieving, high fidelity?
  
a) Do General Organizational Index scores (at baseline or change scores) correlated with achieved high fidelity or positive change in fidelity?

b) Do the overall or subscale scores on the "Organizational Readiness for Change" scale correlate with fidelity scores?

c) Do staff ratings of their own skills, the usefulness of training, and support by administration correlate with fidelity ratings?

**Fidelity increased over time for all sites combined.**

Figure 3 shows the overall increase in fidelity for all sites combined by round. This includes two ratings for Hollywood and three for South Bay, which did not sustain implementation. All others were rated four times at six month intervals. The average rating for the 6 sites that continued implementation for all 24 months was a 3.9—up from a 3.0 at baseline. This is slightly below the threshold of 4.0 that Bond has said represents an acceptable level of fidelity.

---

Figure 4 shows the change by round at each site, thus disaggregating Figure 1. Three sites achieved the standard of "4" while one came very close. Patterns of change were not uniform. In particular, in Stanislaus where large-scale funding reductions cause major reorganization in both the West Modesto and Turlock programs, the final score was lower than at least one intermediate score.

Figure 4: Mean Fidelity Scores Over Four Rounds of Ratings, by Site
At baseline the lowest fidelity scores were on integrated assessment and treatment planning, motivational interventions, stage-wise interventions, and family education and support.

Figure 5 shows mean scores at baseline for the six sites which completed implementation. The low items are basically clinical; but there was much more likelihood that dual diagnosis counseling, group dual diagnosis treatment, and dual diagnosis pharmacological treatment were provided—and they are also clinical. Highest ranked were those features of the service that would apply to clients whether they are dually diagnosed or not, such as health interventions, long term services and outreach.

Figure 5: Baseline Fidelity

Clinical elements across the board were the most likely to change during the implementation period.

Figure 6 shows, for the same 6 sites in which implementation efforts were sustained, the average amount of change by item stacked on top of the baseline scores. The range and availability of dual disorders housing is essentially outside the control of the programs, so it changed least. As would be expected, there was a ceiling effect so that items ranked high at baseline changed little (though there were some significant changes: for example, in ensuring that if clients left the program there would be "no closed door" if they returned—reflected in the long term focus item). The clinical items changed most, including dual diagnosis counseling and group dual
Another element that was relatively high to begin with but improved virtually to a "5" was having an integrated substance abuse/dual diagnosis specialist on the team. Although family education and support improved, only two sites systematically serve dual diagnosis families with a specialized group or service—and both have a small number of participating family members. *La Casa del Sol* has a very strong family emphasis as part of its culturally competent services for Latinos, but this did not change as a consequence of IDDT implementation.

**Figure 6: Change in Fidelity Items**

![Bar chart showing changes in fidelity items over four rounds of ratings (six sites). The chart compares baseline fidelity (6 sites) with change after 2 years for various categories such as integrated tx plan, stage-wise, motivational interventions, and more. Each category is represented by a horizontal bar with segments showing the proportion of change.]
California General Organizational Index scores

GOI scores increased over time for all sites, even those that did not sustain the implementation.

Figure 7 shows the overall increase in GOI scores for all sites combined by round. This includes two ratings for Hollywood and three for South Bay; all others were rated four times at six month intervals. The average rating for the 6 sites that continued implementation for all 24 months was a 4.2—up from a 3.0 at baseline. This is slightly above the threshold of 4.0 that Bond has said represents an acceptable level of fidelity.

Figure 7: Increase in GOI Scores by Round, All Sites Combined

Figure 8 shows the change by round at each site, thus disaggregating Figure 1. All six of the sites with sustained implementation achieved (or came very close to achieving) an average score of "4." As with the fidelity scale, clinical elements across the board were also the most likely GOI elements to change during the implementation period. Similarly, patterns of change were not uniform: in several programs the final score was lower than at least one intermediate score. In fact, Conejo was the only program to show progress at each review.
At baseline the lowest GOI scores were related to penetration and the formulation of an individual treatment plan.

Figure 9 shows mean GOI scores at baseline for the six sites which completed implementation. The lowest items were those specific to the IDDT model—training, penetration rate, client identification, IDDT specific quality assurance and process monitoring. The individualized treatment plan was low but is not specific to IDDT. (The California fidelity scale has an item for an integrated treatment plan that is IDDT specific.) The low scores come from the stereotyped treatment plans done in most sites to conform to Medi-Cal rules and to the fact that virtually no sites revise treatment plans every three months, as required by this item. Training and penetration were low, but since the model had not been implemented, this was to be expected.
Clinical elements across the board were the most likely to change during the implementation period.

Figure 10 shows, for the same 6 sites in which implementation efforts were sustained, the average amount of change by GOI item. As with fidelity items, the more generic items that were high to begin with changed relatively little, as did the credit given staff and team leader for implementation efforts. Penetration also did not change substantially, in part because some sites limited their IDDT implementation to the CiMH study cohort (at least initially). Also, penetration and eligibility/client identification were not relevant for Bonita House because all clients were dually diagnosed, so scores for those items are from 5 programs. Training was so high in part because we gave credit for the CiMH training and in part because a number of sites did institute substantial on-going training efforts, either through a central bureau or through in-program experts.
Figure 10: GOI Baseline and Change

GOI Score Changes Over Four Rounds of Ratings (Six Sites)

![GOI Score Changes Graph]

**Association of fidelity and GOI scores with other process measures**

*Staff ratings of the effectiveness of IDDT model components as utilized by their team show only a modest association with the fidelity scores for the same components.*

At three different times IDDT staff at the six sites sustaining implementation were surveyed regarding implementation. (Site managers decided which staff were appropriate to be surveyed.) We present the rating done in the final six months in Appendix 5C. Staff were asked to: "Please rate the Effectiveness of your team as a whole in each domain of the IDDT model at this time."
In Figure 11, we show these ratings of effectiveness of different model components in comparison to the fidelity score given the same components. There is only a .19 rank order correlation between the two views. The greatest discrepancies are:

- Staff rated Integrated Treatment Planning, Motivational Interventions, Integrated Assessments, and Multidisciplinary Teamwork considerably higher than is reflected in the fidelity rating.

- Staff rated Outreach, 12-Step Support, and Secondary Interventions considerably lower than reflected in the fidelity rating.

Figure 11: Staff View of Effectiveness of IDDT Team vs. Fidelity Rating for the Same Domain, Summarized for the Six Sites with Sustained Implementation

The Organizational Readiness for Change scale scores predicted very accurately the overall dimensions of implementation success.

During the first six months of the implementation, staff at each site filled out the Organizational Readiness for Change Scale (social organization version). This is a scale developed at Texas Christian University to facilitate technology transfer in the substance abuse field. But it has been

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55 Because there were different numbers of staff responding in each site simply using the mean would have given greater weight to sites with larger IDDT teams. Instead a mean score on each item was created for each site and these were then averaged to give a mean effectiveness score across the six sites. The fidelity scores are a summary of the mean fidelity scores for the six programs at the fourth and last fidelity rating. All scores were standardized so that the highest component is scored 100.
applied more broadly. Unlike the GOI, it does not measure anything specific to the IDDT model. Instead it measures dimensions of organizational capacity that have been found in the literature to relate to the ability to adopt innovations.

The overall scale is made up of 16 subscales entitled: Mission, Cohesion, Autonomy, Communication, Stress, Change, Leadership, Growth, Efficacy, Influence, Adaptability, Satisfaction, Office, Staffing, Training, and PC_Access. The scale has good psychometrics and in our analysis, all subscales had a Cronbach alpha internal reliability of .59 or more, with most over .80.

We attempted to summarize the data for the 8 programs and 16 scales by determining the 8 site mean for each item, then subtracting each site's score from the mean and converting to a percentage. We then took the average of these differences from the mean. The overall average by site of the differences from the mean on the 16 items ranged from –14% to +14%. That is, the program with the "best" organizational functioning exceeded the mean score of all the programs by 14%. The figure below shows the results. Recall that South Bay received the training but took no other steps toward implementation, Hollywood attempted implementation for about 3 months after the training ended, and Conejo's implementation stalled after the training until the IDDT program was taken over by the dual diagnosis expert who also ran the Oxnard IDDT team. At the time of filling out the form Oxnard was a brand new program (three months old) while all others were well-established.

**Figure 12: Difference of Each Site From an 8 Site Mean, Averaged Over 16 Organizational Functioning Subscales**

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57 This was calculated for each subscale and then a grand mean obtained, rather than aggregating all the subscales and calculating the difference from it for each site.
The organizational functioning scores are highly predictive of the overall outcomes of attempting to implement IDDT. The one subscale in which each of the non-sustaining programs scored 20% below the mean of all eight programs was Leadership; in fact, they were the only three programs not to have a score higher than the mean on this subscale.

The scale items are rated using the scale ranging from 1 to 5, with 5 most positive. Below are the overall means (a scale made from all items) compared to the overall fidelity and GOI scale scores.

Table 4: Overall Organization Functioning Scale Mean, Final* Fidelity Scale Mean and Change, and Final GOI Mean and Change (Ordered by Organizational Functioning at Baseline, All Scales in the Range 1 to 5, with 5 the Best)

<table>
<thead>
<tr>
<th>Program</th>
<th>Overall Functioning Scale Mean</th>
<th>Overall Fidelity Scale Mean (Change)</th>
<th>Overall GOI Scale Mean (Change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Bay</td>
<td>2.7</td>
<td>3.2 (0.06)</td>
<td>2.8 (-0.35)</td>
</tr>
<tr>
<td>Hollywood</td>
<td>2.7</td>
<td>2.7 (0.63)</td>
<td>3.2 (0.73)</td>
</tr>
<tr>
<td>Conejo</td>
<td>2.8</td>
<td>4.1 (1.64)</td>
<td>4.5 (2.77)</td>
</tr>
<tr>
<td>West Modesto</td>
<td>3.1</td>
<td>3.1 (0.25)</td>
<td>3.4 (0.73)</td>
</tr>
<tr>
<td>Casa del Sol</td>
<td>3.2</td>
<td>4.1 (1.01)</td>
<td>4.6 (1.10)</td>
</tr>
<tr>
<td>Oxnard</td>
<td>3.3</td>
<td>4.8 (0.59)</td>
<td>4.8 (0.15)</td>
</tr>
<tr>
<td>Turlock</td>
<td>3.5</td>
<td>3.4 (0.63)</td>
<td>3.9 (1.69)</td>
</tr>
<tr>
<td>Bonita</td>
<td>3.5</td>
<td>3.9 (0.32)</td>
<td>4.2 (0.41)</td>
</tr>
</tbody>
</table>

*"Final" is the second rating for Hollywood and the third for South Bay, the two programs that did not sustain implementation. "Change" is the first rating subtracted from the final rating.

