

NIDA RESOURCE CENTER FOR HEALTH SERVICES RESEARCH

**Integrating Research and Clinical Assessment:
Measuring Client and Program Needs and Outcomes
in a Changing Service Environment**

Issue Paper

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Author's Note

This paper was written as an initial overview of the topic and the issues involved. It is not a comprehensive review nor does it include every topic or example originally considered in order to maintain a manageable length.

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EXECUTIVE SUMMARY

Substance abuse treatment researchers, clinicians, and clients are often interested in many of the same questions. Unfortunately, they often go about collecting information to answer them in ways that are highly redundant but different enough to make it difficult to meet each others' needs. Interest in developing more integrated forms of clinical assessment also has been stimulated by pressure on the field to demonstrate accountability, treatment effectiveness, matching, and a continuum of care. The specific goals of this issue paper are to (a) review the changing environment and pressure for integrating clinical assessment; (b) describe the problems with unintegrated clinical assessment; (c) identify the kinds of assessment needed; (d) examine dimensions of variation in integrated clinical assessment systems; (e) review the availability and appropriateness of existing measures; (f) discuss the limitations of current research and practices; and (g) suggest specific recommendations and potential next steps to advance this area. The paper draws on both the literature and the author's extensive experience in trying to integrate clinical and research assessment as part of the Drug Outcome Monitoring System in Illinois, Target Cities evaluations in Chicago and New Orleans, the Madison County Drug court evaluation, as well as several randomized field experiments evaluating the effectiveness of several interventions in practice. The overarching goal of this paper, however, is to identify the issues that must be addressed to develop a productive paradigm of integrated assessment for clinical practice, quality improvement/administration, and health services research.

INTRODUCTION AND GOALS

Substance abuse treatment researchers, clinicians, and clients often are interested in many of the same questions and go about collecting information to answer these questions in ways that are highly redundant but often different enough to make it difficult to meet each others' needs. Interest in developing more integrated forms of clinical assessment currently is being stimulated by several major changes (e.g., managed care, changes in diagnostic/placement criteria, shift to outcome monitoring/contracting) that are increasing pressure on the field to use assessment to help demonstrate accountability, treatment effectiveness, and matching on a continuum of care.

The specific goals of this issue paper are to:

- Review the changing environment and pressure for integrating clinical assessment;
- Describe the problem with unintegrated clinical assessment;
- Identify the kinds of assessment needed;
- Examine dimensions of variation in integrated clinical assessment systems;
- Review the availability and appropriateness of existing measures;
- Discuss the limitations of current research and practices;
- Suggest specific recommendations and potential next steps to advance this area.

The paper draws on both the literature and the author's extensive experience in trying to integrate clinical and research assessment as part of the Drug Outcome Monitoring System in Illinois, Target Cities evaluations in Chicago and New Orleans, the Madison County Drug court evaluation, as well as several randomized field experiments evaluating the effectiveness of several interventions in practice. The overarching goal of this paper, however, is to identify the

issues that must be addressed to develop a productive paradigm of integrated assessment for clinical practice, quality improvement/administration, and health services research.

CHANGING ENVIRONMENT AND PRESSURE FOR INTEGRATING CLINICAL ASSESSMENT

The idea of integrating clinical assessment and research is not new. In fact, the best ways to classify disorders and match clients to treatment have been discussed for over a hundred years (Babor et al., 1992; White, 1996, 1998). What is different is a greater degree of volatility in the current environment that is leading to changes in the assessment system and demands that it be more integrated, efficient, and accurate. Some of the more dramatic changes in the past few years include the following:

- *New Diagnostic and Statistical Manual (DSM) IV* (American Psychiatric Association [APA], 1994): The criteria for substance use disorders (abuse and dependence) have been simplified and standardized across substances; substance-induced disorders have been shifted to be subsets of the main conditions (e.g., anxiety, sleep disorders, mood disorders) and are now treated immediately instead of waiting for the client to become abstinent.
- *Shift to matching and a continuum of care*: Several states, including Illinois, and some private groups are mandating the use of standardized patient placement criteria, autonomous or semi-autonomous intake staff, and continuous matching along a continuum of care throughout treatment (e.g., American Society of Addiction Medicine [ASAM], 1994, 1996; Department of Alcoholism and Substance Abuse [DASA], 1995, 1996; Texas Commission on Alcohol and Drug Abuse, 1996).
- *Shift to managed care*: Medicaid and other publicly funded substance abuse treatment programs are directly or indirectly affected by general welfare reform, health care reforms, and mandates to shift publicly insured clients to managed care systems (Geraty, 1995; Hall, 1996; Hall & Flynn, 1997).
- *Shift to behavioral managed health care*: In the private and public sectors, there is a corresponding shift to collapse alcohol, drug abuse, and mental health problems into a single state/local provider agency (e.g., Illinois' new Department of Human Services) and "carve out" a managed health care or capitation plan (Cesare-

Murphy, McMahonill, & Schyve, 1997; Commission on Accreditation of Rehabilitation Facilities [CARF], 1996).

- *Shift to capitated levels of funding:* Many states are experimenting with capitating the amount they will pay to a provider from a specific fund by client, type of care, and/or diagnosis (e.g., Illinois is experimenting with capitating the annual reimbursement from its main funding mechanism by level of care; DASA, 1995).
- *Introduction and then loss of Social Security Income (SSI) and Disability Income (SSDI):* In the past 7 years, clients in recovery became more widely eligible for SSI/SSDI, then had their eligibility limited if they had a “payee” to monitor their use of these funds. In 1996, they lost eligibility if addiction was considered to be a “contributing factor” to the determination of their disability status (P.L. 104-121).
- *Shift to outcome monitoring:* Outcome monitoring is the common ground that is being encouraged by both accrediting agencies and Congress to resolve conflicts between managed care and providers on lengths of stay and services to be provided, as well as between managed care and clinical researchers who are losing traditional sources of funding through overall cutbacks at the very time the field is demanding more from them (e.g., Agnew, 1996; Joint Commission on the Accreditation of Healthcare Organizations [JCAHO], 1995).

