

**A PATH FORWARD TO MEASURING CONTINUING CARE MANAGEMENT
FOR SUBSTANCE USE DISORDERS:**

PATIENT-FOCUSED EPISODES OF CARE

A white paper to serve as a background discussion document for an NQF workshop designed to adapt and improve substance use illness quality measures for continuing care management within a changing information and practice environment.

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I. Introduction

Goals of the White Paper

The goals of this white paper are: (1) to define the key elements and goals of continuing care management; (2) to apply an episodes framework to the conceptualization of continuing care management for substance use disorders (SUD); (3) to identify challenges in applying an episode framework to continuing care management, including important gaps in measurement; and (4) to propose methods for assessing the quality and efficiency of continuing care management provided within an episode framework. These topics are addressed in the next sections.

Structure of the White Paper

This paper begins with a discussion of the key elements and goals of continuing care management. An episode framework is then described, as applicable to chronic disease, and this framework is applied to continuing care management for SUD. We present both the strengths and challenges in operationalizing this approach with respect to the SUD continuing care treatment field. Next, we discuss the current state of the treatment system for SUD, including treatment guidelines and quality measures being used in research and in practice. These are conceptualized within the three measurement domains of the episode framework: patient-level outcomes, overall resource use, and processes of care. Suggestions for an improved treatment delivery system that uses measurement of outcomes and processes to inform clinical decision making in continuing care management are also presented. We conclude with a discussion on the perceived gaps in measures to assess quality of continuing care management and suggestions

for measurement of quality that would help move the field forward and effectively operationalize an episode framework for continuing care management of SUD.

II. Key Elements and Goals of Continuing Care Management

To address the chronic nature of SUD, the field of addiction treatment has increasingly focused on the development and implementation of “continuing care” interventions (Dennis & Scott, 2007; McKay, 2009). A typical example of a continuing care intervention is weekly group counseling after residential or intensive outpatient treatment. Extended low intensity monitoring and linkage to community resources following the completion of standard outpatient treatment are also examples of continuing care. Continuing care can be provided through a number of different modalities and orientations, including group, individual, and couple/s family therapy, and monitoring visits or “recovery checkups.” It can be delivered in specialty clinics, other settings, or remotely via telephone, tele-video, or the internet.

At this point, there are a number of other terms in the addiction treatment field that imply or are in some way associated with the concept of continuing care management (McKay, 2005). These include “aftercare,” “step-down care,” “stepped care,” “continuum of care,” and “disease management.” However, “continuing care,” and these related terms, all describe service delivery systems in which treatment for SUD typically involves some phase of care beyond the initial acute care episode. The key goals of continuing care management include the following (Dennis & Scott, 2007; McKay, 2009):

- Easing the transition from a more intensive to a less intensive form of treatment
- Regular monitoring of patients’ symptoms, status, and functioning
- Addressing relapse risks as they emerge through the use of evidence-based interventions

- Providing support for efforts to deal with co-occurring problems
- Facilitating ongoing participation in self/mutual help programs
- Providing social support or linkage to social support
- Linking the patient to other sources of recovery support in the community
- Facilitating patients' involvement in a range of positive, recovery oriented activities
- Tailoring, or adapting, treatment over time as needed in response to changes in patients' symptoms, status, or functioning to provide more effective and cost-effective care

To determine the quality of continuing care management at the program or system level, it is necessary to assess the degree to which these goals are being achieved. As is discussed later in the paper, not all of these goals are regularly met in the current substance use disorder service delivery system.

There is general agreement that individuals with alcohol or drug dependence require continuing care management, particularly if they have a history of multiple treatment episodes followed by relapse. However, there is less agreement regarding whether individuals with substance use problems and disorders that have not progressed to that level of severity and chronicity need continuing care management, and if so, what that should entail. There are also some differences of opinion as to where in the recovery process continuing care interventions should begin. For some participants in the NQF continuing care management initiative, continuing care should begin relatively early in the treatment process, after an intensive intervention such as residential or inpatient treatment or intensive outpatient treatment. In this situation, continuing care provides a combination of treatment and monitoring, in which the balance shifts more from the former to the latter over time. Alternatively, for other participants,

continuing care represents relatively low-level monitoring, which should be provided after formal clinic-based phases of treatment are completed. According to the first definition, standard outpatient care that follows residential or intensive outpatient treatment would be seen as continuing care, whereas according to the second definition, it would not.

III. Episodes of Care

An episode of care is a “series of temporally contiguous health care services related to treatment of a given spell of illness or provided in response to a specific request by the patient or other relevant entity” (Hornbrook, Hurtado, and Johnson, 1985). It relates health care inputs (the specific set of events, process and time period necessary for generating a specific outcome) to health care outputs. This conceptual framework serves as a foundation for evaluating health care delivery, by examining the complexity of diseases and related health care services, regardless of setting or service, that are delivered for a particular medical care problem (Rosen and Mayer-Oakes 1999; Rosen and Mayer-Oakes, 1998; Rosen et al., 1998).

Episodes are also useful for evaluating efficiency --costs and quality-- providing a measurement strategy that can identify both quality and quantify costs for individual services provided during the episode (Hornbrook, Hurtado, and Johnson, 1985; Rosen et al., 1998). Episodes typically involve multiple encounters; each encounter is composed of the chronologic sequencing of services and events over a defined period of time, allowing for the examination of the entire process of care that is rendered. An episode of care, as a unit of analysis, thus makes it possible to evaluate the quality of care delivered around a specific condition, at varying points within the episode, without confounding by care setting or type of provider. For example, episodes link processes with outcomes of care, providing a unique window into whether

treatment follows evidence-based guidelines for a particular condition or whether a patient's outcome reflects the treatment delivered. Finally, an episode approach allows for a comprehensive comparison of medical conditions longitudinally, by tracking care across systems and providers over time. In some organizations, readily available claims or encounter data can be easily used to generate episodes. These data contain both dates of service and events, allowing care to be organized in chronological sequence, providing a meaningful way of examining the course of treatment delivered to patients (Hornbrook, Hurtado, and Johnson, 1985).

