North Carolina Department of Health and Human Services

Pat McCrory
Governor

Aldona Z. Wos, M.D.
Ambassador (Ret.)
Secretary DHHS

Adam Sholar
Legislative Counsel
Director of Government Affairs

April 1, 2014

SENT VIA ELECTRONIC MAIL

The Honorable Ralph Hise, Co-Chair
Joint Legislative Oversight Committee on
Health and Human Services
Room 1026, Legislative Building
Raleigh, NC 27603

The Honorable Justin Burr, Co-Chair
Joint Legislative Oversight Committee on
Health and Human Services
Room 307A, Legislative Office Building
Raleigh, NC 27603-5925

The Honorable Mark W. Hollo, Co-Chair
Joint Legislative Oversight Committee on
Health and Human Services
Room 639, Legislative Office Building
Raleigh, NC 27603-5925

Dear Senator Hise and Representatives Burr and Hollo:

Session Law 2013-360, Section 12F.7 (a), requires the Department of Health and Human Services to submit a report on ways to improve outcomes and reduce operating costs associated with inpatient treatment at the alcohol and drug abuse treatment centers operated by the Division of State Operated Healthcare Facilities.

This report was developed to include responses and explanations for both required elements of the plan as required in the session law. Efficiencies and outcomes are addressed individually within the body of the report to ensure all requirements of the session law have been addressed.

Please contact Dale Armstrong, Director of the NC Division of State Operated Healthcare Facilities, should you have any questions regarding this report. Mr. Armstrong can be contacted at (919) 855-4700 or Dale.Armstorng@dhhs.nc.gov.

Sincerely,

Adam Sholar

cc: Dave Richard Denise Thomas

Jim Slate
Sarah Riser
Kristi Huff
Susan Jacobs
reports@ncleg.net
Patricia Porter
Theresa Matula
Pam Kilpatrick
Matt McKillip
Brandon Greife

North Carolina Department of Health and Human Services

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SENT VIA ELECTRONIC MAIL

Mark Trogdon, Director
Fiscal Research Division
Legislative Office Building
300 North Salisbury Street, Suite 619
Raleigh, NC 27603-5925

Dear Mr. Trogdon:

Session Law 2013-360, Section 12F.7 (a), requires the Department of Health and Human Services to submit a report on ways to improve outcomes and reduce operating costs associated with inpatient treatment at the alcohol and drug abuse treatment centers operated by the Division of State Operated Healthcare Facilities.

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Rod Davis

Ways to Improve Efficiencies and Outcomes

In

Alcohol and Drug Abuse Treatment Centers

April 1, 2014

Department of Health and Human Services

Division of State Operated Healthcare Facilities

Ways to Improve Efficiencies and Outcomes In Alcohol and Drug Abuse Treatment Centers

April 1, 2014

Executive Summary

Session Law 2013-360, Section 12F.7.(a) directs the Department of Health and Human Services to study and report to the Joint Legislative Oversight Committee on Health and Human Services and the Fiscal Research Division on ways to improve outcomes and efficiencies associated with inpatient treatment at the Alcohol and Drug Abuse Treatment Centers operated by the Division of State Operated Healthcare Facilities.

Background

The Alcohol Drug Abuse Treatment Centers (ADATCs) are cost-efficient inpatient hospitals for individuals with addiction and other co-occurring mental health disorders. They provide specialized inpatient services for individuals whose needs exceed community capacity due to medical and psychiatric acuity.

- Of individuals discharged from the ADATCs in the second quarter of SFY 2014:
  - 80.1% had a co-occurring diagnosis
  - 44.7% had a severe and persistent mental illness (SPMI) diagnosis
  - 79.4% had high medical acuity
  - 65.3% received medical detoxification services
- Of individuals admitted to the ADATCs in SFY 2013:
  - 71.4% were unemployed or not in the labor force
  - 60.3% were homeless or lived in temporary housing
  - 79.1% had been arrested
  - 36.5% were under correctional or legal supervision
- The ADATCs have an array of specialized programs and programming to meet the needs of their complex population (e.g., evidence-based treatment for trauma survivors, programming for pregnant and parenting women, veteran's treatment, and inpatient opioid treatment).

A. Efficiencies

- The cost of addiction to society is felt in many ways through increased criminal justice costs, increased medical costs, unemployment and lost productivity, homelessness and the damage to the next generation of parental addiction. Although there is a significant cost to treating addiction, there is an event greater cost to not providing a treatment system to address addiction.
- The ADATCs are a cost-efficient service delivery model that provided treatment for over 4,000 individuals last year at a daily rate significantly lower than community hospitals or the state psychiatric hospitals.
- The safety net system responded to create a treatment option for the most complicated substance abuse population that is evidence-based, brings together medical, clinical and psychiatric expertise and costs less than other similar levels of care. The ADATCs have changed their mission, environment and treatment to meet the increasing need to serve individuals with high medical and psychiatric complexity, while maintaining costs.
- In SFY 2007, 21% of admissions to the state psychiatric hospitals were for individuals with a primary substance use diagnosis. By SFY 2013, that percentage had declined to 8% as the ADATCs responded to admit from hospitals and Emergency Departments.

- The ADATCs have identified and billed receipts whenever possible and helped by bringing Disproportionate Share Hospital (DSH) Funds to the state general fund.
- The ADATCs serve as a safety net to some of the most vulnerable individuals in the state, as a majority of individuals served do not have any type of insurance.
- On average, 87% of individuals discharged from an ADATC in SFY 2013 were either indigent (did not have any form of insurance) or they met the Institute of Mental Disease (IMD) Exclusion. Of the remaining 13%, 8% had Medicare, 4% had some other type of commercial private insurance and 1% of discharges were able to bill Medicaid.
- Substance abuse inpatient facilities (including community providers) are held to the IMD Exclusion and cannot bill Medicaid if they have more than 16 beds. This exclusion and the lack of insurance coverage for this population makes it difficult to generate receipts.
- The ADATCs have implemented cost saving measures whenever possible (e.g., lab consolidation and group purchasing) without impacting patient care.

B. Outcomes

- For measures where there is comparable national data, the ADATCs performed better than national averages with regard to:
    - Completion of treatment
    - Readmissions within 30 days of discharge
    - Individuals' perception of care received
- Upon discharge from the ADATC in SFY 2013, an overwhelming majority of individuals stated they received the help they needed in a variety of areas (e.g., managing mental health symptoms, reducing homicidal and suicidal thoughts, improving overall physical health and quality of life).
- Of those who stated upon admission that they *did not* need help with the following areas, at the time of discharge reported that services received during their stay, *did* help them:
    - 86% improving their physical health
    - 93% their quality of life
    - 95% hope for their future
    - 96% gaining control over their life
- The ADATCs continue to develop and expand evidence-based treatment services for individuals with addictions and other co-occurring disorders to improve outcomes. They are continuously focused on modifying programming and the environment to serve an increasingly medically and psychiatrically complicated population.
- The full report addresses in greater detail both the efficiencies and outcomes of the ADATCs and demonstrates that the ADATCs provide cost-efficient inpatient psychiatric, medical, substance abuse, mental health and collateral treatment services to the most vulnerable North Carolinians that cannot be provided by community or residential providers.

Introduction

Session Law 2013-360, Section 12F.7.(a) directs the Department of Health and Human Services (DHHS) to study and report to the Joint Legislative Oversight Committee on Health and Human Services and the Fiscal Research Division on ways to improve outcomes and efficiencies associated with inpatient treatment at the Alcohol and Drug Abuse Treatment Centers (ADATCs) operated by the Division of State Operated Healthcare Facilities (DSOHF).

This report will define the evolution of the ADATCs, provide a level of care comparison, and provide information regarding the individuals served along with the scope of specialized inpatient services they provide. It will also contain a review of the ADATCs receipts, savings and costs. This report will specifically address outcome measures currently collected in the ADATCs and will outline steps that have been taken to identify comparative outcome measures along with future outcome measures being considered.

Background

There are three ADATCs located throughout the state. Julian F. Keith ADATC is located in Black Mountain, NC, R.J. Blackley ADATC is located in Butner, NC and Walter B. Jones ADATC is located in Greenville, NC. Each of the ADATCs is Joint Commission accredited. They are all CMS (Centers for Medicare and Medicaid Services) certified as acute inpatient psychiatric hospitals and are charged with serving individuals with medical complications, and/or on involuntary commitment (IVC), in need of substance abuse/psychiatric stabilization and treatment. The ADATCs are designed to treat individuals with addictions and other co-occurring disorders (addiction and other mental health diagnoses). Inpatient services provided in the ADATCs include psychiatric stabilization, medical detoxification, substance abuse and mental health treatment and education, medical care, recreational therapy, social work, nursing and collateral treatment services for family members of individuals served.

The three Alcohol Rehabilitation Centers (ARCs) were opened between 1950 and 1969. Historically, each of the three facilities were "28-day" programs offering substance abuse treatment, education, recreation, VR, group therapy, and AA groups. The patient profile for the facilities in the first few years was primarily white male alcoholics age 50-70. In 1989, the facilities were renamed Alcohol and Drug Abuse Treatment Centers.

