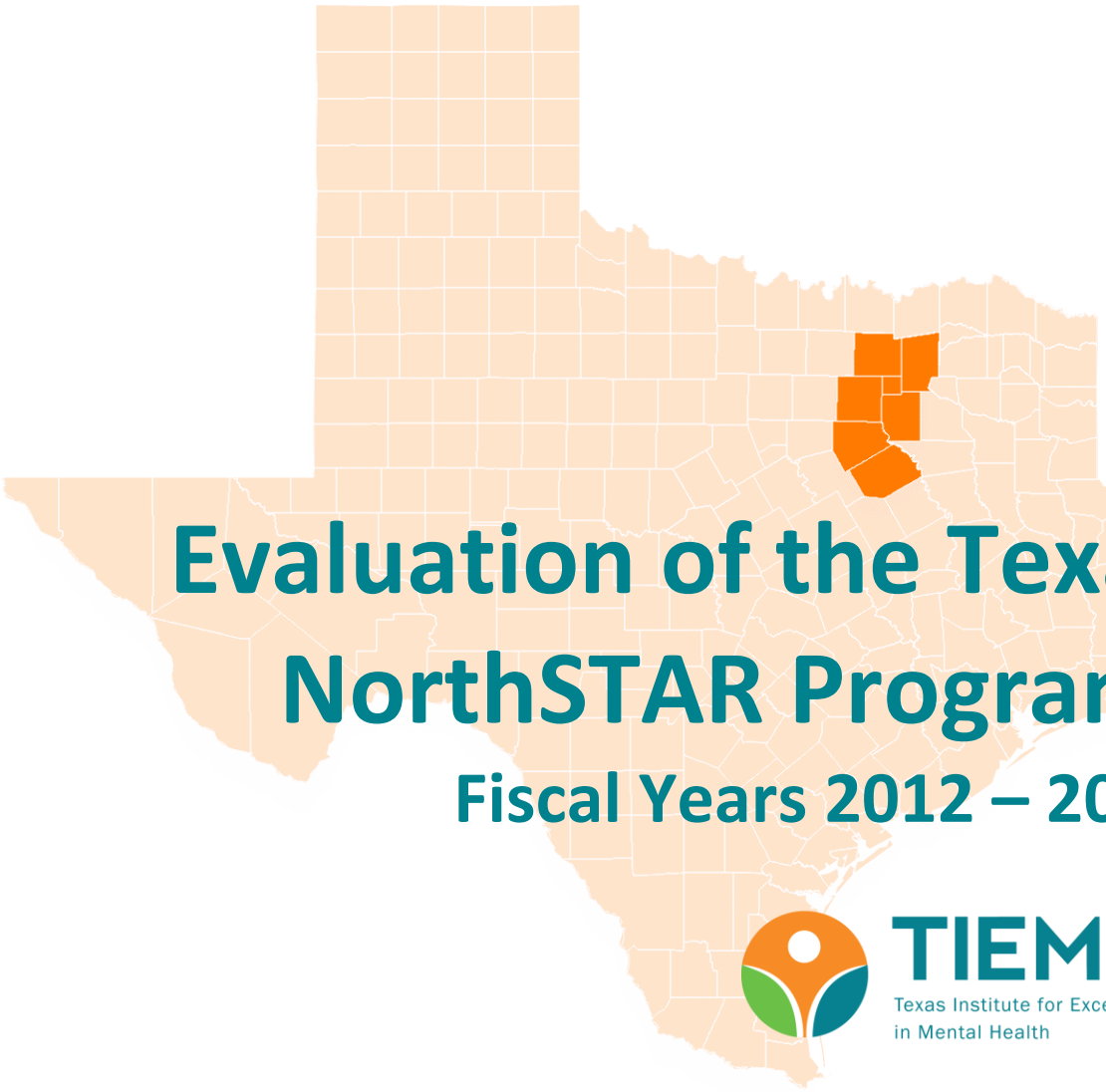

Evaluation of the Texas NorthSTAR Program:

Fiscal Years 2012 – 2014

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Table of Contents

Background

The NorthSTAR Pilot

In the 1990s, mental health services and substance use treatment services were administered separately in the state of Texas. Substance use treatment practitioners rarely addressed mental health needs, and mental health practitioners rarely addressed substance use treatment needs. A large percentage of people lived with both conditions and had to navigate the two service systems to find needed services. During this time, mental health services were administered by the Texas Department of Mental Health and Mental Retardation and substance use treatment services were administered by The Texas Commission on Alcohol and Drug Abuse. Mental health services were primarily funded by state general revenue and Medicaid and substance use services were primarily funded through the Substance Abuse and Mental Health Services Administration (SAMHSA) federal block grant (Burns, 2010). During this same time, federal and state Medicaid budgets were growing. To better manage care and increasing costs associated with care, managed care models became a central institutional feature of Medicaid in Texas and nationally. Texas Medicaid began developing and testing Medicaid Managed Care models in the early 1990s and by 1999 about half of Medicaid beneficiaries were enrolled in managed care (HHSC, 2015). In 2013, 71% of Medicaid recipients across all states were reported to be enrolled in managed care (Kaiser Foundation, 2013).

In 1999, Texas implemented the NorthSTAR behavioral health carve-out pilot in the Dallas Service Area. NorthSTAR was an integrated behavioral health delivery system, blending Medicaid, federal block grant, state, and local funds. Medicaid eligible and medically indigent adults, youth and children in a seven-county area receive integrated behavioral health services through the NorthSTAR program (Texas HHSC, 2015). Client services to both eligible Medicaid and medically indigent individuals are managed under a capitated state contract with a licensed behavioral health organization (BHO; ValueOptions) and oversight is provided by a board known as the North Texas Behavioral Health Authority (NTBHA) which was appointed by the seven involved counties. The intent of the NorthSTAR program was testing an integrated and coordinated system of care created by these blended funding streams. The program streamlines agency policies and eligibility criteria, offers consumers a comprehensive benefit package, and does not require enrolled individuals to switch providers when their Medicaid eligibility status changes. Unlike other areas of the state, NorthSTAR does not have a waiting list because by contract, the BHO is required to serve all eligible persons (Hogg Foundation, 2014).

NorthSTAR Compared to Traditional Behavioral Health Care Systems. NorthSTAR differs from traditional approaches to mental health care delivery that occur through the local mental health authorities (LMHAs) in terms of administration of services, populations served, services provided, method of funding, and in the way in which Medicaid regulations are applied. Some ways the traditional LMHA/substance use treatment provider and NorthSTAR systems differ are presented in Table 1 (Texas DSHS, 2005).

Table 1. Differences between NorthSTAR and the traditional MHSA provider system

	NorthSTAR	Traditional System
Funding Approach	Fully-capitated, managed care, behavioral health carve out that assumes financial risk for service provision.	State purchases capacity and bears financial risk.
Medicaid	Operates under a 1915(b) Medicaid waiver.	Participates in Medicaid fee-for-service program.
Incentives	"At risk" nature of the capitated system encourages managing care to ensure appropriate levels of care (no overserving).	Billing Medicaid provides an incentive to overserve the insured and underserve the medically indigent. The Texas Recovery and Resilience program helps manage this.
Scope of Funding	Blended mental health and substance use treatment funding.	Separate funding for mental health and substance use treatment services.
Population Served	Adults with mental illness, children with emotional disturbance and substance use dependent individuals. Combined funding expands scope of service to individuals with less serious mental health conditions.	Adults with serious mental illness, children with serious emotional disturbance, individuals who are substance use dependent.
Access	Serves all individuals who meet eligibility criteria.	Serves a required number of individuals and can place others on waiting lists.

Because of the system differences, evaluative comparisons between the NorthSTAR and traditional systems have been more difficult and are not recommended. Separate evaluations of system performance and outcomes have typically been conducted but when comparisons are made they include notes on the limitations of such comparisons.

The NorthSTAR Service Area

Population. Seven counties comprise the NorthSTAR program service area: Dallas, Ellis, Collin, Hunt, Navarro, Rockwall and Kaufman counties. Dallas is the anchor of the region and has the largest population, followed by the populations in Collin, Ellis and Kaufman counties. The total population of all seven NorthSTAR counties in 2013 was 3,791,114, which represents 14.3% of the total Texas population.