As we suggest in the recommendations, an overall organizational functioning score of 3.0 or less would indicate a great deal of caution about moving ahead with implementation of a complex and time-intensive process like IDDT.58

Below is a correlation matrix for the scores of functioning scale, fidelity scale and GOI scale, as shown above. Fidelity scores and GOI scores are correlated at a statistically significant level.59 The correlation of organizational functioning with change in fidelity and change in GOI is shown in parentheses in Table 5. Again, the change in fidelity and change in GOI are correlated at a statistically significant level (p<0.05). The lack of correlation between the organizational

58 Conejo is a special case. It's original implementation resulted in very low fidelity, but it got a second life when Dr. Gertson became leader of the program. Thus, the organizational factors that obtained at the beginning, particularly a very low rating for leadership, did not obtain when fidelity scores went up.

59 Shown is the correlation coefficient; a test using rank order correlation (Spearman) did not affect the results substantially.
functioning scale and fidelity and GOI scores is not surprising when one considers the individual site information presented earlier. Oxnard fidelity and GOI scores changed little due to a ceiling effect, Conejo fidelity and GOI scores were initially low then improved dramatically (the organizational functioning score would have correlated better with the intermediate fidelity and GOI scores), and South Bay and Hollywood made significant progress but did not sustain it (which is not reflected in the fidelity and GOI scores). So while the organizational functioning scale does identify the sites that had severe problems with implementation, it does not correlate with fidelity and GOI scores or change scores—indicating the utility of a separate measure of organizational functioning, independent of the GOI.

Table 5: Correlation of Organizational Functioning, Fidelity and the GOI and Change on the GOI and Fidelity

<table>
<thead>
<tr>
<th></th>
<th>Organizational Functioning (Change)</th>
<th>Fidelity (Change)</th>
<th>GOI (Change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Functioning</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fidelity</td>
<td>0.44</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-0.15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOI</td>
<td>0.54</td>
<td>0.89*</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>(-0.01)</td>
<td>(0.86)*</td>
<td>(1.00)</td>
</tr>
</tbody>
</table>
SECTION V: CLIENT OUTCOMES

Methodological issues:

Lack of randomized control groups makes it difficult to assess the significance of outcomes.

In treatment programs, the usual question is how much better is this treatment than no treatment or the "usual" treatment? In this study, we don't have a control group that would make answers to those questions. Rather than a randomly assigned control group to use for comparison, we use the baseline status of the study subjects as a proxy. We assume that if we see positive or negative change from the baseline status after introducing IDDT that the change is/could be related to IDDT. However, there are number of other possibilities that introduce uncertainty.

- There is likely a mixture of effects of the treatment occurring before and the IDDT influenced treatment. Only one of the programs was "new." And most of the clients were in the treatment program already when the study cohort was chosen (rather than being new referrals). Thus it is hard to say what change might have occurred absent IDDT.

- Clients were selected for IDDT based on being clearly identifiable as having co-occurring disorders. This means they may have been selected at "peak" times in their substance use. If that is true, we would expect to see some improvements just due to the statistical phenomenon of regression to the mean—just because there was a chance component in the original scores that doesn't hold in the follow-up. 60

- Finally, both major forms of mental illness and substance dependence are "relapsing" conditions, so substantial changes in status will be found regardless of treatment. In an important ten year study, Drake et al. found three identifiable groups: those who achieved remission within a relatively short time and then maintained it; those who never attained remission; and those who attained remission but then relapsed multiple times over several years. 61 Because the periods during which we measure outcomes are very limited (6 months, a year, and two years rather than 3 or 10 years as in Drake's study), it is difficult to know how stable outcomes are.

There is no way to present data from all 8 of the programs without seeming to suggest comparisons, but in fact the only relevant outcome comparison is the change over time within programs.

We can and do discuss the different programs in relationship to each other: some had a short follow-up some longer, some have high fidelity some lower. But as far as the outcomes are concerned, it is not valid or relevant to compare them across programs.

60 A good explication of regression to the mean is at: http://www.socialresearchmethods.net/kb/regrmean.php
There was no uniformity in how study cohorts were selected. Some sites included everyone they judged to have a co-occurring disorder. Similarly, Bonita House has only dual disorder clients who are referred to the program specifically because they are believed to need dual disorders treatment. Others were very selective (having many more clients to choose from than was required in the study sample); but they were not selective on the same grounds. Just in Stanislaus County, for example, the Turlock program included many more pre-engagement and engagement clients than did West Modesto. Thus, even if the client groups looked the same on baseline measures (which they don't), there would be significant differences between them.

The most fundamental difference in the outcomes is that for two programs results reflect very different follow-up periods. In two programs there was only a six month follow-up period—and during that time there was little IDDT implementation. In some ways, South Bay (where there was only training and an IDDT treatment team was never constituted) the outcomes are better viewed as what a good dual disorders program can accomplish without IDDT. Four programs had a full year of follow-up, and two had two years.

Even among programs with the same follow-up period, though there are wide differences in program type and design. Hollywood and South Bay are both large clinics in LA with high caseloads. But South Bay already had a functioning dual disorders program in conjunction with a nearby substance abuse residential program. Many of the clients in the South Bay study cohort also were in the substance abuse residential program. If one compares the programs having a one year follow-up period, differences are much greater. Oxnard is a specialized team constitute from the beginning with experienced dual disorders clinicians; La Clinica is a general outpatient clinic serving only Latinos; Conejo is a general outpatient clinic in an area with few substance abuse resources; and West Modesto is a general outpatient clinic in which the whole treatment staff served as the IDDT team. Of the two programs with two year follow-up, one is a specialized dual disorders program, the other is an integrated mental health and substance abuse program with a dual disorders team. There is no way to "factor in" these differences in design and mission in order to compare outcomes.

In our original study design we had held out the possibility that we would choose a second cohort to be studied after full implementation of the IDDT program. Because of limitations of time we were not able to do this. This means the program outcomes also reflect different speeds at which IDDT was implemented. Casa del Sol, for example, chose not to attempt to implement the full model until training was complete whereas Oxnard was essentially a full implementation by the time the study group was formed.

Because samples were chosen to fit the needs of each clinic, the study cohorts differ significantly.

The only guideline CiMH provided sites in choosing a study cohort was that clients must meet diagnostic criteria for both serious mental illness and have a serious substance use disorder. We asked that if possible 50 to 60 clients be included in order to have a sufficiently large sample size if there was attrition. The sample at Casa del Sol was smaller than that because there were only 28 dually diagnosed clients at the clinic. Bonita chose to include all 144 of its clients rather than
to sample them as all were dually diagnosed. Note that administrative data is not available for the
two Los Angeles programs that did not sustain implementation, only clinician ratings at six
months follow-up.

**Table 6: Baseline Characteristics of the Study Cohorts**

<table>
<thead>
<tr>
<th>Program</th>
<th>Number</th>
<th>Multnomah Mean Score*</th>
<th>SATS Mean Score*</th>
<th>Age at Start of IDDT</th>
<th>Female</th>
<th>White</th>
<th>Schizophrenia Spectrum Dx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollywood</td>
<td>57</td>
<td>51</td>
<td>3.0</td>
<td>39</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>S. Bay</td>
<td>76</td>
<td>56</td>
<td>4.4</td>
<td>35</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Conejo</td>
<td>39</td>
<td>57</td>
<td>4.0</td>
<td>39</td>
<td>54%</td>
<td>77%</td>
<td>16%</td>
</tr>
<tr>
<td>Oxnard</td>
<td>69</td>
<td>55</td>
<td>3.7</td>
<td>38</td>
<td>46%</td>
<td>52%</td>
<td>32%</td>
</tr>
<tr>
<td>Casa del Sol</td>
<td>28</td>
<td>59</td>
<td>4.0</td>
<td>36</td>
<td>19%</td>
<td>4%</td>
<td>57%</td>
</tr>
<tr>
<td>W. Modesto</td>
<td>54</td>
<td>53</td>
<td>3.1</td>
<td>35</td>
<td>41%</td>
<td>57%</td>
<td>37%</td>
</tr>
<tr>
<td>Turlock</td>
<td>69</td>
<td>51</td>
<td>3.4</td>
<td>42</td>
<td>46%</td>
<td>86%</td>
<td>23%</td>
</tr>
<tr>
<td>Bonita</td>
<td>145</td>
<td>52</td>
<td>4.5</td>
<td>40</td>
<td>54%</td>
<td>51%</td>
<td>60%</td>
</tr>
</tbody>
</table>

*Higher on the Multnomah means better functioning; higher on the SATS means more success in treatment.

Differences are substantial on each of these dimensions. *Casa del Sol*’s clients were higher
functioning and much more likely to be male and Latino but also more likely to have a
schizophrenia diagnosis. The two programs with relatively well-developed dual disorders
programs, South Bay and Bonita, had a cohort of clients at a higher SATS level; but Bonita had
the highest percentage of clients with a schizophrenia diagnosis. The Conejo clients were
particularly likely to have diagnoses other than those in the schizophrenia spectrum, to be white,
and to have relatively high Multnomah scores. Turlock, a central valley community, had the
highest proportion of whites. Hollywood and West Modesto had the lowest SATS scores at
baseline.