A. Efficiencies

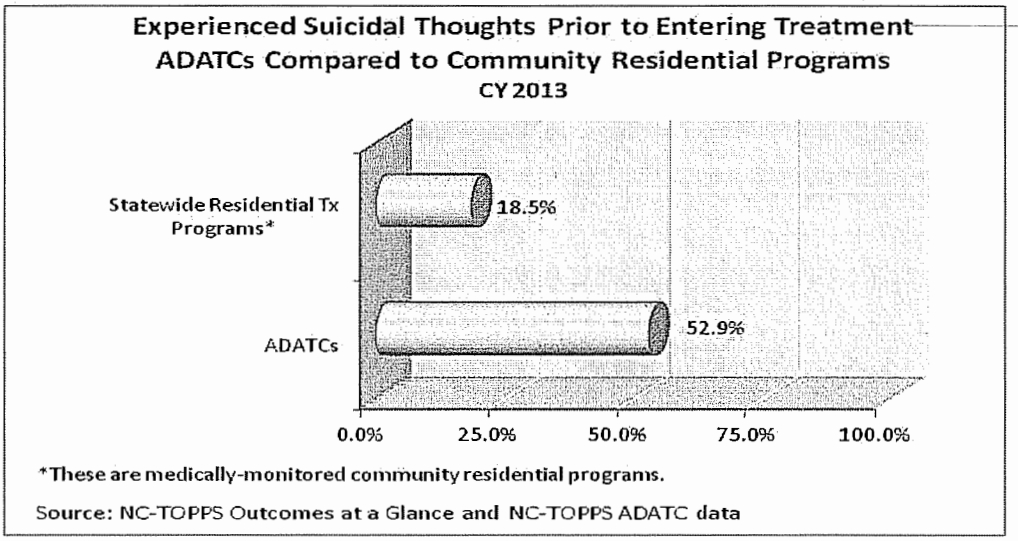
The continuing evolution of the ADATCs has balanced the changing demands of the population, the ongoing changes in the North Carolina behavioral health service system and the limited resources available. In 2001, the General Assembly accepted the recommendation made by the Public Consulting Group (PCG) that the ADATCs be adapted to accept primary substance abuse state psychiatric hospital admissions. By February 2009, all ADATC locked units were fully operational to assist state psychiatric hospitals, local community hospitals and Emergency Departments. In SFY 2007, more than one out of every five (21%) admissions to the state psychiatric hospitals were for individuals with a primary substance use diagnosis and this dropped to less than one out of ten (8%) of admissions by SFY 2013. This change in the mission and services by the ADATCs was the most cost-efficient response to serve a highly medically and psychiatrically complex population.

In 2006, Kimberly and McLellan reported that most contemporary addiction treatment programs (54%) do not have physicians or nurses available full-time who could prescribe and administer any of the promising new medications and less than a quarter of programs have a psychologist or social worker required to provide and supervise any evidence-based therapy or intervention. The ADATCs have adapted to provide inpatient hospital level services for individuals struggling with addiction and medical/psychiatric complexity. The residential level of substance abuse services was, and is, not able to meet this complexity of treatment needs.

Residential treatment continues to provide an essential part of the substance abuse continuum in North Carolina. These services generally include individual, group and family counseling and education in a structured living environment for individuals with substance abuse disorders in a group setting. Individuals are detoxed, if needed, prior to admission. The counselor to bed ratio is 1:30 and there is a requirement to have a minimum of one staff member in the facility when clients are present. Medicaid reimburses approximately $250 per day for this residential level of care. These programs are necessary as discharge options for some of the individuals leaving the ADATCs but cannot meet the demand of the individuals at the point of their referral to the ADATCs. The ADATCs have physicians available 24-hours a day and are staffed 24/7 with on-site nursing (RN, LPN, HCT) at an acute inpatient level to provide comprehensive psychiatric services, medical services, 24-hour nursing, individual & group counseling, treatment planning, discharge planning and family services.

As the ADATCs changed their treatment services and moved to 24/7 admissions onto locked units, the individuals they were able to serve changed. One example of the difference in the residential vs. inpatient level of care is seen in the difference in the population who have experienced suicidal thoughts. According to the North Carolina Treatment Outcomes and Program Performance System (NC-TOPPS), 18.5% of individuals entering SA Medically Monitored Community Residential Treatment experienced suicidal thoughts in the three months before entering treatment compared to 52.9% of individuals admitted to the ADATCs in CY 2013[1] (see Figure 1 below).

Figure 1. Suicidal Ideation among Individuals in Residential Programs and ADATCs



[1] NC-TOPPS began collecting service-level data in the community in CY 2013; therefore, this is the most recent time period available for comparison.

Clients typically present for substance abuse treatment with a complex and serious set of problems requiring experienced professionals and a range of medical and social service options (McLellan & Meyers, 2004). The ADATCs serve individuals who have progressed furthest in their disease and have the highest level treatment needs. Adding a co-management medical model for internal medicine and psychiatric care allows ADATC doctors to provide psychiatric and general medicine services that guide all treatment and are provided 24-hours a day. Individuals with high medical acuity require this level of medical support due to chronic medical problems that pose significant morbidity risk during medical detoxification and psychiatric treatment and/or they present with concurrent acute medical problems that require additional medical consultation and monitoring by primary care physicians. The altered physiology that detoxification imposes, and the medications used to treat it, pose risk to those with chronic medical problems like the following ADATC examples: Active seizure disorder, advanced liver disease, congestive heart failure, chronic pancreatitis, chronic obstructive pulmonary disease (COPD) with chronic dyspnea and/or hypoxemia, pre-existing and uncontrolled diabetes mellitus, fragile elderly patients, high risk alcohol withdrawal, pre-existing and uncontrolled hypertension, management of chronic pain, obstructive sleep apnea syndrome, pregnancy, traumatic brain injury (TBI), viral hepatitis (hepatitis C, hepatitis B) and warfarin anticoagulation.

In order to track the medical acuity of the individuals being served in the ADATCs, a new process was implemented using Healthcare Enterprise Accounts Receivable Tracking System (HEARTS) in October 2013 to capture the doctors' determinations of medical acuity. Nearly eighty percent (79.4%) of individuals discharged from the ADATCs in the second quarter of SFY 2014 were classified by doctors upon admission as having high medical acuity[2] and 65.3% received medical detoxification services (see Figure 2 below).

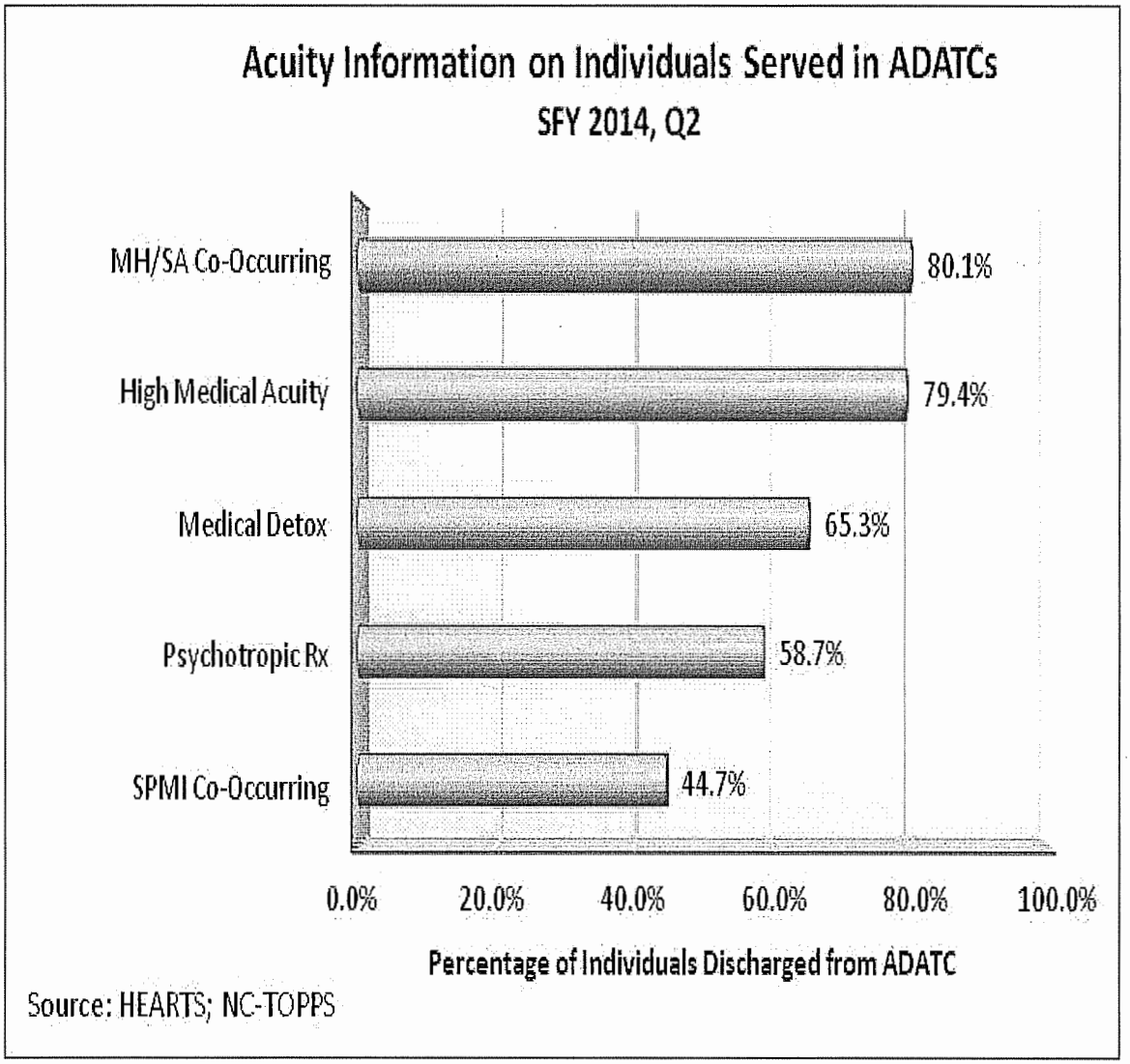
Individuals diagnosed with a mental disorder and chemical dependence present a unique challenge to service providers who usually are trained in only one area. In fact, treatment of one condition (addiction or mental disorder) is often hampered by the symptoms of the other if the latter remains unaddressed or untreated. The goal of recovery in these cases is synonymous with dual recovery. It is critical to address dual recovery issues holistically (Laudet, Magura, Vogel & Knight, 2000). ADATC treatment meets this challenge to provide co-occurring treatment in one setting, in the most cost effective manner.

