SECTION 2

Assertive Community Treatment Literature Review

Prepared For:
Health Care and Financing Administration (HCFA)
And
Substance Abuse and Mental Health Services Administration (SAMHSA)

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April 28, 2000

The opinions expressed herein are the views of the authors and do not necessarily reflect the official position of the Substance Abuse and Mental Health Services Administration (SAMHSA), the Health Care Financing Administration (HCFA), the U.S. Department of Health and Human Services (DHHS), or any corporate position of The Lewin Group or its parent company, Quintiles Transnational Corp.

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I. Executive Summary

The Lewin Group is conducting an evaluation of the implementation of "evidence-based"[1] Assertive Community Treatment (ACT) programs for the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Health Care Financing Administration (HCFA). The goal of the evaluation is to identify the structural mechanisms and processes that States are using to implement ACT programs, as well as to identify factors that either contribute to the successful implementation or represent barriers to the full development and implementation of the ACT model.[2] An additional goal of the project is to construct a budget simulation model for cost forecasting. This budget model will be designed to help States project the fiscal impact of implementing statewide or regional evidence-based ACT programs.

As a preliminary task for the evaluation, over 55 studies and articles focusing on ACT and other community-based case management models for mental health care were reviewed. The primary purpose of the literature review is to provide an information base for the development of the workplan for the evaluation. This information base will be used in the development of the conceptual framework for conducting the evaluation and in constructing the budget simulation model. The literature review also provides:

A working definition of evidence-based ACT based on empirical research and components of ACT programs that have been deemed critical by at least three of the four major models of ACT program fidelity;
A summary and comparison of the four major models of program fidelity;
A review of the outcomes associated with ACT programs (i.e., use of inpatient services, substance abuse, and quality of life); and
An overview of implementation and consumer issues associated with ACT programs.

Collectively, the information presented in the literature review and gathered during the evaluation will be used in developing an information base and budget simulation model for technical assistance for States considering implementing and financing ACT programs.

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[1] Our definition of evidence-based refers to randomized control studies that measured outcomes associated with the ACT program. Please refer to Section III, A for a more detailed definition of "evidence-based."

[2] This evaluation will not be used by HCFA or SAMHSA/CMHS to set new ACT standards.

Findings and Conclusions

The evidence base for the ACT model has been examined by more than 40 studies since the model was first introduced. However, there is little empirical evidence indicating precisely how the program components interrelate to produce desirable outcomes. The lack of studies that isolate and link specific program components to consumer outcomes makes it difficult to develop a definition of evidence-based ACT. Because of the lack of evidence, it was necessary to augment empirical evidence with expert consensus to define evidence-based ACT. Table 1 lists the components of ACT that are considered to be "critical" according to the literature and expert consensus, and can be used as a working definition of evidence-based ACT for this project.

Table 1: Critical ACT Components and Operational Definitions

Critical Components	Operational Definition or Range		
Admission criteria	Only individuals with SPMI[3]	➜	Explicit admissions criteria
Time limits	Until consumer treatment goals are met	➜	Consumer served on a time-unlimited basis
Services	Individualized assessment and treatment planning; case management; crisis intervention; individual supportive therapy; medication prescription and monitoring; substance abuse services; work-related services; support for Activities of Daily Living (ADL); social, interpersonal relationship, and leisure-time skill training; education, support, and consultation to consumers' families and other supports; coordination of hospital admissions and discharges; other support services[4]		
Staff-to-consumer ratio	1 FTE staff per 15 consumers	➜	1 FTE staff per 10 consumers
Maximum team caseload size	120	➜	98
Team leader	Team leader is qualified behavioral health practitioner (time unspecified)	➜	Team leader has at least a master's in behavioral health field and works 40 hours per week
Psychiatrist on team	1 team member (time unspecified)	➜	1 FTE
Nurse on team	1 team member (time unspecified)	➜	3 FTEs
Peer specialist on team	Consumers involved as team members providing direct services		
Team availability	All services available during regular business hours (no weekends, holidays); after-hours crisis intervention services available through ACT team or contracted service	➜	All services available 24 hours per day, 7 days per week; after-hours on-call system for team members (including psychiatric backup)
Direct provision of services by team members	Shared caseload	➜	Shared caseload; at least 90% of consumers have direct contact with more than 1 staff member per week
Place of treatment	75% of service time in vivo	➜	80% of service time in vivo
Frequency of service contacts	Multiple, based on clinical needs of the consumer (at least 2 contacts)	➜	At least 4 contacts per week per consumer; at least 4 contacts per month with consumer's family or support system
Frequency of team case reviews	5 times per week	➜	7 days per week

Even though there are gaps in the literature that link individual program components to outcomes, the ACT literature does suggest how these components work together to create outcomes. The literature also indicates which programmatic elements are most frequently associated with positive ACT outcomes. These elements include in vivo services, assertive engagement mechanisms, small caseload, team approach, and explicit admissions criteria.

In addition to the outcomes literature, a review of the major ACT fidelity models and of the implementation and consumer issues related to ACT contribute to the information base that will be used in developing the workplan for the evaluation. In proceeding with Phase II of this study, with the help of the evaluation's

[3] "Individuals with Severe and Persistent Mental Illness (SPMI)" who participate in ACT programs are referred to as "consumers" for the remainder of this literature review.

[4] Based on feedback from Advisory Panel members, this listing of services will be prioritized and shortened to develop a core list of services offered by ACT programs. This analysis will be conducted as part of Phase II of the project.

Advisory Panel,[5] The Lewin Group will reexamine the program components identified as critical and assess their practical application in the field. Some elements may need to be added to the definition, while others may be excluded because they may be less applicable when applied on a broad scale.

[5] The Advisory Panel consists of research, consumer, Medicaid, State mental health administration, family, provider, and advocacy perspectives.

ll. Introduction

With the Community Mental Health Centers Act of 1963, the field of mental health care received an official mandate to revolutionize care of individuals with mental illnesses in the direction of providing decentralized, local community-based treatment as opposed to institutional care for people with even the most severe psychiatric difficulties (Test and Stein, 2000). In response to this mandate, a variety of programs and resources were implemented, including comprehensive community mental health centers, day and night hospital units, and psychosocial rehabilitation groups and centers (Test and Stein, 2000). In addition, various models of case management have been developed over the past two decades for people with serious mental illnesses (Mueser et al., 1998; Robinson and Toff-Bergman, 1990; Harris and Bergman, 1993). Examples of these models include the clinical case management model, the intensive case management model, the rehabilitation model, and the Assertive Community Treatment (ACT) model. The latter model, ACT, also know as Program of Assertive Community Treatment (PACT),[6] is an intervention that was originally designed to provide multidisciplinary psychosocial treatment in a community-based setting to individuals who have a severe and persistent mental illness (SPMI).

Individuals who are eligible for ACT services frequently have high inpatient utilization rates and co-occurring problems (e.g., substance abuse, homelessness, involvement with the criminal justice system). While ACT services may be appropriate for some people who experience disability from disorders such as posttraumatic stress disorder, anorexia nervosa, and obsessive-compulsive disorder, they are intended primarily for individuals with psychiatric illnesses that are the most severe and persistent (Allness and Knoedler, 1998). Individuals with severe and persistent mental illnesses have been defined by the National Institute of Mental Health (NIMH) as "adults 18 years and over, with a severe and/or persistent mental or emotional disorder that seriously impairs their functioning relative to such primary aspects of daily living as personal relations, living arrangements, or employment, but for whom long-term 24-hour care in a hospital, nursing home, or protective facility is unnecessary or inappropriate" (Allness and Knoedler, 1998). Examples of conditions that affect people with SPMI include schizophrenia, schizoaffective, and bipolar disorders.

[6] While some researchers and programs consistently refer to Assertive Community Treatment programs as "ACT" and others as "PACT," the program names have been used interchangeably in the literature. In addition, the literature addressing these programs does not make a distinction between the two names. Therefore, it is difficult to determine a precise definition of the two names. For the purposes of this project, we will refer to any type of Assertive Community Treatment program as ACT.

The ACT model has been evolving as a treatment model for people with SPMI since its inception in the 1970's in Madison, Wisconsin. While most of these programs are concentrated in the Midwest, more than 35 States currently provide ACT services either statewide or locally. State authorities have varied the implementation of these services with respect to scope, eligibility, and several programmatic features, such as caseload size and the provision of 24-hour care. These variations have made it difficult to precisely define ACT. However, common program features include: (a) community-based services; (b) a team approach to providing care; (c) the use of staff as actual providers, rather than brokers; and (d) a relatively small staff-to-consumer ratio, such as 1:10 or 1:20 (Bond et al., 1990).

As States increasingly attempt to implement or expand existing ACT programs, several key policy questions have emerged, including:

What does the program cost and what factors contribute to specific costs within the program? States have no mechanism to compare their current program costs to the potential costs/savings they would realize implementing an ACT program. Moreover, they have no reliable way to estimate costs of individual components.

Which funding sources and financing mechanisms are the most suitable to fund ACT programs? With each funding source coming with its own requirements, few States know how to coordinate and knit those funding sources together to not only ensure sufficient funding but also permit the program adequate flexibility to individualize service needs.

Which types of populations should be eligible for ACT programs? The historical source of referrals to ACT programs has been State and county psychiatric hospitals. For most States where hospital downsizing has been effective, that referral source is no longer viable. Instead, the need for ACT services spreads across pockets of the population (e.g., homeless, recently incarcerated). Current data and analyses do not help States target their program and outreach efforts to these subpopulations.

What is the appropriate length of service duration for individuals enrolled in the program? Without a reliable assessment of total and marginal costs associated with service time as well and an analysis weighing the potential political impact of various time limit options, States have often been swayed by the immediate politics in designing their program.

Given the magnitude of these policy issues, it is little wonder that there has not been wide spread adoption of ACT programs or utilization of Medicaid dollars

as a chief source of funding. To encourage States to adopt ACT Programs, HCFA, in conjunction with the White House Conference on Mental Health, issued a letter to State Medicaid Directors summarizing the evidence base for ACT programs for persons with schizophrenia and noting that such programs can be supported under current Medicaid policies (Richardson, 1999).