An episode framework is also useful for providing a patient-centered approach, if the treatment and outcome preferences of a patient are accounted for in the episode. An “episode of illness,” as compared with an “episode of care” refers to what the patient actually experiences and how he/she perceives the illness rather than the health care services organized to deliver care related to that specific condition. An episode provides a framework for examining how well the patient's preferences for treatment actually match with the care processes that are being delivered (Hornbrook, Hurtado, and Johnson, 1985). The patient's needs at each stage of an episode (diagnostic evaluation, treatment intervention, and continuing care) can be evaluated. For example, at the end of the episode of care, two key patient-related outcomes are measurable: 1) patient-level outcomes and 2) overall resource use. These domains provide important information on whether the care delivered was appropriate in meeting the patient's needs and medical condition (Brook, 2009). They also allow for a longitudinal assessment of the quality and cost (i.e., efficiency) of the episode across the entire trajectory of treatment. Processes of care, across the trajectory, are also important domains necessary for measuring efficiency, particularly if they are strongly linked to the intermediate or final outcomes being assessed. How

all these dimensions get incorporated into an episode is challenging, given the variation in severity across patients, their differing needs, and the variety of providers and settings involved in care.

An Episode of Care Framework for Continuing Care Management for SUD

An episode of care framework has been developed and endorsed as a conceptual model by the National Quality Forum (NQF) for measurement of quality and efficiency. The framework has been conceptualized for application to several chronic diseases, including diabetes and cancer (NQF, 2009). This framework, not without its challenges, has shown strong face validity and good performance in evaluating quality and efficiency of these diseases. A major goal of this paper is to explore whether this framework can be successfully adapted to measure quality and efficiency of continuing care management of SUD. An episode framework has strong face validity for SUD, because, similar to diabetes and other chronic health conditions, SUD is chronic, requiring long-term management and comprehensive care. Although some individuals with SUD recover with little or no treatment and do not necessarily benefit from or need continuing care management, most individuals who seek treatment for SUD require some type of continuing care management. According to the NQF, treatment of SUD involves both a continuum of care and a longitudinal perspective, with comprehensive treatment for those with more severe SUD, including employment of a chronic care model (NQF, 2007). Similar to other chronic diseases, the complexity of settings and providers typically involved in continuing care management suggests that the episode framework is ideal for assessing and meaningfully integrating the three important domains: patient-level outcomes, overall resource use, and processes of care. Similar to other chronic diseases, an episode framework, if constructed

appropriately, is useful for highlighting current gaps in the measurement of outcomes for SUD management and for providing opportunities for the development of new process and outcome measures. These measures will be useful at each of the different stages of the episode in examining quality and efficiency within different clinical care settings.

Thus, an episode of care framework for continuing care management of SUD makes sense on a theoretical level, because of its previous use in conceptualizing other chronic diseases. On a practical level, however, there are numerous challenges that need to be overcome, but that can be achieved based on previous work. In the next few paragraphs, we first conceptualize continuing care management of SUD within the episode of care framework, presenting the various components and domains that are necessary for episode construction. Next, we discuss the measurement and other related issues relevant to SUD and continuing care management that may shed light on the strengths and challenges in using an episode of care framework as a conceptual model for evaluating the quality and efficiency of continuing care management for SUD.

Components of an Episode of Care Framework for Continuing Care Management of SUD

Similar to an episode of diabetes, an episode of care for continuing care management of SUD should incorporate different phases, such as the population at risk (phase 1), evaluation of treatment needed and initiation/engagement in treatment (phase 2), and patient-reported outcomes (phase 3). The population at the most risk can include individuals with a family history of SUD, individuals with pre-existing chronic medical or psychiatric conditions, individuals in treatment previously, as well as those with histories of trauma. Although several scenarios exist for a patient's entry and movement through an episode of care for continuing care

management, taking a broad view, one possible scenario for an episode of care for continuing care management begins with the patient's initiation into continuing care management following an initial phase of treatment (this needs to be clearly defined but would generally follow an intensive initial phase of brief treatment) (phase 2). The next phase of an episode of continuing care management consists primarily of maintenance treatment (which encompasses related process/outcome measures), although periodic returns to a more intensive level of specialty care may be required if a patient suffers a severe or prolonged relapse. The final phase leads to the end of formal maintenance treatment, at which point the endpoints of the episode are assessed (e.g., health-related quality of life, symptom management, and resource use—costs and utilization). Components across the trajectory of an episode may include stabilization and assessment, ongoing monitoring of progress with each treatment intervention, types of services provided, severity of the disease, comorbidities of the patient, coordination of care, types of providers involved, intermediate and long-term outcomes (health-related quality of life, and overall costs of service per episode). This scenario allows for monitoring a patient's progress through continuing care management and provides opportunities for adjusting a patient's treatment at specific points during the episode based on the outcomes assessed. Given the many components of an episode for continuing care management, more thought is necessary in order to conceptualize, and then construct, an episode of continuing care management for SUD.

Challenges to Use of an Episode of Care Approach for Continuing Care Management of SUD

There are numerous challenges to using an episode of care framework for continuing care management of SUD (see Table 1 below). First, continuing care management represents the “maintenance” phase of an episode—in that the initial treatment has stabilized the individual

sufficiently and he/she is now ready to receive care in order to “maintain” his or her functioning and prevent further relapse. One of the challenges, therefore, in conceptualizing an episode approach for continuing care management is to decide whether a “maintenance episode” is a separate episode in its own right or a component of a larger episode of care provided for SUD. Further, conceptualizing an episode of care for continuing care management differs from other chronic diseases, such as diabetes, which typically involve both a diagnostic and an evaluation phase and begin with screening, diagnostic evaluation, and/or initial interventions to establish stability, rather than with ongoing treatment for maintenance purposes. Thus, an important question to be addressed is: should a continuing care management episode be considered as its own episode or as a component of a larger episode?

Second, another challenge in constructing an episode of continuing care management of SUD is accounting for the numerous data elements that are necessary for understanding a longitudinal trajectory of an episode of care: patient’s comorbidities and severity of disease, multiple encounters within the episode, overlapping episodes if appropriate, patients’ preferences for treatment and outcomes, transitions of care, and both patient-level and resource use outcomes at each stage of the episode. Processes of care should be transparent at each stage of an episode, both to assess how well the services delivered align with the patient’s preferences and needs and to examine their association with patient-level outcomes. Thus, an important question to resolve is: are patient-level outcomes, resource use, and processes of care readily accessible and measurable within the episode of care?