One of 13 principles of effective treatment according to The National Institute on Drug Abuse (NIDA) is that addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way (1999). The ADATCs adhere to this NIDA principle by serving individuals with complicated co-occurring diagnosis such as major depression, schizophrenia and bipolar disorder. As shown in Figure 2, eight out of every ten (80.1%) individuals discharged from the ADATCs in the second quarter of SFY 2014 had a co-occurring diagnosis and slightly less than half (44.7%) of those discharged had a severe and persistent mental illness (SPMI) diagnosis in addition to their substance abuse diagnosis. A high proportion of individuals (58.7%) are taking (or have taken) psychotropic medication. These

[2] Individuals with high medical acuity require the support of a 24/7 medically managed facility because (1) they have chronic medical problems that pose significant morbidity risk during medical detoxification and psychiatric treatment, and/or (2) they present with concurrent acute medical problems that require additional medical consultation and monitoring by primary care physicians.

individuals need careful initiating, monitoring or changes in their medications to treat complicated co-occurring diagnosis. Treating these individuals in an ADATC rather than a higher cost acute care medical hospital, a higher cost community hospital bed or a state psychiatric hospital provides significant cost-efficiencies while providing the most appropriate integrated and holistic treatment.

Figure 2. Acuity Information



The following two figures (see Figure 3 and Figure 4 below) demonstrate the type of addictive substances reported used by individuals treated in the ADATCs. The most frequently cited substances used by individuals admitted to the ADATCs in SFY 2013 were heavy alcohol use, marijuana, cocaine and other opiates (71.1%, 51.1%. 46.3%, and 42.8% respectively). In addition, slightly less than half (44.7%) of those individuals reported misusing prescription medication and half (50.4%) admitted to using prescription medication that did not belong to them.

Figure 3. Substances Used Prior to Admission to ADATC

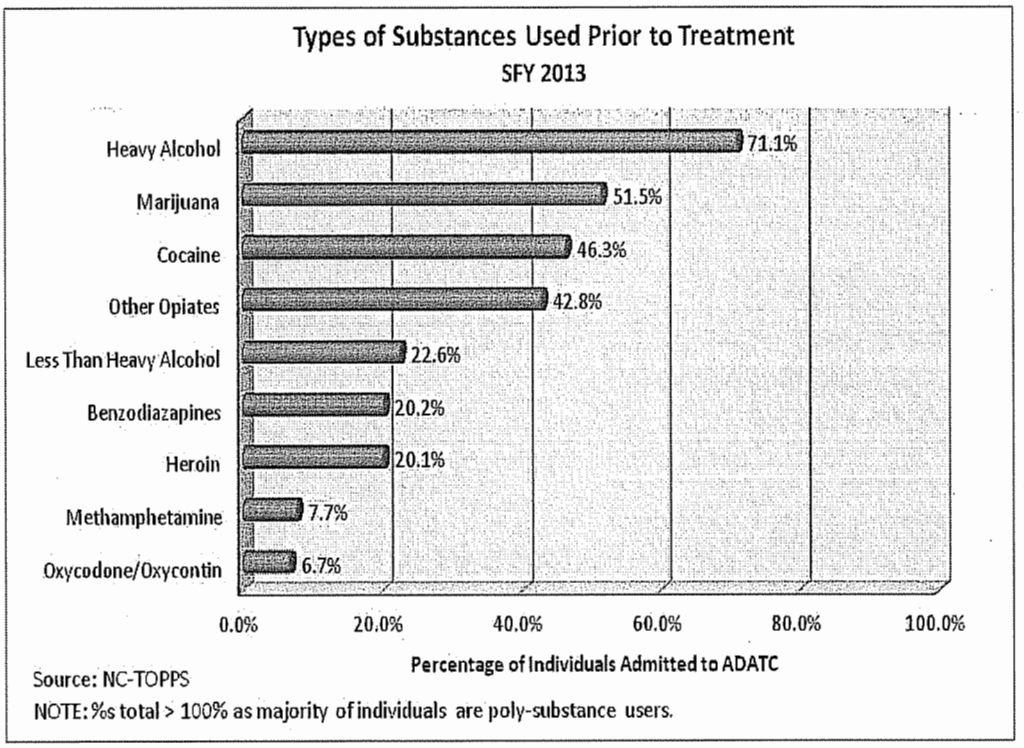
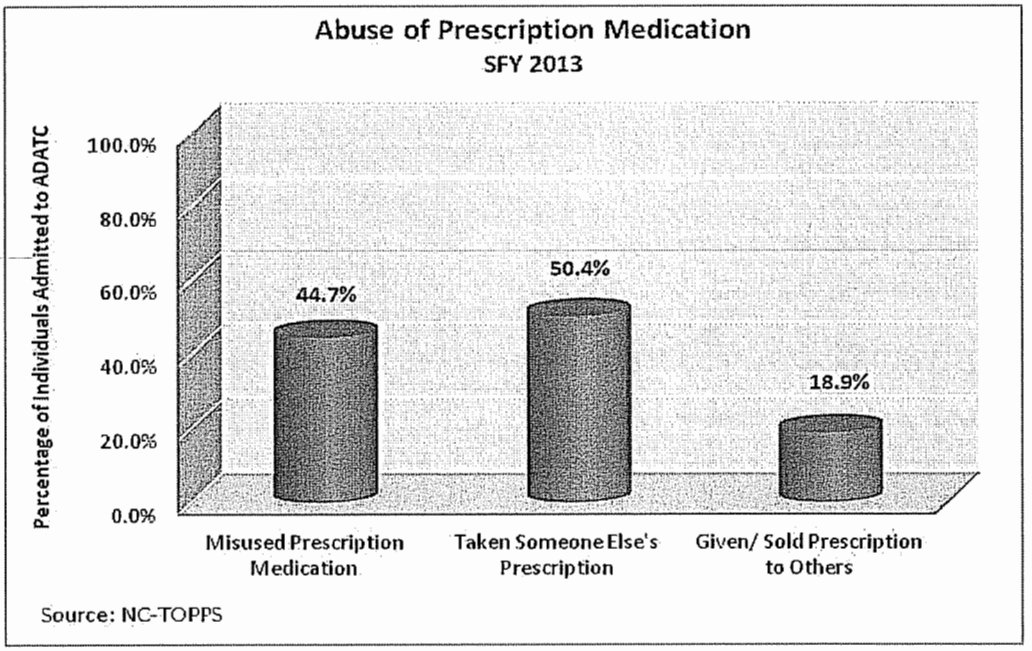