As a follow-up, HCFA and SAMHSA have contracted with The Lewin Group to conduct an evaluation of State experiences in implementing and financing evidence-based ACT programs for individuals with a severe and persistent mental illness. The goal of the evaluation is to identify the structural mechanisms and processes that States are using to implement these programs as well as to identify factors that either contribute to the successful implementation or are barriers to the full development and implementation of the model. Specifically, the evaluation will examine how States are using Medicaid and other resources to support these programs, how programs are designed to meet the needs of the particular population to be served, and the outcomes of services from consumer, provider, and systems perspectives.

An additional goal of the project is to construct a budget simulation model for cost forecasting so that individual States can estimate the costs of implementation in their own State. This budget model will allow States to project costs based on the size of the target population to be served, geographic distribution of ACT throughout the State, and level of intensity of program services. The budget simulation will use data collected in the evaluation of State programs to predict changes in costs for State systems as a function of evidence-based ACT implementation.

As a preliminary task for the evaluation, The Lewin Group has conducted a literature review on evidence-based ACT programs and community-based case management models for mental health care. The primary purpose of the literature review is to provide background information on models, implementation, and financing of evidence-based ACT programs. This review will be used in developing a conceptual framework for conducting the evaluation and developing the cost model. Specifically, the literature review was written to determine the specific areas of ACT programs that have been studied, range of ACT services that are provided, validated measures of program outcomes, and parameters to consider for the budget simulation model. This literature review provides a working definition of evidence-based ACT based on components of ACT programs that have been identified as critical by at least three of the four major models of ACT program fidelity. It also provides a summary and comparison of the four major models of program fidelity, and reviews the outcomes associated with ACT programs (i.e., use of inpatient services, substance abuse, and quality of life). Furthermore, the literature review

discusses implementation and consumer issues associated with ACT programs. Collectively, the information presented in the literature review and gathered during the evaluation will be used in developing an information base for technical assistance to States considering implementing and financing ACT programs.

III. ACT Program Overview

Variations in ACT programs with respect to issues such as scope, eligibility, caseload, and size have made it difficult for consensus to be reached in defining Assertive Community Treatment. To guide the development of the conceptual framework for the evaluation and the budget model, a working definition of evidence-based ACT was developed. This section summarizes the methods that were used to develop this definition, the critical components of ACT, and the four major models of program fidelity.

A. Working Definition of Evidence-Based ACT

Developing a working definition of evidence-based ACT is a necessary first step for the two major tasks of the overall project: (1) evaluating State experiences in implementing and financing evidence-based ACT programs, and (2) constructing a budget simulation model to help States project the fiscal impact of ACT programs. The working definition describes not only the essential components of ACT, but also the specific operational definitions, or range of operational definitions, associated with each component. Because there is so much variation among ACT programs, the definition will be used to facilitate understanding of the range of services that are offered in the various programs.

Evidence refers to the body of scientific evidence that supports the use of a certain treatment or intervention (Hughes, 1999), and has become a major force in medical and health care delivery (Kamerow, 1997). Evidence-based medicine or practice originated in the 1950's with the advent of randomized controlled trials (Kamerow, 1997), and has grown and evolved since then due to the enormous volume of research and published material, variations in service delivery that require description and investigation, and increasing demands on limited health care resources. Evidence-based medicine is defined as the conscientious, explicit, and judicious use of current best data in making decisions about the care of individual patients. It involves using multiple sources of information, rather than one single study, to determine if there is good and sufficient evidence for a particular treatment or procedure (Kamerow, 1997; Hughes, 1999).

Recently, discussion has been generated in the mental health community by the push for evidence-based services in the treatment and rehabilitation of people diagnosed with serious mental illnesses (Hughes, 2000). The intent of advocacy for evidence-based services for people with mental illnesses is to ensure that the most effective mental health services are provided and that funding is used efficiently and effectively (Hughes, 2000). Currently, the ACT literature does not provide a concise definition of evidence-based Assertive Community Treatment.

A two-prong approach was used to develop a working definition of evidence-based ACT. First, studies using experimental designs to measure the outcomes of ACT program components were reviewed. Second, the major fidelity models of ACT were reviewed and compared to establish the level of consensus among experts in the field of ACT about the critical components of ACT programs.

The literature review of ACT program outcomes was confined to studies using a randomized experimental design and containing at least a partial definition of the treatment model. Other literature was excluded because the goal was to capture a range of studies and treatment characteristics, try to isolate the effects of specific programmatic elements, and select studies that were standardized by design to allow for comparisons to be made between studies. Although excluding studies that were quasi-experimental is a limitation, it was determined that the most precise and valid findings would be found in studies that used experimental designs.

A review of 75 studies about case management and models of community care for individuals with SPMI was used to select the experimental studies to use for this literature review. Inclusion criteria for this review, which was conducted by Mueser et al. (1998), included at least one of the following:

Assessments were conducted at a follow-up point for two groups of patients receiving different models of community care (including studies comparing a case management model with another program or service); or

Assessments were conducted at baseline and follow-up for patients receiving one model of case management. Studies of case management that required the patient to be in contact with relatives or that the relatives be willing to participate in the program were excluded to retain the focus on case management and community care.

A review of the studies that addressed ACT in the Mueser et al. article found very little evidence explaining the ACT model's success. Without evidence that links individual program components to outcomes, developing a definition of evidence-based ACT is nearly impossible. To overcome this problem, a review

and comparison of the four major fidelity models of ACT, constructed by McGrew and colleagues, Teague and colleagues, Allness and Knoedler, and CARF (formerly the Council for the Accreditation of Rehabilitation Facilities), were added. A discussion of these models follows in Section B, "Models of Assertive Community Treatment."

Table 1 lists the components of ACT considered "critical" by the literature and expert consensus. The components and range of operational definitions in Table 1 will be the working definition of evidence-based ACT for the evaluation. This definition is largely consistent with the results of one of the first studies to empirically test the relationship between program outcomes and individual ACT components (Stein & Test, 1980).

Table 1 also includes two additional elements: maximum team caseload size and role of the consumer on the treatment team. The Critical Components of Assertive Community Treatment Interview (CCACTI) and the Program of Assertive Community Treatment (PACT) standards both specify that a maximum overall team caseload size, in addition to a maximum staff-to-consumer ratio within the team, is a critical component of the ACT model. Because over three-fourths of experts surveyed through the CCACTI rated these items as "very important," they were included in the table as critical components.

Although untested, many authors recently have recognized the importance of consumers as peer counselors in improving consumer outcomes and limiting unwarranted coercion. Other models of case management, such as the Club House Model, have also demonstrated that peer involvement can be valuable and effective during treatment. Given recent emphasis on this issue, the use of a peer specialist on the treatment team was also included as a critical program component in the working definition of evidence-based ACT.

Table 1: Critical ACT Components and Operational Definitions

Critical Components	Operational Definition or Range		
Admission criteria	Only individuals with SPMI	→	Explicit admissions criteria
Time limits	Until consumer treatment goals are met	→	Consumer served on a time-unlimited basis
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Staff-to-consumer ratio	1 FTE staff per 15 consumers	→	1 FTE staff per 10 consumers
Maximum team caseload size	120	→	98
Team leader	Team leader is qualified behavioral health practitioner (time unspecified)	→	Team leader has at least a master's in behavioral health field and works 40 hours per week
Psychiatrist on team	1 team member (time unspecified)	→	1 FTE
Nurse on team	1 team member (time unspecified)	→	3 FTEs
Peer specialist on team	Consumers involved as team members providing direct services		
Team availability	All services available during regular business hours (no weekends, holidays); after-hours crisis intervention services available through ACT team or contracted service	→	All services available 24 hours per day, 7 days per week; after-hours on-call system for team members (including psychiatric backup)
Direct provision of services by team members	Shared caseload	→	Shared caseload; at least 90% of consumers have direct contact with more than 1 staff member per week
Place of treatment	75% of service time in vivo	→	80% of service time in vivo
Frequency of service contacts	Multiple, based on clinical needs of the consumer (at least 2 contacts)	→	At least 4 contacts per week per consumer; at least 4 contacts per month with consumer's family or support system
Frequency of team case reviews	5 times per week	→	7 days per week

B. Models of Assertive Community Treatment

Because there is a lack of data that links ACT program components to outcomes, expert consensus was also used to identify critical components of programs for the working definition of evidence-based ACT. Recently, several academic researchers and organizations have attempted to identify the critical components of ACT programs and empirically measure fidelity[8] to the ACT model (McGrew et al., 1994; McGrew & Bond, 1995; Teague et al., 1995; Teague et al., 1998; Allness & Knoedler, 1998). The following sections summarize the four major attempts to define critical ACT components by McGrew and colleagues, Teague and colleagues, Allness and Knoedler, and CARF.

[7] Based on feedback from Advisory Panel members, services will be prioritized and shortened to develop a core list of services offered by ACT programs. This analysis will be conducted as part of Phase II of the project.

[8] Fidelity refers to the level of adherence to a specified model.

1. McGrew and Colleagues

With funding from the National Institute of Mental Health (NIMH), McGrew and colleagues developed a fidelity index of ACT program implementation in a study that used experts to rate the critical components of the ACT model (McGrew & Bond, 1995). In this study, 20 experts, including ACT researchers, administrators, and clinicians, rated the importance of 73 program elements (e.g., small consumer-to-staff ratio, shared caseloads for treatment planning, and in vivo treatment focus). The experts were also asked to indicate ideal model specifications where appropriate (e.g., maximum consumer-to-staff ratio).
In general, the authors found a high level of inter-expert agreement on ratings of importance for 73 program elements. The overall mean importance rating for all items presented to those surveyed was high, or 6.3 on a 7-point semantic differential scale (1=*very unimportant...7=very important*). Defining as "critical" those items rated as very important by at least 50 percent of the judges surveyed,[9] the authors constructed an index of fidelity of ACT containing 17 distinct program elements. They also developed scoring criteria based on experts' mean judgments on ideal model specifications. In a subsequent study of 18 Thresholds Bridge programs designed expressly to follow the ACT model, McGrew et al. found that ACT programs with the highest fidelity to their index showed the greatest reduction in days of hospitalization for consumers (McGrew et al., 1994).