Third, since continuing care management can be ongoing, the episode length must be flexible (rather than defined at 12 months) to account for the variety of services (inputs) delivered to the patient during their continuing care management as well as the effect of these

services on the patient's outcome(s) (outputs). This may differ from that of diabetes, for example, where there is an evaluation and ongoing management phase that is followed by a phase that includes "exacerbation of diabetes and complex treatments," allowing patients to return to maintenance of diabetes from previous phases. For continuing care management, the ongoing management phase may be the final phase. Thus, another question that needs to be addressed in episode construction of continuing care management is: should the episode length be flexible, and how long should the episode be?

Fourth, another challenge to an episode approach for continuing care management of SUD is that the current organizational structure and data availability of the nation's SUD treatment system does not lend itself to widespread adoption of an episode approach, at least in many healthcare systems. (Healthcare systems such as Kaiser Permanente and the Veterans Health Administration (VHA) are exceptions to this). The focus of the current system is on relatively brief treatment episodes with little support for extended treatment or coordination of care across the continuum. Included within these challenges/barriers are several issues worth noting:

- 1) Defining and measuring outcomes of continuing care management (i.e., which ones might be relevant in capturing quality and efficiency and are they readily available?);
- 2) Incorporating patient preferences and attitudes into the episode involves collecting self-reported data, which is time consuming and expensive, difficult to accomplish, and not necessarily reliable;
- 3) Incorporating comorbidities, as well as the treatment of comorbidities, into the episode of SUD: should they be in the same episode or not? If separate episodes, how should they overlap?

- 4) Accounting for family involvement in the episode (obtaining some information from the family on their involvement in and support for treatment is important since it may impact short- or long-term outcomes) may be important but is not easy to accomplish; and
- 5) Capturing the psychosocial needs of patients in the episode involves self-report, which is challenging, but is potentially important (e.g., the psychosocial needs of the individual may not align with their health beliefs or preferences, and may not match the services that are actually available or provided).

Fifth, using administrative data presents a number of challenges. Episodes of care are generally constructed linking discrete and related events tracked using administrative data. However, administrative databases do not always contain all the data elements necessary for constructing chronological episodes, such as clinical data or potentially dates of diagnoses, procedures, visits, and utilization. There continue to be concerns about the accuracy of administrative data, the ambiguity of certain ICD-9-CM and CPT codes, and the reliability of administrative data-based measures (the extent to which repeated measurements yield consistent results) due to variability in coding practices within and across sites (Iezzoni, 2003; Kashner, 1998; O'Malley et al., 2005; Stange KC et al., 1998; Tisnado et al., 2006). Nonetheless, compared to medical records or patient self-reported data, administrative data represent a potentially valuable and efficient resource for constructing episodes of care, since they are relatively inexpensive, potentially available, and can track the type and amount of services across different care settings.

Finally, determining when a new illness episode begins and ends is another challenge in episode construction. This may represent the greatest challenge to adapting an episode

framework to continuing care management of SUD. Unlike a diabetes episode, an SUD episode does not begin with evaluation, screening, and diagnosis, but with initiation to treatment (i.e., continuing care management for SUD). However, because of the episodic and chronic nature of substance use disorders, it can be difficult to determine whether a resumption of heavy use after a period of abstinence or low-level use represents a continuation of the prior illness episode or the onset of a new episode. Obviously, the longer the period of abstinence or light use, the more likely resumption of heavy use will represent a new illness episode. However, there is no consensus within the field on exactly how long the break must be, and, as far as we know, no research evidence that can be directly used to establish such a consensus. The DSM-IV defines early full remission as at least one month with no symptoms of abuse or dependence, whereas sustained remission requires at least 12 months with no symptoms. It is likely that one month without use is not a sufficient hiatus to indicate a new episode of use if relapse occurs, whereas requiring that 12 months must elapse before a return to use is counted as a new episode is probably too long.

Thus, defining the start, duration, and end of the episode is a major challenge: does the episode start when the patient begins receiving continuing care treatment or when SUD is defined? Similarly, does it end when the patient has been abstinent? What is the appropriate period of time for remission? Further, the definition of when an episode starts and ends may vary, depending upon the setting of care and/or practice patterns of the providers.

Table 1. Challenges to Use of an Episode of Care Framework for Continuing Care

Management of SUD

Challenges	Issues
Separate or nested episode	Maintenance episode has different features than typical episode
Incorporation of domains into episodes	Patient-level outcomes, overall resource use, processes of care
Structure of SUD treatment system	Fragmentation, multiple providers, settings of care
Data availability	Obtaining relevant outcomes of care; and incorporation of patient preferences, co-morbidities, family involvement, and psychosocial needs of patient
Administrative data limitations	Lack of available data elements; system limitations; coding issues
Determining Episode Start and Stop and Length	Begins with continuing care management; no consensus on length of remission
Application of episode to improving clinical practice	Development of a measurement strategy that will allow translation to clinical practice

IV. Substance Use Illness Service Delivery System

a. Current State of the Treatment System for Substance Use Disorder (SUD)

Virtually all of the treatment provided in addiction specialty treatment programs—whether public or private—consists of 12 step-oriented group counseling sessions provided in specialty care programs (McKay, 2009; McLellan et al., 2003; McLellan & Meyers, 2004). This is a barrier to treatment for the many people with SUD who do not want this kind of intervention. The lack of treatment options also means that patients who do not respond well to 12-step oriented specialty care treatment are likely to dropout before becoming eligible to receive continuing care. Overall, these factors significantly limit the ability of the treatment system, in its current form, to provide healthcare services during the episode(s) of care that adequately match SUD illness episode(s).

Most treatment programs for adolescents also follow 12-step models of recovery, although there can be a greater emphasis on addressing family functioning and parenting issues. Components that are intended to increase positive cooperation between adolescents and the development of self-confidence and active coping skills are also common. Reviews of the quality of the adolescent specialty care system have noted the paucity of programs, lack of credentialing requirements for providers, and severe limitations in funding for treatment (McLellan & Meyers, 2004). Recent data indicate that only 10% of adolescents with substance abuse or dependence receive treatment for those disorders. Of the small group that does get treatment, only 10% receive continuing care management after the end of the initial phase of care (Dennis et al., 2005; Office of Applied Studies, 2005).

b. Current State of Continuing Care for SUD

As discussed previously, the term “continuing care” refers to any treatment intervention that is provided to patients following a more intensive, initial phase of treatment. These patients usually experience a relatively chronic form of SUD, and often have had multiple treatment episodes. They can be distinguished from other individuals with less severe forms of SUD, who may present for treatment in specialty care but also may be identified in other settings. Typically, this initial treatment is some form of residential or inpatient care, or an intensive outpatient or day treatment program. Depending on what type of treatment it follows, continuing care can range from as little as one session per month up to several sessions per week. In most cases, it is provided via weekly sessions. The duration of continuing care varies considerably, depending on how it is funded and how quickly patients dropout (McKay, 2009). In most cases, the total duration of treatment is less than 90 treatment days (SAMHSA, 2008). Generally, when

patients stop attending continuing care and then need to re-enter the system at a later date, they begin at a more intensive level of care. Usually, this constitutes a new episode of care. At this point, the duration of continuing care management is determined largely by insurance coverage rather than by empirically based guidelines or the progress of the individual patient. Given the limitations in funding and available treatment programs (McLellan & Meyers, 2004), adolescents likely have less access to continuing care than adults.