Figure 4. Prescription Medication Abuse

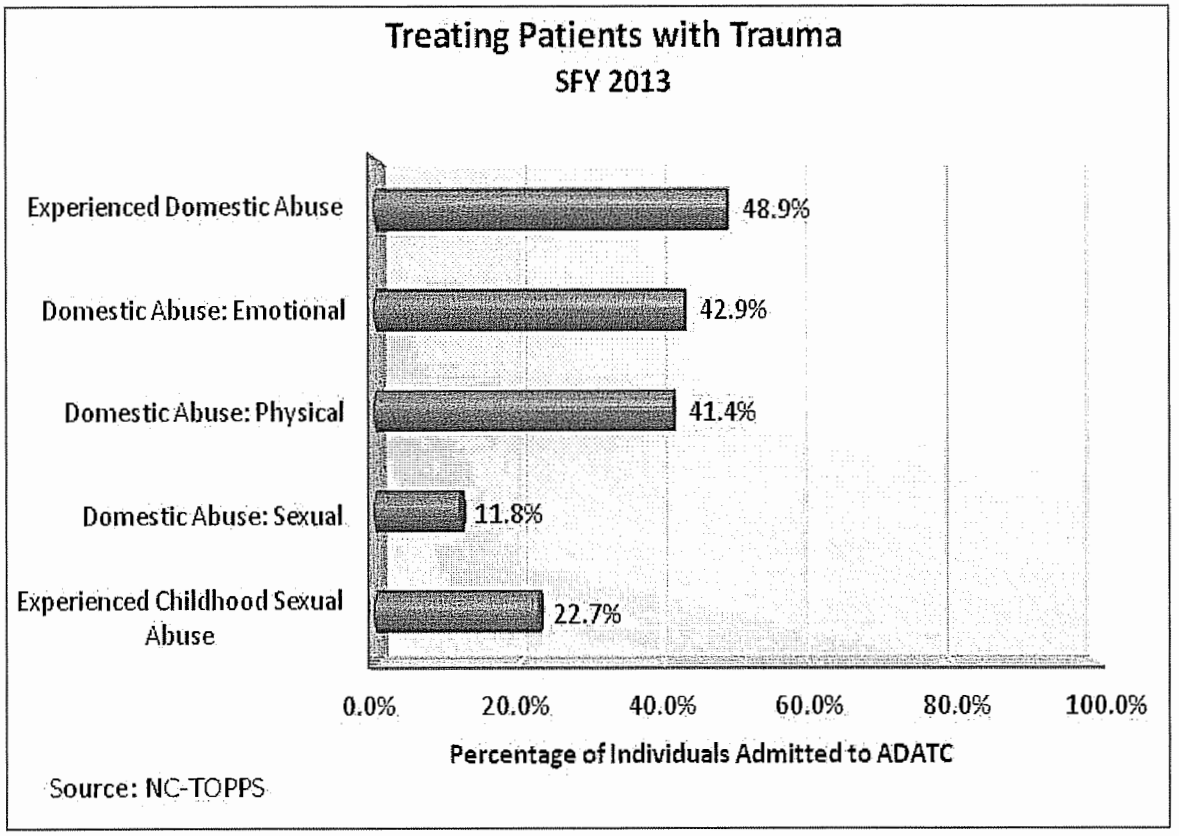


According to National Institute on Drug Abuse (2012), research shows that combining addiction treatment medications with behavioral therapy is the best way to ensure success for most patients. The ADATCs adhere to NIDA recommendations by providing each person an individualized plan of care including evidence-based behavior therapy models. The ADATCs offer three specialized groups targeting issues related to co-occurring problems (ex: mental illness), relapse prevention using the Transtheoretical Model (an evidence-based practice) and

a group for individuals with a history of trauma, using the evidence-based model Seeking Safety developed by Lisa Najavits. Throughout the day, individuals are reminded of cognitive behavioral skills through the use of skill boards that describe coping methods. These visual boards were adapted from Dialectical Behavior Therapy (DBT) as a trauma-based intervention but are beneficial to all individuals by managing acuity on the unit.

Figure 5 shows almost half (48.9%) of the individuals admitted to the ADATCs in SFY 2013 experienced some form of domestic abuse; 42.9% stated they had been emotionally abused, 41.4% stated they had experienced physical abuse and almost 12% stated they had been sexually abused. Slightly less than one quarter (22.7%) of individuals stated they had experienced childhood sexual abuse.

Figure 5. Serving Individuals with History of Trauma



In addition to the inpatient treatment provided, each ADATC has developed specialized inpatient services:

- Walter B. Jones ADATC in Greenville, is the only hospital inpatient Opioid Treatment Program (OTP) in the state and has a perinatal program for pregnant women and their babies.
- Each of the ADATCs are also developing pain protocols for the opiate dependent individuals to enhance services for this population to couple with the existing specialized perinatal protocols in place to serve pregnant women at each ADATC.
- Julian F. Keith ADATC in Black Mountain, offers specialized screening, assessment and referral for individuals with Traumatic Brain Injury (TBI). JFK ADATC is equipped to screen individuals at admission so that they can tailor treatment programming for

individuals with Traumatic Brain Injuries. ADATCs are part of the statewide Traumatic Brain Injury (TBI) initiative in partnership with the NCDMH/DD/SA and the NC Brain Injury Association of North Carolina (BIANC).

- TBI training is being expanded to other ADATCs to enhance TBI services across North Carolina.
- R.J. Blackley ADATC in Butner, has been trained to assist with veteran-specific issues for individuals who have substance abuse and other co-occurring mental health diagnoses. There is a continuing partnership via the MOA with the Veterans Leadership Council of NC (VLCNC) in which RJB will provide inpatient services for the transitional housing program for veterans. RJB has received specialized training to provide essential services to the veteran population as the VLCNC project develops.

The ADATCs are regional resources that can treat individuals with this specialized addiction psychiatry model because the overhead cost for a limited resource is provided at one facility per region. Additionally, having a one facility that integrates the professional expertise to focus on addiction and medical and psychiatric complexity in a field with very limited resources and personnel, enables the ADATCs to create a highly creative and synergistic treatment that can improve outcomes and respond to ever changing system needs.

In addition, the change to a psychiatric hospital facility that specializes in addiction has allowed North Carolinians to get the right treatment for their serious addictions that are coupled with other mental illness, medical problems, homelessness, unemployment, legal problems and reliance on public services. Prior to this, these individuals were often treated in state psychiatric hospitals that are designed for individuals who have a serious mental illness as the primary focus of care.

Costs

ADATCs are the most cost-efficient hospital inpatient service treating addictions and their associated co-occurring mental illness and/or medical diagnoses. The ADATCs served over 4,000 individuals last year at a daily rate significantly lower than the community inpatient beds and the state psychiatric hospital beds. The highest ADATC daily rate is $619 compared to the community psychiatric hospitals rate of $750 and the average state psychiatric hospital rate of $1140. In addition, the above listed facilities do not provide addiction specific treatment consistent with the level provided by an ADATC. The ADATCs have a portion of receipts to help offset costs. The receipts are primarily Medicare; however, DSOHF has been working with Third Party Commercial Payers to help increase other receipts where possible. On average, 87% of individuals discharged from an ADATC in SFY 2013 were either indigent or they met the IMD Exclusion. Of the remaining 13%, 8% had Medicare, 4% had some other type of commercial private insurance and 1% of discharges were able to bill Medicaid. See Table 1 below for the total receipts received by each facility in SFY 2013.

Table 1. Receipts by Facility for SFY 2013

Facility	SFY 2013 Actual Receipts
Julian F Keith	$ 1,432,183
RJ Blackley	$ 1,743,467
Walter B Jones	$ 1,527,787

Note: The majority of individuals served by the ADATCs do not have any type of insurance. Substance abuse facilities (including community providers) are subject to the Institute of Mental Disease Exclusion (IMD) and cannot bill Medicaid if they have more than 16 beds.

Not only do the ADATCs try to maximize receipts as seen in the above referenced receipts ($1.4M at JFK, $1.7M at RBJ, and $1.5M at WBJ), the ADATCs are also eligible for Disproportionate Share Hospital (DSH) Funds. The United States government provides funding to hospitals that treat indigent individuals through the DSH programs. The DHHS Controller's Office calculates DSH for the DSOHF facilities, and the psychiatric hospitals are first to receive the funding. However, there are years that DSOHFs availability exceeds the amount that can be earned by the Hospitals. In those years, the ADATCs earn and receive DSH Funds. The amounts attributable to the ADATCs have varied over the past few years, as shown in Table 2 below.

Table 2. Total DSH Funds Received by State Fiscal Year[3]

State Fiscal Year	Actual DSH Funds Received via ADATCs
SFY 2010	$ 19,304,120
SFY 2013	$ 3,682
SFY 2014	$ 8,700,450

DSH Funds are not held within DHHS. Instead, DHHS-DSOHF serves as a flow-through for the State's overall General Fund. Without the presence of the ADATCs, the above funds would not have been received by the State. As such, the presence of the ADATCs is critical in receiving all DSH Funds available to the State of NC for services rendered within the State Operated Healthcare Facilities.

In addition to receipts, the ADATCs have been working diligently to reduce costs. DSOHF consolidated labs based on a Three-Region Lab Consolidation Model. By doing so, Walter B. Jones has saved approximately $119,754 annually, and Julian F. Keith has saved an estimated $100,552 annually. Cherry Hospital now provides lab services to Walter B. Jones, and Broughton Hospital provides lab services to Julian F. Keith. Note: Central Regional Hospital

[3] No DSH funds were received via ADATCs in SFY 2011 or SFY 2012. The amount for SFY 2014 is current through March 31, 2014.

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[3] No DSH funds were received via ADATCs in SFY 2011 or 2012. The amount for SFY 2014 is current through March 31, 2014.