Compounding matters further, virtually every state and federal initiative to reform welfare includes one more provision targeted at substance users, particularly mothers or pregnant women. Many include employment provisions that may or may not recognize that chronic substance users often have other disabilities and/or barriers (e.g., AIDS, hepatitis, lack of high school degree, criminal justice record, multiple children, interrupted work histories, no housing) that limit their ability to accomplish this without substantial assistance (e.g., Senay, Dorus, & Joseph, 1981; Dennis, Karuntzos, McDougal, French, & Hubbard, 1993; Dennis, Fairbank, et al., 1995).

For treatment providers, these changes have introduced a steady stream of requests for increasingly more sophisticated assessment information for decision making and accountability. Also, many small providers who lack the necessary resources to comply have been assimilated by

regional providers; in turn, these regional providers have collapsed into larger state or interstate providers or treatment systems. Another reason for this consolidation is the likelihood that dollars will be issued in large “system-based” contracts. Where this happens, the management of such treatment systems also has significant internal demands for standardized assessment to allow for clinical oversight and risk management.

THE PROBLEM WITH UNINTEGRATED CLINICAL ASSESSMENT

The general purpose of clinical assessment is to collect information to define problems, understand how they are related to each other, and make decisions on how to proceed. For administrators, it is important that this information be documented in a standardized way that can be used for cost monitoring, accreditation, regulatory review, and quality improvement efforts. Using multiple standardized assessments can meet these requirements regardless of the degree of integration. The main advantage of integrating them is reduced time and, consequently, reduced cost and client burden.

In a system with unintegrated assessment, a client might be screened initially by a case manager, school counselor, social worker, or probation/parole worker to decide if he or she should be referred. This might include reviewing the record, administering and interpreting a screener, and submitting referral recommendations in writing. The client might then go through a centralized or standardized intake program for a treatment network. This typically would involve reviewing prior materials, (re)collecting basic demographics, and checking for substance use disorder diagnoses and placement criteria such as the degree of intoxication, withdrawal, medical problems, psychological problems, treatment acceptance/resistance, relapse potential, environment, legal issues, and vocational issues. It would result in a preliminary diagnosis, level

of care placement recommendations, and perhaps some tentative recommendations about additional services or assessment that is needed (e.g., a psychiatric follow-up) and generation of transmittal documents. When the client arrived at the actual treatment program, the staff probably would start yet another assessment. They would (re)cover the demographics and substance use disorder diagnoses, then try to get more detailed diagnoses for other common problems (e.g., depression, anxiety, attention-deficit disorder, conduct disorder), collect dimensional measures of problem severity in the same areas as above, and seek information on treatment needs for treatment planning. If the client were then recruited for a health services research study, he or she then might go through another 2 to 6 hours of assessment covering all of the above (which often was not sufficiently standardized for research) as well as a variety of other topics. Rather than having each wave of assessment build on the earlier ones, treatment staff typically would re-cover the same areas.

This process is redundant and time consuming. Moreover, information often is not documented sufficiently for later clinical or research use by other staff. It is an approach that costs staff and client time and is very user-unfriendly for the consumer (who is asked the same or very similar questions repeatedly). Like other areas of treatment, providers are increasingly being asked to do much more clinical assessment with considerably fewer resources. Moreover, all levels of consumers (e.g., individuals, employers, the public) are demanding more accountability (i.e., value for a unit of service or outcome) and user-friendliness from both their service providers and managed care organizations (Hall & Flynn, 1997; Manderscheid, 1996).

One final important caveat is warranted. Each wave of clinical assessment might take 10 to 90 minutes, perhaps 1-3 hours overall. Comprehensive research assessments often take 2 to 6

hours, do *not* cover many of the areas in the clinical assessment (e.g., diagnosis, placement criteria, reporting requirements) and offer no panacea to this problem. What is needed is truly a different set of instrumentation than has existed to date.

KINDS OF CLINICAL ASSESSMENT NEEDED

Although considerable consensus exists that the current system is too disaggregated, the shape of the next generation of more integrated assessments is still evolving. In general, there is some agreement that an integrated assessment should be more standardized and accurate, because it will be used for some combination of screening, diagnosis, placement, treatment planning, and outcome monitoring. Some of the specific areas to be addressed by this new generation of integrated assessment include:

- *Presentation of the problem, basic demographics, and insurance:* Why the person is seeking treatment or being evaluated; basic information about gender, age, custody, race, marital status, and insurance coverage (which can affect both what assessment is required and/or what will be reimbursed).
- *Substance use disorders:* The level (e.g., abuse, dependence), severity (e.g., moderate, severe), which specific substances, current frequency/intensity of use, current state of intoxication, state/risk of withdrawal, and eminent risk of relapse (APA, 1994).
- *Other behavioral health conditions:* Identification of general mental distress and specific diagnostic conditions related to depression, anxiety, somatic complaints, post/acute traumatic stress disorders, attention deficit, conduct disorder, personality disorders, pathological gambling (particularly when there is gang involvement), and severe mental illness (e.g., psychoses).
- *Other health conditions:* Identification of general health distress and specific conditions related to disabilities, pregnancy, infectious diseases (e.g., human immunodeficiency virus, hepatitis, tuberculosis, and sexually transmitted diseases), and other problems (e.g., allergies, dental problems, injuries, convulsions/neurological problems, heart/blood/circulatory problems, asthma/breathing problems, tumors/cancer, diabetes/thyroid problems, vitamin deficiencies/anemia, digestive problems, sexual/fertility problems, female/male

specific problems, bone/muscle/foot problems, or skin problems); whether they will require any accommodation or new or continuing services; and whether they have one or more family history risk factors (e.g., adoption, alcohol use, drug use, heart/blood problems, diabetes, and emotional problems).