Note that the number in the study for Conejo and *Casa del Sol* is considerably smaller than for
the other programs. Since statistical significance depends in part on the number of cases, this
means in effect that the threshold for attaining statistical significance is higher in these programs.

**Attrition was considerable and reflected a variety of factors related to program organization
and client characteristics.**

Table 7 show attrition at the end of the first six months follow-up rating by clinicians. Table 8
shows attrition at the last clinician rating (after one year for four programs and two years for two
programs).
### Table 7: Attrition After 6 Months, All Eight Programs

<table>
<thead>
<tr>
<th>Client status</th>
<th>Hollywood N=57</th>
<th>S. Bay N=69</th>
<th>Oxnard N=69</th>
<th>Conejo N=39</th>
<th>Modesto N=54</th>
<th>Casa del Sol N=28</th>
<th>Turlock N=69</th>
<th>Bonita N=145</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active episode—seen in past 60 days</td>
<td>29%</td>
<td>61%</td>
<td>55%</td>
<td>28%</td>
<td>79%</td>
<td>82%</td>
<td>71%</td>
<td>68%</td>
</tr>
<tr>
<td>Open episode/no contact in past 60 days</td>
<td>12%</td>
<td>12%</td>
<td>6%</td>
<td>10%</td>
<td>9%</td>
<td>11%</td>
<td>12%</td>
<td>11%</td>
</tr>
<tr>
<td>Inactive—Transferred</td>
<td>11%</td>
<td>6%</td>
<td>4%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Inactive—Planned discharge</td>
<td>4%</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Inactive—Left against clinical advice</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Inactive—Outreach attempted but failed</td>
<td>19%</td>
<td>6%</td>
<td>14%</td>
<td>8%</td>
<td>2%</td>
<td>0%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Inactive—Client lost to contact</td>
<td>11%</td>
<td>6%</td>
<td>10%</td>
<td>38%</td>
<td>6%</td>
<td>0%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Inactive—Client moved</td>
<td>4%</td>
<td>6%</td>
<td>7%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Inactive—Other</td>
<td>7%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>7%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Note:** There were 76 cases originally, but the follow-up data was missing 7 cases. By that time it was clear the program was not going to implement IDDT, so we have just utilized the data submitted.

### Table 8: Attrition After 12 Months or 24 Months (Turlock and Bonita)

<table>
<thead>
<tr>
<th>Client status</th>
<th>Oxnard N=69</th>
<th>Conejo N=39</th>
<th>Modesto N=54</th>
<th>Casa del Sol N=28</th>
<th>Turlock N=69</th>
<th>Bonita N=145</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active episode—seen in past 60 days</td>
<td>39%</td>
<td>51%</td>
<td>44%</td>
<td>68%</td>
<td>43%</td>
<td>60%</td>
</tr>
<tr>
<td>Open episode/no contact in past 60 days</td>
<td>1%</td>
<td>15%</td>
<td>11%</td>
<td>4%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Inactive—Transferred</td>
<td>4%</td>
<td>8%</td>
<td>7%</td>
<td>14%</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>Inactive—Planned discharge</td>
<td>5%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Inactive—Left against clinical advice</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Inactive—Outreach attempted but failed</td>
<td>29%</td>
<td>5%</td>
<td>6%</td>
<td>4%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>Inactive—Client lost to contact</td>
<td>3%</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
<td>20%</td>
<td>6%</td>
</tr>
<tr>
<td>Inactive—Client moved</td>
<td>7%</td>
<td>10%</td>
<td>2%</td>
<td>11%</td>
<td>1%</td>
<td>9%</td>
</tr>
<tr>
<td>Inactive—Other</td>
<td>9%</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

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62 There were 76 cases originally, but the follow-up data was missing 7 cases. By that time it was clear the program was not going to implement IDDT, so we have just utilized the data submitted.

63 Bonita House rated 148 persons at baseline, but 3 had moved or transferred already. (One transferred but returned.) So we use 145 as the overall N.
After the first 6 months, the percentage of the study cohort in each site with open cases ranged from 93% to 38%; the percentage lost to contact ranged from 0% to 38%. At the one year anniversary for Conejo, Oxnard, Modesto and Casa del Sol, open cases ranged from 72% to 40%; lost to contact ranged from 0% to 20%. At the two year anniversary for Bonita House and Turlock, the percentage with open cases ranged from 69% to 52% with clients lost to contact ranging from 6% to 20%.

Aside from moving and transferring programs, the range in attrition reflects a variety of factors.

- **Start up issues.** The study cohort was established and baseline measurements done in the first few months of the program. For programs already having a functioning dual disorders program, this may have had little effect. But in programs like Conejo, which previously dealt with substance abuse by referral to geographically distance substance abuse programs, or West Modesto, which dealt with substance abuse by referral to the co-located substance abuse staff, IDDT had not really had a chance to get established during the period of highest attrition. At Oxnard, the case managers were last to be hired, so outreach was not a possibility during some of the first six months.

- **Nature of the community.** In smaller communities, like Turlock, "finding" people was less difficult than in major metropolitan areas like Alameda County and Los Angeles County.

- **Nature of the program.** Programs differ greatly in the type of staffing, the organization of teams, and the intensity of services possible. Unlike the original IDDT programs or those in Ohio, few of the California programs had staffing ratios in the 1/15 to 1/25 range. The existing staffing was appropriate to a generic mission but may not have provided enough outreach capacity for the dually diagnosed clients in pre-engagement or engagement.

- **Organizational pressures.** Like programs everywhere, the IDDT demonstration programs were subject to constant pressure to accept new clients while providing optimum treatment over long periods of time for existing clients. The usual approach in these circumstances is to establish a more or less intensive follow-up for persons who miss appointments and then to discharge or "bank" these cases. Under IDDT, assertive outreach is assumed to be necessary to get people through stages of lesser engagement. But, as noted above, resources often were not sufficient to provide this level of outreach. The program with highest fidelity, Oxnard, receives an average of 5 referrals per week. If only half are assessed as appropriate, this still adds up to 125 new clients a year for a program with capacity of 90. Since IDDT treatment is not likely to be successful in a short time (see the small percentage of planned discharges in Table __), the pressure to accept referrals is a strong organizational incentive to focus on clients more willing to engage. In contrast, Bonita House has a contract with Alameda County that requires them to "own" the clients assigned to them; this approach also has stresses for the program, but it puts the organizational focus on maintaining contact.

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64 As noted above, lack of capacity to do "ACT-level" outreach was cited by the Turlock program, but note that at the six months follow-up, only 10% had been lost to follow-up. At Conejo the "no closed door" approach seemed to work as 38% were lost to follow-up at 6 months but only 10% at 12 months.
Nature of the clients. As is apparent from the table of baseline characteristics, but even more so in the graphs of SATS change shown below, the proportion of clients in the original cohort who were in active treatment or higher stages of treatment varied considerably.

Recognizing the variety of factors that make attrition complex, it is still important as a key measure of IDDT success. If clients fail to remain engaged it not only indicates they are not receiving treatment but that the elements of the model intended to increase engagement are not effective or poorly implemented.

Baseline measures and follow-up measures for clients who remain engaged are based on ratings by clinicians.

Clinicians filled out rating forms on the study cohort each 6 months. For inactive clients only a status report was completed. At the beginning of the project the information system department in each county generated a list of random numbers which were matched to actual client identifiers. None of the data provided to CiMH had actual identifiers on it, only the arbitrary random identifiers. The study was either approved by the human subjects protection committee in each site or was found by that committee not to need review because of the use of de-identified data.

Multnomah Community Ability Scale. Psychiatric status and functioning were measured with the Multnomah Community Ability Scale, a 17 item well-validated instrument designed to be completed by case managers. Only one of the items deals with alcohol/drug use, so Multnomah scores is primarily a measure of mental health functioning. The Multnomah refers to the client's behavior in the month prior to the last contact with the rater. All Multnomah raters were shown a training movie at baseline and training ratings were done for reliability. Internal reliability (coefficient alpha) was high for the overall Multnomah scores at each site (.80 and above).

Stages of Treatment Scale. Measuring the stage of substance abuse treatment of each client and then tailoring interventions to that stage is a basic and critical element of the IDDT Model. The time frame for the rating is the prior 60 days, or if the client is not active, the 60 days prior to the

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66 The Alcohol Use Scale and Drug Use Scale have been used in conjunction with the Stages of Treatment Scale in research; they rate substance use patterns in the same time frame. These three scales together are intended to profile the client's substance use patterns, motivation (since the stages of treatment correspond closely to the stages of change), and type of substance abuse treatment. Their use is part of the IDDT Toolkit and the Mueser et al. handbook. We asked clinicians to rate both the AUS and DUS at the same time they rated the SATS. However, it appears that staff found it very difficult to rate the AUS and DUS consistently—perhaps it required a more detailed knowledge of substance use patterns than they usually obtained from clients in pre-engagement, engagement, and persuasion stages. In any case, for most sites there is too much missing data for the AUS and DUS to be of value as a measure of change. For example, at Hollywood 16 clients (out of an initial 54) had an AUS rating both at baseline and six months later; 10 had a DUS rating at both times, and only 8 of 54 had both a DUS and AUS rating 6 months later. Use of these tools makes more sense in a research context in which there are independent research interviews with all participants and substance use patterns can be systematically measured in a setting that is neutral.
last contact with the rater. T Psychometrics are established. Staff received training in the SATS, including practice ratings, from the evaluator prior to the baseline rating. In the first 3-4 months of the IDDT training, staff received further training and practice.