As is the case with the treatment provided in residential and intensive outpatient programs, most of the continuing care provided in addiction specialty treatment programs consists of 12 step-oriented group counseling sessions (McKay, 2009; McLellan et al., 2003; McLellan & Meyers, 2004). Although these groups are not standardized and typically are not guided by a manual, they do tend to have a number of common elements. These include reports by patients of their current status, including any recent alcohol or drug use; feedback, support, and sometimes confrontation from other group members and counselors; attention to progress in working on specific steps in the 12-step program and attendance at 12-step meetings; and planning of leisure activities during the week and especially on the weekend, along with general structuring of time in ways that promote recovery. No formal assessment of these group processes are performed, although informal comments regarding contents of groups may appear in progress notes. These groups usually feature rolling admissions, so that they most always contain a mix of new and more experienced patients. The size of the groups can vary considerably, although most clinics strive for around 10 to 15 patients per group.

Despite the need for continuing care following an initial course of treatment, it is not always available and tends to be underfunded (Dennis & Scott, 2007; McKay, 2009; McLellan & Meyers, 2004; Popovici et al., 2008). However, a greater problem is a lack of options for

patients who do not want 12-step oriented treatment or who are not comfortable in a group setting, or even for those who are willing to try standard continuing care but who do not have a good response to that approach (McLellan et al., 2003). Other limitations include a lack of availability of medications approved by the FDA to treat addiction (e.g., naltrexone and acamprosate for alcohol dependence); little use of measurement-based care, in which patients are assessed regularly and the data are used to adjust treatment based on response; and lack of coordination of services within or across episodes of care (McKay, 2009; Miller & Weisner, 2002). Because of these limitations, continuing care as currently available is probably effective for only a narrow range of individuals with substance use disorders.

It is important to acknowledge that there are a number of examples of innovative programs that address some of the limitations noted here. Using funding from Robert Wood Johnson under the Advancing Recovery program, Rhode Island, Delaware, and Arkansas have implemented flexible continuing care models that include use of the telephone to deliver services to patients who might not otherwise have wanted or been able to attend clinic based care. With funding from SAMHSA's Access to Recovery initiative, California recently implemented a telephone-based continuing care intervention in over 80 adolescent treatment programs state-wide. This continuing care program includes prepaid vouchers for stepped care that can be used by adolescents to return to specialty care when they need more support than the telephone can provide. Finally, the state of Connecticut has been an innovator in establishing a recovery - oriented system of care that makes use of a variety of recovery supports outside of traditional clinic-based specialty care.

c. Ideal Service Delivery System with Focus on Measurement

According to the Institute of Medicine (IOM, 2001), health care must be safe, timely, effective, efficient, equitable, and patient centered in order to be judged to be of high quality. The NQF has developed quality standards for substance use disorders which focus on the use of evidence-based practices at each phase or stage of addiction treatment (NQF, 2007). These standards specify the use of evidence-based psychosocial and pharmacological interventions. The NQF standards specifically mention five behavioral interventions—cognitive behavioral treatment, motivational enhancement therapy, contingency management, 12-step facilitation, and marital therapy—but indicate that there are other effective interventions that could be considered. Two other indicators of quality are mentioned:

- Any treatment should be delivered with an empathic, supportive approach, which may be as important as the specific behavioral therapy selected
- Active involvement with community supports, including self-help programs, should be stressed.

The NQF standards also specify that pharmacotherapy should be offered to appropriate individuals with opioid, alcohol, or nicotine dependence. At this point, there are only a handful of FDA approved medications for alcohol and opioid dependence, and no approved medications for stimulant dependence.

Standards for Continuing Care Management

The NQF standards also specify that individuals with substance use disorders should be offered:

- Long term, coordinated management of their substance use illness and any co-existing conditions
- Care management should be adapted based on ongoing monitoring of progress.

Achieving quality standards within these overarching continuing care strategies requires that the following specifications are met in the treatment that is provided:

- Taking patient preferences into account in treatment planning
- Conducting multi-dimensional assessment for treatment planning
- Linking patients to other needed services
- Sharing of diagnostic and treatment information with other service providers (with patient consent)
- Monitoring early response to treatment and modifying the treatment plan as indicated with patient input
- Individualizing continuing care interventions that provide support and skills for self-management of substance use disorders
- Long-term monitoring to identify early signs of relapse

Specific Treatment Suggestions for Continuing Care

Unlike the use of evidence-based guidelines above for SUD, the NQF standards do not specifically identify certain continuing care interventions as “evidence-based.” Instead, the emphasis is on overall treatment strategy and specifications, as described above. However, it is

reasonable to assume that the treatments identified as “evidence-based” for substance use disorders would also qualify as evidence-based for continuing care management. The NQF standards call for ongoing monitoring of progress, but do not specify which variables or domains should be monitored, or how often such monitoring should occur. An episode framework provides an appropriate framework for ongoing monitoring of progress, specifying the intervals at which monitoring should occur, and providing guidance on the variables or domains that should be monitored.

d. Key Issues in Measurement of Continuing Care Management

At this point, there is general agreement among SUD treatment researchers on key outcomes to assess to evaluate treatment efficacy and effectiveness. However, much less work has been done to develop a conceptual framework that guides the selection of process and outcome measures for assessing the implementation, quality, and impact of continuing care interventions. Some of the initial work in this area has been done by the NQF, which has proposed five target outcomes for continuing care management: (1) receives care for all conditions, (2) stabilization of co-existing conditions, (3) retention in treatment, (4) engagement in long-term monitoring, and (5) prevention of or delay in time to relapse. Further work in this area should build on these proposed outcomes.