- *Risk behaviors:* Measurement of behaviors that put the client at risk of disease transmission, health problems, and/or injury (e.g., needle use, sexual practices, tobacco use, impulse control problems, and going without food) and/or those that indicate readiness for change or protective measures (e.g., needle cleaning, condom use, exercise, testing, and counseling).
- *Environment and living situation:* Including where and with whom the client is living, risk of homelessness, substance use in home, time in a controlled environment (which impacts interpretation of almost everything), children/parental/family interaction/functioning, risk from living/vocational/social environments (e.g., substance use, illegal activity, violence, employment, and treatment experience), degree of traumatic victimization, other sources of psychosocial stress, social support, and satisfaction with the above.
- *Legal situation:* Including illegal activity, arrests, current criminal and civil justice status, and past range of charges (particularly driving under the influence [DUI]).
- *Vocational situation:* Including educational grades, special education, grades completed, degrees, school attendance/problems, military experience/discharge, civilian work experience, current employment, work attendance/problems, vocational status, financial problems, sources of income, personal/family income, and number of financial dependents.
- *Client preferences/motivation/barriers:* What the client is expecting and/or wants to get from treatment, the client's motivation for treatment, and barriers or other problems that make client/clinical goals more difficult (e.g., other commitments, family/others hostile to recovery, and treatment too demanding).
- *Treatment planning questions:* Including client and counselor questions related to the need for specific services, problems to be addressed in treatment, issues that need to be monitored in treatment (e.g., current medications or past problems), sexual preference, religious preference, and cultural modifications that need to be made to make treatment "accessible" to the client.
- *Outcome monitoring measures:* Short face valid measure that can be used both at intake and later to chart individual progress, evaluate programs, measure change, and have available "norms" or benchmarks against which to evaluate clients or programs (including case mix adjustments).

- *Service utilization:* Including past history and current use of substance abuse treatment, mental health treatment, physical health treatment, child welfare systems, other public aid, arrests, probation, jail/prison, detention, or parole as part of both the biopsychosocial history and the economic outcomes of treatment that might demonstrate change.
- *Quality checks:* Including degree of cognitive impairment, literacy, misunderstanding, denial, and misrepresentation that might affect the quality of the assessment.
- *Reduced time/burden:* Including the elimination of duplicative questions, shortening of scales, removal of unused questions, and allowing the client to skip long problem-specific measures when a screener or question suggests that the problem is highly unlikely (e.g., days of heroin use after the client has a reported no lifetime use).
- *Increased accuracy:* Use of multiple symptoms in lay language to increase construct validity, checks on reliability through internal consistency (or test-retest over short periods of time), time bounding to increase sensitivity to change, and checks on predictive validity relative to treatment planning and evaluation.
- *Scoring and interpretative guidelines:* Spell out how to interpret scores and their prognostic significance for treatment planning and outcomes, ideally including norms overall and for major subpopulations.

Note that issues of scientific rigor and/or reporting requirements cut across these issues.

Similarly, we are interested in these issues both at the individual level for treatment planning and at the group level for program planning.

DIMENSIONS OF VARIATION IN INTEGRATED CLINICAL ASSESSMENT SYSTEMS

Not all systems cover all of the above issues, and in fact, most do not; there are many different approaches and levels of integrated clinical assessment. To communicate what one means when describing a particular approach, it is helpful to do so along a number of dimensions, each of which represents a continuum that has extremes. Any one approach may fall

at different points along each dimension and/or have aspects that span the entire dimension. The dimensions include:

- *Purpose and use of the results:* Varying from the evaluation of a theoretical concept as part of a scientific study, to use of results for a system or accreditation body, to a focus on treating or evaluating individuals on a case-by-case basis.
- *Population to be studied:* Varying from the very homogeneous populations that are typical of controlled trials, to special populations with specific needs (e.g., pregnant/postpartum women), to more heterogeneous populations typical of most programs.
- *Interventions to be considered or evaluated:* Varying from assessing whether a “given” program can serve the individual, to which of a group of programs might best serve the individual, to which of several services might best fit the clients.
- *Types of measures:* Varying from intensive observational studies, to collateral assessments, to self-report, to physiological/laboratory assessments (with the latter having much less bias, but also less precision and information).
- *Prognostic significance of measures:* Varying from measures that try to differentiate several related problems, to those that try to define the presence of potentially overlapping problems, to those that try to screen for a subset of people on whom further assessment is warranted (i.e., potentially high false positives).
- *Reliability and validity:* Varying from those that have high reliability/internal consistency across a related set of face valid indicators to those that are designed to measure subtle correlations and/or those that are simply face valid.
- *Level of analyses:* Varying from those designed for use in treating or monitoring individuals to those designed primarily for analysis at a group level for program planning.
- *Immediacy of analysis:* Varying from within minutes of the assessment (e.g., for admission) to those designed for later uses (e.g., monitoring progress, program evaluation, reporting requirements).
- *Audience(s) for the results:* Varying from the research community, to payers, to program staff, to the clients themselves.

The latter actually may be one of the most critical dimensions related to the type of clinical assessment system that is undertaken. The audience at one extreme is primarily the research community, which reviews and essentially approves or disapproves of the methods and findings. There is a hope that practicing clinicians will incorporate lessons learned into their findings, but often there is no direct link between the two. The audience for the emerging outcome monitoring data are funders, accreditation bodies, administrators, service providers, and consumers. The most demanding audiences for integrating research and clinical assessment, however, are clinicians. The problem has less to do with what they want than when they want it. For an assessment to be of use to them, it has to be immediately scored, interpreted, and related to guidelines about its implication for diagnosis, placement, and treatment planning.

AVAILABILITY AND APPROPRIATENESS OF EXISTING MEASURES

Quality of Measures

The substance abuse treatment field needs short, efficient, reliable, and scientifically valid measures of the constructs available both in individual form and in more comprehensive batteries (i.e., combinations of individual measures). Measures can include a combination of self-report, observation, collateral report, and physiological/laboratory measures. For the sake of efficiency, they also would be set up with screeners that could lead, where appropriate, to more intensive/expensive/invasive assessments (e.g., full psychiatric assessments). Both clinical staff and researchers agree (Bollen & Lennox, 1991; Dennis, Huebner, & McLellan, 1996; JCAHO, 1997) that these measures ideally should be:

- Face valid (unless they are specifically being used to measure denial or misrepresentation);

- Statistically sound (items with test-retest reliability of .6+, scales with internal consistencies of .7+, items or scales that appear reliable because they are correlated with the targeted outcome behaviors .7+);
- Developed, validated, and/or normed on a similar population.