Each rater, in principle, continued to rate the same study participants each six months minimizing issues of internal reliability. However, there was significant turnover at one site and some change in raters at other sites. There is also no independent verification that raters across sites were using the same internal standards when assigning scores—that is, the change within sites is likely to be reliably and validly measured, but the over differences between sites are less certain.

**Outcome measures based on administrative data (crisis, inpatient and costs) can provide extensive baseline profiles and capture outcomes even for those not engaged.**

Numerous studies have shown Quadrant IV clients to have higher than usual use of crisis and inpatient services. Reduction of utilization of these services is thus an IDDT outcome. Counties maintain data on service utilization in accordance with state data definitions; thus, the definitions of our two outcomes (psychiatric inpatient admissions and days, and crisis service visits and hours) are standardized across sites. Inputs—individual therapy, group therapy, medications management and other services—are also standardized. Finally, since persons with co-occurring disorders tend to be high service utilizers, costs can be considered an outcome. It is one that cuts both ways, however, as the goal is to reduce costs of high intensity services like inpatient and nursing home care while increasing appropriate lower intensity services such as outpatient and medications. Thus we hypothesize IDDT will reduce high-end costs and increase engagement-related service costs. An advantage of service utilization data is that it is not limited to persons still engaged in the IDDT program, so these outcome variables provide information on all clients who sites intended to treat.

Although costs in California are audited, the cost data we have used are "charges" that are contract rates entered into the MIS rather than the audited costs, which will not be available for some time.

**Outcomes 1: Attrition**

*In using attrition as a basic outcome measure, we separated "neutral or positive" attrition from "negative" attrition that occurs when clients are lost to contact or refuse services.*

Medical research in general has two different ways of dealing with attrition. In one it is considered a nuisance parameter to be dealt with using technical means (for example, by imputing missing values) or simply ignored—with the focus on the success of those who completed treatment. The other approach is to define the study group by the "intention to treat." In this approach, outcomes are measured for all those who were originally intended for treatment and attrition is counted as an outcome. Studies of persons with co-occurring disorders have

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68 Our efforts to keep track of rater identities at each site was only partially successful.
particularly had to deal with these questions because very high rates of treatment drop-out are a feature of persons with these disorders. The IDDT model is, in fact, with its focus on outreach and motivational interventions, intended to address directly the factors that lead to attrition.

Table 9 below show what we have called "sustained engagement" at each site at the last clinician rating of client status. (Clinicians described client status even if the client was no longer enrolled but did not rate the clinical scales.) Sustained engagement is the percentage who do not leave for negative reasons. There are ambiguities in some of the categories which makes it difficult to assess whether a result represented neutral or negative attrition; in those cases our decision rule was to use neutral. Sustained engagement is calculated by first subtracting clients who left the program for "neutral" reasons or who had a planned discharge from the original total; that leaves a new denominator of all those who in theory could have remained engaged. The number who left AMA, refused further service, or were lost to contact is divided by the new denominator in order to arrive at negative attrition. For example, at Oxnard there were 69 original study participants, 10 moved, transferred to another program or had other "neutral outcomes" (based on descriptions from staff); 4 participants had planned discharges; and 26 were lost to contact, refused, left AMA or had other negative outcomes such as jail or drug-related death. Thus, the 26 are divided by 69 minus 10, resulting in the 44% negative attrition or 56% with sustained engagement.

**Table 9: Sustained Engagement by Last Clinician Rating**

<table>
<thead>
<tr>
<th>Program</th>
<th>Duration of Treatment</th>
<th>Percent Sustained Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollywood</td>
<td>6 Months</td>
<td>60%</td>
</tr>
<tr>
<td>South Bay</td>
<td>6 Months</td>
<td>86%</td>
</tr>
<tr>
<td>Conejo</td>
<td>12 Months</td>
<td>81%</td>
</tr>
<tr>
<td>Oxnard</td>
<td>12 Months</td>
<td>56%</td>
</tr>
<tr>
<td>West Modesto</td>
<td>12 Months</td>
<td>69%</td>
</tr>
<tr>
<td>Casa del Sol</td>
<td>12 Months</td>
<td>95%</td>
</tr>
<tr>
<td>Bonita House</td>
<td>24 Months</td>
<td>89%</td>
</tr>
<tr>
<td>Turlock</td>
<td>24 Months</td>
<td>63%</td>
</tr>
</tbody>
</table>

**Outcomes 2: Clinician ratings of those who remained engaged**

*Multnomah Scores.* Figure 13 shows graphically the changes occurring by program over time. Two programs had only a baseline and one follow-up rating, four had two follow-up ratings, and two had four follow-ups. Only clients who were rated at each rating are shown. This means that those who dropped out at any point, or the few who dropped out and returned, are not represented here. This approach was used to ensure that the changes represented on the graph are not just reflective of measuring a different set of individuals.

Results are quite variable from site to site, with some sites showing inconsistent trends over time and others trending upward or downward consistently.
We tested the change from the first measurement to the last measurement for statistical significance. Table 10 below shows the result. These tests do not "hold constant" other client characteristics such as age or diagnosis. No site or county is tested in relationship to another site or county—the tests are within the site and designed simply to show how much change there was in the original cohort if they remained engaged.

**Table 10: Change in Psychiatric/Community Functioning Rated on the Multnomah**

<table>
<thead>
<tr>
<th>Program</th>
<th>Duration of Treatment</th>
<th>Baseline N</th>
<th>Cases Rated Both Times</th>
<th>Baseline Multnomah Score</th>
<th>Final Multnomah Score</th>
<th>Difference: Baseline to Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollywood</td>
<td>6 Months</td>
<td>57</td>
<td>32</td>
<td>50.5</td>
<td>56.2</td>
<td>5.8**</td>
</tr>
<tr>
<td>South Bay</td>
<td>6 Months</td>
<td>76</td>
<td>55</td>
<td>56.1</td>
<td>58.8</td>
<td>2.7**</td>
</tr>
<tr>
<td>Conejo</td>
<td>12 Months</td>
<td>39</td>
<td>30</td>
<td>58.9</td>
<td>54.7</td>
<td>-2.2</td>
</tr>
<tr>
<td>Oxnard</td>
<td>12 Months</td>
<td>69</td>
<td>31</td>
<td>56.4</td>
<td>60.5</td>
<td>4.1*</td>
</tr>
<tr>
<td>West Modesto</td>
<td>12 Months</td>
<td>54</td>
<td>31</td>
<td>52.3</td>
<td>51.2</td>
<td>-1.1</td>
</tr>
<tr>
<td><em>Casa del Sol</em></td>
<td>12 Months</td>
<td>28</td>
<td>26</td>
<td>59.3</td>
<td>55.9</td>
<td>-3.4</td>
</tr>
<tr>
<td>Bonita House</td>
<td>24 Months</td>
<td>145</td>
<td>120</td>
<td>53.4</td>
<td>56.3</td>
<td>2.9***</td>
</tr>
<tr>
<td>Turlock</td>
<td>24 Months</td>
<td>69</td>
<td>37</td>
<td>59.0</td>
<td>58.9</td>
<td>-0.2</td>
</tr>
</tbody>
</table>

*=Statistically significant (two-sided paired t-test) at p<0.10; **=p>0.05; ***=p<0.01
**SATS Scores.** The following graphs show the distribution of stage of treatment at baseline compared to stage of treatment when last rated. Again only those rated both times are included.

**Figure 14a and 14b: Change Percentage in Each Stage of Treatment: Baseline to 6 Months for Hollywood and South Bay, if Rated Both Rounds**

At Hollywood, 24 of the original 57 clients received a SATS rating at the six months follow-up. There is a small tendency away from pre-engagement and a small tendency toward relapse prevention or remission (not statistically significant).

At South Bay, 48 of the original 69 clients received a SATS rating after six months. There is a tendency for the middle to thin out with more in engagement and also more in relapse prevention and remission (not statistically significant).
Figure 15a and 15b: Change Percentage in Each Stage of Treatment: Baseline to 12 Months for Casa del Sol and Conejo, if Rated Both Rounds

At Casa del Sol, 21 of 28 original clients were rated after a year. For these clients, an overall trend upward (toward recovery) is present, with substantially more clients in the top two categories after a year.

In Conejo, 20 of the 39 clients in the cohort were rated both times. there was an increase of 0% to 40% in Pre-engagement, at the same time the 40% left engagement; the percentage is slightly higher in relapse prevention and remission.
In Modesto, 28 of the original 54 study participants were rated a year later. The 50% in Engagement at baseline was reduced substantially and the Pre-engagement was reduced slightly. Early persuasion increased as did Remission.

The Oxnard rating after a year was done for 31 of the original 69 clients. All of the earlier stages are reduced and all of the treatment stages increased, particularly relapse prevention.
Figure 17a and 17b: Change Percentage in Each Stage of Treatment: Baseline to 24 Months for Bonita House and Turlock, if Rated Both Rounds

In Bonita 100 of 145 study clients were rated after 24 months. The overall structure of stage of treatment at Bonita changed little in the three years. For example, those in active treatment or above represent 56% at baseline and 53% after two years.

In Turlock, 33 of 69 clients were rated 2 years later. Like Oxnard, there is a clear pattern of movement toward Relapse Prevention and Remission; there is still substantial proportion in the Engagement stage.
The picture in the graphs above are misleadingly static. The number in a particular stage of treatment might change little, but the actual clients might have changed greatly. To show the extent of movement up and down the stages, the SATS scores from baseline and 18 months are shown for Bonita House. Bonita House illustrates the mobility well because a) there is very little attrition at this point (143 of 145 participants were rated both times; no other program came close to this high retention figure) and b) on the SATS graph above relatively little change appears to have taken place. In Figure 18, the amount of change relative to the baseline score is shown. While a substantial group did not change their stage of treatment (those in the middle, representing 35%), large numbers went up somewhere between 1 and 6 stages and large numbers went down between 1 and 6 stages. It is important to recognize that while an overall change in the distribution of stages of treatment is the goal, for individual clients and staff this occurs in the context of constant progress and setbacks. In Figure 19, the actual movement between stages is shown. Over the 18 months, large jumps are common, both upward to relapse prevention and downward to engagement.