Several successful initiatives have been completed which have resulted in savings within the ADATCs. The following projects have been completed, and have resulted in savings at all three ADATCs:

- Group Purchasing Organization (GPO) Contract (HB1088) results in savings via volume incentives and product standardization.
- Generic Medication Utilization – The Facilities were directed to transition from brand-name medications to generics unless contra-indicated for a particular individual. Generics cost approximately one-tenth of the equivalent brand name medication.
- Drug Wholesaler/Contract Pricing – In March of 2010, all DSOHF Pharmacies were converted to the same available drug contract pricing. By purchasing under the same account, the entire Division saves.
- Automated Tablet Counting (ATC) machines prepare medications in "unit of use" packaging. Additional ATC machines have been purchased to allow pharmacies to purchase medications in bulk, as opposed to "unit of use" from the manufacturer – which is more expensive.
- Agency Staffing Central Office Contracts – Having a centralized contract results in a lower per hour cost. This is primarily beneficial to the smaller facilities (including ADATCs), as the larger scale lowers the per hour fee.

The ADATCs have been able to benefit from being part of the larger, state safety net system which allows them to provide high cost medical and clinical treatment due to certain economies of scale. Economy of scale is the cost advantage due to size, throughput, scale of operation, with cost per unit of output decreasing with increasing scale as fixed costs are spread out. The ADATCs provide inpatient hospital addiction treatment in three facilities covering a region of the state, consolidating operating costs for individuals in those regions. By bringing individuals to the facilities, this cost-effective economy of scale is preserved.

The ADATCs are not only the most cost-efficient inpatient hospital treatment option for this population but also create significant savings for the state by reducing the societal cost of addiction. Abuse of alcohol and drugs is associated with serious public health and public safety problems, including transmission of infectious diseases, disproportionate use of medical and social services, traffic accidents, and street crimes. These problems not only reduce the safety and quality of daily life but also become a source of substantial expense and concern to society. (Kimberly & McLellan 2006).

Cost-benefit studies have estimated the effect of substance abuse treatment on patient earnings and the costs of health services, social welfare, incarceration, and criminal activities. A review of 18 cost-benefit studies found consistent evidence that the benefits of drug treatment exceed its costs (Chen, Barnett, Sempel, & Timko, 2006).

Fetal Alcohol Syndrome:

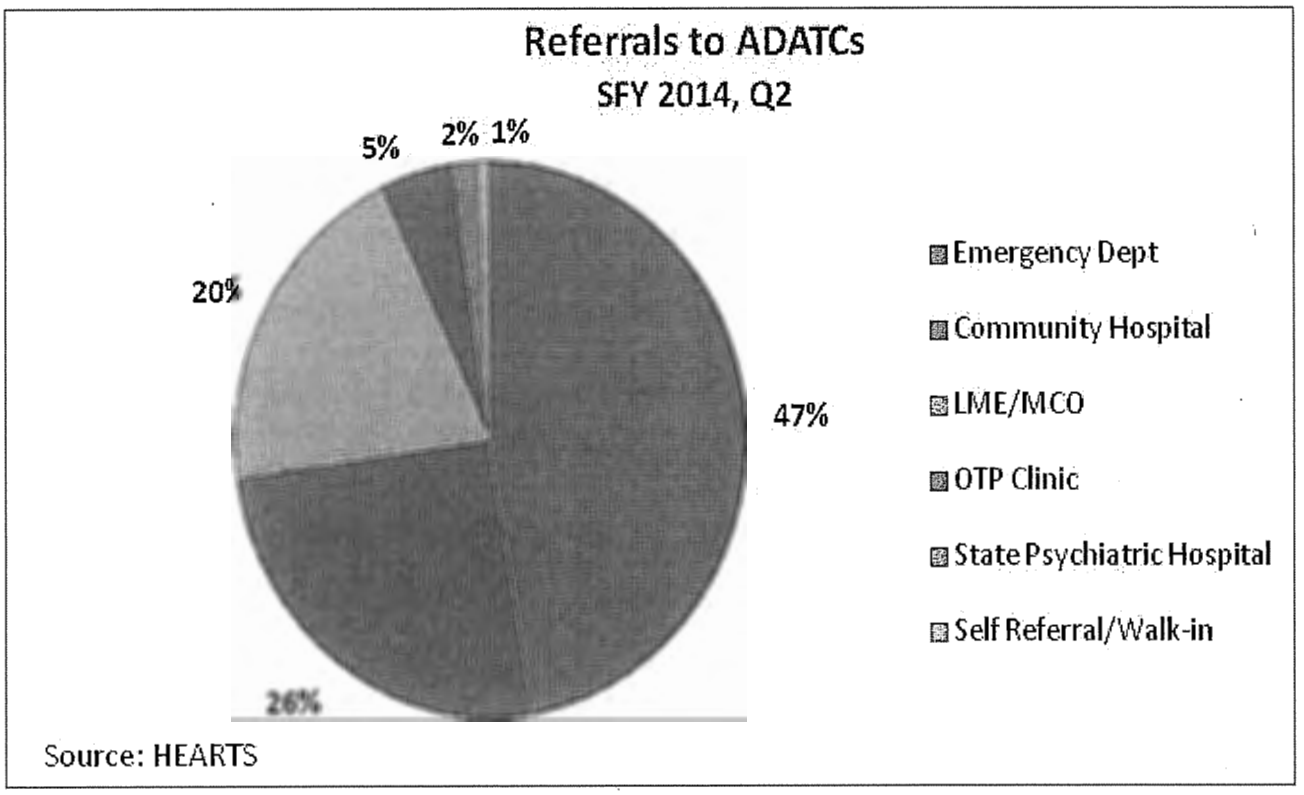
The individuals that the ADATCs serve have the possibility of costing society much more than the cost of their treatment at an ADATC. One example is Fetal Alcohol Syndrome: In SFY 2013, seven percent of the women admitted to the ADATCs were pregnant. According to SAMHSA (2006), Fetal Alcohol Spectrum Disorders (FASD) are 100% preventable. The only cause of FASD is prenatal exposure to alcohol. For one individual with Fetal Alcohol Syndrome (FAS), the lifetime cost is at least $2 million.

Unemployment:
The majority of individuals served by the ADATCs are unemployed. 71.4% of the individuals admitted to the ADATCs in SFY 2013 were unemployed or not in the labor force. The US Department of Justice National Drug Intelligence Center reported in 2011 that the aggregate impact of illicit drug use on labor participation-related Total Productivity Value (TPV) during 2007 was $34,998,122 for males and $14,239,655 for females. These losses sum to $49,237,777.

Homelessness:
In SFY 2013, 60.3% of the individuals admitted to the ADATCs were homeless or lived in temporary housing. The ADATCs address barriers to recovery such as homelessness and link individuals to housing resources in the community to facilitate ongoing recovery. According to a North Carolina report by Vaughn, Walsh and Duncan, (2008), twelve-months of pre-enrollment costs for 31 Housing Support Team program participants totaled $399,471.

Emergency Department Usage
The ADATCs take referrals directly from the Emergency Departments for individuals who are on commitment and may be committed due to suicidal or homicidal ideations. They sometimes commit individuals during their stay at the ADATC if the individual becomes more dangerous. As Figure 6 depicts, the majority of referrals to the ADATCs in the second quarter of SFY 2014 were for individuals who were waiting in emergency departments (47%) and another 26% of the referrals were for individuals in psychiatric or acute care beds within community hospitals.

Figure 6. Referrals to ADATCs



Source: HEARTS

Emergency Department costs and the cost of medical crises in Acute Care Hospitals for persons seen for alcohol/drug abuse or dependence can be significant (e.g., approximately $1,200/day at Holly Hill Hospital to approximately $3,200/day at UNC Hospitals in SFY 2012 as cited by the North Carolina Hospital Association's Top 35 DRG inpatient procedures for North Carolina's hospitals). Decreasing, or preventing when possible, substance dependent individuals' use of the emergency medical services system is a primary goal for the ADATCs.

Criminal Justice:
Incarceration is costly for the state. In SFY 2013, 79.1% of the individuals admitted to the ADATCs had been arrested in their lifetime and 36.5% of those admitted were under correctional or legal supervision at the time of admission. The average cost of jail for one year is $27,747 (According to the North Carolina Department of Public Safety for fiscal year ending June 30, 2011).

B. Outcomes

The changing mission and population of the ADATCs led to the need for a new treatment model. Research has clearly shown that the use of evidence-based treatment is imperative for positive patient outcomes. The ADATCs' core treatment model uses evidence-based treatment and protocols for medically, behaviorally and diagnostically complex individuals who are unable to stabilize and initiate treatment in the community. Motivational Interviewing (MI), the foundation of the ADATC Treatment Model, is designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion.

Motivation has been identified as the best predictor of engagement and retention (Simpson, 2004). Motivational Interviewing (MI) is an evidenced-based practice embraced at the three ADATCs and taught to all staff including non-clinical staff such as housekeeping and administration. This initiative began in 2006 with a collaborative MI research project between the ADATCs and the Governor's Institute on Substance Abuse. This state fiscal year, each ADATC is receiving specialized training and technical assistance to reinforce MI skills for their nursing departments.

Other research by McLellan, Chalk and Bartlett (2007) supports the use of Cognitive Behavior Therapy (CBT) for people with addictions as they have better outcomes during and following treatment than patients who received standard group counseling. The ADATCs use the primary approaches of CBT to explore the relationship between thoughts, feelings and behaviors.