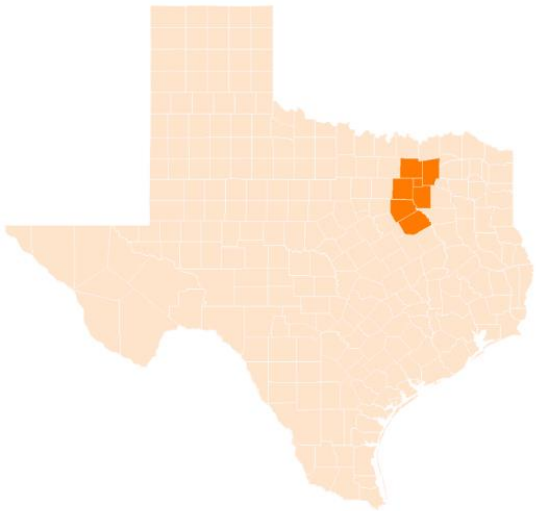


Figure 1. The NorthSTAR service region

Medicaid Penetration. In 2013, the Medicaid penetration rates of NorthSTAR were very similar to those of the entire state (Table 2). The percentage of total population enrolled in Medicaid in Texas was 13.9% compared to 13.6% in the NorthSTAR counties. Dallas and Navarro had higher Medicaid penetration rates, with 16.1% and 18.6% of the county population enrolled. These two counties also had higher poverty rates than the state and other counties in NorthSTAR. When comparing poverty rates, three counties in the NorthSTAR pilot had higher poverty rates than the rest of the state. Poverty rates for all people and for children under 17 years of age were higher in Dallas, Navarro and Hunt counties than the overall state poverty rate.

Table 2. 2013 comparison of population, Medicaid enrollment, and poverty rates: NorthSTAR to Texas

Geographic Area	Population 2013	Total Medicaid Enrollment	Medicaid Enrollment Children >19	Medicaid Enrollment Adults	Poverty Rates All People	Poverty Rates Children >17
Texas	26,448,193	3,665,085	2,772,479	666,755	17.5	25.0
All NorthSTAR	3,791,114	497,736	392,316	83,650	*	*
Dallas	2,459,095	397,002	316,997	65,969	19.5	29.5
Ellis	155,939	17,134	12,491	2,980	13.1	18.7
Collin	845,036	44,243	34,132	6,620	7.9	9.9
Hunt	88,451	12,157	8,536	2,850	17.9	25.5
Navarro	49,245	9,143	6,584	1,926	23.3	33.5
Rockwall	85,050	5,276	3,888	888	6.6	9.1
Kaufman	108,298	12,781	9,688	2,417	11.7	17.6

2013 was used for all estimates and projections.
Texas Population, 2013 Projections; Texas Department of State Health Services: https://www.dshs.state.tx.us/chs/popdat/ST2013.shtm. Medicaid enrollment: http://www.hhsc.state.tx.us/research/MedicaidEnrollment/ME/201308.html. Children include the total number of Medicaid clients under the age of 19. There are people under age 19 who qualify for Medicaid for reasons other than age and family income. Adults include Blind and Disabled and TANF Adults and excludes the aged and pregnant women. Poverty rates: http://www.ers.usda.gov/data-products/county-level-data-sets/poverty.aspx.

Past Evaluations of NorthSTAR

Evidence suggests that Medicaid carve-outs are successful in lowering costs and maintaining or improving access to care. They have been instrumental in addressing long-standing challenges in utilization, access, and cost of behavioral health care. Across the country, carve-outs have provided higher rates of access and greater levels of specialization for Medicaid managed care than integrated behavioral health programs (HHSC, n.d.). Several evaluations of the NorthSTAR system have been completed since its inception in 1999. These include both qualitative and quantitative reviews (Sunset Advisory Commission, 2015; Public Consulting Group, 2012; The Perryman Group, 2010; LBJ School of Public Affairs, 2003) conducted by third party or external evaluators. In addition, through the years of operation, regular internal performance reviews and evaluations by ValueOptions, the North Texas Behavioral Health Authority, and the Texas Department of State Health Services (DSHS) have been conducted.

Overall, previous evaluations have found that a major strength of the system is its pooled funding approach. Pooled funding reduces the number of administrative structures necessary to maintain multiple systems of care. This results in more money available for client services. Further, evaluations have found that NorthSTAR provides behavioral health service access to greater numbers of individuals with Medicaid and no insurance than the traditional system, eliminates waiting lists for services, expands and improves collaboration in the provider network, lowers per capita cost per person served,

and results in comparable outcomes when examining DSHS performance indicators that are also used by traditional systems in Texas (e.g., Resiliency and Disease Management (RDM) and Texas Recovery and Resilience, the Texas Recommended Assessment Guidelines (TRAG) or Adult Needs and Strengths (ANSA) scores, and readmission rates).

Conversely, NorthSTAR is challenged, as are other systems in the state, with increasing need, less resources to serve individuals, and a need to better integrate physical health with behavioral health services (TriWest & ZiaPartners, 2010). Research indicates that individuals with serious mental illness have co-occurring behavioral health and physical health conditions that leads to earlier mortality, thus broader healthcare system change is needed to address these needs (HHSC, 2010; TriWest & ZiaPartners, 2010; Colton & Manderscheid, 2006). In the Medicaid population, these co-morbid conditions are even more pronounced, with 45% of beneficiaries with disabilities having three or more chronic conditions. Healthcare spending is 60 to 70% higher for beneficiaries with chronic physical conditions who also have mental health or substance use disorders (Association for Behavioral Health & Wellness, 2015). Further integration of physical and behavioral health care could improve individual outcomes and may reduce healthcare costs.

Transitioning from the NorthSTAR Pilot

The Texas Sunset Commission's most recent review of the Health and Human Services Commission (HHSC) recommended the dissolution of the NorthSTAR behavioral health carve out. The report cited three major points: 1) the Dallas area received substantially less Delivery System Reform Incentive Payment (DSRIP) funding than other areas of the state since NorthSTAR operates through a private vendor to coordinate services and the region was not able to use the state money provided as matching funds to secure the federal funds; 2) Although an integrated care model is in place statewide (STAR PLUS), Medicaid clients in the Dallas area are unable to participate because they are automatically enrolled in NorthSTAR; and, 3) The NorthSTAR model prevents a comprehensive evaluation of statewide Medicaid behavioral health policies and outcomes as different data elements are created (Sunset Advisory Commission, 2015). In 2015, the 84th Texas Legislature adopted the Sunset Commission's recommendations and legislated that clients with Medicaid be transferred to the STAR+Plus program, with indigent clients served by a newly configured mental health authority (NTBHA, 2015).

Characteristics of NorthSTAR Members: 2012 – 2014

Individuals Enrolled and Served in NorthSTAR

Between fiscal years 2012 and 2014, 1,234,681 unique individuals were enrolled in NorthSTAR services. These individuals may have also been enrolled in years prior to fiscal year 2012. Of the enrolled individuals, 128,266 individuals (approximately 10.4%) received at least one mental health or substance use treatment service (were "served"). Of these individuals, a subset received a service package or level of care assignment, which indicates that these individuals are likely to have more serious mental health challenges, serious emotional health challenges or be substance use dependent. 59,490 unique adults and 26,941 unique children or adolescents were assigned to a service package or level of care across the three fiscal years (see Figure 2). "Assigned" was calculated by counting all individual's first service package or level of care assignment between fiscal years 2012 and 2014. Whether the individual was an adult or child/adolescent was determined by selecting the first age in the system related to the first assignment. The "assigned" number excludes those with a crisis level of care only (n=36) and those who were determined ineligible for services (n=1,122).