Figure 18: Amount of Movement Between Stages, Baseline to 18 Months at Bonita House

Figure 19: Actual Movement Between Stages, Baseline to 18 Months at Bonita House
Below we test the statistical significance of changes that occurred in stage of treatment among those who remained engaged enough to be rated at baseline and the last round. We have to assume that the eight stages are "equal" in a mathematical sense. Thus we can average the scores of all clients at each time, and we can compare the rank orderings of the stages at each time.\(^6\)

**Table 11: Change in Stage of Treatment**
(Scale goes from Pre-engagement=1 to Remission=8, so higher is better)

<table>
<thead>
<tr>
<th>Program</th>
<th>Duration of Treatment</th>
<th>Baseline N</th>
<th>Cases Rated Both Times</th>
<th>Mean Baseline SATS Score</th>
<th>Mean Final SATS Score</th>
<th>Difference: Baseline to Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollywood</td>
<td>6 Months</td>
<td>57</td>
<td>24</td>
<td>3.5</td>
<td>4.0</td>
<td>0.6</td>
</tr>
<tr>
<td>South Bay</td>
<td>6 Months</td>
<td>69</td>
<td>48</td>
<td>4.6</td>
<td>5.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Conejo</td>
<td>12 Months</td>
<td>39</td>
<td>20</td>
<td>3.6</td>
<td>3.4</td>
<td>-0.2</td>
</tr>
<tr>
<td>Oxnard</td>
<td>12 Months</td>
<td>69</td>
<td>31</td>
<td>4.1</td>
<td>5.3</td>
<td>1.2***</td>
</tr>
<tr>
<td>West</td>
<td>12 Months</td>
<td>54</td>
<td>28</td>
<td>2.9</td>
<td>3.9</td>
<td>0.9***</td>
</tr>
<tr>
<td>Modesto Casa del Sol</td>
<td>12 Months</td>
<td>28</td>
<td>21</td>
<td>4.0</td>
<td>4.8</td>
<td>0.8*</td>
</tr>
<tr>
<td>Bonita</td>
<td>24 Months</td>
<td>145</td>
<td>100</td>
<td>5.2</td>
<td>5.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>House</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turlock</td>
<td>24 Months</td>
<td>69</td>
<td>33</td>
<td>4.0</td>
<td>5.6</td>
<td>1.6***</td>
</tr>
</tbody>
</table>

*=Statistically significant (sign rank test) at p<0.10; **=p>0.05; ***=p<0.01

Rounding errors may appear in the difference scores.

**Outcomes 3: Inpatient utilization, crisis utilization, and costs for high end vs. low end services**

*Methodology.* Administrative data on the number of crisis visits, the crisis hours, the number of inpatient episodes, and inpatient days was used for each of the six sites that sustained implementation. Charges were used to approximate costs for high-intensity services (inpatient, skilled nursing, residential substance abuse, crisis, and day treatment) and for engagement-related services (outpatient, case management, medications). The use of this data has one significant strength and one significant weakness. The strength is administrative data allows us to include the clients with negative attrition. The weakness arises because if a "zero" utilization is recorded in any time period there is no certain way to be sure the client was actually "at risk" for that service during that time. Most obviously a client could die, be in jail or prison, or move out of county. We have attempted to collect this information from both site staff and the MIS (which codes the reason for closing cases) and incorporate it into the analysis. We do that by using statistical methods that take account of actual time of exposure to risk rather than arbitrarily setting a pre or post study period of 6 months or a year. (For example, someone who moved after 6 months would be included for that time only.) The biggest problem with the fixed interval approach is that persons who entered the system only a short time before becoming an IDDT

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\(^6\) We report statistical significance using the non-parametric sign rank test because we believe it makes fewer possibly unjustifiable assumptions than does the t-test. T-test results, though, were essentially the same.
participant are counted as having no utilization for the entirety of the baseline period. This may be correct in that they really were present and at risk but just had no services—someone homeless who had been refusing services fits this pattern. Likewise, a "first break" individual fits this pattern. But if the person just moved to the county, had been in jail, or otherwise not exposed to the "risk" of incurring services (such as inpatient) the baseline record would be artificially low. If a client is not at risk during the baseline, but we count her to be, then the effect is to artificially deflate the baseline making it more difficult to show a significant change due to the program. On the other hand, if a client is not at risk in the study period and we count him to be, the "false zeroes" in this time period artificially make the program seem more effective than it is. Because a significant number of clients were rated as "lost to contact" at each site and because some clients do not show services until close to entering the IDDT program, there is some danger of both types of error. In programs with very low attrition and in which clients having long histories (Bonita House and Casa del Sol) these errors will be minimal. They are more likely to be significant in programs with high negative attrition that also included study participants without a long mental health history (Oxnard and Turlock).

**Outcomes in Oxnard are statistically significant improvements for all inpatient, crisis and costs measures.**

**Table 12: Change Measures For Oxnard IDDT Study Participants (Statistical Tests Adjusted for Exposure to Risk in Baseline and Study Period)**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days: 254)</th>
<th>Study Period (Mean days:409)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual hospital inpatient episodes</td>
<td>1.8</td>
<td>1.0</td>
<td>-0.8*</td>
</tr>
<tr>
<td>Mean annual hospital inpatient days</td>
<td>11.3</td>
<td>3.3</td>
<td>-8.0**</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>4.1</td>
<td>1.4</td>
<td>-2.7***</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>5.6</td>
<td>2.0</td>
<td>-3.6***</td>
</tr>
<tr>
<td>Mean annual cost of high intensity services</td>
<td>$10,497</td>
<td>$4,408</td>
<td>-$5,889***</td>
</tr>
<tr>
<td>Mean annual cost of lower intensity services</td>
<td>$6,914</td>
<td>$9,768</td>
<td>+$2,853***</td>
</tr>
</tbody>
</table>

* = Statistically significant at p<0.10; ** = p>0.05; *** = p<0.01

Inpatient episodes and inpatient days are both significantly lower in the study period. Crisis visits and hours are also lower. Low end costs increase significantly, a desired outcome consonant with the much greater access to DD services clients had. High end costs decreased significantly.

---

70 Tested with panel data negative binomial model to account for excess zeroes over Poisson distribution. p=0.108
71 Tested with panel data negative binomial model to account for excess zeroes over Poisson distribution.
72 Tested with panel data negative binomial model to account for excess zeroes over Poisson distribution.
73 Tested with panel data population averaged (GEE) model, with exchangeable correlation assumed.
74 We classified as high intensity those services in the 05 mode (hospital, IMD, PHF, crisis residential), other crisis, and day treatment (mode 10). All other services were considered low intensity.
75 Tested with panel data population averaged (GEE) model, with exchangeable correlation assumed. Costs were logged.
76 Tested with panel data population averaged (GEE) model, with exchangeable correlation assumed. Costs were logged.
In Figure 20 we show the quarterly total of inpatient days and crisis visits, standardized to 100 clients in order to take account of the fact that over time the number of clients open in the system declined from 69 to 51. The number of crisis visits appears to peak right around the time clients were admitted to the Oxnard IDDT and to decline through four quarters. The hospital days had a large peak in the quarter before or just as clients were being admitted to IDDT. This spike was caused by two clients, one of whom had 40 and the other 48 hospital days in the quarter.

**Figure 20: Oxnard IDDT Total Crisis Visits and Total Hospital Days, Standardized to 100 Clients**

![Graph showing total crisis visits and hospital days](image)

**At Conejo inpatient days showed a statistically significant reduction, but other measures were mixed in the direction of the effect and did not achieve statistical significance.**

**Table 13: Change Measures for Conejo IDDT Study Participants (N=39, Statistical Tests Adjusted for Exposure to Risk in Baseline and Study Period)**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days: 240)</th>
<th>Study Period (Mean days: 427)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual inpatient episodes</td>
<td>0.6</td>
<td>1.1</td>
<td>+0.5</td>
</tr>
<tr>
<td>Mean annual inpatient days</td>
<td>2.6</td>
<td>1.9</td>
<td>-0.8**77</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>1.0</td>
<td>1.1</td>
<td>+0.1</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>2.0</td>
<td>2.7</td>
<td>+0.7</td>
</tr>
<tr>
<td>Mean annual cost of high intensity services</td>
<td>$3,308</td>
<td>$2,572</td>
<td>-$736</td>
</tr>
<tr>
<td>(hospital, IMD, adult residential and crisis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean annual cost of lower intensity services</td>
<td>$10,015</td>
<td>$8,934</td>
<td>-$1,081</td>
</tr>
</tbody>
</table>

*=Statistically significant at p<0.10; **=p<0.05; ***=p<0.01

77 Tested with panel data population averaged (GEE) model, with exchangeable correlation assumed.

66
Inpatient days decreased on average at a marginally significant level. The only strong difference is costs for low end service, which decreased significantly—not a desired outcome and one consistent with the higher percentage of clients in pre-engagement after one year. High intensity service costs decreased, as desired, but not to a statistically significant degree.

At Bonita House there were statistically significant decreases in each of the outcomes between the baseline and the study period.

Alameda MIS staff report that the charges data in the Alameda MIS system is not reliable. Instead we have used total hours of service—high intensity service hours vs. low intensity service hours. We would like to see high intensity hours decrease and low intensity (engagement related) hours increase. Because Bonita House is a provider of residential treatment services (billed as adult residential and day treatment), though, there is the question of whether to classify these as high or low intensity. We have avoided this issue by removing Bonita House residential and day treatment services from both categories.