It also is useful to select and format measures with an eye toward (a) achieving brevity/parsimony, (b) balancing response burden against analytic precision, (c) minimizing training/processing errors under often less than optimal field conditions, and (d) having an appropriate comparison group or norms. In terms of the latter, provider associations spend much more time than researchers being concerned with the base to which a number should be compared. In accrediting outcome measures, for instance, the JCAHO (1995) asks one question about reliability and validity but over a dozen about who will be included and/or excluded in calculating statistics based on the measure and/or for comparisons. This is because the difference caused by including or excluding such groups can be many times larger than simple measurement error.

Individual Measures Available

Although literally hundreds of standardized measures are available, finding one that has been used with a particular population to evaluate a condition, a matching decision, and/or changes in a particular behavior can be a difficult undertaking. To make matters worse, many resource books include copies of various instruments but do not give their original references or summarize their psychometric or substantive properties. Information about individual measures, however, is becoming increasingly available through both compendiums (Addiction Research Foundation [ARF], 1994; Allen & Columbus, 1995; Bausell, 1991; Coughlin, 1997; Fischer & Corcoran, 1994a, 1994b; Friedman, Granick, Sowder, & Soucy, 1994; Jenkinson, 1994;

McDowell & Newell, 1987; Rounsaville, Tims, Horton, & Sowder, 1993; Sederer & Dickey, 1996) and the Internet (www.arf.org; www.carf.org; www.bsos.umd.edu/cesar/; www.chesnut.org; ericae.net/; www.medsch.ucla.edu/som/npi/DARC/; www.ibr.tcu.edu/; www.jcaho.org/; www.nida.nih.gov).

There has been a lot of recent development in the use of clinical assessment for “outcome monitoring.” These approaches vary considerably in their purpose and types of clinical assessment (Affholter, 1994). Some repeatedly assess clients to chart progress (e.g., Kazdin, 1993, 1996; Ogles, Lambert, & Masters, 1996), whereas others focus on linking assessment to quality improvement (Salzer, Nixon, & Schut, 1997; Waxman, 1994), managed care applications (Brill, Lish, & Grissom, 1995; Geraty, 1995; Kongstuedt, 1996; Ross, 1997), or the use of report cards and performance indicators (Dickey, 1995; Kramer, Daniels, & Mahesh, 1996). Also, increasingly more text is targeted at measurement and analytic issues relevant to the use of clinical assessment in practice; this text is aimed at staff in treatment settings rather than at researchers (Docherty & Streeter, 1995; Hogmann, 1995; Sechrest, McNight, & McNight, 1996; Tonigan, 1995).

Measurement Batteries

Many assessment batteries, individual measures, and/or diagnostic measures already have been used for both research and clinical purposes. Unfortunately, many of the available measures are highly redundant, contain unnecessary scales, are expensive, offer no formal support (important for clinical use), and do not comprehensively address diagnostic or placement criteria (e.g., APA, 1994; ASAM, 1994, 1996) or accreditation requirements (CARF, 1996; DASA, 1996; JCAHO, 1995; Office of Applied Studies [OAS], 1994). The oldest and most

widely used “multiple domain” assessment battery is the Addiction Severity Index (ASI) (McLellan et al., 1985). Although there are few problems with the content of the ASI, this instrument does not fully address current diagnostic or reporting requirements (which it predates by more than 10 years), service utilization, or issues related to several special populations such as adolescents, needle users, or pregnant women. Because it is an interview schedule (versus a more literal survey), the reliability of the ASI is also very sensitive to the investment in training and quality assurance. As a result of its being in the public domain and receiving the personal encouragement of McLellan, the ASI has served as the foundation for many subsequent assessment batteries that have tried to address these issues (e.g., Dennis, 1998; Dennis et al., 1993, 1996; Flynn et al., 1995; Kaminer, 1991; Kaminer et al, 1997; McLellan et al., 1992; Meyer et al., 1995). Still others are based on the Drug Abuse Reporting Program (DARP) and early AIDS research (e.g., Simpson, 1992) or NIDA’s research on adolescents (e.g., Radhert, 1991; Winters & Henley, 1989) or the precursors of ASAM’s patient placement criteria (e.g., Mee-Lee et al., 1992). All of these subsequent measures have gone the direction of writing out the full questions and response sets to allow clerical or even self administration (although interpretation is clinically or scientifically driven). The author’s Global Appraisal of Individual Needs (GAIN) (Dennis, 1998; Dennis, Rourke, Caddell, Karuntzos, Bossert, & Ingram, 1993; Dennis, Webber, et al., 1996) has evolved from research funded by NIDA, NIAAA, and CSAT explicitly to develop a standardized biopsychosocial model of assessment that integrates screening criteria for referral, diagnostic criteria based on DSM-IV (APA, 1994), placement criteria based on PPC-2 (ASAM, 1996), treatment planning based on JCAHO (1997), reporting requirements based on the minimum client data set (OAS, 1994), dimensional severity measures

based on symptom counts, and individual items and outcome monitoring based on the Drug Outcome Monitoring Systems (DOMS) (Dennis et al., 1995). Although the GAIN is already in use in several systems, it is far behind the others in terms of having any kind of publicly or commercially funded support. Attached to this document is an appendix that provides a summary list of these substance abuse treatment assessment measurement batteries, the extent to which they cover each of these areas (screening, diagnosis, placement, treatment planning, reporting requirements, severity measures, outcome measures), the level of skill required for administration, and brief comments from the author on their strengths and weaknesses. It also includes a list of several other individual and diagnostic measures that also are used widely for both research and clinical practice.

Norms, Benchmarks, and Case Mix Adjustments

Both general methodological reviews (e.g., Lipsey, 1990) and those targeted more specifically at substance abuse health services research (Dennis, 1994; Dennis, Huebner, & McLellan, 1996; Dennis, Lennox, & Foss, 1997) regularly identify the need to examine reliability and validity. But in clinical practice, outcome monitoring, and demonstration evaluation, it is equally as important to have norms, benchmarks, and/or case mix adjustments. This is because there often is no control or comparison group and/or because client composition is a major source of variation when comparing performance of two treatment units or a single unit over time. In prior research (Dennis, Ingram, Burks, & Rachal, 1994), for instance, we found that an accelerated admissions process for methadone led to the program's 6-month retention rate dropping from 91% to 79%. However, most of this change was the result of the grant increasing the percentage of clients on public assistance (from 69% to 88%), because these clients averaged

8% to 12% lower retention. Unfortunately, very limited normative data are available. Detailed norms by subpopulations (e.g., pregnant women, inpatients, youths) are still only partially available for common instruments like the ASI (McLellan et al., 1992) and/or must be purchased commercially like the RAATE (Mee-Lee et al., 1992). Moreover, the majority of what is available focuses on cross-sectional properties and does not address either the sensitivity to or norms for expected rate of change.