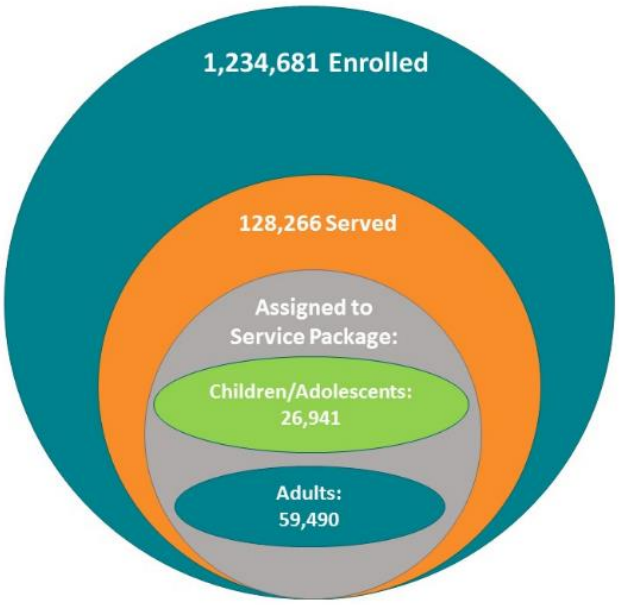


Figure 2. The FY2012-2014 NorthSTAR program individuals enrolled, individuals served, and the subset of individuals who received more intensive mental health or substance use treatment services determined by assignment to a service package or level of care. Shape sizes are not to scale.

NorthSTAR Clients Enrolled: Fiscal Years 2012, 2013, and 2014

An enrolled client is an individual who has been determined eligible for NorthSTAR services but who may or may not have accessed services. NorthSTAR is a managed system of care so unlike the traditional behavioral health system, participation in services in not a requirement to maintain eligibility.

Demographic Characteristics of Enrolled Clients. Of those enrolled, slightly more than half (54.0%) are female while 46% are male. Ethnicity data indicates that approximately 60% are not of Hispanic or Latino origin. One-quarter of those enrolled between FY2012 and FY2014 were Black or African American and one-fifth were White. Based on the last age recorded, a majority of those enrolled in NorthSTAR were children or adolescents who were five to 17 years of age (41.9%) or under five years of age (18.9%). See Table 3 for more detailed demographic information.

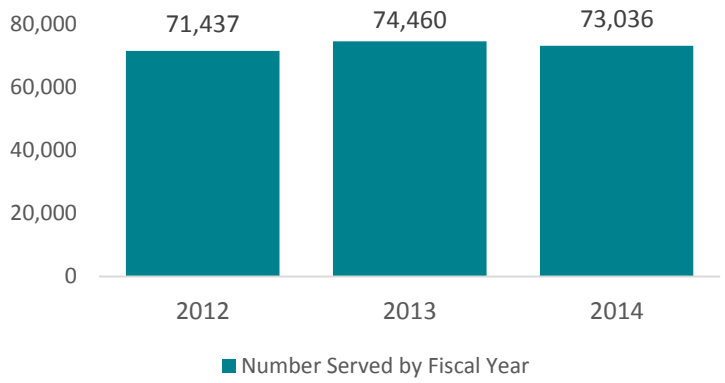
Table 3. Sex, ethnicity / race, and age range of clients enrolled in NorthSTAR: FY 2012, 2013, 2014

Gender	N	Percent
Male	567,801	46.0
Female	666,697	54.0
Unknown	183	<0.1%
Ethnicity	**N**	**Percent**
Hispanic or Latino	494,859	40.1
Not Hispanic or Latino	739,822	59.9
Race	**n**	**Percent**
White	247,166	20.0
Black or African American	308,055	25.0
American Indian / Alaska Native	5,423	0.4
Native Hawaiian / Other Pacific Islander	110	<0.1
Asian	31,901	2.6
Other	87,571	7.1
More than one race reported	3,239	0.3
Unknown	58,537	4.7
Age	**n**	**Percent**
Under 5 years	233,585	18.9
5 to 17 years	516,814	41.9
18 to 24 years	160,362	13.0
25 to 44 years	192,369	15.6
45 to 64 years	95,332	7.7
65 years or older	36,219	2.9

NorthSTAR Clients Served: Fiscal Years 2012, 2013, and 2014

After enrollment in NorthSTAR, an individual may choose to participate in services. To determine the numbers served, we selected individuals who had one or more services in a fiscal year. In FY2012, 71,437 enrolled individuals also received at least one service in NorthSTAR. In FY2013, this number rose to 74,460 individuals and then decreased slightly to 73,036 individuals receiving services in FY2014 (see Figure 3). The total number of individual clients served across all three fiscal years was 128,266. The sum across years does not equal the total because this is a count of unique clients and some received services across the three fiscal years.

Figure 3. Number of individual NorthSTAR clients served in fiscal years 2012, 2013, 2014



Clients Served by NorthSTAR County. Although the NorthSTAR service area consists of seven counties (Collin, Dallas, Ellis, Hunt, Kaufman, Navarro, and Rockwall), Dallas is the most populous county overall and more than three-quarters of NorthSTAR individuals served are from Dallas County, both overall and for each fiscal year. Approximately 99% of those served are from the seven county service area, with the remaining 0.7% to 0.9% residing in a county outside of the service area for the fiscal years included in the sample (see out of state and other Texas counties in Table 4 below). Given the overall sample size, this number is inconsequential and will not affect analysis.

Table 4. County of clients receiving services by fiscal year.

NorthSTAR County	FY2012	FY2013	FY2014	All FY's
Collin	5,772 (8.1%)	5,973 (8.0%)	6,138 (8.4%)	10,904 (8.5%)
Dallas	56,314 (78.8%)	58,987 (79.2%)	57,802 (79.1%)	101,179 (78.9%)
Ellis	2,373 (3.3%)	2,409 (3.2%)	2,402 (3.3%)	4,156 (3.2%)
Hunt	2,356 (3.3%)	2,258 (3.0%)	1,985 (2.7%)	3,647 (2.8%)
Kaufman	2,054 (2.9%)	2,127 (2.9%)	2,109 (2.9%)	3,499 (2.7%)
Navarro	1,441 (2.0%)	1,410 (1.9%)	1,398 (1.9%)	2,349 (1.8%)
Rockwall	649 (0.9%)	662 (0.9%)	611 (0.8%)	1,186 (0.9%)
Other Texas Counties	439 (0.6%)	587 (0.8%)	547 (0.7%)	1226 (1.0%)
Out-of-State	39 (0.1%)	47 (0.1%)	44 (0.1%)	120 (0.1%)

Demographic Characteristics of Individuals Served. Overall, 52.5% of the individuals served were male and 47.7% were female. When examining individuals who were enrolled versus those who received services, females are more likely to be enrolled but less likely to receive mental health or substance use treatment services. Percentages of males versus females receiving services between FY2012 and FY2014 remained very consistent over the three-year time period examined (Table 5).

More than three-quarters of the served population is not of Hispanic or Latino origin. When comparing this percentage to the number of individuals enrolled who are not of Hispanic or Latino origin (59.9%), a higher proportion of Hispanic or Latino individuals are enrolled in services than those who receive services. A slight increase in the number of individuals served of Hispanic or Latino origin can be observed over time. The majority of those served are either white (30.8%) or black (30.6%).

Table 5. Sex, ethnicity/race, and age of clients receiving services by fiscal year.

Gender	FY2012	FY2013	FY2014	All FY's
	n (%)	n (%)	n (%)	n (%)
Male	37,012 (51.8%)	38,570 (51.8%)	37,932 (51.9%)	67,060 (52.3%)
Female	34,421 (48.2%)	35,888 (48.2%)	35,104 (48.1%)	61,202 (47.7%)
Unknown	4 (<0.1%)	2 (<0.1%)	--	4 (<0.1%)
Ethnicity	**FY2012**	**FY2013**	**FY2014**	**All FY's**
Hispanic or Latino	13,989 (19.6%)	15,330 (20.6%)	15,793 (21.6%)	28,778 (22.4%)
Not Hispanic or Latino	57,448 (80.4%)	59,130 (79.4%)	57,243 (78.4%)	99,488 (77.6%)
Race	**FY2012**	**FY2013**	**FY2014**	**All FY's**
White	22,020 (30.8%)	22,187 (29.8%)	21,710 (29.7%)	39,457 (30.8%)
Black or African American	21,732 (30.4%)	23,280 (31.3%)	22,873 (31.3%)	39,214 (30.6%)
American Indian / Alaska Native	243 (0.3%)	238 (0.3%)	233 (0.3%)	431 (0.3%)
Native Hawaiian / Other Pacific Islander	38 (0.1%)	26 (<0.1%)	27 (<1.0%)	63 (<0.1%)
Asian	575 (0.8%)	598 (0.8%)	586 (0.8%)	1,089 (0.8%)
Other	1,439 (2.0%)	1,935 (2.6%)	2,233 (3.1%)	3,498 (2.7%)
More than one race reported	1,398 (2.0%)	1,573 (2.1%)	1,477 (2.0%)	2,063 (1.6%)
Unknown	10,486 (14.7%)	9,899 (13.3%)	8,907 (12.2%)	15,051 (11.7%)
Age	**FY2012**	**FY2013**	**FY2014**	
Under 5 years	3,474 (3.3%)	1,853 (1.6%)	821 (0.7%)	*
5 to 17 years	34,153 (32.5%)	34,907 (30.8%)	34,264 (28.9%)	*
18 to 24 years	11,631 (11.1%)	12,874 (11.4%)	14,113 (11.9%)	*
25 to 44 years	31,702 (30.2%)	35,868 (31.7%)	38,556 (32.5%)	*
45 to 64 years	23,107 (22.0%)	26,576 (23.5%)	29,238 (24.7%)	*
65 years or older	904 (0.9%)	1,182 (1.0%)	1,594 (1.3%)	*

*Age based on last age recorded each fiscal year. Age not provided across fiscal years because multiple ages might exist for individuals served across fiscal years.