In addition, McLellan, Chalk and Bartlett, (2007) define quality care as evidence-based treatments that are provided by licensed or credentialed practitioners who have demonstrated core competence in their practice areas and whose activities are monitored regularly by program- and system- level measurements of quality indicators. The ADATCs provide supervision and fidelity monitoring for the evidence-based practices that are utilized in their core treatment model that includes MI, CBT and Seeking Safety.

Family treatment is offered to each individual admitted to the ADATCs and times are established at each facility for visitation and family therapy as requested. The family therapy component plays a role in recovery by helping the individual and their family understand that both substance abuse and mental illness affect the entire family.

ADATCs have received specialized SOAR training, sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) to increase access to Social Security Administration (SSA) disability benefits for those who are homeless and at risk of homelessness. ADATC staff can assist individuals with the initiation of the disability application process while inpatient, and coordinate the continuation of that process upon discharge to link individuals with housing and other benefits. When appropriate, the ADATCs work collaboratively with community LME/MCO trained SOAR workers to assist individuals in receiving disability services in order to provide additional resources and services to those with extraordinary needs.

The ADATCs continue to develop and expand treatment services for individuals with addictions and other co-occurring disorders by modifying both programming and environment to serve the highest acuity population. While the ADATCs continue to follow research based recommendations to improve patient outcomes, they, like other treatment providers in the field, struggle to measure outcomes.

As McLellan, Chalk and Bartlett (2007) have duly noted, outcomes are essential from a conceptual level, but collecting, analyzing, interpreting, and using this information can encounter significant operational problems as outcome measurement is "time-consuming, expensive, and technically challenging". In addition, problems persist in (1) a lack of a standard set of measures that are agreed upon in the field and (2) interpretation of outcomes comparatively when significant differences exist in the case mix (demographics, severity, etc.) of individuals served (McLellan, Chalk, & Bartlett, 2007).

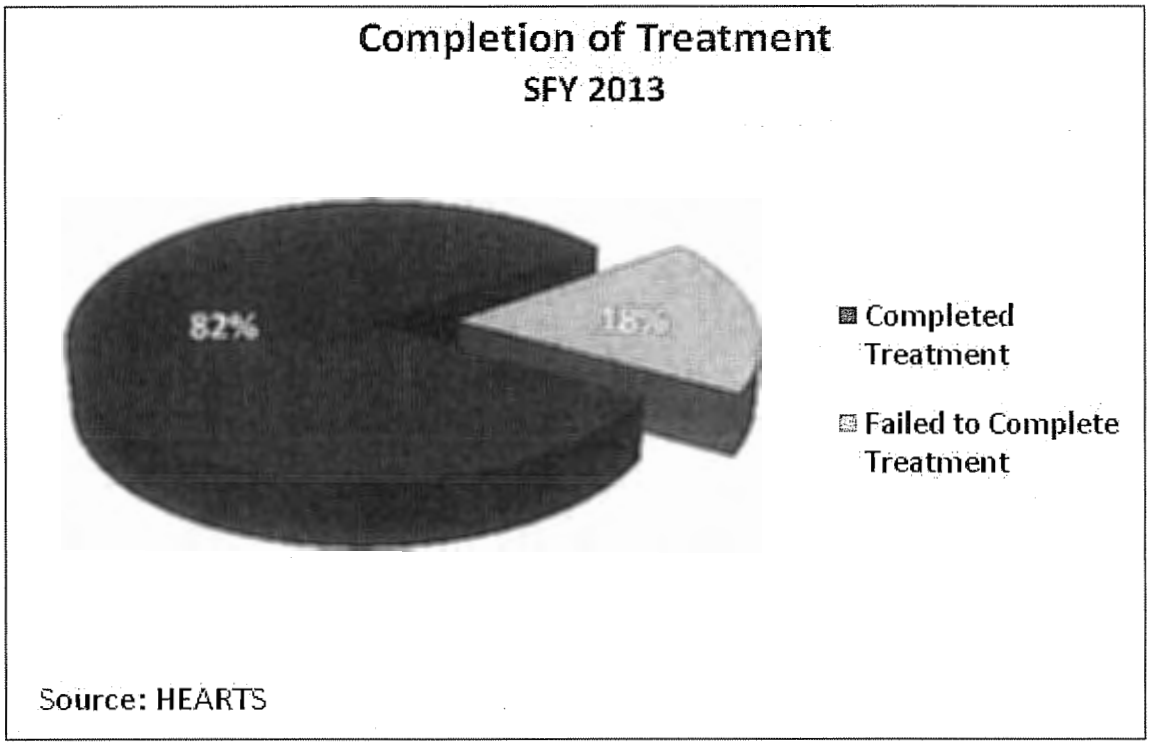
The ADATCs have been confronted with these challenges but have established systems to monitor the quality of treatment as well as treatment outcomes given the limited resources available, using process-based measures and self-report survey data. The ADATCs monitor administrative data pertaining to completion of treatment and readmissions within 30 days of discharge as well as patient self-reported data captured through perception of care surveys and ratings of the effectiveness of the services received in NC-TOPPS. These quality indicators are monitored regularly with the goal of improving outcomes *during* and *following* treatment.

Program Completion

McLellan, Chalk, and Bartlett (2007) state that while program completion is not necessarily an outcome measure, retaining individuals in treatment is a "clear, sensible, and easy-to-use indicator of quality treatment." Completion of treatment is a process measure that is often used in outcomes research and has been shown to be positively correlated with improved outcomes, such as decreased criminal justice involvement, higher wages, and lower readmissions (Garnick, Lee, Horgan, & Acevedo, 2009).

In SFY 2013, more than eight out of every ten individuals discharged from an ADATC (82%) completed their treatment, excluding individuals transferred to other state facilities or hospitals (see Figure 7).

Figure 7. Treatment Completion



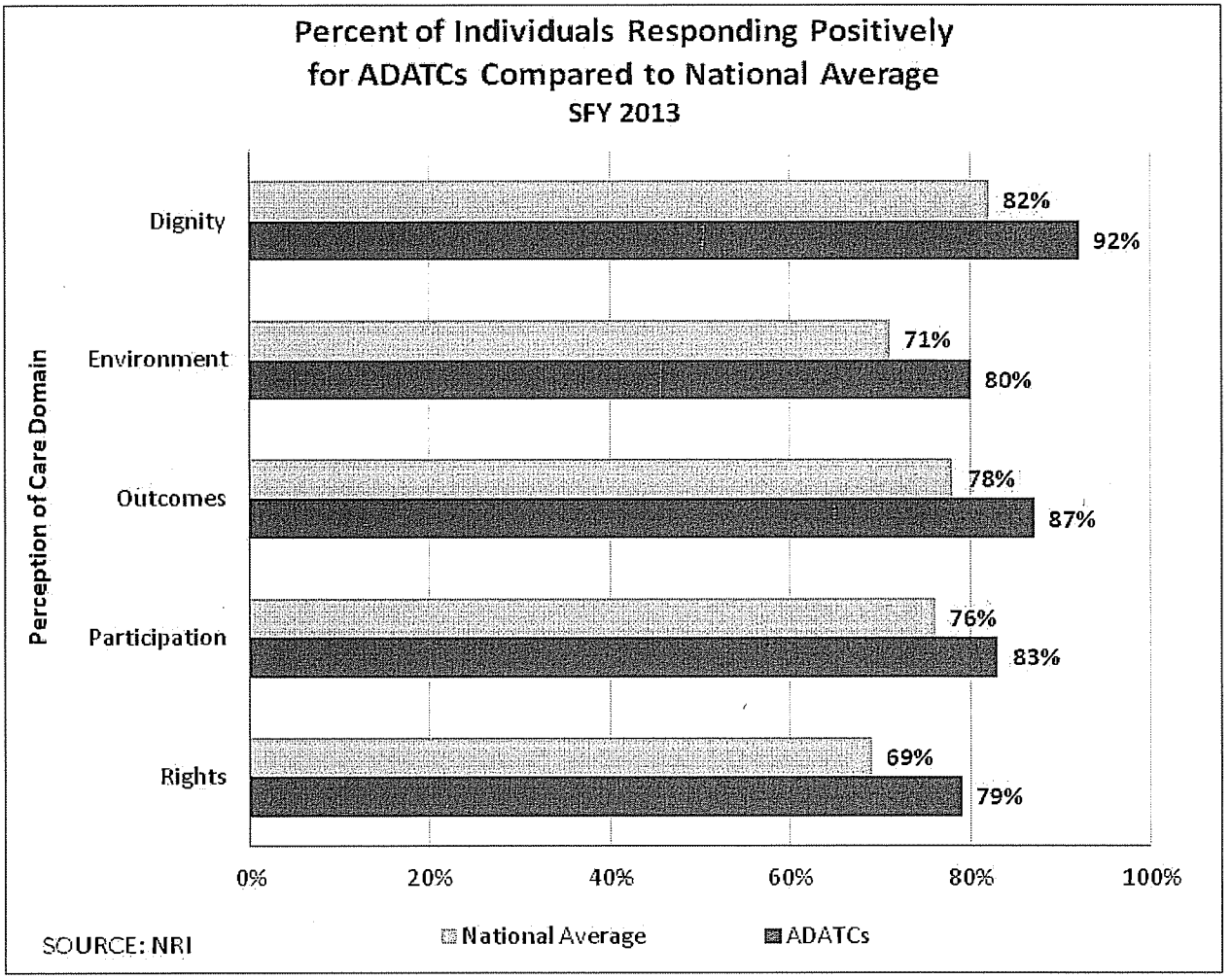
For comparison purposes, the Treatment Episode Data Set (TEDS), maintained by the Center for Behavioral Health Statistics and Quality within SAMHSA, reports that in calendar year 2009 (latest data available) approximately six of every ten (59.3%) individuals discharged from hospital residential programs completed treatment and less than half (49.3%) of individuals discharged from medication-assisted opioid detoxification programs in the United States completed treatment in CY 2009.