LIMITATIONS OF CURRENT RESEARCH AND PRACTICES

Separate Paths

Substance abuse clinical practice and research have evolved substantially in the past 25 years on two separate but overlapping paths. The rapid expansion of methadone maintenance followed reports of research on its effectiveness, but then led to almost immediate concerns that the model was not being replicated or working as well in the community (Dole & Joseph, 1978; Dole & Nyswander, 1965). This and subsequent “revelations” have led to several efforts to create national reporting systems (NIDA, 1982, 1989; OAS, 1993), create national and statewide studies to evaluate effectiveness of publicly funded treatment (Anglin, Speckart, Booth, & Ryan, 1989; Etheridge, Craddock, Dunteman, & Hubbard, 1995; Gerstein et al., 1994, 1997; Hubbard et al., 1989; Rounds-Bryant et al., 1996; Sells & Simpson, 1976), examine the effectiveness of specific services in practice (Blaine & Renault, 1976; Dennis et al., 1993, 1994; Fuller, Branchey, & Brightwell, 1990; Higgins et al., 1991; Howard, Morass, Brill, Martinovich, & Lutz, 1996; McLellan, Arndt, Woody, & Metzger, 1993; McLellan, Woody, Luborsky, & Goehl, 1988), and study the interaction of client characteristics with treatment effectiveness both in terms of initial matching and changes over time (Anglin, Hser, Grella, Longshore, & Pendergast,

1997; McLellan, Luborsky, Woody, O'Brien, & Druley, 1983; Miller et al., 1995; Project MATCH Research Group, 1993; Rounsaville, Weissman, Crits-Christoph, Wilber, & Kleber, 1982; Simpson & Savage, 1980).

The treatment system, in contrast, has been much more focused on issues of whether to follow a disease or “dependence” model (Edwards & Gross, 1976; Jellinek, 1960; c.f. De Leon & Jainchill, 1986; De Leon, Melnick, Schoket, & Jainchill, 1993); whether to include problems and role failure among problems requiring treatment (Drummond, 1990, 1992); and the development of standards for diagnosis (e.g., DSM-IV, APA, 1994), patient placement (e.g., PPC-2, ASAM, 1996), and provision of care (JCAHO, 1995). It is useful to note that the major national evaluations above did not incorporate the direct measures of the current reporting requirements or areas of assessment that are in common use throughout the United States and many other countries. Conversely, the published clinical standards did not use any data from the national substance abuse treatment system evaluations (though they did use some other studies), nor did they identify instruments for implementing the standards. Over the past 25 years, however, there has been an increasing trend toward the development of scientifically rigorous measures that attempt to measure these clinical issues (e.g., DIS, DISC, GAIN, SCID, RAATE).

Limitations of Research for Practice

Tightly controlled “efficacy” studies typically have been conducted under special conditions that are difficult, if not impossible, to generalize to practice (Dennis, 1994; Howard et al., 1996). Typically, these paradigms use clinical trials to compare two interventions that are based on manual descriptions in the treatment of a particular problem — eliminating from consideration anyone who has multiple problems, transfers, or reenters treatment (Dennis,

Godley, et al., under review; Goldfried & Wolfe, 1996). Some of the common clinical and health service issues this paradigm fails to address include:

- High rates of comorbidity that exist in most publicly funded treatment programs;
- Clients who transfer between levels of care or clients who are readmitted multiple times;
- Variation in treatment utilization patterns due to individualization, “clinical guidelines,” client preferences, funding limitations, and the client’s “response to treatment”;
- The need to study cost, cost-effectiveness, cost-offsets, and full benefit-costs in practice;
- The need to identify clinical subgroups to control for case mix differences;
- The need to study treatment by client interactions and the effectiveness of various matching rules.

Even many of the treatment “effectiveness” studies done to date with more heterogeneous populations, programs, staff, and measures have been difficult to interpret for practice because they lacked scientific rigor and conceptual foundations (Dennis et al., 1996). For instance, a methodological meta-analysis of 168 treatment studies (Lipsey, Crosse, Dunkle, Pollard, & Stobart, 1985) found that:

- Less than 30% even considered the sensitivity of their assessment or outcome measures, and only a handful took the basic steps to improve what they did have;
- Less than 30% mentioned, let alone measured or used data on, treatment protocol implementation or “dosage”;
- Despite the complexity of their interventions, over 69% of the studies lacked any theory, “logic model,” or hypotheses about why they might work (most focus on labels, components, process outcomes, or strategies for gaining participation) or interact with client characteristics/severity/comorbidity;

- Whereas 77% involved heterogeneous populations and multidimensional and multiple exposure interventions, more than 84% analyzed the independent variable as a categorical dichotomy (e.g., using a chi-square or analysis of variance) using only the outcome data (vs. incorporating baseline characteristics and/or treatment received data).

Combined with statistical power of 33% to 45% found in other meta-analyses of treatment studies (Dennis et al., 1996; Dennis et al., 1997; Lipsey, 1990) and the failure to measure or use measures of co-occurring problems, it is hardly surprising that researchers have had difficulty discriminating the relative effectiveness of different types of treatment or how they interact with client characteristics/severity.

Limits of Clinical Practice for Research

Conversely, although clinicians collect information in most of the same areas, they emphasize the speed of collection and interpretation rather than the reliability and validity of their “notes” in any kind of record that could be used for research. It is important to recognize that just as researchers have not been doing a perfect job by their own standards, neither have clinicians. In our recent evaluation of clinical practices in several systems (Dennis, Godley, et al., under review), we found several sources of waste in the current clinical assessment system including:

- Redundant assessments in terms of both multiple clinical interviews covering the same ground and multiple measures asking about overlapping areas;
- Collection of information that is not really used;
- Failure to get the full use from the assessment;
- The need to do or redo additional documentation to meet managed care requirements because of the inadequacy of the original “documentation”;

- Lack of consistency in questions and/or documentation to allow reliable analysis of program level needs or outcomes.