Table 14: Change Measures for Bonita House IDDT Study Participants (N=145, Statistical Tests Adjusted for Exposure to Risk in Baseline and Study Period)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days: 218)</th>
<th>Study Period (Mean days: 917)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual inpatient episodes</td>
<td>0.62</td>
<td>0.47</td>
<td>-0.14***</td>
</tr>
<tr>
<td>Mean annual inpatient days</td>
<td>7.3</td>
<td>4.8</td>
<td>-2.5***</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>2.3</td>
<td>1.2</td>
<td>-1.2***</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>51.2</td>
<td>8.5</td>
<td>-42.6***</td>
</tr>
<tr>
<td>Mean annual days of high intensity services</td>
<td>84.5</td>
<td>30.5</td>
<td>-54.0***</td>
</tr>
<tr>
<td>Mean annual hours of low intensity services</td>
<td>54.2</td>
<td>45.6</td>
<td>-8.5***</td>
</tr>
</tbody>
</table>

* = Statistically significant at p<0.10; ** = p>0.05, *** = p<0.01

Inpatient measures, crisis measures, and high intensity services all showed improvement. The low intensity services declined significantly rather than increasing as we had hypothesized.

---

78 Because there are so many persons with no hospital episodes (about 70%), we used a two-step model (hurdle model using logistic regression for the 0,1 analysis and negative binomial for the count analysis). The difference in number of persons with no episodes was highly significant, but among those who had episodes, the difference in number of episodes was not significant.

79 The large number of zeroes (no inpatient episodes) again makes this problematic. We instead used zero truncated negative binomial regression to test whether Pre and Post days per person were different if zeroes were excluded.

80 We classified high intensity services as hospital, crisis residential, day treatment (except for Bonita House), and various PHF, SNF/IMD mode 05 services. Crisis hours were converted to days. Low intensity services are all others (again excepting the residential and day treatment services provided by Bonita House); however, we did not include forensic outpatient services as engagement-related (although it is possible to make a case for this). Low intensity services then comprised "Adult community support," "Med Support," "Outpatient," and "Vocational."
Because the number of clients active in the Alameda system changed over time between 145 and 136, the data in Figure 21 are standardized to 100 clients. For example, the number of crisis visits per quarter for 100 clients in the first quarter of the baseline (2004q1) was 61. The crisis utilization appeared to be headed downward even before the IDDT training began and reached a low point 6 to 9 months after the initial client ratings were done in August 2004. Hospital episodes appear to fluctuate, though they are somewhat lower overall in the study period than in the baseline.

*Casa del Sol crisis utilization was somewhat lower in the study period but inpatient utilization was somewhat higher; none of the differences were statistically significant.*

*Casa del Sol* has a low rate of inpatient utilization overall, but it did not decease during the study period. The very small N (28) means change has to be greater to achieve statistical significance than in sites with a higher number of study participants. But none of these differences came close to being statistically significant with the exception of low end services, which declined (not the desired result).
Table 15: Change measures for Casa del Sol study participants (N=28, statistical tests adjusted for exposure to risk in baseline and study period)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days:283)</th>
<th>Study Period (Mean days:519)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual inpatient episodes</td>
<td>0.31</td>
<td>0.52</td>
<td>+0.21</td>
</tr>
<tr>
<td>Mean annual inpatient days</td>
<td>4.6</td>
<td>8.1</td>
<td>+3.5</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>1.3</td>
<td>1.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>18.2</td>
<td>10.2</td>
<td>-8.0</td>
</tr>
<tr>
<td>Mean annual days of high intensity services(^{81})</td>
<td>16.7</td>
<td>30.3</td>
<td>+13.6</td>
</tr>
<tr>
<td>Mean annual hours of low intensity services</td>
<td>56.2</td>
<td>49.2</td>
<td>-7.0***</td>
</tr>
</tbody>
</table>

\(^{81}\) We classified high intensity services as mode 05, day treatment and crisis. Crisis hours were converted to days. Low intensity services are all others, with the exception of forensic outpatient—which were omitted.

Figure 22 shows Pre and Post inpatient days. Most clients have zero days in both the Pre and Post period (the X and the O are both at zero). Five clients had inpatient days in the Pre period. Their X is above the zero line (at far right). Four of these five had fewer days in the Post period, but one had more (farthermost right hand side). The more apparent cases, though, are those with no hospital days in the baseline who had significant numbers in the Post period.

**Figure 22: Casa del Sol Hospital Inpatient Days Pre and Post (N=28)**
*West Modesto inpatient utilization was reduced substantially as was utilization of crisis services. Both high end and low end costs deceased.*

Table 16 shows the statistically significant changes from baseline to study period. Figure 23 shows the quarterly pattern of total crisis admits and total inpatient days, standardized to one hundred patients. The big drop early in the study period is apparently related in significant measure to a even bigger spike just before the project started.

**Table 16: Change measures for West Modesto study participants (N=54, statistical tests adjusted for exposure to risk in baseline and study period)**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days: 221)</th>
<th>Study Period (Mean days: 511)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual inpatient episodes</td>
<td>3.1</td>
<td>0.9</td>
<td>-2.0***</td>
</tr>
<tr>
<td>Mean annual inpatient days</td>
<td>27.0</td>
<td>6.2</td>
<td>-20.7***</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>3.2</td>
<td>2.1</td>
<td>-1.1***</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>16.6</td>
<td>5.8</td>
<td>-10.7***</td>
</tr>
<tr>
<td>Mean annual cost of high intensity services$^2$</td>
<td>$12,995</td>
<td>$9,504</td>
<td>-$3,491***</td>
</tr>
<tr>
<td>Mean annual cost of low intensity services</td>
<td>$6,485</td>
<td>$4,380</td>
<td>-$2,105**</td>
</tr>
</tbody>
</table>

*=Statistically significant at p<0.10; **=p>0.05; ***=p<0.01

**Figure 23: West Modesto IDDT Total Crisis Admits and Total Hospital Days, Standardized to 100 Clients**

$^2$ We classified as high intensity those services in the 05 mode (hospital, IMD, PHF, crisis residential), other crisis, and day treatment (mode 10). All other services were considered low intensity.
Turlock reduced inpatient utilization substantially in the study period.

Table 17 shows change between Pre and Post in mean inpatient admits and days, adjusted for exposure to risk. Figure 24 shows total inpatient admits and total inpatient day by quarter, standardized to one hundred patients.

Table 17: Change Measures for Turlock Study Participants (N=69, Statistical Tests Adjusted for Exposure to Risk in Baseline and Study Period)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline (Mean days: 253)</th>
<th>Study Period (Mean days:887 )</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean annual inpatient episodes</td>
<td>1.6</td>
<td>0.3</td>
<td>-1.3***</td>
</tr>
<tr>
<td>Mean annual inpatient days</td>
<td>8.1</td>
<td>1.6</td>
<td>-6.5***</td>
</tr>
<tr>
<td>Mean annual crisis visits</td>
<td>1.8</td>
<td>.55</td>
<td>-1.2***</td>
</tr>
<tr>
<td>Mean annual crisis hours</td>
<td>38.1</td>
<td>8.7</td>
<td>-29.4***</td>
</tr>
<tr>
<td>Mean annual cost of high intensity services (^{83})</td>
<td>$7,797</td>
<td>$2,366</td>
<td>-$5,431***</td>
</tr>
<tr>
<td>Mean annual cost of low intensity services</td>
<td>$7,025</td>
<td>$3,820</td>
<td>-$3,204***</td>
</tr>
</tbody>
</table>

*=Statistically significant at p<0.10; **=p>0.05; ***=p<0.01

Figure 24: Turlock IDDT Total Crisis Admits and Total Hospital Days, Standardized to 100 Clients

\(^{83}\) We classified as high intensity those services in the 05 mode (hospital, IMD, PHF, crisis residential), other crisis, and day treatment (mode 10). All other services were considered low intensity.
Fidelity and outcomes for the six sites with sustained implementation show a largely positive pattern.

Table 18: Summary of Fidelity, Organizational Functioning, and Statistically Significant Outcome Measures for Six Sites (✓ Indicates Statistically Significant Positive Change ☒ Indicates Lack Of Statistically Significant Positive Change)

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>Bonita</th>
<th>Casa del Sol</th>
<th>Conejo</th>
<th>Oxnard</th>
<th>Turlock</th>
<th>West Modesto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Fidelity Score</td>
<td>3.9</td>
<td>4.1</td>
<td>4.1</td>
<td>4.8</td>
<td>3.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Organizational Functioning Scale</td>
<td>3.5</td>
<td>3.2</td>
<td>2.8</td>
<td>3.3</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Sustained Engagement</td>
<td>89%</td>
<td>95%</td>
<td>81%</td>
<td>56%</td>
<td>63%</td>
<td>68%</td>
</tr>
<tr>
<td>Increased Multnomah if engaged</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>Increased SATS if engaged</td>
<td>☒</td>
<td>✓</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction in crisis visits</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction in crisis hours</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction in inpatient episodes</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction in inpatient days</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reduction in high intensity services</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Increase in engagement related services</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>

As we have stressed before, it is important to see these results in terms of the specific characteristics of each site, including the characteristics of the client population. Here is a site by site summary:
Bonita House achieved close to a 4.0 on fidelity, had a 3.5 on organizational functioning, had low negative attrition, and had positive outcomes on each of the other measures, with the exception of Stages of Treatment and not increasing low intensity services.\textsuperscript{84}

Casa del Sol achieved a 4.1 fidelity rating, had a 3.2 organizational functioning rating, and had very low negative attrition; status on the Stages of Treatment improved.

Conejo achieved a 4.1 fidelity rating but had a low 2.8 in organizational functioning; clients showed reduced inpatient days, and negative attrition was at the low end.

Oxnard achieved a very high 4.8 on the fidelity scale, a 3.3 on the organizational functioning scale, and positive change on all of the outcomes; this was balanced by a high negative attrition.

Turlock had a 3.4 fidelity rating, but a 3.5 organizational functioning rating. There was relatively high negative attrition but clients showed positive change on Stages of Treatment and all but one of the administrative data-based outcomes.