2. Teague and Colleagues

Teague, Drake, and Ackerson (1995), with funding from NIMH and the National Institute on Alcohol Abuse and Alcoholism (NIAAA), evaluated continuous treatment teams serving individuals with co-occurring severe mental disorders and substance abuse disorders at seven sites in New Hampshire. The objective of this study was to determine the programs' fidelity to a broadened ACT model encompassing service delivery and staffing as defined by Santos (1993), Brekke and Test (1987), and McGrew et al (1994), and incorporating additional criteria pertinent to working with consumers with dual disorders. This fidelity measure allowed differentiation of effectively implemented continuous treatment teams from standard case management teams. Continuous treatment teams scored appreciably higher than standard case programs on both the general ACT criteria and the substance abuse criteria contained on the authors' index of fidelity, but were relatively more successful in providing substance abuse treatment (Teague et al., 1995).

Extending the general methods of this approach, Teague, Bond, and Drake (1998), with funding from NIMH, developed the Dartmouth ACT Fidelity Scale

[9] The authors call these measures "Critical Components of Assertive Community Treatment Interview (CCACTI)" items.

(DACTS). The DACTS is a preliminary, standardized measure of fidelity to the ACT model (Teague et al., 1998). It consists of 26 program criteria for fidelity to ACT that were derived from multiple sources, including ACT literature, previous research on fidelity for ACT, and expert opinion. However, the majority of criteria and anchors for the DACTS were adapted from the work of Teague, Drake, and Ackerson (1995) described above. In general, the DACTS emphasizes structural components of the ACT model that are measurable, rather than clinical aspects that may be important to the model's effectiveness but which are more difficult to measure.

The authors examined four groups of programs that were designed to serve individuals with serious mental illness. These programs were implemented with varying degrees of expected fidelity to the ACT model. Fifty programs were evaluated in total: fourteen ACT research sites; ten Veterans Administration intensive case management sites; fifteen sites in the Access to Community Care and Effective Services and Supports (ACCESS) program for homeless persons with mental illness; and eleven of the programs that served as control sites for the ACT research sites in the first group. The authors found that the DACTS discriminated among the ACT and ACT-like programs (i.e., VA and ACCESS sites), and discriminated these from the more conventional treatment programs (i.e., the control sites).

3. Allness and Knoedler

In 1998, Allness and Knoedler (1998) developed national standards for the PACT model with support from the U.S. Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, Community Support Branch. The authors developed these standards from the State of Wisconsin Department of Health's community support program standards for the chronically mentally ill (April 1989) and the State of Rhode Island Department of Mental Health's standards for mobile treatment teams (February 1992). The national PACT standards are a companion document to the manual, "The PACT Model of Community-Based Treatment for Persons with Severe and Persistent Mental Illnesses: A Manual for PACT Start-Up." This manual was written with support from the National Alliance for the Mentally Ill (NAMI) Anti-Stigma Foundation (1998). The PACT manual and standards outline what NAMI considers to be the most effective treatment for individuals with SPMI. They are also the centerpiece of a NAMI initiative announced in 1998 designed to establish PACT programs in every State by the year 2002.

4. CARF

CARF, formerly the Council for the Accreditation of Rehabilitation Facilities, adopted standards for ACT in mid-1999 (CARF, 1999). These standards will be issued to the public at the beginning of 2000. While CARF recognizes that the ACT model has been studied intensively, its ACT standards are field driven rather than research driven. CARF developed preliminary standards by consulting with an expert panel that included the founders of the PACT program. These preliminary standards, which were similar to the national PACT standards, were then sent to various organizations, including the organizations that CARF accredits, for comment and refinement. The final standards approved by CARF's board differed significantly from the national PACT standards sponsored by SAMHSA, particularly in the areas of team structure and coverage, the availability of certain services, and the amount of time consumers spend in the program. Specific differences between the two models are discussed in Section C.

There are several important issues that arise for researchers as they attempt to synthesize differing perspectives on critical ingredients and fidelity of ACT. One issue is that reaching a consensus among program experts about the critical ingredients and specific components of ACT is problematic. Additionally, differences in the methods used to survey experts may lead to a different mix of critical ingredients. A third problem lies in selecting which of the many potentially critical ingredients to include on a fidelity scale. Finally, it is very difficult to construct a fidelity scale that takes into consideration the changing dimensions of components over time (Test et al., 1997).[10]

C. Comparing Fidelity Models of ACT

A comparative analysis of the major models of program fidelity summarized above was conducted in order to: (1) determine the critical components of the ACT model, as evidenced by some level of consensus among experts in the field, and (2) examine the range of expert opinion on the specific operational definitions of these critical components. This analysis also contributed to the working definition of evidence-based ACT.

Table 2 provides a comparison of the four ACT fidelity models discussed above: (1) the CARF standards; (2) the work of McGrew and colleagues (1994,1995); (3) the DACTS model by Teague, Bond, and Drake (1998); and (4) the PACT standards written by Allness and Knoedler (1998). The work of Teague, Drake, and Ackerson (1995) was excluded from this table because it was used as a basis

[10] Selecting which measures to include in the scale and constructing a scale that adequately considers the changing dimensions of the components would also be difficult with a dismantling study approach.

for the recent DACTS model constructed by Teague, Bond, and Drake (1998). The "ACT Components" along the left-hand side of the table are functional elements of ACT programs related to admission and discharge procedures, services provided, team size and structure, and program organization. To derive these functional elements, all fidelity models for ACT were reviewed. In addition, each model's critical components were identified within a common framework of analysis. Text within the table refers to specific definitions or requirements relating to the functional elements of a model. A check mark means that a fidelity model identifies a particular functional area as being critical but does not provide specific definitions. For example, CARF standards require the functional element "individualized assessment" (denoted in the table by a check mark), but PACT standards elaborate further, requiring an initial individual assessment upon admission as well as a comprehensive assessment within one month of admission.

Table 2: Comparison of Fidelity Models for ACT

ACT Component	CARF Standards[11] **To Be Issued 1999/2000**	CCACTI[12] **McGrew and Bond 1995**	DACTS **Teague, Bond, Drake 1998**	PACT Standards[13] **Allness and Knoedler 1998**
Admission and Discharge				
Admission criteria		Individuals with SMI	Program actively recruits a defined population and complies with explicit admissions criteria	Priority to individuals with SMI; individuals with primary diagnosis of substance use disorder or mental retardation considered inappropriate
Hospital admissions and discharges	Team provides liaison services for persons who are hospitalized	ACT team consulted prior to hospitalization; team continues to work with hospitalized consumers; team members work to coordinate discharge plans	At least 95% of admissions initiated through the program; at least 95% of discharges planned jointly with the program	
Discharge criteria (unless consumer requests discharge or moves out of P/ACT service area)	Consumer may be discharged after demonstrating at least one year of stability in all major roles (e.g., work, social, self-care)			Consumer may be discharged after demonstrating at least two years of stability in all major roles (e.g., work, social, self-care)
RATE OF NEW CONSUMER ADMISSIONS		No greater than 6 consumers per month	No greater than 6 consumers per month	
Nature of Services				
Case management	✔	✔	✔	Primary case manager coordinates activities of consumer's treatment team and has primary responsibility for consumer

[11] Internal draft standards dated September 21, 1999.

[12] Reflects CCACTI components regarded as "very important" by 50% of the experts surveyed.

[13] Reflects standards for urban PACT teams.

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ACT Component	CARF Standards[11] **To Be Issued 1999/2000**	CCACTI[12] **McGrew and Bond 1995**	DACTS **Teague, Bond, Drake 1998**	PACT Standards[13] **Allness and Knoedler 1998**
Individual assessment	✔	Upon admission		Initial assessment upon admission; comprehensive assessment within one month of admission
Individualized treatment planning	✔	Consumers involved in treatment planning		Developed in collaboration with consumer and consumer's family; based on consumer's needs, strengths, preferences
Crisis intervention	✔		✔	✔
INDIVIDUAL SUPPORTIVE THERAPY	✔		✔	✔
MEDICATION PRESCRIPTION AND MONITORING	✔	✔		✔
Substance abuse services	✔		Group treatment modalities: at least 50% of consumers with substance abuse disorders attend at least one substance abuse treatment group meeting per month; Dual Disorders (DD) treatment model used	Individual, group, and other interventions on an as needed basis
Work-related services	✔	✔	✔	✔
SERVICES TO SUPPORT ACTIVITIES OF DAILY LIVING (ADL)	✔	✔		✔
SOCIAL, INTERPERSONAL RELATIONSHIP, AND LEISURE-TIME SKILL TRAINING	✔	✔		✔
EDUCATION, SUPPORT, AND CONSULTATION TO	✔	✔	✔	✔