For example, it would not be uncommon for someone coming from a jail to treatment to be assessed in the jail, then to be sent to a central intake unit for further assessment, then to be sent to a specific facility for a third assessment, then to be assigned to a level of care, and then to have to start over again when he or she finally meets with a primary counselor. Not only are clients asked similar questions several times, but this process may occur within a 1- to 7-day period (particularly with criminal justice clients). Clients complain that no one seems to hear what they say, let alone know what they want. When reviewing notes of earlier assessments, staff rarely can figure out what was actually asked or what the answer was; sometimes, they cannot even read the notes. Each person collects data for his or her own requirements. Managed care organizations actually have exacerbated this situation by requiring even more “documentation” that is extraneous to clinical decision making, failing to provide clear or consistent guidelines on what they want, and making providers repeatedly justify decisions on paper as a mechanism of “discouraging” them from recommending or accessing further services.

Useful information is often in the file but not always used because only a few clinical staff generally know how to read or interpret standardized tests or understand their implications for treatment. This is *not* limited to paraprofessional or “recovering” staff. Medical staff may underdiagnose psychiatric comorbidity and/or fail to prescribe related pharmacological or behavioral interventions relative to what would be expected in the literature. In the State of Illinois, for instance, the average rate of reporting a co-occurring mental health problem averages only 6.3% (Gillespie, 1997). The published literature, however, suggests that over half of the

people with substance use disorders have co-occurring mental problems (Kessler et al., 1994) and that over 65% of those presenting for treatment have co-occurring mental problems (Ross, Glaser, & Germanson, 1988).

Limitations of Outcome Monitoring

The fastest growing area of integrated clinical assessment is outcome monitoring, which has been touted as a potential panacea to the debate on the value of cutting costs by cutting services (vs. waste). Given that so much is riding on this effort, it is unfortunate that initial efforts have been scientifically lacking. In our examination (Dennis, Godley, et al., under review) of over four dozen academic and commercial approaches to outcome monitoring, we found many flaws, including:

- A focus on “soft” outcomes (e.g., satisfaction, processing time), only a few dimensions of functioning, or psychometrically weak scales (e.g., low reliability, low sensitivity to change);
- Grossly inadequate follow-up rates of public clients (e.g., 20-40%);
- No attention to and/or low statistical power (e.g., under 30-50%);
- Inadequate, unlinked, and unevaluated case mix adjustments (which are essential for nonexperimental comparisons);
- Partial or no linkage with clinical guidelines for diagnosis, placement, treatment planning, or economic outcomes;
- Limited range of clients (particularly coverage of adolescents, criminal justice clients, pregnant women, and clients with multiple comorbid conditions) matching to limited programs or services;
- Limited range of types/levels of treatment, movement along a continuum of care, or high likelihood of re-admissions;
- Largely external operations that were neither integrated into nor designed to help clinical staff do their work or do in-treatment outcome monitoring.

Although JCAHO's Oryx requirements (Cesare-Murphy et al., 1997) to institute outcome monitoring go into effect in 1998, by the summer of 1997 there were only six providers approved to do outcome monitoring for behavioral health programs, and one of these was listed as a closed/internal system. The remaining five were offering primarily variations of the ASI, RAATE, and SCL-90.

Different Approaches to Confidentiality

A final major issue that needs to be resolved in integrating research and clinical assessment is the way in which confidentiality is approached. Researchers typically try to assure clients in their "informed consents" that their answers only will be used for research, often obtain certificates of confidentiality to prevent records from being used in court, and separate all client identifiers from their main analysis files (which contain only an otherwise meaningless research identifier). To varying degrees, they often are willing to share this more anonymous form of data. Clinicians, in contrast, need unique identifiers in their records to deal effectively with their clients, their clients' collaterals, and/or other agencies involved in their clients' lives. Although they make the same privacy assurances in their informed consents, clinicians address this need to share information by requesting that the client sign a series of "releases" allowing various individuals and agencies to share information. This process increasingly has become an essential practice as managed care and other payers are demanding more documentation and information as part of their approval process (i.e., requiring information on the explicit criteria met versus a simple diagnosis). It is noteworthy that whereas many researchers would "reject" such a release, under the terms of the public health service certificates of confidentiality, this actually is the client's prerogative (not the researchers'), who are "required" to comply under the Federal Food,

Drug, and Cosmetic Act (21 U.S.C. 301) and regulations thereunder (21 CFR). The authors approach to addressing this issue has been to say that the information collected only will be used for “treatment or to evaluate our services” and to say that information will not be shared with others “unless you provide us a release.”

RECOMMENDATIONS AND POTENTIAL NEXT STEPS

Integrating clinical and research assessment is clearly an area of rapid growth and also one in desperate need of more scientific leadership/involvement. At the same time, it is an area where “general” scientific approaches/resources may be inadequate and in need of further development. The final goal of this paper is to recommend potential next steps where NIDA, other agencies, researchers, and providers can start advancing the field.

1. *Identification and access of resources:* Identify clinical assessment resources and how to access the instruments, and their norms and properties, through the use of the Internet and publications.
2. *Evaluation of resources:* Use funding mechanisms like R21s (e.g., National Institute on Alcohol Abuse and Alcoholism [NIAAA]) to encourage more methodological studies of the available resources and/or to develop new ones that address gaps.
3. *Norms, benchmarks and case mix adjustments:* Encourage the development and dissemination of norms, benchmarks, and case mix adjustments that can be used to improve both statistical power and interpretability in both experimental and nonexperimental studies.
4. *Comparative studies:* Sponsor comparative studies to examine the impact of issues related to integrating assessment (e.g., variation in assessment method, who does the assessment, when the assessment is done, scale length, staff-client interpretability).
5. *Outcome monitoring:* Call for increased research on the emerging paradigm of outcome monitoring and how it is related to clinical assessment and economic consequences.