West Modesto had a relatively low fidelity score (3.1) but a high organizational functioning score. There was moderately high negative attrition, but positive change on Stages of Treatment and all but one of the administrative data-based measures.

The patterns shown here also reinforce our earlier cautions regarding methodological problems with the analysis.

First, regression to the mean seems likely for administrative data measures, though we don't know how much. This is suggested by a) the very high inpatient days in the baseline shown in some of the graphs above, and b) the fact that inpatient and crisis visits went down despite the fact that in only one site was there a significant positive change in functioning related to the psychiatric problems of the clients.

Second, the results underline the possibility that some clients had reductions in the administrative data outcomes due to not being "at risk." First, only one site showed an increase in engagement-related services at the same time high intensity services decreased. This is consistent with some clients simply not being at risk for either high or low intensity services (due to being in jail, moved, out of the county for a while\textsuperscript{85}). The other indication of possible loss of clients rather than reduction in problematic outcomes is that the two sites with the highest negative attrition nonetheless had very positive administrative data-outcomes on all or almost all measures; it is hard to credit the positive outcomes to IDDT when about 40% of clients had no sustained contact with IDDT.

Despite these caveats, the overall pattern is of improved outcomes at each site for a very difficult to serve population.

\textsuperscript{84} This may be due a time in the final year when due to high staff turnover the staffing was quite low.

\textsuperscript{85} Note that we did adjust results for all clients whom we knew had been closed in the system due to death or having moved.
Overall fidelity scores in the six programs with sustained implementation correlated positively with several of the positive outcomes, but surprisingly there was virtually no correlation with positive change on the Substance Abuse Treatment Scale or retaining clients in treatment. (See Appendix 7.)

The overall fidelity scores for the six sites correlated positively with a reduction in crisis visits and with a positive change in Multnomah Community Ability scale scores. The overall fidelity scores were negatively associated with a reduction in inpatient utilization. There was virtually no correlation between fidelity scale scores and the two outcomes most germane to the IDDT model: SATS change (-0.01) and sustained engagement (0.02).

One might expect all of the fidelity items to correlate with each of the outcomes, only varying in the strength of the associations. This was not the case, as many fidelity items correlated negatively with several of the outcomes. In fact, the only outcome measure which had mostly positive associations with fidelity items was improvement on the Multnomah. (The negative association with ratings on dual disorders psychiatric treatment is specific to the circumstances at one site. 86)

Figure 25: Correlation of improved Multnomah scores over time with fidelity scale items

In the remainder of this section we explore the lack of correlation with SATS change, starting with Figure 26, which shows that while about half of the fidelity scale items correlate with positive SATS change about half have a negative correlation with the SATS change. A similar pattern was found regarding "sustained engagement."

---

86 All sites except Bonita received the highest score of 5 on the psychiatric care provided. Bonita received a 4 because not all clients received their psychiatric care from the Bonita House psychiatrist.
Because of the lack of consistent positive associations of fidelity items with the different outcomes, an attempt was made to reduce the 16 items ("long term approach" had no variance and so was dropped) through a principal component analysis. There were four components which contributed substantially to explaining the variance in all 16 items. Of most interest is the fact that almost all of the variance in SATS improvement was explained by only one of the components. The high loading items on this component were:

- Multidisciplinary team composition and functioning
- Group dual disorders treatment
- Dual disorders counseling
- Outreach

The sites that were low on the first three of these items were sites that either had a low number of licensed clinicians on the team or sites where few clients received treatment (group or individual) from licensed clinicians.

While it is important that some of the fidelity items correlate with substance abuse improvement, it is also disconcerting that the fidelity scale as a whole does not.\(^87\) All in all, however, it is a

---

\(^87\) This finding in some ways is the reverse of McHugo et al in the New Hampshire study. In that study the high fidelity programs were associated primarily with substance abuse improvement—other less direct measure such as hospitalization were not strongly correlated with the fidelity measures used (which differ substantially from those in the official fidelity scale). See: McHugo, G. J., Drake, R. E., Teague, G. B., & Xie, H. (1999). Fidelity to assertive community treatment and client outcomes in the New Hampshire dual disorders study. *Psychiatric Services, 50*(6), 818-824.
complex picture with different fidelity items being related in multiple ways to the different outcomes and the different outcomes themselves lacking consistency. Because there are only six sites and the difference between sites is not large on most fidelity items, the stability of these findings is uncertain. While not strong proof that fidelity is not associated with consistent positive outcomes, the results do not confirm the relationship we hoped to find.

In addition, we included outcomes that did not attain a statistical significance of p<0.05, two-tailed. While this is appropriate given the purpose of the analysis, it contributes to the overall uncertainty regarding stability of findings. A recent study has shown that even the well-validated fidelity scale for ACT programs may be a relatively poor predictor of program outcomes. Bond, G. R., & Salyers, M. P. (2004). Prediction of outcome from the Dartmouth assertive community treatment fidelity scale. CNS Spectator, 9(12), 937-942.
SECTION VI: IDDT, CULTURAL COMPETENCE, AND OUTCOMES FOR MINORITIES

In the California SAMHSA grant proposal, the "cultural competence" of the IDDT model was identified as an important factor we wanted to test. One approach was to include a Latino clinic as one of the eight sites. As described in the general findings from the project above, Casa del Sol found that the IDDT concepts and tools were useful but had to be adapted when used by bicultural and bilingual staff with predominantly monolingual-Spanish clients. (See also Appendix 4.) A second approach was to compare outcomes for minority and majority group members as an initial test of whether the IDDT model could be used with minority clients in programs with a mixed population.

In programs in which minority clients and/or staff make up only a segment of the population, the first step in testing the "cultural competence" of the model, is determining whether outcomes differ by race or ethnicity.

In programs other than Casa del Sol, most racial/ethnic minority clients were not monolingual in a language other than English. For example, there were not Spanish (or other non-English) language groups conducted at any site. Thus, in the other five sites with sustained implementation, the issue is whether the model can be successful for somewhat more acculturated ethnic clients and/or be successful for African Americans.

In Appendix 7 we present a detailed analysis of the association between race/ethnicity and IDDT outcomes. The analysis is summarized here.

Measures. We used four measures: negative attrition (being lost to contact, refusing treatment or dying due to substance-related causes), Multnomah Community Ability Scale scores, SATS scores, and Pre to Post inpatient admissions. For the Multnomah and SATS analysis panel data regression models were utilized, with three to five rounds of ratings (depending on site) comprising the time periods. These models are robust to missing data and have high statistical power. Age, sex and diagnosis (schizophrenia or not) were included as covariates.

Overall, the four measures show that positive outcomes occurred for minorities about as often as they did for Whites.

The findings by race/ethnicity cover the spectrum—from minorities doing better to no difference to worse. Table 19 below summarizes the statistically significant associations with three outcomes in the five non-Latino programs having sustained implementation of IDDT. In Turlock there was some evidence that minorities did better. At Oxnard, minorities did better on the SATS but Whitess did better in reducing hospital admissions. At Bonita House (regarding attrition) and Conejo (regarding SATS), minorities did worse. Note that the African Americans at Bonita House had a much higher rate of baseline hospitalization than did persons of other racial/ethnic status, which may explain why attrition was also higher.
Table 19: More, Less or Equal Positive Change Over Time for Minorities, by Site (➕ = More Positive Change for Minorities, ✗ = No Significant Association, and ✏ = less positive Change for Minorities than Whites)

<table>
<thead>
<tr>
<th>Site</th>
<th>Attrition</th>
<th>Multnomah</th>
<th>SATS</th>
<th>Hospital Admits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonita House</td>
<td>✏</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Turlock</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>West Modesto</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Conejo</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Oxnard</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

*Indicates Whites reduced inpatient admits considerably while clients of other race/ethnicity did not.

In the sites in which there were differential outcomes for minorities, factors other than the "cultural competence" of the IDDT model may contribute to the differences.

We considered three factors that should be considered in relationship to the associations shown in Table 19. First is fidelity. In low fidelity programs, it would not make sense to attribute differential success to the IDDT model. A second factor to consider is the proportion of non-white staff at each program: minority clients might be thought to do less well if the proportion of minority staff is low. A third factor is the degree to which staff at each site rate their "cultural competence" to be high or low. Appendix 7 describes a detailed examination of each of these hypotheses. It is not repeated here because results were inconclusive.

While there may be client characteristics (other than age, sex and diagnosis) or agency characteristics other than staff-rated cultural competence and proportion of minority staff that explain the pattern of associations found between minority-status and outcomes, none of the explanations we explored are adequate to do so. There is no evidence in the findings from these five sites that IDDT is less effective for minority clients being served in mixed ethnicity outpatient clinics.
SECTION VII: RECOMMENDATIONS

1. Although this would not work with some other SAMHSA EBPs (particularly supported employment and ACT), the IDDT model lends itself to partial implementations as well as high fidelity implementations.

Rationale:

- Mental health authorities implementing integrated treatment for Quadrant IV clients might decide to implement only certain elements of the model rather than attempting to achieve high fidelity on all. Because IDDT puts together a number of distinct practices having separate evidence bases (including stage-based treatment, motivational interventions, and a harm reduction approach), it is possible to "pick and choose" components. In fact, the separate components have significantly more evidence supporting them than does the combined model defined by the fidelity scale.

- In particular, it is possible and useful to train clinicians in integrated recovery clinical skills without adopting the whole model. The clinical skills are integrated assessment and treatment planning, stage-wise interventions, substance abuse counseling (group and individual), and motivational interventions. Please see Appendix 6 for a grid developed by the Development Team showing the relationship between the full model and a more limited implementation.

- If full-fidelity is the goal, the program must be able to provide intensive services. The level of intensity embedded in the fidelity scale is considerably more than most outpatient programs may have resources for, since it includes multiple client and family groups, individual counseling, and extensive outreach.