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ACT Component	CARF Standards[11] **To Be Issued 1999/2000**	CCACTI[12] **McGrew and Bond 1995**	DACTS **Teague, Bond, Drake 1998**	PACT Standards[13] **Allness and Knoedler 1998**
CONSUMERS' FAMILIES AND OTHER MAJOR SUPPORTS				
Other support services	Includes medical, dental, and vision; housing; financial; social; and transportation services	Assistance obtaining entitlements, other support services	Housing support	Includes medical and dental; housing; financial; social; transportation; and legal advocacy and representation services
Time limits		Consumers served on time-unlimited basis	Consumers served on time-unlimited basis	Consumers served on time-unlimited basis
Team Size and Structure				
Staff-to-consumer ratio	1 FTE staff person per 8 to 15 consumers	1 FTE staff person per 10 to 13 consumers	At least 1 FTE staff person per 10 consumers	At least 1 FTE staff person (excluding psychiatrist and program assistant) per 10 consumers
Team leader	Team leader is a qualified behavioral health practitioner; provides direct service and/or clinical supervision	Team coordinator with responsibilities limited to ACT; provides direct service at least 14 hours per week	Supervisor provides services at least 50% of the time	Full-time team leader with master's in nursing, social work, psychiatric rehab, psychology, or who is a psychiatrist
Psychiatrist on team	At least 1 team member	At least 13 hours per week	At least 1 FTE for every 100 consumers	Minimum of 16 hours per week for every 50 consumers
Registered nurse on team	At least 1 team member	32 hours per week	At least 2 FTEs for every 100 consumers	At least 3 FTEs
Vocational specialist on team			At least 1 staff member with at least 1 year of training/experience in vocational rehab and support	At least 1 professional
Substance abuse specialist on team			At least 2 FTEs with 1 year of training or clinical experience per 100 consumers	

Table 2: Comparison of Fidelity Models for ACT

ACT Component	CARF Standards[11] **To Be Issued 1999/2000**	CCACTI[12] **McGrew and Bond 1995**	DACTS **Teague, Bond, Drake 1998**	PACT Standards[13] **Allness and Knoedler 1998**
Social worker on team		At least 1 team member		
Program assistant on team				At least 1 FTE
Role of peer specialist on team			Consumers involved as team members providing direct services	
Continuity of staffing			Less than 20% turnover	
Team caseload size		65 to 98 consumers per team		No more than 120 consumers per team
Team availability	Direct treatment, rehab, and support services available during regular business hours (no weekends, holidays); after-hours availability through ACT team or crisis intervention service	24 hours per day, 7 days per week	24 hours per day, 7 days per week	24 hours per day, 7 days per week
Psychiatric backup				Available during all after-hours periods
Shared caseload	✔	✔	At least 90% of consumers have contact with more than 1 staff member per week.	✔
DIRECT PROVISION OF SERVICES BY TEAM MEMBERS	✔	✔	✔	✔
Place of treatment		75% of service time in community	80% of service time in community	At least 75% of service contacts in nonoffice- or nonfacility-based settings in the community
Service contacts	Multiple, based on clinical needs of the person served	At least 3 contacts per week per consumer, on average; 15 months of	At least 4 contacts per week per consumer; at least 4 contacts per month	At least 3 contacts per week per consumer, on average

Table 2: Comparison of Fidelity Models for ACT

ACT Component	CARF Standards[11] **To Be Issued 1999/2000**	CCACTI[12] **McGrew and Bond 1995**	DACTS **Teague, Bond, Drake 1998**	PACT Standards[13] **Allness and Knoedler 1998**
		consumer refusals before stopping engagement; 17 months of consumer refusals before stopping follow-along	per consumer with consumer's support system in community	
Amount of service time			At least 2 hours per week per consumer, on average; at least 24 minutes per week of substance abuse treatment for consumers with substance abuse disorders	
Frequency of team meetings	3 days per week	5 days per week	4-5 days per week	7 days per week
Review of treatment plans	Treatment plans reviewed and modified at least every six months			Treatment plans reviewed and refined at least every six months

The most striking differences in fidelity models for ACT are between the national PACT standards and the CARF standards. The national PACT standards are more intense than the CARF standards in several important areas. First, PACT requires a staff-to-consumer ratio of 1 FTE (*excluding psychiatrist and program assistant time*) per ten consumers, while CARF requires a staff-to- consumer ratio of 1 FTE per eight to 15 consumers. Next, PACT requires team availability 24 hours per day, seven days per week. In contrast, CARF requires that direct treatment, rehabilitation, and support services be made available during regular business hours (no weekends or holidays) and mandates the provision of after-hours crisis services, either by the program itself or an approved contractor. PACT also requires a minimum of 16 hours per week of psychiatrist time for every 50 consumers. While the CARF standards require a psychiatrist to be part of the ACT team, they do not specify the amount of time the psychiatrist must contribute. Finally, PACT requires team meetings seven days per week, while CARF requires team meetings three days per week.[14]

In most cases, the two academic fidelity models, constructed by McGrew and colleagues and Teague and colleagues (i.e., the CCACTI and the DACTS, respectively), fall between the CARF and PACT standards. Exceptions to this rule include instances where the CCACTI and/or DACTS models contain ACT elements that are not mentioned specifically by either the PACT or CARF standards. For example, both the CCACTI and DACTS specify a slow rate of new consumer admissions, while the PACT and CARF standards do not. Similarly, the CCACTI and DACTS specify that the ACT team be involved in coordinating the hospitalization and discharge of consumers, but the PACT and CARF standards do not. The DACTS is also the only model that is specific about appropriate staff, number of service contacts, amount of service time, and treatment modalities for consumers with substance abuse disorders. This is due to the fact that the DACTS is largely based upon fidelity research by Teague, Drake, and Ackerson (1995), which sought to broaden the model of ACT to incorporate treatment for persons with dual disorders.

IV. Outcomes Associated with Assertive Community Treatment Programs

Elements associated with program outcomes were also identified to determine the critical components of ACT programs for the working definition of evidence-based ACT, develop a broader understanding of what program components are associated with positive outcomes, and determine what program components are

[14] For more information, see "NAMI disputes CARF decision on ACT standards."*Mental Health Weekly*. 9(45), November 22, 1999.

offered at different sites. Tying outcomes that are positively associated with individual program elements can be used to determine how adaptations of the ACT model affect its efficacy and cost.

Most of the outcomes-based literature on case management has focused on ACT or ACT-like programs. The earliest randomized controlled studies of the models were conducted by ACT's innovators (Marx, et al., 1973; Stein and Test, 1980; Test and Stein, 1980; Weisbrod, Test, & Stein, 1980). Since that time, the ACT model has become one of the most extensively researched treatment models in the mental health field.

A. Outcomes Measures

Research on ACT has incorporated a variety of measures to determine effects of the model. These measures range from hospitalization rates to assessments of social functioning. Other outcomes commonly studied include housing stability, medication compliance, and cost. There is a great deal of variation among studies with respect to target populations, scope, geographic location, and types of programmatic components implemented (e.g., staff ratio levels; 24-hour care; psychiatrist on staff). This variation has made it difficult to consistently replicate findings and identify key components within the ACT models that are strongly associated with outcomes.

This section examines the outcomes typically associated with ACT programs. The review of outcomes is limited to studies that have randomly assigned individuals to either treatment or control groups. Previous reviews of the ACT literature that focused on random assignment were used to identify relevant studies (Burns and Santos, 1995; Mueser, et al., 1998). Since a purpose of the literature review was to examine what outcomes are identified in the literature and which program components are associated with specific outcomes, only studies including at least a partial description of the treatment or intervention were reviewed.

Eight outcome measures regarding the effectiveness of Assertive Community Treatment programs (see Appendix A)[15] were examined. With the exception of cost, these measures were identified and reviewed by Mueser et al. (1998). The review complements and extends the Mueser et al. work by examining the specific programmatic features of the ACT model that are associated with each of these outcomes. This analysis is limited, however, since most studies lacked detailed and consistent information on which ACT model characteristics had

[15] Some studies measured outcomes not identified in this review. We have chosen the most commonly reported measures to review for this study.

been implemented. Although many authors described their models as adaptations of Test and Stein's original approach, there was insufficient detail to capture all of the components incorporated in the treatment program.

1. Use of Inpatient Services

The ACT model was developed to extend the work of the multidisciplinary inpatient provider team beyond the time of discharge from the hospital facility. The originators of the model hoped to promote better continuity of care across the inpatient-outpatient boundary. Given the emphasis on community-based treatment within the model, most researchers have hypothesized that reductions in inpatient care would result once the program was implemented. Although most studies have confirmed this hypothesis, there have been some inconsistencies reported in the literature regarding variations in program design (e.g., target population) and evaluation technique (e.g., small sample sizes).

The largest and most comprehensive study analyzing inpatient service utilization was performed by Rosenheck et al. (1995). This study involved nearly 1,000 consumers at ten Veterans Affairs sites who were high utilizers of inpatient services. The researchers found that consumers in ACT used approximately one-third less inpatient care than those in the control group. An earlier study involving three community mental health centers (CMHCs) and 167 consumers at risk of rehospitalization (Bond et al., 1988) found that consumers receiving assertive case management were rehospitalized for an average of 9.2 days, while consumers assigned to the control group were rehospitalized for an average of 30.8 days.

Some studies, however, have concluded that there is little or no difference between ACT and non-ACT individuals with respect to the amount of time spent in hospital-based settings. For example, Solomon and Draine (1995) did not report significant differences between control and treatment populations for individuals with SMI leaving jail. Similar findings were reported by Jerrell and Hu (1989); however, this study may be limited by its small sample size ($n < 30$).

2. Housing Stability

Numerous researchers have recognized a link between housing stability and the amount of time patients spend in a hospital setting. These studies have demonstrated that consumers enrolled in ACT programs generally experience improved housing stability compared to consumers enrolled in standard case management programs (Stein & Test, 1980; Bond et al., 1990; Morse et al., 1995; Essock et al., 1995; Morse et al., 1997; Lehman et al., 1997). Several studies, however, have reported exceptions to this finding. For example, Solomon and

Draine (1995) and Chandler et al. (1996) reported no significant differences between the control and ACT treatment populations' overall housing stability or independence. These findings are most likely due to the focus on particular populations, such as consumers recently released from jail and the timeframe in which results were analyzed during the treatment process.

3. Time in Jail

Overall, the use of ACT or ACT-like models has had negligible effects on the amount of time consumers spend in jail. Approximately half of the studies examined in this review reported outcomes related to time spent in correctional facilities. Of these, only two reported reductions in length of incarceration for those receiving ACT services (Bond et al, 1990; Lehman et al., 1997). Those that found no beneficial effects related to incarceration have hypothesized that treatment for consumers engaging in illegal behavior may require modification to address the different needs of the population.