6. *Cross-training*: Increase opportunities for cross-training of both clinicians and researchers on the issues related to integrating clinical and research assessments for both new staff (e.g., T32s) and existing staff (e.g., K awards, postgraduate training).
7. *Organizational Studies*: Call for increased studies of the organizational, management, and political issues involved in doing combined assessment, and provide managed care entities with access to the information as well.
8. *Opportunities for collaboration*: Solicit center grants or policy grants to foster collaboration between large treatment systems and researchers to address a range of issues related to integration (e.g., standardization across populations, levels of care, movement along a continuum of care).

The last one is almost impossible to get through the traditional R01 mechanism because of the R01's need to focus on narrow and specific issues. Treatment systems, in contrast, are typically faced with complex and overlapping issues that need to be studied simultaneously (although still in a coordinated fashion). More appropriate mechanisms for doing this might involve a local or regional center application (e.g., P50, P60) or a call for public-private cooperative agreements (e.g., AHCPR's RFA HS-98-003, P.T. 34; K.W. 0730050, 0730021, 0730023).

In conclusion, this is a growing area with many challenges. There are gaps in our scientific knowledge, in our application of what we know, and even in our understanding of what providers really need. In short, it is a ripe area for NIDA and others to provide leadership through publications, conferences, and/or funding initiatives.

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Appendix A. Some common measures that have been used for both clinical and research purposes

Instrument	Area (X=yes, x=some)								Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome			
Multiple Domain Measures										
Addiction Severity Index (ASI) (McLellan et al., 1985)	x		x	x	X	X	X	M	Advantages of the ASI: <ul style="list-style-type: none"> · one of the oldest and most widely used measures · in the public domain · supported by several commercial vendors · moderate but well-known psychometrics Disadvantages: <ul style="list-style-type: none"> · does not cover most modern diagnostic criteria, placement, or treatment guidelines (which it predates 10+ years) · only partially standardized and requires substantial training/quality assurance to get good psychometrics 	
Comprehensive Addiction Severity Index for Adolescents (CASI-A) (Meyers et al., 1995)		X	x	X	X	X	X	L	The C-ASI addresses many of the gaps in the original ASI and has some software/user support. However, it is still early in its development and has only limited psychometric or norm data. It is generally not used as a screener because of length (90+ minutes).	
Drug Abuse Treatment for AIDS-Risk Reduction (DATAR) forms (Simpson, 1992)				x	X	X	X	L	A descendent of DARP, this form has been used for almost a decade in a series of clinical research projects at Texas Christian University and has appeared in several public domain evaluation handbooks produced by NIDA and others.	

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Form 90 (Miller, 1991)					x	x	X	M	This was one of the main instruments used in Project MATCH and was used to generate many of the clinical reports for its interventions.
Individual Assessment Profile (IAP) (Flynn et al., 1995)			X		X	x	X	L	This instrument blended questions from the ASI with other research measures from the Drug Abuse Treatment Outcome Study (DATOS) and was used for centralized intake as part of the DC Initiative and several other studies.
Global Appraisal of Individual Needs (GAIN) (Dennis, 1998)	x	X	X	X	X	X	X	L	The GAIN was designed to serve as a standardized biopsychosocial assessment with integrated components for screening, diagnosis, placement, treatment planning, outcome monitoring, and research. Variations of this instrument have been used for standardized intake and research projects funded by NIDA, NIAAA, CSAT, and several states. Selected items can be used as a 20-30 minute screener version. Preliminary psychometric and normative data now are available, but no commercial support is available.
Recovery Attitude and Treatment Evaluation (RAATE) (Mee-Lee et al., 1992)	X	x	X			X		L	This was one of the first tools developed for screening and patient placement and has scales that can help inform diagnosis. Unfortunately, it does not conform to current diagnostic or placement criteria (which it predates) and its usefulness for outcome monitoring is limited because its questions are not time bound and do not cover service utilization.

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Personal Experience Inventory (PEI) (Winters & Henly, 1989)	X				x	X	x	L	This instrument (and its sister, the POSIT [see next entry]) is designed for screening adolescents with substance use, mental distress, and a variety of other yet undefined problems. This version is commercially supported.
Problem Oriented Screening Instrument for Teenagers (POSIT) (Radhert, 1991)	X				x	X	x	L	This instrument (and its sister, the PEI) is designed for screening adolescents with substance use, mental distress, and a variety of other yet undefined problems. This version is in the public domain and has some federally financed software and support available.
Teen-Addiction Severity Index (T-ASI) (Kaminer, 1991)	x			x	X		X	L	This is a modified version of the ASI that includes more questions related to adolescents. It does not, however, have all of the items for constructing the original ASI indices or its own severity measures.
Treatment Services Review (TSR and Teen-TSR) (Kaminer et al., 1997; McLellan, Alterman, et al., 1992)					X		X	L	A complementary measure to the ASI, the TSR is designed to track the subsequent behavior and services received each week. It is in the public domain. The Teen-TSR has been adapted for adolescents.

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Single Domain Measures									
Adolescent Relapse Coping Questionnaire (ARCQ) (Meyers & Brown, 1996)							X	L	A measure of expected coping behaviors in response to a situation involving high pressure to use substances.
Alcohol Use Disorders Identification Test (AUDIT) (Babor, de la Fuente, et al., 1992).	X	x				X		L	Developed by the World Health Organization, this is designed as a screener to identify problem drinkers, including those who might not yet meet diagnostic criteria but are of interest for public health interventions.
Beck Depression & Anxiety Inventories (Beck, 1990, 1996)	X	x				X	X	M	These are among the most widely used measures of depression and anxiety and are commercially supported.
Behavioral and Symptom Identification Scale (BASIS 32) (Medical Outcome Study, 1997)	X		x			X	x	L	This short battery, which is geared toward mental health populations, measures psychosis, daily living/role functioning skills, relation to self/others, impulsive/addictive behavior, and depression.
CAGE (Mayfield et al., 1974)	X							H	Although very popular with clinicians and public aid programs, this 4-question public domain screener is often unreliable unless it is accompanied by extensive training and quality assurance.