2. The field of co-occurring treatment is evolving, and it is important not to "freeze" integrated treatment into the confines of the existing fidelity scale. Mental health authorities should be encouraged to look to other evidence-based approaches to serving those with co-occurring disorders.

Rationale:

- While progress on evidenced-based treatments for co-occurring disorders is limited, there has been substantial progress made since the fidelity scale was developed in at least two areas: residential treatment of co-occurring disorders and contingency reinforcement for staying clean. Integrated treatment is a general rubric that can incorporate such elements. As both the Stanislaus and South Bay experience with...
specialized residential treatment show, these added elements can be very valuable.

- While there is strong evidence for some integrated treatment, there are virtually no research comparisons of high quality integrated vs. parallel interventions. Most county systems will need to provide for closer ties between the existing mental health and substance abuse systems for Quadrant I, II and III populations. At least three of the counties are pursuing this path. In Stanislaus, coordinated parallel mental health and substance abuse treatment has been, and continues to be, used for Quadrant IV clients even while some clients receive integrated treatment. So even for this population, consideration of a range of coordinated and integrated options should not be precluded.

3. We learned through experience, that comprehensive planning should be required before initiating implementation and at each stage of implementation.

The key element in implementing IDDT—as the Ohio Substance Abuse and Mental Illness Coordinating Center of Excellence has emphasized—is comprehensive planning.

- The Ohio SAMI technical assistance project, which has published a highly useful manual on implementing IDDT, advocates for an extensive planning process, often of over a year. Training does not occur until the fourth of a five step sequence.

- In a number of other attempts to help counties implement evidence-based practices, CiMH has required an acceptable plan for implementation be submitted at the onset of the project (providing technical assistance for the planning process if necessary). Circumstances did not allow this approach with IDDT, but it would have eliminated many of the problems we encountered. The initial plan could then have been updated after each fidelity review.

4. Organizational capacity, particularly leadership, is critical to implementation of a project like IDDT which is complex, clinically challenging, and requires a multi-year implementation process.

We have noted the many turnovers of staff that occurred in each county and in our own project team as well as the difficulties of implementing IDDT to high fidelity. In these circumstances, and to avoid the high costs of implementations attempts that are not sustained or effective, it is necessary to screen applicant agencies. The TCU Organizational Capacity Scale used in this project clearly discriminated the sites that would later be successful from the others. An average score of 3.0 or above appears initially to be a reasonable threshold to require before investing in IDDT implementation.

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91 As noted in the literature review, there are even a couple of instances in which parallel services did better than integrated services.


93 The theoretical range is 1 to 5. In practice, the range for our eight sites was 2.7 to 3.5.
5. **Training (of inexperienced staff) and using staff experienced in treating co-occurring disorders both have roles within a planned implementation process.**

There exist several models for implementing IDDT. Serendipitously, the California project—which formally adopted a "train all existing staff first" approach—also included an almost diametrically opposed model of starting a team de novo staffed with experience co-occurring disorders professionals. The IDDT literature suggests other approaches as well.

- **Because of the emphasis in the SAMHSA RFP on training and technical assistance**, the CiMH approach was basically to provide extensive training to an entire team, or more often, an entire clinic. There are circumstances where that may be the only option. However, we found that it usually delayed comprehensive planning for implementation until training was over (a year in our case).\(^9\) Further, it led to selective implementation rather than comprehensive implementation as sites picked and chose from the elements presented in training, focusing most attention on clinical skills. (Rarely did sites revamp structural elements such as outreach or introduce previously missing elements such as family psychosocial education.) Finally, spreading basic implementation out over a year or more made programs vulnerable to staff changes before IDDT had been fully embedded.

- **In contrast, in the Oxnard site, the fidelity scale was used as a planning blueprint for developing a comprehensive program.** Although staff attended the training, implementation did not wait for it (which was possible because experienced co-occurring disorders staff were hired or transferred to the team). This was the California site that achieved highest fidelity and did so in the shortest period of time. As shown by Oxnard, it is also highly valuable to have an experienced co-occurring disorders clinician be the team leader, clinical supervisor, and lead planner.\(^9\)

- **When Kim Mueser, Ph.D., a developer of the IDDT model, presented his ideas to the California Development Team he suggested that the preferred implementation approach was to add a substance abuse or co-occurring disorders specialist to a multidisciplinary team—rather than training an entire team.**\(^9\)

- **A middle ground, one that starts with comprehensive planning, does everything possible to include one or more experienced co-occurring treatment professionals, as**

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\(^9\) In Indiana, 16 rather than 48 hours of formal training was provided. Bond reports the greater effectiveness of concrete hands-on chances to learn the model by "shadowing" skilled practitioners, case conferencing, and direct modeling of an intervention by the trainer/clinician. Staff in California sites also were very appreciate of the chance to bring in their own cases (including assessments, case formulations, and treatment plans) for discussion with the trainer.

\(^9\) Moser and Bond, op cit. also reported: "One IDDT site, which was headed by an effective leader, made excellent progress toward high fidelity within 6 months."

\(^9\) Note, however, that in a Connecticut program for which the New Hampshire-Dartmouth Psychiatric Research Center provided technical assistance, substantial training was provided to staff—according to published accounts. (Essock, S. M., Mueser, K. T., Drake, R. E., Covell, N. H., McHugo, G. J., Frisman, L. K., et al. (2006). Comparison of ACT and standard case management for delivering integrated treatment for co-occurring disorders. *Psychiatric Services, 57*(2), 185-196.)
team leader if possible, and provides training tailored to the particular needs of an IDDT team seems most desirable.

6. Learning collaboratives comprised of multiple counties and/or sites used as part of implementation should, if at all possible, include one of the developers of the EBP being implemented or others with extensive experience implementing the model.

- In the current model of development teams used by CiMH, the development team is led by (or attended by) one of the developers of the intervention. In the case of IDDT, having someone closely associated with the project who had extensive experience in implementing and operating a high-fidelity IDDT program or programs would have been very useful. Because Ohio, Kansas and Indiana had already had several years of experience with implementing the IDDT model, it might have been possible to find an experienced person to help us.

- A critical factor in making the IDDT development team successful was the attendance at one two-day meeting of Kim Mueser, a developer of IDDI and lead author of the handbook we used. One year into the IDDT project, implementation was proving difficult. There was also considerable concern about the process being used to help counties with implementation, including doubts about the value of the development team meetings and phone calls. After Kim Mueser attended a development team meeting, though, these doubts dropped away and there was a sense of common purpose and direction—almost like when light rays get polarized and line up. What appears to have made the difference was the clear sense obtained from Dr. Mueser that the IDDT intervention is worth while and has been conducted successfully elsewhere.

7. Other programs implementing IDDT might benefit by knowing some of the elements of the California approach that participants in the project felt worked well and those that were less successful.

Components that were deemed valuable:

- Most sites found the external fidelity reviews each six months to be helpful. Now that the implementation project is over, counties are beginning to think about how to provide this same relatively objective view for both on-going programs and new IDDT programs that are being implemented.

- Overall, participants in the four counties and eight sites valued the opportunity to be a learning collaborative, meeting quarterly and having a monthly conference call.

- Project staff and sites attempted, and for the most part were able, to view the implementation as a quality improvement process, focusing on what was learned rather than success or failure. For example, in Los Angeles, where two sites did not sustain implementation, what was learned is being put to good use in the process of implementing Mental Health Services Act programs.
Components that could have been improved:

- While rating the trainings highly, site staff felt that they could have been more flexible to accommodate their particular clinical needs. This was difficult to do because of the wide range of staff skills, knowledge, and experience at different sites—but important for the same reason.

- A critical element in quality improvement projects is selecting concrete changes to measure on a regular basis. Project staff could have worked with site staff to come up with these measures. An important focus, for example, might have been monitoring regular contacts with clients as a way of tracking and maintaining engagement.

- In some instances, particularly in the first year, project staff, site staff, and administrators all were being exposed to IDDT concepts at the same time. A better approach would have been to provide training for administrators and clinic and team leaders in advance of training line staff.

- The SAMHSA Toolkit could be made more useful by including more tools for implementation. Some tools were available in the Mueser et al. handbook, but other aids to approaching implementation might have been provided.

7. **The IDDT model needs adapting for clinics serving predominantly Latino clients with bilingual-bicultural staff.** Whether IDDT is effective for this population in this type of clinic needs further exploration.

*Casa del Sol staff* needed to adapt the IDDT model to fit the needs and culture of their Latino clients. The adaptations have not been systematized and written down, however. So a more focused approach to creating a "Latino IDDT" is called for

Because, even with this adaptation, *Casa del Sol* Latino clients did not make much progress the effectiveness of IDDT with this population is still not established, and further study is necessary.

8. **SAMHSA and entities wishing to adopt what is called the IDDT model at this point should consider a different name for the model—possibly "Integrated Recovery."**

Rationale: "Integrated dual disorders treatment" is not ideal terminology because:

- The term “dual disorders” has been superseded in the literature by "co-occurring disorders." On the latter point, even the IDDT developers, Kim Mueser and Robert Drake, have stated that "dual diagnoses and dual disorders are clearly *misnomers* [my emphasis], because the individuals with co-occurring severe mental illness and a substance use disorder typically have multiple impairments rather than only two

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97 This issue was raised initially by a consumer staff member on the project team. Although the development team did vote to change the name to Integrated Recovery, two years had passed and the change did not stick.
illnesses and because there are several other groups with dual diagnoses such as people with developmental disabilities and mental illness."

- The emphasis on “disorders” and "treatment" are also out of step with current recovery-oriented thinking.

- Because "integrated dual disorders treatment" is a mouthful, it gets shortened in practice to the acronym of IDDT. Thus the value the name could have—reminding staff and clients of a mutual goal—is lost.

- Finally, if you observe yourself saying IDDT many times, you will notice that in some noticeable proportion it becomes a tongue twister. One site renamed the project IDIDIT in order to get past this flaw.