Perception of Care

An individual's satisfaction with the care they received in an inpatient stetting has been correlated with improved clinical outcomes (Ortiz & Schacht, 2012). The ADATCs employ an Inpatient Consumer Survey (ICS) developed by the NASMHPD Research Institute, Inc. (NRI) to measure individuals' perception of care (POC). The ICS is a nationally recognized, effective tool for evaluating care and the domains therein have been proven to be related to overall satisfaction of care (Ortiz & Schacht, 2012). The information gathered from individuals as they leave treatment at the ADATC is used internally to inform administrators and improve service delivery.

As shown in Figure 8 below, the ADATCs performed better than the national averages on all of the POC domains (Dignity, Environment, Outcomes, Participation, and Rights) in SFY 2013. The domain with the greatest positive response was Dignity (92% of individuals in the ADATCs said they were respected and treated with dignity compared to 82% nationally) while the area with the lowest positive response was Rights (79% of individuals in ADATCs felt they could express complaints or disapproval and receive appropriate response compared to only 69% nationally). As part of the ongoing internal review of POC data by the Quality Improvement and Clinical Management Teams, staff reviews the POC data and develops corrective action plans or continuous quality improvement plans.

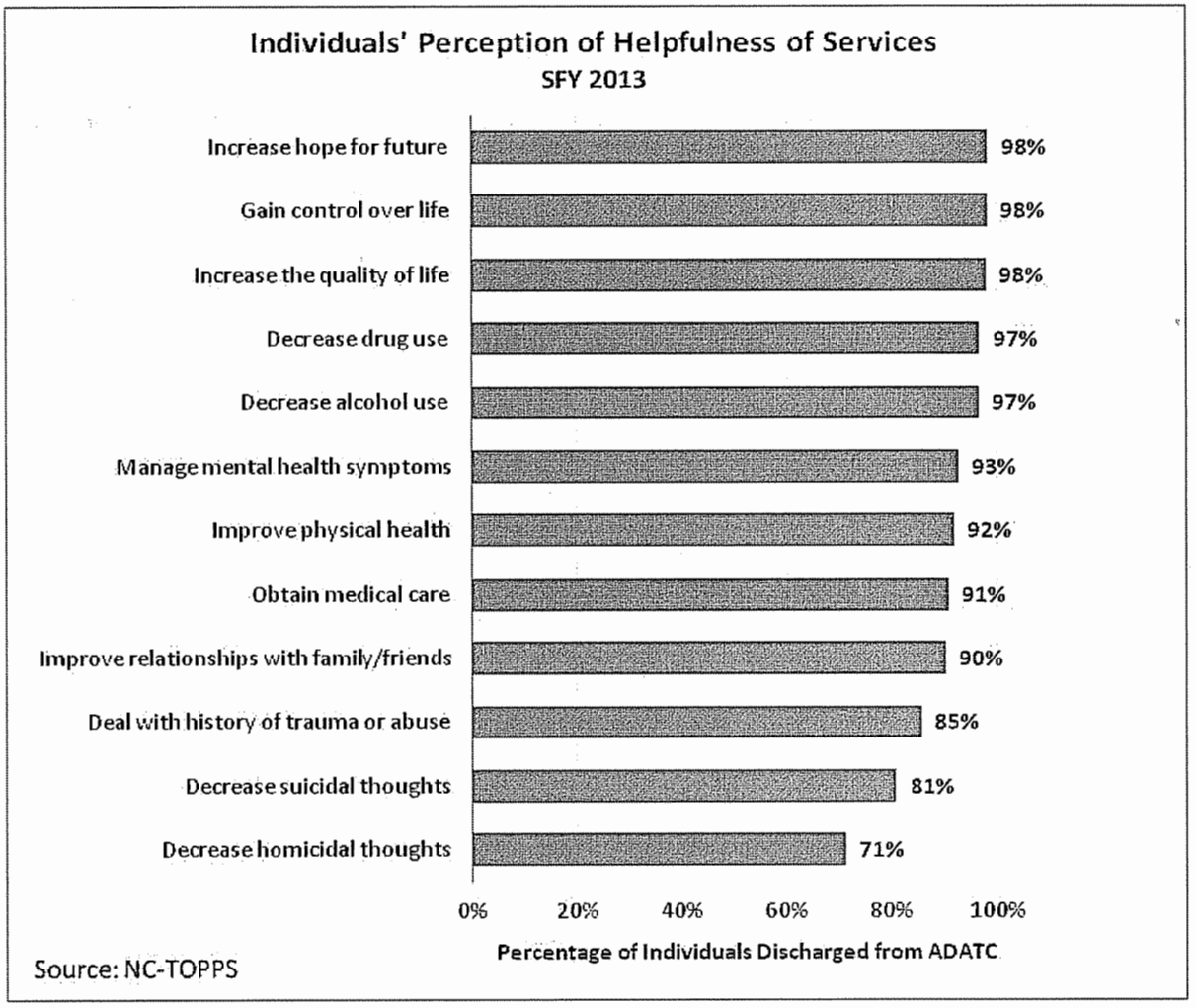
Figure 8. Perception of Care



Effectiveness of Services Received

Gerson and Rose have indicated that individuals' satisfaction with treatment may be a factor that influences how ready they feel they are for discharge from inpatient treatment impacting how responsive they are to treatment recommendations for follow-up care (2012). When individuals are being discharged from an ADATC, they complete an interview with discharge planners to discuss the care received while in the facility. This information is used to measure the impact and effectiveness of treatment as well as to improve services. As part of this discharge interview, individuals are asked about the helpfulness of services in a variety of areas. Figure 9 illustrates the perceptions of individuals discharged in SFY 2013 on the helpfulness of the services they received while in treatment for areas of their lives where they felt they needed help. Clearly evidenced is the overwhelming majority of individuals in need of help in these areas felt they received what they needed. Even more telling is the large proportion of individuals who did not feel they needed help in a particular area when they entered treatment but upon leaving treatment stated services actually helped them. For instance, of those who stated upon admission they did not need help with improving their physical health, 86% stated services helped them to do so upon their discharge and an even greater percentage felt the same with improving their quality of life, hope for their future, and gaining control over their life (93%, 95% and 96% respectively) [not shown].

Figure 9. Perception of Helpfulness of Services Received

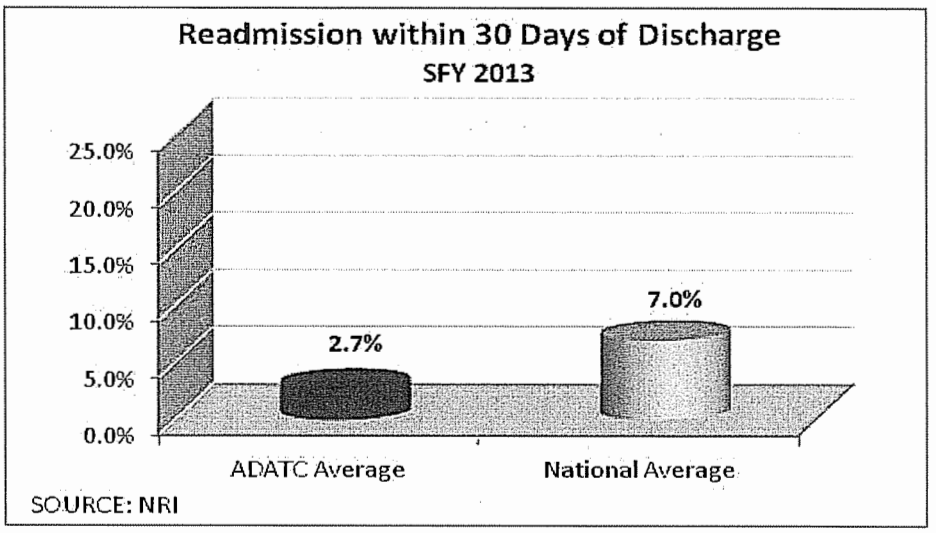


Readmissions within 30 Days of Discharge

One of the key areas the ADATCs focus on is appropriate discharge planning and transitioning of individuals from the ADATC to outpatient or residential care in the community with one goal being to reduce readmissions to the ADATC after discharge. Research has suggested that the greatest risk for individuals discharged from inpatient care is within the 30 days immediately following discharge and therefore the most commonly used time period for measurement for most studies of inpatient psychiatric care (Durbin, Lin, Layne, and Teed, 2007). Looking at readmissions within 30 days of discharge is also a federally-recognized hospital measure for CMS, causing hospitals to pay greater attention to preventable early readmissions (Taverner, 2013). As noted by Durbin, Lin, Layne, and Teed (2007) analysis of research in this area suggests that discharge planning may play a key role in preventing early readmission. Information on the actions of the ADATCs in discharge planning is detailed in the section pertaining to continuity of care below.