About one-third of all served were between the ages of five and 17. When comparing the ages of those enrolled versus those who received services, there were a higher percentage of adults served than enrolled, with the majority served in the 25 to 64 age range (approximately 25 – 55%).

Number of Services Received. The total number of services remained fairly consistent across the three fiscal years, with less total services provided in 2012 but a higher maximum number of services per client provided in 2012 than in the other two fiscal years (Table 6). The average number of services received is lower due to the inclusion of individuals who received at least one service in the fiscal year.

Table 6. Number of services provided to clients by fiscal year.

Fiscal Year	Number of Services	Maximum number of services per client	Average number of services per client
2012	759,526	526	10.6
2013	834,814	482	11.2
2014	832,622	423	11.4
Total	2,426,458	1,227	18.92

**NOTE: Number of services in the three fiscal years does not equal the total because some were provided across fiscal years.*

Service package or level of care assignment. In fiscal years 2012 and 2013, under the state's Resiliency and Disease Management (RDM) model of service provision, clients were assessed using the Children and Adolescent TRAG (CA-TRAG) or the Texas Recommended Assessment Guidelines (TRAG) and placed into a service package. With the initiation of Texas Recovery and Resilience (TRR) and rollout of the Children's Assessment of Needs and Strengths (CANS) or the Adult Needs and Strengths Assessment (ANSA), clients were assessed with these instruments and then placed into a level of care. Table 7 below provides the number and percent of individuals placed into a service package in fiscal years 2012 and 2013. Immediately following in Table 8, the number and percent of individuals in levels of care in fiscal year 2014 is provided. The first level of care or service package assigned to an individual in the fiscal year was used for this analysis but individuals may have been assigned to a different level of care in each and across the fiscal years.

Crisis includes anyone with a service package assignment of "0" in fiscal years 2012 and 2013 but it is not intended to be a permanent assignment. When examining anyone who had a Crisis Services assignment, there were 162 in FY2012 and 192 in FY2013. Of these, it was the first service package assigned for 83 individuals in FY2012 and 92 individuals in FY2013.

Service Packages – FY2012 and 2013. The most common service package assignment for children/ adolescents and adults was service package 1, the least intensive service package (Table 7). This is similar to the traditional system of care where most individuals receiving care were also assigned to a service package 1.

Table 7. Assigned Service Package: Individuals who received services in fiscal years 2012 and 2013

Service Package (first assigned)	**FY2012**		**FY2013**	
	n	**percent**	**N**	**percent**
ADULTS				
1: Pharmacological Management & Case Coordination	21,791	45.1%	22,843	43.8%
2: Pharmacological Management, Case Coordination & Psychotherapy	3,025	6.3%	5,586	10.7%
3: Pharmacological Management & Rehabilitative Case Management	8,102	16.8%	7,320	14.0%
4: ACT or ACT Alternative	845	1.7%	957	1.8%
CHILDREN & ADOLESCENTS				
1.1 Brief Outpatient - Externalizing	8,071	16.7%	8,738	16.8%
1.2 Brief Outpatient - Internalizing	2,924	6.0%	2,899	5.6%
2.1 Intensive Outpatient – Multi-Systemic Therapy	109	0.2%	53	0.1%
2.2 Intensive Outpatient – Externalizing	929	1.9%	740	1.4%
2.3 Intensive Outpatient - Internalizing	373	0.8%	349	0.7%
2.4 Intensive Outpatient – Bipolar / Schizophrenia / Other Psychotic Disorders	377	0.8%	327	0.6%
4 Intensive Family Services	869	1.8%	1,021	2.0%
Not Eligible for Services	*938*	*1.9%*	*1,287*	*2.5%*
Total	48,353	100.0%	52,120	100.0%

Level of Care – FY2014. In fiscal year 2014, the ANSA and CANS were used to recommend the level of care assignment. The most frequent care assignment in 2014 was level of care 1S (basic services plus skills training) for adults and level of care 1 for children/adolescents, which is similar to service package assignments in the 2012 and 2013 fiscal years. Percentages of adults assigned to level of care 3 (similar to service package 3) and 4 (similar to service package 4) dropped by about half in fiscal year 2014 when compared to the prior fiscal years (Table 8). In fiscal years 2012 and 2013, significantly fewer individuals had an initial Crisis level of care assignment (n = 4).

Table 8. Level of Care: Individuals who received services in fiscal year 2014

Level of Care (first assigned)	**FY2014**	**FY2014**
	n	percent
ADULTS		
1M - Basic Medication Management Services	30	0.1%
1S - Basic Services – Skills Training	29,718	57.9%
2 - Basic Services (including counseling)	2,758	5.4%
3 - Intensive Services (with team approach)	2,238	4.4%
4 - Assertive Community Treatment (ACT)	1,735	3.4%
CHILDREN & ADOLESCENTS		
1 - Medication Management	2,544	5.0%
2 - Targeted Services	7,418	14.4%
3 - Complex Services	3,110	6.1%
4 - Intensive Family Services	136	0.3%
YC - Young Child	1,247	2.4%
Not Eligible for Services	*58*	*0.1%*
Priority Population or Ineligible	*356*	*0.7%*
Total	51,348	100.0%

Evaluation of the Texas NorthSTAR Program

Evaluation Goals

In fiscal year 2015, the Texas Department of State Health Services (DSHS) contracted with the Texas Institute for Excellence in Mental Health (TIEMH) at the University of Texas at Austin School of Social Work to conduct a final evaluation of the NorthSTAR program. The scope of work focused on examining a few key areas and questions that could potentially be used as baseline markers for the new system of care as it is implemented. Due to time limitations and desire to examine multiple areas, only descriptive analysis is reported with no significance testing conducted.

Context of Data Obtained for Analysis. Three years of NorthSTAR client data was obtained from DSHS by TIEMH researchers, including all enrolled clients in the state fiscal years (September 1 – August 31) of 2012, 2013, and 2014. In 2012 and 2013, the TRAG and CA-TRAG were used to recommend clients to a service package and to examine outcomes over time. In 2014, the ANSA and CANS replaced the TRAG and CA-TRAG and were used to recommend a client's placement in a level of care and to examine outcomes over time. To examine client outcomes, only the ANSA and CANS data available in fiscal year 2014 were used. The Addiction Severity Index-Lite is the assessment instrument used by substance use treatment providers, however, these data were not available to TIEMH researchers due to interpretation of 42 CFR by DSHS. The majority of individuals receiving substance use treatment had also received an ANSA assessment and these data were used to examine outcomes.

These key evaluation areas examined include: 1) Service Access and Continuity of Care; 2) Service Quality; and, 3) Service Outcomes. Each evaluation area included more specific questions to guide analysis. Question results are included in sub headers in each evaluation goal section.

Evaluation Goal 1: Service Access and Continuity of Care

Access to services and continuity of care is important for increasing the quality of a life for an individual experiencing mental health or substance use disorders. Examining the amount of need for particular services in comparison to the number served is one method to determine if service access is adequate (USDHHS, 2008) as well as by examining the array of services providers available to meet the need (see Evaluation Goal 2, The NorthSTAR Provider Network and Service Array), the types of services received, and the amount of time that lapses between an assessment and the first service received. Continuity of care is multidimensional and can be conceptualized in many different ways (Wierdsma, et al 2009). To examine service access and continuity of care, we focused on individuals who were identified as high service utilizers in comparison to all others, examining the level of care received and utilization of specific types of higher cost services.