4. Symptoms

Controlled studies to date provide only modest support for the hypothesis that ACT mechanisms are effective in decreasing the severity of a consumer's symptoms. Approximately half of the studies examined in this review that reported outcomes related to symptomology concluded that ACT programs had contributed to the improvement, or slight improvement, in the consumer's presenting symptoms (Stein & Test, 1980; Bond et al., 1990; Morse, et al., 1997; Lehman et al., 1997; Fekete et al., 1998). However, as Mueser and colleagues (1998) point out, there are many reasons why improved outcomes have not been demonstrated more consistently, including imprecise measurement and a lack of common assessment tools. These factors make it difficult to determine the true nature of the relationship between assertive case management programs and symptomology.

5. Medication Compliance

Only four studies examined in this review measured the effects of ACT on consumers' compliance with taking prescribed medications. Results related to ACT's effectiveness within these evaluations were mixed. Two studies reported improvements in medication compliance for the ACT group compared to the control group (Stein & Test, 1980; Bush et al., 1990). Conversely, the other two studies found that there is no significant difference between case and control groups with respect to this outcome (Bond et al., 1988; Chandler et al., 1996).

The field is equally divided about the appropriateness of using medication compliance as an outcome for measuring ACT's effectiveness. Although previous research has shown that noncompliance often contributes to rehospitalization, both practitioners and researchers are concerned with the degree of social monitoring often associated with the ACT model (Solomon & Draine, 1995; Diamond, 1996). As Diamond (1996) suggests, coercion can take many forms, ranging from friendly persuasion to the use of force. It is also important to note that this concern extends beyond the issue of medication compliance.

Some authors have argued that without involvement of the consumer on the treatment team, ACT programs may involve elements of coercion. Although most of the outcomes-based literature on ACT has not addressed this issue, two studies examined in this review discussed model components related to consumer involvement. Chandler et al. (1996) compared consumer outcomes for an ACT-like model that incorporated a component related to consumer consent. In the program, individualized treatment was based on a service plan developed jointly by the consumer and program staff, contingent on consent from the consumer.

Additionally, Solomon & Draine (1995) discussed the issue of coercion in case management models in their evaluation of an ACT program for SMI consumers recently released from jail. They suggest that issues of coercion can be of particular concern in situations where parole and probation services are involved. They also point to research suggesting that intensive supervision has led to increased reincarceration due to heightened awareness by treatment staff of violations of parole and probation conditions. Additionally, the authors noted cases where threats of reincarceration, based on knowledge of violations, have been used to force consumers to comply with a particular treatment regimen. There is a great deal of contention surrounding the degree to which program staff should be assertively promoting specific services, such as medication compliance, and the way in which the field defines and interprets outcomes related to this approach. (A more detailed discussion on coercion can be found in Section V, B).

6. Substance Abuse

Many authors have recognized the high prevalence of substance abuse among individuals in need of intensive psychiatric care. However, few studies have examined the effects that ACT has on substance abuse. Additionally, very few studies have made reference to programs that offer substance abuse treatment for people with co-occurring disorders (see Appendix A). For those studies that have attempted to measure this outcome, all but one reported that no significant

differences exist between patients receiving ACT and standard case management with respect to their use of alcohol or illicit substances (Morse, et al., 1992; Solomon et al., 1995; Morse et al., 1997; Lehman, et al., 1997).

A more recent study by Drake et al. (1998), which targeted 223 individuals with co-occurring severe mental illness and substance use disorders, found that ACT consumers showed greater improvements when compared to individuals receiving standard case management on some measures of substance abuse and quality of life. On other measures, however (e.g., stable days in the community, psychiatric symptoms, and overall remission of substance abuse disorders), the two groups were found to be equivalent. The authors attribute the lack of significant differences between the two groups to the similarity of the ACT and standard case management models. Both programs used a highly integrated approach to treatment and focused on community outreach. The only major difference between the two forms of treatment, according to the authors, was the staff-to-consumer ratio, which was significantly lower for the ACT intervention.

7. Quality of Life

Twelve of the studies examined for this review reported findings on the effects of ACT on consumers' quality of life. Seven of the studies concluded that ACT models increased, or slightly increased, consumers' quality of life (Stein & Test, 1980; Essock & Kontos, 1995; Chandler et al., 1996; Lehman et al., 1997; Drake et al., 1998; Essock et al., 1998; Fekete et al., 1998). For example, Essock and colleagues (1998) reported that ACT consumers' quality of life increased significantly over the 18-month study period, whereas individuals who received standard case management had a relatively constant quality of life score. Mueser et al. (1998) noted that the positive effects of ACT on quality of life may be attributable, in part, to declining hospital stays and relatively stable living situations commonly associated with ACT modes of treatment. All but one of the studies reporting improvements in ACT consumers' quality-of-life also noted reductions in inpatient care and increased levels of housing stability (Stein & Test, 1980; Essock & Kontos, 1995; Chandler et al., 1996; Lehman et al., 1997; Essock et al., 1998; Fekete et al., 1998).

8. Costs

Outcomes

Several randomized controlled studies have shown that the cost of ACT interventions is generally less than the cost of the traditional standard case management approach (Stein & Test, 1980; Bond et al., 1988; Bond et al., 1990; Essock et al., 1998). For example, a study of 82 consumers who averaged over 17

lifetime psychiatric hospitalizations found that the per-consumer treatment costs were approximately $1500 less per year for ACT treatment than the cost of care provided at a community-based drop-in center (Bond et al., 1990). Most authors reporting similar reductions in costs have concluded that a substantial portion of savings associated with the ACT model is attributable to a decrease in the use of inpatient care. However, a limitation of many of these studies is that they targeted consumers who had high inpatient utilization rates prior to the ACT intervention (Stein & Test, 1980; Bond et al., 1988; Bond et al., 1990).

Estimation

The methodology used for estimating the cost and relative cost-effectiveness of ACT and ACT-like programs differs substantially from study to study. Some authors, such as Bond et al. (1990) based cost estimates on direct programmatic costs (dividing the program budget by the average caseload size for a given period of time). Other authors have used a much broader definition of cost when estimating relative program savings, often incorporating societal and more indirect costs, such as the opportunity cost (i.e., best alternative use of the dollars), into their models. For example, researchers in a study comparing ACT to standard case management in Connecticut calculated costs from the perspective of the Department of Mental Health, society, and the State (Essock et al., 1998). Costs to the Department of Mental Health included all treatment costs provided by State agencies either operated or funded by the DMH. Costs to society included all DMH costs plus the cost of other new resources utilized in the treatment process, such as dollars spent (or that would have been spent absent the intervention) in a general hospital setting, the emergency room, nursing homes, jail, and the administration of transfer payments. Overall State costs were based on societal costs, but were adjusted to reflect direct State dollar contributions and account for spending on supplemental security income.

Essock and colleagues (1998) also measured the relative cost-effectiveness of the ACT intervention. Cost-effectiveness was measured as the number of days consumers spent in the community divided by the total cost to society. Overall, the authors concluded that ACT was only cost-effective for consumers who were hospitalized when initially entering the program.

Rosenheck and colleagues (1995) reviewed the difficulties associated with estimating the cost of case management programs in a multi-site study of intensive psychiatric community-based care at nine Veterans Affairs Medical Centers. They concluded that many factors can lead to substantial variation in program cost estimates, including: the length of time the program has been operating, the number of consumers and staff, and the overall stability of the caseload level. Using sensitivity analysis, they determined that the staff-to-

consumer ratio is more closely related to the cost of the program than any other program feature, but also noted that it is subject to the greatest variation. The researchers suggest that the following should be included when estimating costs: direct program costs (all resources expended to maintain program staff, equipment, and supplies), indirect costs (including administration and capital costs), the opportunity costs of buildings and land, and program resources used to support research and other non-capital costs.

Mueser and colleagues (1998) have identified two other factors that should be considered when estimating costs and/or savings associated with ACT programs. First, environmental factors, such as the availability of mental health services within a particular region, can substantially influence the cost of treatments. If the mental health system is not fully developed in a particular region, the intervention might result in higher utilization, and in some cases, higher costs relative to the "standard" model of care. Increased costs within this context should be interpreted relative to the overall value or benefit derived from the program. Secondly, careful attention should be paid to the type of treatment and time period over which the program is evaluated. Programs that have consumers transitioning from inpatient to ACT programs are likely to demonstrate savings in a relatively short timeframe. However, if the goal of treatment is more focused on rehabilitation, savings may take much longer to realize.

Data Sources

The ability to derive accurate cost estimates can also depend on the availability of financial and programmatic data. Studies that are attempting to analyze cost and the relative cost-effectiveness of various forms of case management interventions have relied on a host of data sources, including:

Daily service logs that recorded the types of services provided, by whom, when, and their location;
Weekly reports generated by case managers that reported where consumers spent their evenings;
Service utilization data obtained from State agencies pertaining to all State-level providers (mainly State hospitals);
Service utilization data obtained from community providers;
Medicaid utilization and expenditure data;
Medicare cost reports;
Audited expenditure reports for community provider agencies; and
State-level management information systems.

B. ACT Program Components Related to Outcomes

Several of the studies examined in this review have attempted to confirm the findings of earlier evaluations to determine if the model is replicable. However, the target populations and geographic locations of ACT programs in most studies of ACT vary widely. While some studies focus on consumers scheduled for hospitalization or with historically high inpatient utilization patterns (Stein &Test, 1980; Hoult et al., 1983), others focus on consumers with specific diagnoses (Drake et al., 1998) or residencies (Morse et al., 1992), or within certain geographic areas. The lack of consistency makes it difficult to directly compare program results and models, and limits the generalizability of results.