As shown in Figure 10 below, according to NRI monthly public reports for SFY 2013, on average, 2.7% of discharges had a readmission to the ADATC facility within 30 days of discharge. The average for the ADATCs is much lower than the national weighted mean of 7.0% for all inpatient facilities reporting this measure to NRI in SFY 2013.

Figure 10. 30-Day Readmissions



Facility directors and staff monitor readmission rates on a monthly basis using administrative aggregate data. In addition, on an individual level, each facility has a readmission review team evaluating those individuals who have been readmitted to the facility. Findings from this thorough evaluation are provided to the treatment team for consideration in developing the treatment plan. The results of the evaluation and related recommendations are shared with the LME/MCO. Readmission is identified as a multifaceted problem, and therefore requires an interdisciplinary approach through effective utilization of treatment team clinical planning, LME/MCO support, community service provider response, patient investment, and as appropriate, family/significant other (and/or guardian) to achieve a successful outcome of reducing readmission patterns and achieving recovery.

Continuity of Care/Timely Follow-Up Care

In order for individuals to achieve positive outcomes (e.g. employment, reduced substance use, improved family/community relationships) after an ADATC stay, it is imperative that they make the connection from inpatient to outpatient care. Follow-up care after an inpatient stay is important to the successful transition of an individual back to the community and avoiding repeat inpatient admissions. Due to the relapsing nature of substance use disorders, a considerable number of substance users will cycle through periods of remission, relapse and re-entry into the treatment system.

The lack of treatment continuity is one of the greatest problems interfering with treatment effectiveness in substance abuse programs (Stahler, Mazzela, Mennis, Chakravorty, Rengert, and Spiga, 2007). The likelihood of relapse is often a function of how individuals deal with the environmental triggers that may be associated with substance use in the community. This is especially true for clinical populations at high risk for relapse, such as individuals who have a substance dependency as well as a co-occurring mental health disorder. Rates of relapse and treatment discontinuation tend to be particularly high for individuals who have co-occurring substance abuse and mental health disorders. Stahler, Mazzela, Mennis, Chakravorty, Rengert, and Spiga (2007) have pointed out that the relationship between re-hospitalization and poor outpatient attendance, an even more significant problem for individuals with co-occurring disorders. As stated earlier in the report, with the high proportion of individuals having both

mental health and substance abuse disorders (80%), it is essential for those leaving the ADATCs to be timely connected with community upon discharge and not be re-hospitalized.

Schaefer, Ingudomnukul, Harris, and Cronkite (2005) note that problems with transportation, homelessness, and transience may create barriers engaging individuals in outpatient care and staff attempts to maintain contact with individuals after discharge (e.g., sending appointment reminders) may prove unproductive when there are inconsistent mailing addresses. In 2011, Schaefer reported that when staff provided individuals with continuing care appointments before discharge, crafted discharge plans that specified weekly continuing care appointments, and arranged drug-free and sober living arrangements, patients were more likely to be abstinent. These practices were linked to greater patient engagement in continuing care and, in turn, patients who participated in more continuing care were more likely to be abstinent. The ADATCs follow this model for discharge. When individuals are admitted to an ADATC, they receive a comprehensive discharge planning screening which includes over 20 life domains (e.g., housing, transportation, childcare, mutual and peer support meetings). During the course of inpatient treatment in the ADATCs, individuals meet with their treatment team to review progress, discharge plans, and identify needs for continuing care and necessary appointments. As a part of the discharge planning process, barriers to community treatment are discussed and strategies are developed with the individual so that they leave the facility with a comprehensive list of resources and community linkages to increase their chances of success and recovery in the community. If additional specialized community care is needed, the ADATCs secure those resources prior to discharge so that individuals transition into a secure, safe placement based on the their condition, diagnosis, and capacity.

The ADATCs work closely with LME/MCOs and individual service providers to establish relationships with specialty providers and programs to tailor aftercare appointments and services to the specific needs of individuals as they return to the community. According to the DSOHF and LME/MCO Contract for provision of Medicaid Services, the LME/MCO and the ADATC shall work together to: assist the individual with the selection of a clinical outpatient provider; schedule the aftercare appointment within seven days of discharge; ensure that the provider is involved in the discharge planning process; assist with relocation to another catchment area; coordinate aftercare services; share the Continuing Care Plan[4] (CCP) with the assigned provider(s); provide the Discharge Summary; and provide follow-up to ensure attempts are made to reschedule missed aftercare appointments. Each ADATC hosts regularly scheduled on-site meetings for LME/MCO liaisons and housing coordinators to assist with treatment planning as well as discharge coordination. Due to the consistent connection and presence of LME/MCOs in the ADATCs, there is a continuum of care and effort between the LME/MCO liaisons and ADATC staff that ensures individualized care and the opportunity to expand post-discharge services.

Timely follow-up after psychiatric hospitalization is the only measure of the quality of psychiatric care used in the Healthcare Effectiveness Data and Information Set (HEDIS), indicative of its legitimacy (Stahler, Mazzela, Mennis, Chakravorty, Rengert, and Spiga 2007). The HEDIS indicators are managed and reported by the National Commission on Quality Assurance

[4] The CCP is an instrument utilized to facilitate discharge planning between the ADATC facility and community agencies and is initiated during the admission and treatment planning process. The CCP includes aftercare provider referrals, physical, medical and psychiatric follow up recommendations and appointments, an individualized recovery plan and comprehensive discharge medication instructions. The purpose for this plan is to provide information to the individual, family, providers, LME/MCOs and others as needed regarding the follow up care required for the individual post-discharge.

(NCQA), an organization which accredits managed care plans. NCQA requires health plans to measure performance on whether individuals receive follow-up services within seven and 30 days of discharge. According to the NCQA's 2013 *State of Health Care Quality Report*, the percentage of members ages six and older who received follow-up within seven days of being discharged from a psychiatric hospitalization in 2012 were as follows: 43.7% of Medicaid HMO members, 38.1% for Medicare HMO members and 37.7% for Medicare PPO members. Rates for follow-up care within 30 days of discharge were the following: 63.6% for Medicaid HMO members, 56.4% for Medicare HMO plans and 60.6% for Medicare PPO members.

For comparison, the ADATCs were able to use interns at each of the facilities for a short period of time in order to determine if individuals discharged in the month of September 2013 made it to their first aftercare appointment within seven days of discharge. Interns called the aftercare provider to confirm the individual made it to their initial appointment that was arranged during the discharge planning. On average, 53.3% of individuals discharged in September made it to their appointment. While resources were not available to continue this pilot at the time, the ADATCs are developing a new post-discharge follow-up interview as part of their existing NC-TOPPS system which will focus on predictors of engagement in continuing care and treatment outcomes.

In addition to the NC-TOPPS tool, when encounter data is fully available in NC-TRACKS, the ADATCs will begin to monitor administrative data on the timeliness of follow-up services for individuals discharged from the ADATC, paying close attention to services received in the seven and 30-day time periods. This information, along with information gleaned from the NC-TOPPS follow-up interviews, will be incorporated into the regular meetings with the LME/MCOs to review continuity of care practices and to identify and address any barriers to individuals receiving timely and proper post-discharge care.

Conclusion

This report addresses both the efficiencies and outcomes of the ADATCs that demonstrate that they provide evidence-based, cost-efficient, inpatient, psychiatric, medical, and substance abuse treatment services to the most vulnerable North Carolinians whose needs exceed the lower level of treatment provided in residential and outpatient settings. Outcomes outlined in this report indicate measures that are comparable or exceed national averages in the areas of program completion, perception of care, effectiveness of services received and readmission. This is a result of the efforts put forth by the ADATCs to continually improve treatment services, respond to research findings and to communicate with the LME/MCOs and providers in order to connect individuals to services in the community upon discharge to improve their outcomes and reduce readmissions.

The importance of discharging individuals into a robust community outpatient or lower level residential program cannot be emphasized enough as it is the goal of the continuum of care that each individual served, achieves and maintains a lifestyle of recovery. Abstinence begins when an individual struggling with addiction stops consuming alcohol and drugs. It occurs at a point in time, as an event. Recovery, on the other hand, begins when an abstinent individual starts growing and changing in positive ways. It occurs over a period of time, as a process. Abstinence requires a decision; recovery requires time and effort. (Hansen, Ganley & Carlucci, 2008). The ADATCs are an essential component of the service delivery system to assist some of the most fragile North Carolinians to begin their journey of recovery.

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