1.1 Service access for individuals with mental health, substance use, and co-occurring disorders.

Estimated prevalence and treatment need met. To assess service access and meeting the behavioral health needs in the NorthSTAR region, 2013 mental health and substance use disorder prevalence estimates (Texas DSHS, 2014) were applied to the 2013 NorthSTAR counties population data (Office of the State Demographer, 2013). These numbers were then compared to the number of individuals served

in NorthSTAR (defined as receiving one or more services in the 2013 fiscal year) to determine service penetration rates or the percentage of treatment needs that were met by the system.

Need met is based on all NorthSTAR clients who received at least one service in fiscal year 2013 and was not limited to only those clients with an ANSA, CANS, or a substance use treatment service admission. Because of this, comparing the percentage of treatment need met in NorthSTAR to the rest of the state should be considered with this in mind – the NorthSTAR number served includes a number of individuals with less serious mental health or serious emotional challenges who received less intensive services than individuals in the traditional system.

SMI penetration rates or treatment need met. To determine the extent to which the NorthSTAR adult SMI treatment need was being met, an estimated SMI population was calculated based on DSHS provided SMI prevalence estimates (2.6%) and the NorthSTAR adult population (the number of adults 18 to 84 years of age in the seven NorthSTAR counties). Based on the estimated number of adults in need of SMI services and the number of adults who received at least one service, the NorthSTAR service region was meeting 74.7% of the treatment need (Table 9). If SAMHSA NSDUH (2015) prevalence estimates were used (4.1%), a larger number of adults would have been identified in need of services, but the overall need met would still be high at 63.41%.

Table 9. Estimated prevalence of adult SMI compared to numbers served.

Area	Population aged 18 to 84 years	Estimated SMI population	Adults served*	Percent of need met
All NorthSTAR counties	2,720,730	70,739	52,838	74.69%
Collin	611,304	15,894	4,538	28.55%
Dallas	1,760,466	45,772	41,753	91.22%
Ellis	111,192	2,891	1,764	61.02%
Hunt	65,365	1,699	1,677	98.68%
Kaufman	77,175	2,007	1,570	78.24%
Navarro	35,311	918	1,082	117.85%
Rockwall	59,917	1,558	454	29.14%

2013 census population estimates from the state demographer's office were used for the age ranges listed. Estimated serious mental illness (SMI) prevalence rates of 2.6% from the Texas SAPT Block Grant Needs Assessment (2015) were used to calculate the population in need of treatment. The SAMHSA Texas Behavioral Health Barometer (2015) estimates higher prevalence rates of 4.1% and a higher number of individuals in need of treatment.
*Adults served includes all individuals who received one or more services in fiscal year 2013.

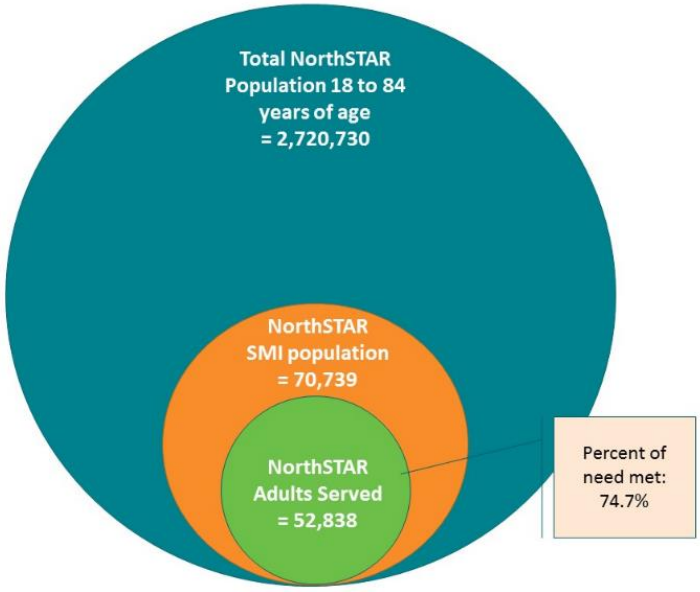


Figure 4. Percent of NorthSTAR SMI treatment need met based on population and SMI prevalence estimates.

Based on the methodology described in the previous section, a higher percentage of the mental health treatment need was met in the NorthSTAR system in comparison to the state. For serious mental illness, the percentage of mental health treatment need met in Texas (which included the NorthSTAR number served) was 31.4% (Texas DSHS Community Mental Health and Substance Use Block Grant Application FY2014-2015, Needs Assessment) compared to 74.7% of treatment need met in NorthSTAR. Numbers served in NorthSTAR includes any individual who received at least one service in the fiscal year.

SED penetration rate or treatment need met. For serious emotional disturbance, the percentage of treatment need met in Texas (which included the NorthSTAR number served) was 26.7% (Texas DSHS Community Mental Health and Substance Use Block Grant Application FY2014-2015, Needs Assessment) compared to 43% of treatment need met in NorthSTAR (Table 10). Although the need met was higher in the NorthSTAR service area than the rest of the state, 57% of children and adolescents in the NorthSTAR region may need to access treatment services.

Table 10. Estimated prevalence of child/adolescent SED compared to numbers served.

Area	Population age 0 to 17 years	Estimated SED population	Children or adolescents served	Percent of need met
All NorthSTAR	1,037,584	51,879	22,307	43.00%
Collin	235,062	11,753	1,553	13.21%
Dallas	671,039	33,552	18,262	54.43%
Ellis	42,770	2,139	682	31.89%
Hunt	21,684	1,084	622	57.37%
Kaufman	29,857	1,493	600	40.19%
Navarro	13,046	652	363	55.65%
Rockwall	24,126	1,206	225	18.65%
2013 census population estimates from the state demographer's office were used for the age ranges listed. Estimated serious emotional disturbance prevalence rates of 5% from the from the Texas SAPT Block Grant Needs Assessment (2015) were used to calculate the population in need of treatment. Some children included in these estimates also received services for substance use disorders.				

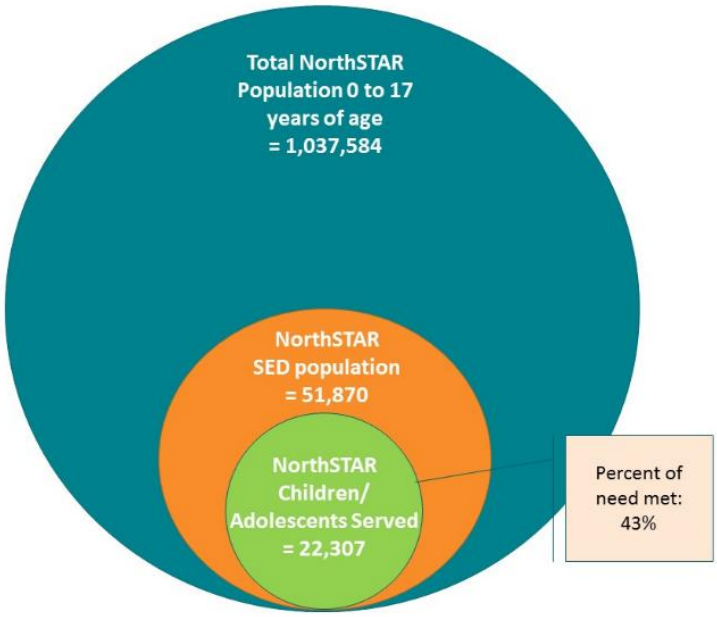


Figure 5. Percent of NorthSTAR SED treatment need met based on population and SED prevalence estimates.

Similarly, to determine the extent to which the NorthSTAR child/adolescent SED treatment need was being met, an estimated SED population was calculated based on DSHS provided SED prevalence estimates (5%) and the NorthSTAR population (the number of children / adolescents 0 to 17 years of age in the seven NorthSTAR counties). Based on the estimated number in need of services and the number who received at least one service, the NorthSTAR service region was meeting 43% of the child/adolescent treatment need. This is higher than the SED treatment need met in the rest of the state.