Additionally, implementation of the ACT model varies considerably from site to site. The literature review uncovered several adaptations of Test and Stein's original PACT model. Almost every study examined had, to some extent, varied their implementation of the model to fulfill the particular goals of the program or specific needs of the target population. Deci et al. (1995) noted similar deviations from the original model in their survey of 303 ACT programs within 34 States. The authors reported the following results:

71 percent of programs provided services 24 hours a day;
88 percent of programs included a psychiatrist as a member of the team;
88 percent of programs included a nurse as a member of the team;
55 percent of programs directly provided services to consumers, rather than brokering services to other agencies; and
45 percent of programs created teams that shared a common caseload.

Linking positive program outcomes to specific programmatic elements (e.g., the provision of 24-hour care) would help to explain how adaptations of the ACT model affect its efficacy and overall cost. However, the current research base on ACT does not establish these types of linkages. Researchers have generally studied outcomes for all ACT services combined, rather than the outcomes of specific programmatic components. This review therefore attempted to identify programmatic elements associated with specific outcomes by examining which elements of the model were implemented when specific outcomes were reported.

Table 3 outlines how frequently each ACT program element[16] was reported in the literature. The elements most commonly referenced include: in-vivo services, small caseload, team approach, assertive engagement mechanisms, and explicit

[16] A standard list of ACT components was constructed based on models developed by Mcgrew & Bond (1995) and Teague, Bond, & Drake (1998). This list was expanded upon to incorporate specific programmatic features discussed in the 18 studies reviewed for this report.

admissions criteria. Because most studies do not provide detailed descriptions of treatment programs, it was not possible to identify all of the programmatic features of services implemented at individual program sites. Using the frequency with which program elements are reported in the literature may result in an underestimation of the importance of some elements that are not frequently reported in the literature. However, the services and program features identified in the literature represent elements that are thought to be the most relevant to the outcomes reported and/or most prominent in the design and implementation of the program.

Table 3: Number of Studies Referencing Implementation of ACT Program Elements

Program Components	**Number of Studies Citing Component**
Admission and Discharge	
Explicit Admissions Criteria	12
Hospital Admissions	3
Hospital Discharge Planning	0
New Consumer Admissions (Intake Rate)	0
Nature of Services	
Assertive Engagement Mechanisms	14
Individualized Treatment	4
*Individual Counseling	1
*Medication Management	5
Substance Abuse Treatment	3
Dual Disorders Model	1
*Job/Employment Assistance	3
*Training in basic skills and social skills	7
Work with Support System	6
Time-Unlimited Services	6
Intensity of Services	3
No Dropout Policy	0
Team Size and Structure	
Small Caseload	13
Staff Capacity	0
Practicing Team Leader	1
Psychiatrist on Staff	8
Nurse on Staff	4
Vocational Specialist	0
Substance Abuse Specialist	1
Role of Consumers/Peer Specialists on Treatment Team	1
*Family Outreach worker on staff	1
*Consumer advocate on staff	1
Program Size	0
Continuity of Staffing	2
24-Hour Coverage	6
Team Approach	14
Full Responsibility for Treatment Services	4
In-Vivo Services	17
Frequency of Contact	5
Team Meeting	3
*Consent of Consumer needed	1

***Program Component identified through a specific study or studies rather than fidelity models constructed by McGrew & Bond (1995) and Teague, Bond, & Drake (1998).**

Table 4 lists the top 15 ACT program components commonly associated with each outcome examined in this review (See Appendix B for the complete list of rankings by outcome measure).[17] Although some variation exists within specific

[17] Outcomes were only recorded for specific program elements if the ACT treatment group performed relatively better than the control group.

outcome measures, the programmatic elements most frequently associated with positive ACT outcomes include:

The use of In Vivo Services, where a substantial number of services are offered directly in the community, rather than in an office-based setting;
Employing Assertive Engagement Mechanisms, including street outreach and legal mechanisms;
Retaining a relatively Small Caseload, with a staff-to-consumer ratio usually between 1:10 to 1:20, depending on the specific needs of the program;
Utilizing a Team Approach, rather than having clinicians function independently with little or no coordination with specific consumers; and
Establishing Explicit Admissions Criteria, where the program actively recruits a defined population to receive ACT treatment services.

Additionally, having a full-time psychiatrist on staff was frequently associated with decreasing the amount of time consumers spent in hospitals, decreasing consumers' symptoms, and increasing housing stability. Half of the studies finding better symptomology and housing permanency outcomes for the ACT treatment group mentioned providing services on either a time-unlimited basis or establishing a long-term commitment to the consumer.

Given the small number of studies reporting positive outcomes for jail/arrest patterns, substance abuse, and medication compliance, identifying meaningful patterns across the studies for linking program components to outcomes was not possible. However, offering 24-hour coverage and working with consumers' support system were associated with positive outcomes in at least one study.

Table 4: Number of Studies Referencing Program Component When Positive[18] Outcomes were Reported for Assertive Community Treatment Group

PROGRAM COMPONENTS	**Decreased Time in Hospital N = 10**	**PROGRAM COMPONENTS**	Decreased Symptoms N=6
In-Vivo Services	10	In-Vivo Services	6
Assertive Engagement Mechanisms	8	Assertive Engagement Mechanisms	5
Team Approach	8	Small Caseload	5
Explicit Admissions Criteria	6	Team Approach	5
Small Caseload	6	Explicit Admissions Criteria	4
Psychiatrist on Staff	5	*Training in basic skills and social skills	3
24-Hour Coverage	4	Psychiatrist on Staff	3
Frequency of Contact	4	Time-Unlimited Services	3
Nurse on Staff	4	*Job/Employment Assistance	2
Work with Support System	4	*Medication Management	2
Time-Unlimited Services	3	24-Hour Coverage	2
*Job/Employment Assistance	2	Frequency of Contact	2
*Medication Management	2	Full Responsibility for Treatment Services	2
*Training in basic skills and social skills	2	Individualized Treatment	2
Full Responsibility for Treatment Services	2	Intensity of Services	2
PROGRAM COMPONENTS	**Reduced Substance Abuse N= 1**	**PROGRAM COMPONENTS**	**Increased Medication Compliance N=2**
24-Hour Coverage	1	Assertive Engagement Mechanisms	2
Assertive Engagement Mechanisms	1	In-Vivo Services	2
Continuity of Staffing	1	*Job/Employment Assistance	1
Dual Disorders Model	1	*Training in basic skills and social skills	1
Explicit Admissions Criteria	1	24-Hour Coverage	1
Full Responsibility for Treatment Services	1	Frequency of Contact	1
Intensity of Services	1	Individualized Treatment	1
In-Vivo Services	1	Intensity of Services	1
Small Caseload	1	Psychiatrist on Staff	1
Substance Abuse Specialist	1	Team Approach	1
Substance Abuse Treatment	1	Team Meeting	1
Team Approach	1	Work with Support System	1
Work with Support System	1	*Consent of Consumer needed	0
*Consent of Consumer needed	0	*Consumer advocate on staff	0
*Consumer advocate on staff	0	*Family Outreach worker on staff	0

*Program Component identified through a specific study or studies rather than fidelity models constructed by McGrew & Bond (1995) and Teague, Bond, & Drake (1998).

[18] An outcome was scored positive if the experimental (ACT treatment) group performed significantly ($p<.05$) better than the control (standard case management) group (e.g. reductions in symptomology; increased housing stability; relatively lower costs).

Table 4 (cont.): Number of Studies Referencing Program Component When Positive Outcomes were Reported for Assertive Community Treatment Group

PROGRAM COMPONENTS	**Increased Housing Stability** N=7	**PROGRAM COMPONENTS**	Reduced Jail/Arrests **N=2**
In-Vivo Services	7	Assertive Engagement Mechanisms	2
Assertive Engagement Mechanisms	6	Explicit Admissions Criteria	2
Explicit Admissions Criteria	6	In-Vivo Services	2
Small Caseload	6	Small Caseload	2
Team Approach	5	Team Approach	2
*Training in basic skills and social skills	4	*Consumer advocate on staff	1
Time-Unlimited Services	4	*Family Outreach worker on staff	1
Individualized Treatment	3	24-Hour Coverage	1
Psychiatrist on Staff	3	Full Responsibility for Treatment Services	1
*Medication Management	2	Nurse on Staff	1
24-Hour Coverage	2	Psychiatrist on Staff	1
Frequency of Contact	2	Team Meeting	1
Full Responsibility for Treatment Services	2	Time-Unlimited Services	1
Nurse on Staff	2	Work with Support System	1
Work with Support System	2	*Consent of Consumer needed	0
PROGRAM COMPONENTS	**Improved Quality of Life** N=7	**PROGRAM COMPONENTS**	Reduced **Costs** N=5
In-Vivo Services	7	In-Vivo Services	5
Assertive Engagement Mechanisms	6	Small Caseload	4
Team Approach	6	Team Approach	4
Explicit Admissions Criteria	5	Assertive Engagement Mechanisms	3
Small Caseload	5	Explicit Admissions Criteria	3
24-Hour Coverage	4	*Medication Management	2
Work with Support System	4	Frequency of Contact	2
Frequency of Contact	3	Hospital Admissions	2
Intensity of Services	3	Nurse on Staff	2
Nurse on Staff	3	Psychiatrist on Staff	2
Psychiatrist on Staff	3	Time-Unlimited Services	2
*Job/Employment Assistance	2	*Individual Counseling	1
*Training in basic skills and social skills	2	*Job/Employment Assistance	1
Full Responsibility for Treatment Services	2	*Training in basic skills and social skills	1
Individualized Treatment	2	24-Hour Coverage	1

*Program Component identified through a specific study or studies rather than fidelity models constructed by McGrew & Bond (1995) and Teague, Bond, & Drake (1998).

The studies summarized above support the hypothesis that the ACT model is an effective approach to reducing hospitalization, increasing the stability of

housing, and increasing the quality of life for consumers. Findings are mixed about other positive effects, such as reductions in symptomology and the program's relative cost-effectiveness. However, many researchers recognize that these results are comparable to or better than the results of these outcomes found in alternative forms of care (Drake, 1998).