Recent clinical guidelines for SUD treatment, including those from NQF, specify that patients should be assessed at regular intervals so that the information can be used to adjust or modify treatment for those who are not making adequate progress toward recovery. This approach has been referred to by several names, including “measurement-based care,” “adaptive treatment,” and “concurrent recovery monitoring” (McKay, 2009; McLellan et al., 2005; Murphy

et al., 2007). However, such procedures are rarely implemented in our current SUD treatment system. Instead, most programs follow guidelines that specify that treatment plans are to be updated at 3-month intervals. To put these new practice guidelines into effect, treatment models are needed that specify:

- Frequency of assessments during continuing care
- Patient-level outcomes, overall resource use, and the processes of care measures to be used
- Scores on the assessment measures that indicate need to change treatment
- Other treatment interventions to be tried when assessment indicates progress is not adequate

In short, there are several barriers that may limit the achievement of these goals within the current SUD treatment system. These include the lack of evidence-based guidelines specific to continuing care management, the lack of diversity of care, and the lack of an accepted framework, along with specific process and outcome measures for assessing the delivery of continuing care management services. Thus, there are large measurement gaps that currently exist in the clinical arena as well as a lack of a clearly defined conceptual framework. The NQF-endorsed measurement Framework for Episodes of Care helps to categorize these critical measurement gaps and specify next steps for closing them. In the sections that follow, we organize our discussion of measures around the three primary domains: patient-level outcomes, cost and resource use, and processes of care.

V. Outcome Measures Used in SUD Research

In this section, we consider measurement domains, existing measures, and perceived gaps in measures and procedures to obtain measures.

a. Measurement Domains

Measures for consideration have been organized into three domains: patient-level outcomes, overall cost and resource use, and processes of care. These domains represent the essential components and subcomponents for measuring efficiency as it relates to an episode of continuing care management. The five target outcomes for continuing care management proposed by the NQF are from the patient-level and processes of care domains.

Patient-level Outcomes

Important patient-level outcomes in continuing care management include health status (e.g., substance use, physical and emotional health), quality of life, and social and occupational functioning. Risk adjustment is important to accurately assess differences in patient-level outcomes due to the considerable heterogeneity within and across patient samples. With regard to health status, there are a number of outcome measures that are widely used in SUD treatment research and considered valid and reliable, including measures of substance use quantity and frequency, and consequences of excessive alcohol and drug use. With measures in the latter two areas, there are accepted conventions regarding frequency of assessment (commonly every 3 or 6 months). These measures are also often obtained for risk adjustment at the baseline period, or prior to the receipt of any treatment in the current episode, to provide an indication of severity at intake.

Although valid and reliable quality of life measures are available, they are seldom used in the assessment of continuing care management. Patient satisfaction is also rarely assessed. Conversely, social and occupational functioning, as well as involvement with the criminal justice system, are often examined and a number of good measures for these areas are available and widely used (e.g., the Addiction Severity Index, or ASI).

Cost and Resource Use

Overall cost and resource use is best assessed at the episode level because total cost and resource use can be captured across the trajectory of care. This includes the cost of individual services (e.g., hospitalization, provider fees, clinic visits, medications) as well as resource utilization (e.g., number of visits, and the number and types of services). These are important to assess relative to the patient's severity of illness and need for healthcare services in order to determine efficiency of care across the episode. Specifically for patients needing continuing care management of SUD, assessment of cost and resource use is critical. These patients are usually long-term and chronic, and have multiple psychiatric and medical comorbidities requiring treatment. Obtaining a better understanding of the cost of care delivered and the overall resources consumed should help to facilitate more efficient management of care as well as more focused delivery of care for specific conditions and issues.

Several states have been working on establishing innovative payment structures that create incentives to programs for successfully transitioning patients into continuing care, through mechanisms such as performance contracting. Novel payment mechanisms for continuing care and other forms of recovery supports have also been implemented in California, Rhode Island, and Arkansas

Processes of Care

Process measures such as engagement and retention, receipt of evidence-based treatment, and progress toward treatment goals can all be assessed at the level of the individual patient, the program, or the system. At the patient level, information on processes of care can be used to make adjustments in the person's treatment, when problems such as missed sessions or poor progress toward treatment goals are noted. Process at the level of the program or system can be evaluated by examining engagement and retention rates, provision of evidence-based interventions, and progress toward program goals across all patients treated (with appropriate case-mix adjustment).

For example, duration of retention in continuing care is a common interim process measure of treatment. This is usually operationalized either as the total number of sessions attended during the continuing care episode or the number of weeks between initiation of continuing care and completion of the episode or dropout. These data are obtained from administrative records. Two examples of retention-related process measure are: 1) proportion of patients who are retained for at least 90 days (VHA), and 2) proportion of patients who achieve successful transition from one level of care to the next (Washington Circle group, see below). Other measures of within-treatment process assessed at the patient level frequently used in addiction treatment research include self-efficacy, motivation or commitment to abstinence, and participation in self-help and other recovery support organizations. It should be noted that some of these measures could also be thought of as intermediate outcomes.

b. Existing Measures

Patient-Level Outcomes

Substance use. Two assessment measures have dominated the field of addiction research, the Addiction Severity Index (ASI; McLellan et al., 1992) and the Time-line Follow-back (TLFB) (Sobell et al., 1979; Finney, Moyer, & Searingen, 2003). Both measures provide information on the frequency of alcohol and drug use. The alcohol variables also address quantity of use, as indicated either by frequency of “heavy” drinking days or number of drinks per drinking day. These measures of frequency can also yield dichotomous measures of any use vs. abstinence within a given assessment period, which is also a popular outcome measure. One major difference between the measures is that the ASI is focused on substance use over the 30 days prior to assessment, whereas the TLFB uses a calendar method to assess substance use over the entire period since the last assessment (i.e., 30, 60, 90, 120 days).

Under appropriate conditions of confidentiality and the absence of adverse consequences, the validity and reliability of the ASI and TLFB have been confirmed through many studies. In most high quality research studies, self-reports of substance use gathered with instruments such as the ASI and TLFB are augmented with corroborating data, either from biological assessments (e.g., drug urine screens, liver function tests) or collateral reports from family or friends. However, it is likely that patient reports of recent substance use provided to counselors in clinical practice have higher rates of underreporting.

The ASI can also be used for risk adjustment, through consideration of baseline scores on the seven domains included in this multidimensional instrument: alcohol, drug, medical, psychiatric, social, legal, and employment problem severity.