SUD penetration rate or treatment need met. For substance use disorders, percent of need met for adults and youth was calculated for the entire NorthSTAR region due to the lower numbers served (Table 11). The percentage of adult treatment need met in Texas (which included the NorthSTAR numbers served) was 3.73% (DSHS, 2015) compared to 5.8% of the treatment need that was met in NorthSTAR. The percentage of youth treatment need met was higher for the state as a whole, 6.08% (which again included NorthSTAR numbers served; DSHS, 2015) compared to 3.4% of treatment need that was met in NorthSTAR. For both the state and the NorthSTAR region, the substance use treatment needs could be improved, particularly for youth.

Table 11. Estimated prevalence of adult and youth SUD compared to numbers served.

All NorthSTAR Counties				
Population age 18 to 84 years	estimated number who are also poor	estimated adult SUD population	Adults served	percent of need met
2,720,730	1,395,734	125,616	7,225	5.8%
Population age 12 to 17 years	estimated number who are also poor	estimated youth SUD population	Youth served	percent of need met
339,878	153,965	11,085	379	3.4%
2013 census population estimates from the state demographer's office for the age ranges listed were used. Percent estimated poverty rates of 51.3% for adults and 45.3% from the Texas SAPT Block Grant Needs Assessment (2015) were used to calculate eligible population. Adult SUD prevalence rates of 9% and youth prevalence rates of 7.2% also from the Texas SAPT Block Grant Needs Assessment (2015) were used to calculate the population in need of treatment.				

Behavioral Health Diagnosis. Individuals in NorthSTAR are not formally identified as having a co-occurring mental health and substance use disorder. To determine the number of individuals served in NorthSTAR with a mental health diagnosis, a substance use diagnosis, or a co-occurring mental health and substance use disorder, the primary, secondary, and tertiary diagnoses were examined in each fiscal year. If an individual had only a mental health or substance use for each of the three diagnoses fields, they were identified as someone with a mental health or substance use issue only. If the individual was diagnosed with a mental health and substance use in the primary, secondary or tertiary diagnosis fields, they were identified as an individual with a co-occurring disorder. The most common diagnostic categories for individuals served in NorthSTAR across all three fiscal years examined was a mental health diagnosis, followed by a co-occurring disorder, then a substance use disorder.

Table 12. Behavioral Health Diagnosis of NorthSTAR Clients Served: 2012, 2013, 2014

	2012		2013		2014	
Diagnosis	**n**	**percent**	**N**	**percent**	**N**	**percent**
Mental Health	44,633	71.2	48,276	77.5	48,187	77.3
Substance Use	6,777	10.8	6,229	10.0	6,434	10.3
Co-occurring Disorder	11,297	18.0	7,818	12.5	7,689	12.4
Total	62,707	100.0	62,323	100.0	62,310	100.0

Broader diagnostic categories of individuals served. There were several "layers" of diagnosis in the data. It was not unexpected that an individual might have several diagnosis and that these might change over time, but that created some difficulty in categorizing and describing the population served. Based on the first more discrete diagnoses (e.g. schizoaffective disorder) in a fiscal year, broader categories were developed (e.g. mental health). As expected, most individuals served in NorthSTAR had a mental health diagnosis (71.9% across fiscal years). Also, among those served, a cognitive/developmental diagnosis (14.08% across fiscal years) was more frequent than a substance use disorder diagnosis.

Table 13. Overall broad diagnoses categories of NorthSTAR clients served: 2012, 2013, 2014

	FY 2012	**FY 2013**	**FY 2014**	**All FYs**	**% All FYs**
Cognitive/Developmental	9,868	10,331	10,893	31,092	14.20 %
Mental Health	51,299	53,271	52,856	157,426	71.91%
Physical Health	2,915	3,855	1,717	8,487	3.88%
Social/Relationships	15	13	13	41	0.02%
Substance Use	7,340	6,990	7,557	21,887	10.00%
Total	71,437	74,460	73,036	218,933	

1.2 Service Categories (and Types of Services) Received

To examine the types and frequency of services provided in the system, a count of services by service type was conducted for each fiscal year. As reported in Table 14, there were fewer services provided in fiscal year 2012 (n = 759,526) when compared to fiscal years 2013 and 2014 (n = 834,814 and 832,622 respectively). Among mental health services provided, the most frequently reported across fiscal years were medication management (21.9%), psychosocial rehabilitation (9.6%), skills training and development (7.2%), targeted case management (6.5%), and individual counseling services (2.5%). Among substance use treatment services, a treatment program (11.1%) and methadone services (9.2%) were the most frequently reported services.

Table 14. Count of services across service types by fiscal year

	2012 Services Received		2013 Services Received		2014 Services Received		Sum of Services Received	
Service Categories (Type of service)	*frequency*	*%*	*frequency*	*%*	*frequency*	*%*	*frequency*	*%*
ACT	5,970	0.8%	6,328	0.8%	6,158	0.7%	18,456	0.8%
Adult Crisis (Intervention, Medication Evaluation, Psych Evaluation by MD)	4,492	0.6%	2,869	0.3%	2,156	0.3%	9,517	0.4%
Methadone	62,362	8.2%	68,870	8.2%	92,455	11.1%	223,445	9.2%
Detoxification (in or outpatient)	6,860	0.9%	6,596	0.7%	6,100	0.7%	19,529	0.8%
Alcohol and/or drug treatment program	80,065	10.5%	93,783	11.2%	95,486	11.5%	269,329	11.1%
Assessment (AOD or health risk assessment instrument)	7,644	1.0%	9,907	1.2%	8,623	1.0%	26,173	1.1%
Behavioral Health (day treatment, outreach, parent support group, short-term residential non-hospital)	42,631	5.6%	41,548	5.0%	28,611	3.4%	112,772	4.6%
Case management	1,391	0.2%	990	0.1%	1,151	0.1%	3,532	0.1%
Child and Adolescent Crisis	18	0.0%	13	0.0%	22	0.0%	53	0.0%
Clinical Pathology Consultation; by MD	5,694	0.7%	7,791	0.9%	6,311	0.8%	19,795	0.8%
Crisis Intervention	583	0.1%	2,529	0.3%	2,795	0.3%	5,907	0.2%
Daily Inpatient Care	366	0.0%	606	0.1%	542	0.1%	1,514	0.1%
Detox services in a hospital setting	69	0.0%	74	0.0%	56	0.0%	199	0.0%
Dual diagnosis alcohol and/or other drug treatment program, criminal justice setting	3,483	0.5%	-	0.0%	-	0.0%	3,483	0.1%
Emergency Department/Room	8,868	1.2%	5,060	0.6%	6,682	0.8%	20,609	0.8%
Evaluation and Management	455	0.1%	27,436	3.3%	65,205	7.8%	93,096	3.8%
Family Counseling/Therapy	212	0.0%	120	0.0%	352	0.0%	684	0.0%
Family Psychotherapy	11,148	1.5%	12,158	1.5%	13,250	1.6%	36,555	1.5%
Forensic ACT (special needs offender program)	788	0.1%	1,032	0.1%	840	0.1%	2,660	0.1%
Group Psychotherapy	51	0.0%	28	0.0%	136	0.0%	215	0.0%
Hospital admission or discharge	3,025	0.4%	2,468	0.3%	1,778	0.2%	7,271	0.3%
Hospitalization - State Hospital	-	0.0%	1,460	0.2%	602	0.1%	2,059	0.1%
IDE	-	0.0%	1,057	0.1%	1,838	0.2%	2,895	0.1%
Individual Counseling Services	44,283	5.8%	16,995	2.0%	-	0.0%	61,277	2.5%
Individual Psychotherapy	897	0.1%	317	0.0%	-	0.0%	1,214	0.1%
Initial Diagnostic Evaluation	-	0.0%	14,416	1.7%	18,996	2.3%	33,409	1.4%
Initial Diagnostic Interview	73	0.0%	28	0.0%	-	0.0%	101	0.0%
Initial Inpatient Consultation	17	0.0%	8	0.0%	17	0.0%	42	0.0%
Therapeutic or Diagnostic Injection	6,824	0.9%	7,491	0.9%	7,493	0.9%	21,808	0.9%