V. Implementation and Consumer Issues Associated with ACT

ACT differs from traditional treatment approaches in philosophy and organization, the consumers served, and its emphasis on health and social outcomes (Clark, 1997). The review of the outcomes-based research literature in Section IV indicates that ACT programs are often individually tailored in accordance with a particular State's values, needs, and constraints. As a result, those administering ACT programs may find it challenging to translate the goals and tenets of the original ACT model into practice. States must also consider a host of consumer oriented issues when designing, implementing, and operating ACT programs. Attempting to balance the assertive nature of the program with the potential for coercive treatment practices is a key priority for States implementing the model.

The goal of the evaluation currently being conducted by The Lewin Group is to develop an information base for technical assistance for States considering implementing and financing ACT programs. Understanding the major issues (e.g., barriers to implementation, consumer issues, etc.) associated with ACT programs is critical for developing this type of technical assistance. The following sections discuss the major implementation and consumer issues associated with the ACT program that are of relevance to the current project.[19]

A. Implementation Issues

This section examines three key issues associated with implementing ACT programs:
1) Staffing, including recruiting, training, and retaining the right mix and number of professionals and their peer counterparts on the team; 2) Financing, including obtaining the level and type of funding that support ACT programs; and 3) Geography, including overcoming geographic barriers to staff and community-based service availability and consumer participation.

[19] Information was drawn from available literature on ACT implementation, telephone interviews with experts on ACT program development, and two focus groups with state mental health and Medicaid administrators. Additionally, literature that was not ACT-specific but which addressed these issues in the context of mental health treatment was reviewed for the discussion.

1. Staffing

Many researchers and program administrators have noted the importance of utilizing qualified and competent staff for ACT programs (Advisory Panel Meeting, 2000). Both the intense nature of the treatment program and the types of populations targeted make it necessary to staff teams with the most appropriate and well-trained individuals. However, many programs have experienced difficulty in attracting and retaining team members. The key issues with respect to staffing that can impede effective implementation of the ACT model include:

Training. A common problem that programs face is finding staff who are sufficiently trained and knowledgeable in the ACT model (Allness and Knoedler, 1998) or in treating people with SPMI. Service providers often have to modify the way they think about the treatment process and their respective roles in it, adjust their relationship and behavior with consumers and support systems, and accept greater vulnerability in clinical practice. Some organizations have noted that team members can have difficulty adjusting their professional values and practice to this type of rehabilitation approach (Center for Psychiatric Rehabilitation, 1997). In addition, providers might also lack experience in a team-oriented approach to treatment. Resistance to training and/or inexperience in working with teams can result in conflict between team members, high turnover rates, and ultimately, a fragmented service system of care. Programs experiencing these types of challenges may have to allocate additional resources to training staff.

Recruiting and Retention of Program Staff. Due to funding constraints, programs are often unable to offer salaries that are sufficiently competitive to attract experienced and qualified staff. This is a particular problem with respect to recruiting and retaining skilled nursing staff. Often compounding the problem is the demanding nature of the program. Many ACT programs offer care 24 hours a day, 7 days a week, and therefore require team members to work undesirable or lengthy shifts. As a result, some programs have reported difficulties in attracting staff to the program and higher than expected staff turnover rates (Advisory Panel Meeting, 2000).

Peer specialists. Increasingly, programs are including peer specialists on ACT teams. However, programs that employ consumers as providers may experience difficulty in sufficiently reimbursing these individuals because third-party payers (e.g., Medicaid) do not typically reimburse for services rendered by peer specialists (Solomon and Draine, 1998). Program administrators might use the lack of reimbursement options to justify lower salaries and benefits to peer specialists than other providers (Solomon and Draine, 1998). These policies often

are quite controversial, since many consumers, advocates, program administrators, researchers and policy-makers suggest that the peer specialist is not a volunteer position, but rather a professional role that is integral to the team. They therefore stress the importance of compensating peer specialists at rates commensurate with other counselors, and urge teams to be structured in ways that allow these providers to sufficiently function in their role.

Right professional mix and number on team. Achieving an appropriate mix and number of professionals on ACT teams is important for ensuring that services are comprehensive and available when consumers need them. However, programs often face difficulty in achieving the right professional mix and number on teams. For example, nursing staff can be especially difficult to attract to ACT treatment teams because of their high demand in the general health care sector and the demanding nature of the ACT program on team members. In addition, geographic barriers, such as providing services to rural areas, can present challenges in attracting sufficient numbers of qualified providers to staff ACT teams.

2. Financing

States use a variety of financing mechanisms to support ACT programs – primarily State general revenues and Medicaid reimbursement. Financing approaches vary with respect to the types and amounts of resources allocated, as well as reimbursement strategies. Program eligibility, the types and availability of services offered, and the composition of treatment teams influences the choice of financing arrangements for ACT programs. The following section reviews some of the larger issues States face related to Medicaid and alternative reimbursement options when devising strategies to finance their ACT programs.

Medicaid Funding. Although many States use Medicaid funding to finance at least part of their ACT programs, there are several issues associated with Medicaid financing. Given that the breadth of services offered by ACT programs is more extensive than the services typically reimbursable through Medicaid (Stein and Santos, 1998), some States have difficulty fully utilizing this revenue stream. States that finance ACT under Medicaid typically do so under the rehabilitative services or the targeted case management categories. Consequently, reimbursement for ACT services is constrained within the parameters of what is allowable under these categories. Program administrators and experts in the field have reported difficulty in classifying the treatments they provide into these categories (Advisory Panel Meeting, 2000).

Another issue concerns the level of reimbursement allowable under Medicaid, which may underestimate the actual cost of services. For example, the cost of

providing in-vivo counseling may involve a series of attempts before an actual service is rendered. The time and effort invested in engaging the consumer in the service may not be fully billable under Medicaid.

Managed Care: The SAMHSA Behavioral Health Tracking Project (1999) reports that 41 states and the District of Columbia have implemented some form of managed behavioral health care. Ninety-eight percent of all states with managed behavioral health programs use Medicaid to either fully or partially fund their programs. Thirty-seven states contract with an MCO on a capitated basis for at least one of their programs. The next most common payment arrangement consists of negotiated fixed fees. The implications of managed care for ACT are unclear since little empirical work has been conducted on this topic. On the positive side, the structure of managed care financing may offer more flexibility in individualizing service packages for consumers enrolled in ACT programs. On the downside, actual capitated or fixed-fee rates may produce a disincentive for serving those with high service needs.

Combining Funding Streams and Resources. Those involved in the financing of ACT programs suggest incorporating the use of other funding streams, such as substance abuse or housing related funding, in order to more efficiently capitalize on the types of funding available. Although most contend that utilizing multiple and coordinated funding is necessary and desirable, they also recognize some of the inherent difficulties of integrating a greater variety of funding streams. Since, similar to Medicaid, each stream of funding has separate and often contradictory requirements attached to their use, combining or blending several funding streams for one program may be incredibly arduous, if not impossible. Therefore, the types of services offered by particular programs may be intricately tied to the types of funding that are used to finance the program.

Financing of ACT programs is also complicated by the fact that the model is characterized by a combination of health and social services. Providing this mix of services can be problematic for some States (Stein and Santos, 1998), in part because administrators must develop ways to finance community-based ACT services within existing administrative structures that were designed for traditional office-based treatment (Clark, 1997). These challenges and concerns can strongly influence program implementation, quality, effectiveness, and survival (Clark, 1997).

Acquiring sufficient levels of funding. ACT programs require a significant amount of resources not only for the services that are provided, but also for implementation and administration. These costs have made it difficult for some

States to effectively implement programs (Dickey and Cohen, 1993), and can compromise program fidelity to the ACT program model.

The rate of staff turnover may also complicate a State's ability to adequately fund their ACT program. High rates of turnover within programs can result in fragmentation of services and the need to devote more resources to staff training.

3. Geography

ACT programs have been implemented in various geographic locations throughout the United States, including rural, frontier, suburban, and urban locales. Geography can create unique barriers to staff and community-based service availability, as well as consumer participation. Most literature examining the geographic issues associated with ACT implementation has focused on rural areas. Because geography can also create implementation barriers in other regions, this discussion was supplemented by telephone interviews with ACT experts and State Medicaid and mental health administrators.

Some important issues related to geography and implementation of ACT programs include:

Staffing ACT Teams. Certain geographic areas, rural areas in particular, might face increased difficulty in recruiting qualified providers and sufficient numbers of providers to staff teams. Having insufficient numbers of staff can lead to burnout, an inappropriate mix of professionals on the team, high rates of staff turnover, and ultimately, fragmentation of services. Geographic barriers can also result in feelings of professional isolation.

Providing Services In Vivo. In areas where populations and services are highly spread out, such as rural and frontier areas, it may be difficult to provide services in vivo on a consistent basis. Access to and the additional time required for transportation may be highly prohibitive. In such situations, the cost of administering the program may increase substantially.

Lack of cultural competence. In an effort to more directly meet the needs of their consumers, many ACT programs attempt to hire staff members that are both technically and culturally competent. However, in some areas, especially where it is difficult to recruit staff members, it might be extremely challenging to find individuals with the requisite skills in cultural competence. The lack of these skills is of concern to many administrators, consumers, and providers, who suggest that treatment outcomes may be compromised if staff can not appropriately communicate or understand the needs of their consumers.

Availability of community-based services. Distance and the size of the population in need of community-based services may not make it economically efficient to offer services in some areas. As a result, some individuals may not have access to specific sets of services or may have to travel long distances to obtain them.

Structural, financing, staffing, and geographic issues can affect full ACT model implementation. Programs might be forced to adapt elements of the model to overcome these challenges and fit the needs of certain populations (McDonel et al., 1997). Consideration of these major implementation issues will be a central feature in conducting the process evaluation. This understanding will allow for documentation of how programs have adapted the model, and recognition that local adaptations to the model might be unavoidable. These issues will also be considered in the budget simulation model. However, data availability will drive the extent to which the cost model can feasibly address the issues.