Consequences of use. Some continuing care studies have also assessed negative consequences of substance use, including problems with mental and physical health, family functioning, employment, and the legal system. A number of validated measures of negative consequences are available, including the Inventory of Drug Use Consequences (Tonigan & Miller, 2002). The combination of measures of quantity/frequency and negative consequences provides a more complete picture of treatment outcomes.

Cost and Resource Use

As mentioned previously, cost and overall resource use are measured by total overall costs and costs specific to services, medications, or visits. Resource use is measured by number of outpatient visits, types of services and/or visits, and length of stay (relevant for hospitalization). As far as we know, there are no current cost or resource use measures specific to continuing care management other than these generic ones. Specific costs for continuing care management of SUD would, for example, include the cost of individual and/or group treatment, while resource use would include the number and types of group-oriented sessions that the participant attended.

Processes of Care

The Washington Circle group proposed a continuity of care measure that involves successful transition from one level of care to the next within 14 days. A recent paper by Garner et al. (in press) found that in an adolescent sample in residential treatment, meeting this goal was associated with better substance use outcomes. This measure could be adapted for an episode framework since transitions of care are transparent within the episode.

The VHA has implemented a performance measure for continuity of care, which indicates the percentage of patients who have at least two treatment contacts per month for at least 3 months. Only patients who achieve initial engagement in treatment are considered in the calculation of the performance measure. A recent evaluation of the validity of the performance measure found that overall, better scores on the performance measure were not predictive of better substance use outcomes. However, when the analysis was limited to the approximately two-thirds of the sample with at least some alcohol or drug use in the 30 days prior to treatment, higher rates of continuity of care did predict significantly better outcomes (Harris et al., 2009).

The continuation portion of the ASAM criteria does provide guidelines on when patients have made sufficient progress to move into the continuing care phase of treatment, but this component of the criteria has not been subjected to empirical evaluation. Most programs are required to update treatment plans every 90 days, including during continuing care, but this process obviously does not guarantee quality of continuing care management in the absence of re-assessment and individualized treatment adjustment.

c. Perceived Gaps in Measures to Assess Quality of Continuing Care Management

As described above, there are a number of measures, particularly in the patient level outcomes and processes of care domains, which are widely used in the addiction treatment field. However, at this point there are no specific or established measures of quality (either patient-level outcomes or processes of care) that have been accepted for the assessment of continuing care management in clinical practice. Table 2, below, presents a summary of available measures and perceived gaps in current measures and measurement strategies within each of the three domains.

Table 2. Available Measures and Perceived Gaps in Current Quality Measures for Continuing Care Management of SUD

<u>Domain</u>	<u>Available Measures</u>	<u>Gaps in Measurement</u>
Patient-level Outcomes	<ul style="list-style-type: none"> • Substance Use • Consequence of Use • Social Functioning • Occupational functioning • Involvement with legal system • Medical and psychiatric conditions 	<ul style="list-style-type: none"> • Standardized protocols that link regular assessments of progress to clinical decision making • Patient preference • Quality of life • Patient satisfaction • Case-mix adjustment strategies
Cost and Resource Use	<ul style="list-style-type: none"> • Costs of individual services • Number of visits, services received, sessions, etc. 	<ul style="list-style-type: none"> • Overall cost and services delivered across episode of care • Structural elements needed to implement and sustain continuing care management model • Performance contracting and other innovative payment mechanisms
Processes of Care	<ul style="list-style-type: none"> • Engagement and retention • Progress toward treatment goals 	<ul style="list-style-type: none"> • Standardized protocols that link regular assessments of process to clinical decision making • Positive recovery goals • Case-mix adjustment strategies

Similarly, high quality treatment process does not always produce good patient-level outcomes. Outcomes in substance use disorder treatment are characterized by a high degree of response heterogeneity (Morgenstern & McKay, 2007). This is certainly the case in public and private programs, and is even present in carefully conducted research studies, where considerable attention is paid to the use of skilled therapists to deliver manual-driven interventions. Response heterogeneity is evident in the high rates of early dropout from and non-response to initial treatment (between-patient heterogeneity of response), as well as in later clinical deterioration in some patients who do well initially (within-patient heterogeneity of response). The wide variability in response is the primary reason for the NQF guidelines that specify that patients should be monitored carefully over time and treatment adjusted according to response. It also

highlights the importance of obtaining measures of both processes of care and patient-level outcomes in order to assess quality. A number of participants in the NQF workgroup stressed the importance of developing measurement strategies for continuing care management in which the data gathered could be translated directly into clinical practice.

As noted, quality assessment is clearly in its beginning stages with respect to continuing care management. Several groups are proposing new measures and data sources to advance the field. These include:

Patient-level Outcomes

- Assessment of patient preferences for treatment and whether treatment provided is what was desired.
- Use of registries to track services for afflicted individuals: Registries can provide detailed clinical information on large number of patients, and could also be used to track patients not currently engaged in care. However, there are potential problems with privacy, confidentiality, and stigma.

Cost and Resource Use

- Lack of measures of structure: At this point, there is little assessment of structural elements needed to successfully implement and sustain high quality continuing care management. Measures are needed that capture how patients are managed across levels of care, availability/wait times for successive levels of care, availability of “step up” interventions when clinically necessary during continuing care, the type of service providers available at each level of care and their training/skills.

Processes of Care

- Adherence to pharmacotherapy: In order to increase the use of evidenced-based medications, close monitoring of prescribing and use patterns is necessary.
- Progress toward achievement of positive recovery goals: Most outcome and process measures are heavily skewed toward psychopathology (e.g., substance use, negative consequences of use, psychiatric severity, coping deficits, low self-efficacy or motivation, etc.). Since improvement of occupational and social functioning and engagement in positive recovery activities are important goals of continuing care management, it is crucial that these factors are assessed regularly

VI. Suggested Guidelines for Quality Care and Its Measurement: Summing it Up

Certain principles have been espoused for the treatment of SUD (NQF, 2007). These include six aims for high-quality health care as defined by the Institute of Medicine (IOM, 2001): health care that is safe, timely, effective, efficient, equitable, and patient centered. However, there are certain barriers that may affect obtainment of these goals, including the lack of evidence-based guidelines specific to continuing care management, the lack of diversity of care, and the lack of an accepted framework useful for assessing the delivery of continuing care management services. In addition, the measurement of patient-level outcomes in continuing care (e.g., substance use, consequences of use, and psychosocial functioning) has been applied primarily in research studies, rather than in clinical care (e.g., continuing care management). Thus, there are large measurement gaps that currently exist in the clinical arena as well as a lack of a clearly defined conceptual framework. However, the five targeted outcomes for continuing

care management proposed by the NQF can be used as a starting point for the development of such a framework. The key points of this White Paper are summarized below.

a. Summary of Key Points

1) How easily can an episode of care model be adapted as a conceptual framework for continuing care management of SUD?