Table 14. Count of services across service types by fiscal year, continued

	2012 Services Received		2013 Services Received		2014 Services Received		All Services Received	
Service Categories (Type of service)	*frequency*	*%*	*frequency*	*%*	*frequency*	*%*	*frequency*	*%*
Intensive Services (Psychiatric outpatient, psychiatric bed, extended multi-disciplinary for children with complex tri-morbid conditions)	2,986	0.4%	3,770	0.5%	3,666	0.4%	10,351	0.4%
Interactive complexity add-on, group psychotherapy, psychiatric diagnostic interview examination	1,124	0.1%	1,599	0.2%	610	0.1%	3,333	0.1%
Jail Diversion Crisis Housing	3	0.0%	-	0.0%	-	0.0%	3	0.0%
Medical Coordination by a physician	5,684	0.7%	7,793	0.9%	6,312	0.8%	19,789	0.8%
Medication Management (administration, monitoring, education, telemedicine, child/adolescent, training and support)	192,898	25.4%	190,660	22.8%	146,688	17.6%	530,246	21.9%
Mental health partial hospitalization, less than 24 hours	580	0.1%	488	0.1%	516	0.1%	1,584	0.1%
Mental Health service not otherwise specified – self-directed care invoice	269	0.0%	36	0.0%	-	0.0%	305	0.0%
MET/CBT for adolescents (intensive or supportive)	3,645	0.5%	2,127	0.3%	2,168	0.3%	7,940	0.3%
NorthSTAR Lab	15,606	2.1%	14,105	1.7%	16,967	2.0%	46,678	1.9%
Observation or inpatient care services - high severity	12,663	1.7%	14,618	1.8%	15,395	1.8%	42,676	1.8%
Parent Education (Group - Intensive or Supportive)	669	0.1%	375	0.0%	396	0.0%	1,440	0.1%
Peer Support Substance Use Disorder (Peer and Family Partner - individual or group)	8,802	1.2%	5,962	0.7%	4,961	0.6%	19,725	0.8%
Psychiatric Diagnostic Interview Examination	22,953	3.0%	7,440	0.9%	25	0.0%	30,418	1.3%
Psychosocial Rehabilitation	73,394	9.7%	88,419	10.6%	70,388	8.5%	232,200	9.6%
Psychotherapy	2	0.0%	34,538	4.1%	55,537	6.7%	90,075	3.7%
R & B Psychiatric	7,731	1.0%	7,632	0.9%	7,226	0.9%	22,492	0.9%
Screening	571	0.1%	628	0.1%	527	0.1%	1,726	0.1%
Skills Training and Development	53,238	7.0%	61,698	7.4%	60,068	7.2%	175,004	7.2%
Specimen Bloodwork	1,787	0.2%	2,028	0.2%	2,352	0.3%	6,167	0.3%
Supported employment	2,953	0.4%	2,610	0.3%	2,823	0.3%	8,386	0.3%
Supported Housing	-	0.0%	713	0.1%	6,054	0.7%	6,767	0.3%
Targeted case management	50,737	6.7%	50,872	6.1%	56,197	6.7%	157,806	6.5%
Temporary rental assistance	412	0.1%	496	0.1%	1,093	0.1%	1,971	0.1%
Transportation	2,548	0.3%	4,219	0.5%	4,996	0.6%	11,763	0.5%
Total	759,526	100%	834,814	100%	832,622	100%	2,426,458	100%

1.3 Timely access to mental health services.

Service timeliness was assessed by examining the first date of authorization for services to the date of first service for newly enrolled individuals in FY2012 to 2014. As a control, this was examined only for those who had not received a service in the six months prior to the authorization for services (i.e., a new episode of care). Overall, the average number of days from authorization to date of first service ranged from approximately three to five days (Table 15). The standard deviations and range in days to first service indicates that a small percentage of individuals waited longer between authorization date and first service.

Table 15. Time (in days) between authorization date and date to first service by fiscal year

Fiscal Year	N	Mean	Standard Deviation	Range
2012	17,175	2.9	11.3	0 – 130
2013	14,629	2.4	11.6	0 – 176
2014	11,482	4.7	25.5	0 – 361
All Fiscal Years	43,286	3.2	16.4	0 – 361

To determine timeliness by type of service provided, these same data using the same methods were examined for individuals categorized by mental health, substance use, or co-occurring mental health substance use disorder. This resulted in a lower sample size as other diagnostic categories were not included (e.g. developmental disorders). Wait days between authorization and first service was similar, but slightly longer, when examined by behavioral health diagnoses categories (Table 16).

Table 16. Mean Time (in days) between authorization date and date to first service

Diagnosis*	FY 2012	FY2013	FY2014
Mental Health	3.1	2.7	3.3
Substance Use	3.5	3.0	3.2
Co-occurring	3.3	3.3	4.1

*for those newly enrolled in FY2012-2014 and those who have not received services in at least 6 months

1.4 Examine continuity of care received by and outcomes of high utilizers of services.

To identify high utilizers in the NorthSTAR system, service costs were examined for individuals who received community-based or inpatient services in fiscal year 2012. Using "billed amount" data, high utilizers were identified as those who service costs were greater than two standard deviations of the average service cost in fiscal year 2012. Within community-based services, 2,268 were identified as high utilizers (3.2% of all served in fiscal year 2012). Within inpatient settings, 319 were identified as high utilizers (4.1% of all who had a hospital stay in fiscal year 2012). All 319 high inpatient utilizers were also high utilizers of community-based services.

Based on these calculations, there were a total of 2,284 high utilizers in fiscal year 2012. A summary of the combined community-based and hospital-based service costs for the full population and the high utilizer group is provided in Table 17.

Table 17. Number of high service utilizers and costs of service – fiscal year 2012.

Mean Service Costs	Standard Deviation of Service Costs	Range of Service Costs	High Utilizer Average Service Costs	Number of High Utilizers
$3,342.65	$10,564.58	$0.00 - $395,150.00	$24,471.81	2,284 (3.2%)

Level of care of high utilizers. The majority of adult high utilizers were placed in service package 1 (38.9%; Table 18). In general, both adult and children/adolescent high utilizers were in more intensive service packages than those who were not high utilizers, except for those in service package 1. One method to decrease the costs of high utilizers may be to conduct a cost analysis and determine if more intensive levels of care are needed in order to reduce overall costs.

Table 18. Service package placement of high utilizers – fiscal year 2012

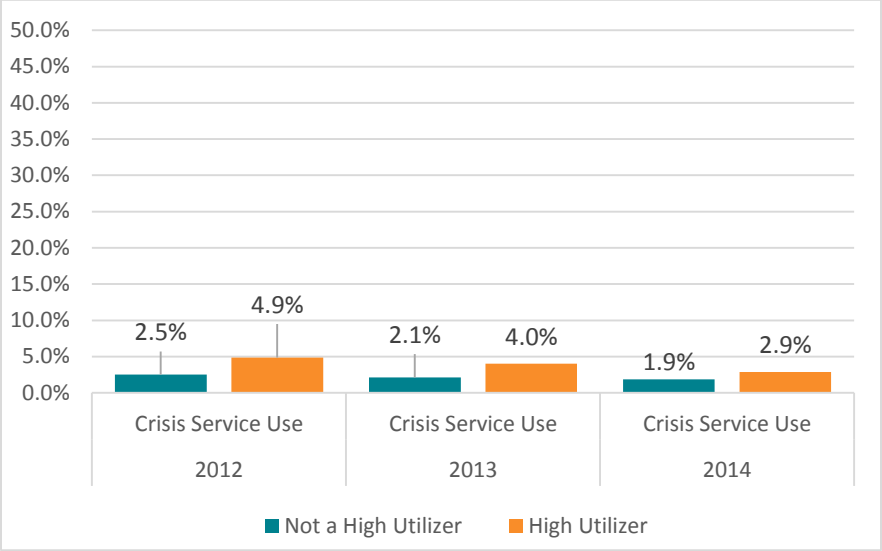
Last Service Package Placement	Not a High Utilizer		High Utilizer	
	n	percent	n	percent
0 Crisis Services	73	0.1%	10	0.6%
CHILDREN / ADOLESCENTS				
1.1 Brief Outpatient – Externalizing	8,046	16.2%	25	1.5%
1.2 Brief Outpatient – Internalizing	2,891	5.8%	33	2.0%
2.1 Intensive Outpatient - Multi-Systemic Therapy	108	0.2%	1	0.1%
2.2 Intensive Outpatient - Externalizing	908	1.8%	21	1.3%
2.3 Intensive Outpatient – Internalizing	353	0.7%	20	1.2%
2.4 Intensive Outpatient - Bipolar/ Schizophrenia/ Other Psychosis Disorders	349	0.7%	28	1.7%
ADULTS				
1 Pharmacological Management & Case Coordination	21,157	42.5%	634	38.9%
2 Pharmacological Management, Case Coordination & Psychotherapy	5,878	11.8%	147	9.0%
3 Pharmacological Management & Rehabilitation Case Management	7,662	15.4%	440	27.0%
4 ACT or ACT Alternative	1,454	2.9%	260	16.0%
9 Not Eligible for Services	929	1.9%	9	0.6%
Total	49808	100.0%	1628	100.0%

Use of crisis service by high and not-high utilizers. Crisis alternative services can be on strategy for managing psychiatric crises and reducing the use of expensive inpatient and emergency department care. A descriptive analysis was conducted to compare utilization of crisis services by high utilizers compared to not high utilizers. Across the three fiscal years, a greater percentage of high utilizers received a crisis service (2.9 to 4.9% compared to 1.9 to 2.5%), however differences in use were not great and a large number of high utilizers did not access crisis services (see Figure 6).