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Child Behavior Checklist (CBCL) and Youth Self Report (YSR) (Achenbach & Edelbrock, 1983, 1987)	X		x		X	X		L	The parent (CBCL) and youth (YSR) versions of this instrument provide dimensional measures of internal (e.g., depression, anxiety) and external (e.g., attention deficit, hyperactivity, conduct disorder) problems as well as measures of social competency. National norms are reported in NIDA's National Household Survey on Drug Abuse and both are commercially supported.
Client Satisfaction Questionnaire (CSQ) (Larsen et al., 1979)							X	L	A general measure of client satisfaction that has been used widely.
Clinical Institute Withdrawal Assessment (CIWA). (Sullivan et al., 1989)	X	X	X			X		H	Clinical rating scale combining physiological symptoms, observations, and self-reported symptoms. Unfortunately, it is focused only on alcohol and may not generalize to other drugs.
Drinker Inventory of Consequences (DrInC) (Miller, Tonigan, & Longabaugh, 1995)	X	x			X			L	Although limited to drinking, this scale is particularly useful for identifying the specific problems caused by drinking that can be addressed in treatment.
Drug Abuse Screening Test (DAST) (Skinner, 1982)	X					X	X	L	A short screener parallel to the Michigan Alcohol Screening Test (MAST) that is often used to screen for substance abuse and/or to measure change. Unfortunately, it does not map directly on to DSM-IV.

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Family Environment Scale (FES) (Moos, 1974)					x	X	X	L	This and several subsequent shorter versions are among the most common measures of family functioning and particularly important to evaluating family therapy or family services.
Hamilton Depression Scale (HAM-D) (Hamilton, 1967)	X	x				X	X	M	The HAM-D is one of the original dimensional measures of depression.
Michigan Alcohol Screening Test (MAST) (Selzer, 1971)	X					x		L	The original 25-item public domain version and several subsequent shorter versions have been used widely for over 20 years, but have only limited correlation with both the frequency of use and measures of dependence.
Millon Clinical Multiaxial Inventory (MCMI) (Millon, 1977)	X	x					x	L	Primarily a measure of personality "traits" (not to DSM-IV), this measure also can be used to track change in "state" and is well-supported commercially.
Minnesota Multiphasic Personality Inventory (MMPI & MMPI-2) (Butcher et al., 1989; Hathaway & McKinley, 1951)	x	x			X	x		L	A battery of personality measures, including the MacAndrews scale related to substance use and measures related to impulsiveness, stress, and several co-occurring problems.
Minnesota Multiphasic Personality Inventory Adolescent (MMPI-A) (Butcher et al., 1992)	x	x			X	x		L	This is a shorter version of the MMPI-2 geared more toward adolescents.

Instrument	Area (X=yes, x=some)							Admin. Skill Level*	Author's Comment
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure	Outcome		
Readiness to Change Questionnaire (RTCQ) (Heather et al., 1991)	X		X		X			L	The RTCQ is a scale for measuring treatment readiness based on stages of change theory. This version is copyrighted, but can be used at no cost.
Short Form 36 (SF-36) (Ware & Sherbourne, 1992) and Medical Outcome Study HIV questionnaire (MOS-HIV) (Wu et al., 1997)			x			X	X	L	The SF-36 and several shorter versions often are used for measuring a return to a person's original quality of life after a major operation or illness. The instruments have very limited sensitivity, however, for chronic health behavior conditions. The MOS-HIV is a variation designed for people with HIV.
Situation Confidence Questionnaire (SCQ) (Annis & Graham, 1988)					X	x	x	L	The questionnaire provides a profile of the client's perceived ability to resist using drugs in a variety of situations based on Bandura's concept of self-efficacy.
Substance Abuse Subtle Screening Inventory (SASSI) (Miller, 1985)	X	x						L	This is a screener that has been used primarily in schools, criminal justice facilities, and obstetrician offices. It has scales that facilitate diagnosis for substance use and is commercially supported.
Symptom Checklist-90 (SCL-90, SCL-90-R) (Derogotis et al., 1974)	X	x	x			X	X	L	One of the oldest psychiatric dimensional measures, the SCL-90 and its commercial cousins (SCL-90R, Brief Symptom Inventory) are among the most widely used and commercially supported instruments. Although the scales can inform diagnosis, they do not match current criteria (which they predate).
Diagnostic Only Measures									

Instrument	Area (X=yes, x=some)						Admin. Skill Level*	Author's Comment	
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure			Outcome
Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS) (Grant & Hasin, 1992)		X				X		M	This instrument formed the basis of what later became NIAAA's longitudinal survey instrument.
Composite International Diagnostic Interview (CIDI) (WHO, 1996b)		X						M	The CIDI is primarily a diagnostic/epidemiological interview.
Diagnostic Interview Schedule (DIS) (Robins et al., 1996)		X						M	Primarily a diagnostic/epidemiological interview. Some manuals, software, training, and other support are available.
Diagnostic Interview Schedule for Children (DISC) (Schaffer, Fisher, & Lucas, 1997)		X						M	Primarily a diagnostic/epidemiological interview. Some manuals, software, training, and other support are available.
Psychiatric Research Interview for Substance and Mental Disorders (PRISM) (Hasin et al, 1994)		X				x		M	The PRISM was explicitly designed for use by physicians in clinical practice.
Schedules for Clinical Assessment in Neuropsychiatry (SCAN) (WHO, 1996a)		X						M	Primarily a diagnostic/epidemiological interview. Some manuals, software, training, and other support are available.

Instrument	Area (X=yes, x=some)						Admin. Skill Level*	Author's Comment	
	Screening	Diagnosis	Placement	Reporting	Tx Planning	Severity Measure			Outcome
Structured Clinical Interview for DSM-III-R (SCID) (Spitzer et al., 1992)		X						M	Primarily a diagnostic/epidemiological interview. Some manuals, software, training, and other support are available.

*Administration Skill Level:

L: Low – preprinted questions and responses that can be self- or clerically administered

M: Medium – clinical schedule of issues to cover that may require training on critical concepts and limited probing

H: High – requires detailed clinical judgment/ratings, extensive problems, or extensive quality assurance in order to achieve reliability