This paper suggests that not only is there a lack of evidence-based guidelines in this area, but the process and outcome measures that currently exist for quality assessment have been more widely used in research than in clinical practice. An episode framework may therefore be somewhat challenging to adapt, particularly given the fact that claims databases are not readily available in all healthcare systems. On the other hand, use of an episode framework may help to facilitate the development of valid and reliable quality measures for continuing care management. Since it provides a useful mechanism for examining the linkage between processes and outcomes, it is likely to encourage the development of evidence-based guidelines in this area.

A key issue in moving an episode of care framework forward is conceptualization of an episode of continuing care management of SUD. Is it a stand-alone episode, or is it nested within a larger SUD episode? If the former, where are its start and stop points and what are the major process and outcome measures that should be defined? If the latter, where should it be incorporated into the larger episode? Does it span the entire evaluation and treatment phase, or is it one component of this larger phase? For any of these conceptualizations, questions remain about episode duration, necessary data elements, and adequacy of databases for running

episodes. These are some of the theoretical challenges that need to be faced in moving the episode construct further along for continuing care management.

2) What changes to the existing treatment system are needed to support quality continuing care management?

There are a number of features in the current treatment system which may pose barriers for an efficient, episode-based approach to continuing care management. These include relatively low retention rates and lack of options for treatment. The quality of treatment, including continuing care management, could be improved through greater use of evidence-based interventions, greater stress on empathic and patient-centered delivery of services, active involvement with community supports, implementation of adaptive models that monitor progress and change treatment as needed, and greater emphasis on patient preference and choice.

3) What changes to measurement strategies are needed to support quality continuing care management?

The discussion of measurement issues was organized around three domains: patient-level outcomes, cost and resource use, and processes of care. Although good measures from each domain are available and in use, considerable gaps in measurement were noted. Within the patient-level outcomes domain, these gaps include measures of patient preference and satisfaction, quality of life, case-mix adjustment, and protocols that link assessment results to clinical decision-making. In the cost and resource use domain, measures of overall costs and services are needed, as are measures of the structural elements that comprise quality of continuing care management. Finally, in the processes of care domain, a greater focus on the

assessment of positive recovery factors, case-mix adjustment, and the relationship of processes to outcome is warranted.

b. Additional Suggestions

High treatment dropout rates mean that many patients are not in treatment long enough to receive a sufficient dose of continuing care, if any is received at all. Therefore, we suggest that the measurement of quality should include a consideration of what programs do to retain patients during both the initial and continuing care phases of treatment. Evidence-based approaches to increasing retention in continuing care include the following (cf McKay, 2009):

- Case management
- Low-level incentives and social reinforcements
- Structured self-help referral
- Adherence to pharmacotherapy
- Active outreach
- Contracts
- Continuity of treatment provider
- Assistance with obtaining adequate housing

c. Issues to be Considered Within the Context of Episodes

Should Measures of Quality be Individualized?

Quality standards usually specify that interventions and the providers that deliver them meet certain standards. However, there is some evidence that addiction treatment is more effective when services for a particular individual are matched to the problem profile of that

individual when he or she enters treatment (McKay, 2009; McLellan et al., 1997). This approach, of course, makes assessment of quality more difficult, in that the needs of each patient must be considered (and measured) along with whether these needs were addressed in treatment. It also brings up a fundamental issue for addiction treatment—whether the interventions should only address substance use, or should also attend to other problems in related or affected areas such as mental and physical health, family functioning, and employment. This issue is particularly important during the continuing care phase of treatment, when one of the primary goals is for the patient to become a fully functioning member of society (White, 2008). In order for this to occur, it may be necessary to address psychiatric, employment, social functioning, and housing issues. If that is the case, should the assessment of services in these areas be factored into overall quality?

Role of Assessment of Quality in Earlier Stages of Treatment

To obtain an accurate assessment of quality during continuing care, is it necessary to also assess quality in the initial phases of care (i.e., detoxification, inpatient/residential, and intensive outpatient treatment IOP)? Also, note that for some patients who stabilize prior to presenting for specialty care, standard outpatient treatment is the initial level of treatment.

Other Issues for Consideration

In additions to the issues discussed in this paper regarding an episode-based approach, limitations to the current system of care, and gaps in measurement, several other measurement-related issues warrant consideration.

Patient-level Outcomes

- Measures used by programs and systems to assess patient outcomes often differ from the measures used in research to capture outcomes. What are the implications of this for the measurement of quality and outcome in continuing care?
- How should measurement of quality and outcome in patients with significant co-occurring disorders be accomplished? What should the focus be within an episode of care?

Cost and Resource Use

- Assessment of communication across settings of care
- How can confidentiality be maintained as patients move through the continuum of care and receive treatment in different setting and systems?
- Research vs. clinical measures of quality and outcome

Processes of Care

- Role of recovery support services: Differences between these services and treatment-oriented continuing care
- Role of mandated care in the continuum of care: Do mandated patients need different outcome/quality measurement scheme?

Policy Issues Regarding Quality Measurement

- Are substance use quality measures ready to be used for pay-for-performance or public reporting? Or are they better suited for quality improvement?
- Are the databases available for developing episodes of care for continuing care management of substance use disorders?

- Can evidence-based guidelines be formulated from existing “standards” in order to better assess the linkage between processes and outcomes within the episode?

Which Stakeholders Should we Engage

- To improve quality measurement in SU?
- To obtain buy-in on using episodes as a framework for continuing care management of SUD?

Appendix A. Existing Substance Use Illness Quality Measures

Veterans Affairs (VA) Practice Guidelines

The VA has established practice guidelines for the treatment of substance use disorders. The first version of these guidelines was developed in the late 1990s, and a revised version will be released shortly. The guidelines consist of several modules that address a phase or component of treatment. These include modules for initial stabilization, pharmacotherapy, traditional rehabilitation, effective behavioral therapies, and management in non-specialty care programs such as primary care. The VA has also recently published the Uniform Services Package (USP), which presents guidelines on the types of services that must be available to treat veterans with mental health disorders including addiction. The USP specifies which types of interventions are to be available at VA facilities of varying sizes and how rapidly patients must be seen. Detailed guidelines for VA practitioners treating individuals with substance use disorders are presented in a separate Handbook.