B. Consumer Issues

Many consumer groups and providers have expressed concerns related to outpatient commitment and the potential for coercive practices within the ACT framework. They are wary of the aggressive nature of many ACT programs, suggesting that there is often a fine line between "assertive" and coercive treatment practices.

Most ACT research has not addressed or incorporated consumer perspectives (Penney, 1995; Lang et al., 1999), with only a handful of studies actually including these perspectives in the assessment of consumer needs and treatment outcomes (Lang et al., 1999). Consumers, advocates, program experts, and the limited literature on the topic of patient participation have identified two major consumer-oriented issues with respect to the ACT model: coercion and outpatient commitment. Both topics address fears by many within the mental health community that patients' rights are violated by the aggressive or assertive nature of ACT programs with respect to placing and retaining patients in treatment. Due to the lack of literature that focuses on these issues in the context of ACT, literature that was not ACT-specific, but which addressed consumer concerns with respect to other types of mental health treatment, was reviewed to supplement the discussion below.

1. Coercion

The intense and aggressive nature of the ACT model has led many within the field to express concern for the rights of patients. At issue is whether some programs unethically coerce patients into accepting treatment from the ACT

team. Evaluating and resolving these concerns can be extremely challenging given the lack of clarity within the field with respect to defining coercive behavior (Hiday, 1992). Many individuals involved with ACT programs claim that there is a gray area between what is considered coerced behavior versus merely assertive treatment (Advisory Panel Meeting, 2000). In an attempt to draw clearer distinctions between appropriate treatment practices and coercion, experts in the filed of mental health have proposed the following definitions:

> Coercion is any action the "coerced" individual says it is. For example, coerced hospitalization is when an individual feels forced to accept hospitalization (Hiday, 1992).
>
> The NIMH defines coercion as "a wide range of actions taken without the consent of the individual involved" (Diamond, 1996).
>
> The use of social control to protect and bring treatment to individuals with a mental illness, relieve illness-induced suffering, and protect others (Hiday, 1996).

Within the context of ACT programs, coercion can include a range of behaviors including, friendly persuasion, interpersonal pressure, control of resources, and the use of force (Diamond, 1996). Consumers, family members, providers, and other key stakeholders remain divided, both within and across their respective subgroups, about the use of coercive practices within the ACT model framework. Additionally, the few studies that have attempted to measure consumer perspectives on coercion report conflicting results about consumers' views on this method of forced treatment. While some support the use of force, when necessary, to administer treatment services, others contend that the explicit agreement of the individual receiving treatment must be obtained in the interest of fairness and justice.

Research generally suggests that coercion may be harmful to the consumer. Some of the findings associated with coercion include:

> Consumers have reported feeling angry about being physically controlled and deceived and hurt by their involuntary commitment upon discharge from a hospital (Monahan et al., 1995). They have also reported that involuntary interventions, such as forced medication, can produce feelings of sadness, fear, anger, confusion, and learned dependency (Campbell).
>
> Involuntarily committed consumers tend to hold more negative views about hospitalization than voluntary patients, and most patients who feel

coerced at hospital admission expect little or no benefit from it (Hiday, 1996).

Consumers report that coercive interventions undermine possibilities for recovery and independence, and leave individuals feeling hopeless, helpless, and believing they will never recover (Penney, 1995).

In addition to consumers' views on the effects of coercion, researchers have identified several other potential problems with coercion, including:

Coercion is often criticized as being paternalistic because it limits patients' autonomy (Diamond, 1996). Coercive interventions are often justified by professionals and family members by assuming that consumers do not know what is in their own best interest (Campbell). There can also be major interpersonal costs associated with coercion when the consumer moves from a collaborative to a controlling relationship (Diamond, 1996).

Coercion is often a short-term solution to a long-term problem, and may be used only because other options are not available (Diamond, 1996).

The use of coercive measures in a community might deter prospective consumers from voluntarily seeking treatment out of fear that they will be committed (Monahan, 1996; Campbell).

A mechanism beginning to gain acceptance in the mental health community is the use of advance directives, where the consumer provides instructions on how care should be given if or when s/he becomes increasingly ill or incompetent to make such judgments. Some experts in the field are concerned that coercive tactics may impede or undermine the use of advance directives by consumers (Advisory Panel Meeting, 2000).

2. Outpatient Commitment

Outpatient commitment is a form of court-ordered civil commitment whereby individuals undergo mental health treatment in outpatient settings (Torrey & Kaplan, 1995; Keilitz & Hall, 1985), and is considered to be one of the most extreme forms of coercion (Diamond, 1996). It is used as a way to provide mental health and social services to individuals who do not require continuous inpatient hospitalization, but who resist treatment and care in voluntary settings less restrictive than a hospital (Keilitz & Hall, 1985).

The amount of coercion with outpatient commitment varies with patient needs and community mental health center policies (Hiday, 1996). However, the most

common forms of coercion are controlling housing and money (Diamond, 1996). Other examples of coercion in the community include providers communicating with people who are important to consumers, such as family members, landlords, and employers, and coercing consumers to take medication (Diamond, 1996).

Outpatient commitment has been criticized for its excessive State intrusion and paternalism, because the treatment team is involved in all aspects of the consumers life and with all elements of the consumer's support system (Diamond, 1996). This paternalism can limit patients' autonomy and encourage them to settle for stability rather than growth (Diamond, 1996). Outpatient commitment has also been criticized for undermining therapeutic relationships (Torrey & Kaplan, 1995).

While the ACT model does not explicitly advocate the use coercive measures, consumers, family members, and other key stakeholders in the field have criticized programs' use of ACT as a vehicle to employ coercion. They claims that the use of coercive measures fails to recognize the fundamental value of consumer choice and the rights of consumers in sharing responsibility for their recovery.

Based on the aforementioned issues, the process evaluation being conducted by The Lewin Group should identify ways to determine the nature and extent to which programs are using coercive tactics. It will also be important to consider the mechanisms being used by programs or alternatives that exist in the community that serve as substitutes for more coercive treatment elements.

VI. Conclusion and Next Steps

A review of the literature on Assertive Community Treatment showed that the ACT model has been well studied, but that specific program components that contribute to the model's success have not been extensively researched. The lack of studies that link specific program elements to outcomes makes it impossible to develop a definition of evidence-based ACT only from the outcomes literature. Because of gaps in the literature, expert consensus was also used to develop a working definition of evidence-based ACT.

Even though there are gaps in the literature that link individual components of ACT programs to outcomes, the ACT literature does suggest how these components work together to create outcomes. In addition, the literature indicates which programmatic elements are most frequently associated with positive ACT outcomes. These elements include in vivo services, assertive

engagement mechanisms, small caseload, team approach, and explicit admissions criteria.

Research has shown that there is substantial variation among ACT programs. For example, a survey of 303 programs in 34 States by Deci et al. (1995) reported considerable variation in the degree of adherence to the ACT program model as defined by McGrew et al. and the authors. The authors found that significant differences among programs existed in the availability of 24-hour coverage, the proportion of services delivered in vivo, the extent to which services were directly provided by program staff, and the extent to which teams shared a common caseload (Deci et al., 1995).

ACT program models can rarely be replicated exactly because local conditions influence program design.[20] As The Lewin Group evaluates State ACT programs and develops a budget simulation model, it will be understood that a certain degree of program variation is likely to affect the "critical ingredients" necessary for success in a particular area. For example, as mentioned above, a program that emphasizes obtaining jobs would likely benefit from the involvement of a vocational specialist. For a State with limited resources, hiring a full-time psychiatrist may be problematic. For rural programs covering large geographic areas and including few personnel, completely shared caseloads for treatment provision and daily team meetings may be impractical. Finally, newly implemented programs may need to focus on specific measures that will ensure that consumers' basic needs are met. In evaluating States' experiences in supporting ACT programs, it is likely that current programs will differ from the working definition of evidence-based ACT and that the definition will have to be revised.

In proceeding with this study, the critical components of the ACT model (Table 1), identified through this literature review and confirmed by the Advisory Panel, will constitute the conceptual framework for the study. This set of components will serve as the basis for assessing ACT program implementation and factors to consider in building the cost simulation model. The Lewin Group, with input from the Advisory Panel and Federal Team, will continue to reexamine the components included in this framework and assess their practical application in the field. Some elements may need to be added to the definition, while others may be excluded because they are less relevant when applied on a broad scale. For example, a critical issue to examine is the inclusion of more explicit requirements for the treatment of substance abuse in ACT programs. To

[20] See McGrew et al., (1994); and Brekke, John S. and Mary Ann Test. "A Model for Measuring the Implementation of Community Support Programs: Results from Three Sites." *Community Mental Health Journal*. 28(2), June 1992.

date, the literature on treating substance abuse populations through ACT is limited. Nevertheless, because ACT programs are increasingly providing substance abuse services, these services are included under the broader "services" component of the working definition of ACT (Table 1). The challenge for the current project will be to gain a better understanding of how these services are being implemented with regard to the team structure, number of service contacts, amount of service time, and treatment modalities appropriate for ACT consumers with substance abuse disorders. One of the consensus-based fidelity measures – the DACTS – provides a starting point to further specify these elements. The DACTS requires the following elements:

> Group treatment modalities: at least 50 percent of consumers with substance abuse disorders attend at least one substance abuse treatment group meeting per month ;
>
> Utilization of the Dual Disorders (DD) treatment model;
>
> At least two substance abuse specialists (2 FTEs) with at least one year of training or clinical experience; and
>
> At least 24 minutes per week of substance abuse treatment for consumers with substance abuse disorders.

Similarly, the working definition of evidence-based ACT excludes requirements about having a vocational specialist on the ACT team. Both the DACTS and the PACT standards recommend at least one team member with training or experience in vocational rehabilitation and support. It will be necessary to obtain input from SAMSHA and HCFA about refining the working definition to incorporate these additional requirements for programs that are tailored for populations with dual disorders or that emphasize the obtainment of employment.

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