VA Outcomes Monitoring Efforts

VA investigators have developed a brief (17 item), multi-dimensional assessment tool that will be used to measure within-treatment progress and provide a measure of treatment outcome. The items assess substance use, risk factors for relapse, and pro-recovery or “positive” factors thought to protect against relapse. The instrument will be administered to all patients entering treatment for substance use disorders, and then again at a second point 60 to 120 days later (if the patient is still in treatment). The developers of the protocol would like programs to assess patients monthly, so that the information obtained could be used to modify treatment as needed. However, it is unclear whether VA programs will do this unless mandated to do so. The protocol is currently being implemented in about 40 intensive outpatient programs within the VA, with a goal of use in all outpatient programs by the fall of 2010.

UK Outcomes Monitoring System

The Treatment Outcomes Profile (TOP) is a new national outcomes monitoring tool for drug treatment in England. The instrument, which has about 22 items, is to be administered to all clients at the start of treatment, and then at 3 month intervals thereafter. The items assess alcohol and drug use, injection risk behavior, crime, and health and social functioning. The TOP system has been validated with both drug and alcohol dependent clients; however, the National Treatment Agency in England currently only uses it to monitor drug patients. The system is also in use in a number of other treatment programs in Europe, Asia, Australia, North American, and South America.

Government Performance Results Act (GPRA)

The GPRA assesses 10 domains, including drug and alcohol use, family and living conditions, education/employment/income, crime and criminal justice status, mental and physical health, and social connectedness. The GPRA tool is administered at intake, discharge, and a follow-up 6 months post-intake. The measure is used by the Center for Substance Abuse Treatment (CSAT) to evaluate outcomes in patients treated in programs funded by this agency.

NQF Endorsed Interventions

The list of NQF endorsed interventions for substance use disorders includes brief motivational counseling, supportive pharmacotherapy, cognitive-behavioral therapy, motivational enhancement therapy, contingency management, 12-step facilitation therapy, and behavioral couples therapy.

Washington Circle

The Washington Circle was funded by CSAT to develop and disseminate performance measures for addiction treatment. The first group of measures developed was focused largely on the front end of treatment (e.g., identification, initiation, engagement). A second group of six performance measures focused on continuity of care was recently recommended. These measures can be obtained from routinely collected administrative data.

Systematic Reviews of Treatments and Continuing Care Approaches

The following reviews provide information on effective behavioral interventions that could be implemented in the continuing care phase of treatment.

Burke, R.L., Arkowitz, H., & Menchola, M. (2003). The efficacy of motivational interviewing: A meta-analysis of controlled clinical trials. *Journal of Consulting and Clinical Psychology, 71*, 843-861.

Dutra, L., Stathopoulou, G., Basden, S.L., Leyro, T.M., Powers, M.B., & Otto, M.W. (2008). A meta-analytic review of psychosocial interventions for substance use disorders. *American Journal of Psychiatry, 165*, 179-187.

Hettema, J., Steele, J., & Miller, W.R. (2005). Motivational interviewing. *Annual Review of Clinical Psychology, 1*, 91-111.

McKay, J.R. (2009). Continuing care research: What we've learned and where we're going. *Journal of Substance Abuse Treatment, 36*, 131-145.

Miller, W.R., & Wilbourne, P.L. (2002). Mesa Grande: A methodological analysis of clinical trials of treatments for alcohol use disorders. *Addiction, 97*, 265-277.

Powers, M.B., Vedel, E., & Emmelkamp, P.M.G. (2008). Behavioral couples therapy (BCT) for alcohol and drug use disorders: A meta-analysis. *Clinical Psychology Review, 28*, 952-962.

Prendergast, M., Podus, D., Finney, J., Greenwell, L., & Roll, J. (2006). Contingency management for treatment of substance use disorders: A meta-analysis. *Addiction, 101*, 1546-1560.

Also, see Dennis & Scott (2007) and McKay (2005, 2009) references at the end of the document

Accepted Measures of Outcome and Process

Time-line Follow-Back (TLFB). The TLFB uses a calendar-based methodology to collect information on alcohol and drug use. Data are obtained for each day in the assessment window, and then aggregated at the weekly or monthly level. In studies with participants with alcoholics or drug use disorders, there has been good to excellent agreement between TLFB data and collateral and biological data.

Addiction Severity Index (ASI): The ASI can be used to gather information on medical, employment, drug use, alcohol use, legal, family/social, and psychiatric problem severity. The ASI has demonstrated good internal consistency, test-retest, and inter-rater reliabilities in different groups of substance abusers. It is the most widely used assessment measure in addiction treatment and research. Computerized versions are available that generate treatment plans and progress notes.

Global Appraisal of Individual Needs (GAIN). The Global Appraisal of Individual Needs (GAIN) is a comprehensive, bio-psychosocial assessment tool. It is an integrated series of measures and computer applications designed to support a number of treatment practices, including initial screenings; brief interventions; referrals; standardized clinical assessments for diagnosis, placement, and treatment planning; and monitoring of changes in clinical status and service utilization.

The GAIN has eight core sections (Background, Substance Use, Physical Health, Risk Behaviors and Disease Prevention, Mental and Emotional Health, Environment and Living Situation, Legal, and Vocational). Each section contains questions on the recency of problems, breadth of symptoms, and recent prevalence as well as lifetime service utilization, recency of utilization, and frequency of recent utilization. The items can be used for DSM-IV–based diagnoses, ASAM-based level-of-care placement, JCAHO-based treatment planning, and DOMS-based outcome monitoring. The GAIN also includes items designed to support most state and federal reporting requirements.

Negative consequences of substance use. The Inventory of Drug Use Consequences (InDUC) assesses alcohol and drug use-related problems in eight areas. This measure has good to excellent test-retest reliability. A short version, the SIP, can be used to assess alcohol use-related problems.

Treatment Services Review (TSR). The TSR can be used to collect data on in-program and out-of-program treatment services received during specified periods. The TSR yields information on the occurrence of problems or difficulties (e.g., days sick, days drinking, days using drugs, days of crime, etc.) and the number of treatment services received (e.g., doctor visits, therapy sessions, days of inpatient treatment, etc.). This measure has high test-retest reliability (exact agreement on 88% of the items), and good correspondence with independent measures of treatment provided.

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