Table 19. Utilization of crisis services: Comparing high utilizers and not high utilizers

	Crisis Services	Not a High Utilizer	High Utilizer
FY2012	Did not utilize crisis services	67,422	2,173
	Utilized crisis services	1,731	111
FY2013	Did not utilize crisis services	67,723	2,196
	Utilized crisis services	1,430	88
FY2014	Did not utilize crisis services	67,872	2,218
	Utilized crisis services	1,281	66

Figure 6. Crisis services accessed by high utilizers and non-high utilizers by fiscal year

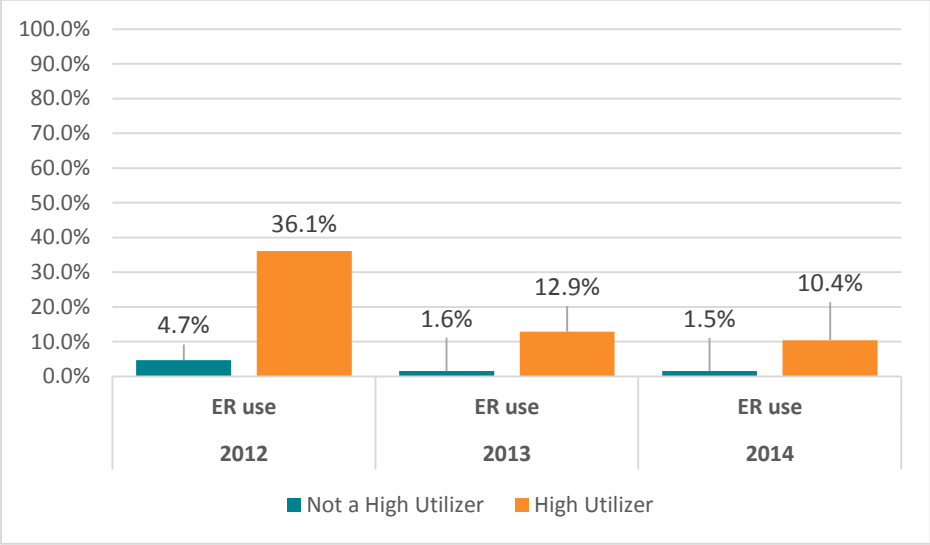


Use of emergency room service by high and not-high utilizers. To examine a higher cost, more intensive service, an analysis was conducted comparing utilization of emergency room services by high utilizers and those who were not high utilizers. Across the three fiscal years, significantly more high utilizers received an emergency room service, but the percentage difference decreased each fiscal year and the percentage of high utilizers accessing the emergency room dropped significantly across the three years, suggesting these individuals didn't maintain the high level of ED use over multiple years (see Figure 7). Higher use of emergency room services by high utilizers suggests an opportunity to intervene with this population to reduce the reliance on the ED system for crisis resolution, such as through engagement in crisis alternative programs or care navigation programs.

Table 20. Utilization of ER services: Comparing high utilizers and not high utilizers

	ER Services	Not a High Utilizer	High Utilizer
FY2012	Did not utilize ER services	65,886	1,459
	Utilized ER services	3,267	825
FY2013	Did not utilize ER services	68,069	1,990
	Utilized ER services	1,084	294
FY2014	Did not utilize ER services	68,101	2,047
	Utilized ER services	1,052	237

Figure 7. Comparison of ER use by high utilizers versus not high utilizers



1.5 Utilization of peer support.

Utilization of peer support was examined as peer providers represent a fairly new workforce that has demonstrated effectiveness and may be one strategy to address workforce shortage issues. Peer specialists, recovery coaches, and family partners are employed in the NorthSTAR system. Peer specialists and recovery coaches are individuals in recovery who are employed to share their experiences to promote the recovery of others who are affected by behavioral health issues. Family partners are parents who have experience with mental health systems and can assist other parents to navigate the systems. To determine the extent to which peers were utilized in the NorthSTAR system, the number of individuals who received at least one peer provided service, the number of services provided by peers compared to other providers, and the types of peer services provided was examined.

Number of clients served and number of services provided. A small percentage of NorthSTAR clients received a peer provided service during the three fiscal years (Table 21), with the highest percentage of clients who received at least one peer service occurring in fiscal year 2012 (3.6%).

Table 21. Peer provided services: Number of clients served and number of encounters provided

Fiscal Year	Total Clients Served	Clients who received service*	Average number of encounters received	Range in number of encounters received
2012	71,437	2,576 (3.6%)	4.1	1 – 104
2013	74,460	1,417 (1.9%)	4.4	1 – 42
2014	73,036	2,099 (2.9%)	2.7	1 – 75
Total	128,266	5,402 (4.2%)	4.2	1 – 104

*by those who received at least one or more peer provided services.

Percentage of services provided by peers compared to other providers. When comparing the number of services provided by peers compared to other providers, the percentage of peer provided services was low, with less than one percent of all services provided by peers across all fiscal years (Table 22). The most peer services were provided in fiscal year 2012, with almost twice as many peer services provided in that year.

Table 22. Comparison of the number of services provided by peers vs. other providers

	FY2012	FY2013	FY2014	All FYs
Peers	10,539 (1.4%)	6,275 (0.8%)	5,610 (0.7%)	22,424 (0.9%)
Other Providers	748,987 (98.6%)	828,539 (99.2%)	827,012 (99.3%)	2,404,034 (99.1%)
All Services	759,526 (100.0%)	834,814 (100.0%)	832,622 (100.0%)	2,426,458 (100.0%)

Types of services provided by peers. As reported in Table 23, substance use skill building provided by peers or family partners were much more frequently offered services (representing approximately 90% of all peer services offered across the fiscal years) than peer-provided mental health services (representing approximately 10% of all peer services offered across the fiscal years). It is unknown if the recovery coaches (specializing in substance use recovery) and peer specialists (specializing in mental health recovery) and family partners work across the behavioral health system or primarily work within only one field of training and certification.

Table 23. Types of services provided by peers.

Service Type	FY2012	FY2013	FY2014	All FYs
Peer Support substance use/chemical dependency skill building – group	4,186 (39.7%)	3,315 (52.8%)	1,580 (28.2%)	9,081 (40.5%)
Peer Support substance use/chemical dependency skill building-individual	4,320 (41.0%)	2,391 (38.1%)	2,289 (40.8%)	9,000 (40.1%)
Peer Support substance use/chemical dependency skill building-individual - Family Partner w/o child present	55 (0.5%)	45 (0.7%)	563 (10.0%)	664 (3.0%)
Peer Support substance use/chemical dependency skill building-individual - Family partner with child present	241 (2.3%)	210 (3.3%)	529 (9.4%)	980 (4.4%)
Psychosocial rehabilitation services, peer provider group	253 (2.4%)	--	53 (0.9%)	306 (1.4%)
Psychosocial rehabilitation services, peer provider individual	123 (1.2%)	--	31 (0.6%)	154 (0.7%)
Skills Training and Development Services, peer provider group	791 (7.5%)	313 (5.0%)	478 (8.5%)	1,582 (7.1%)
Skills Training and Development Services, peer provider individual	570 (5.4%)	--	87 (1.6%)	657 (2.9%)
Total	10,539 (100.0%)	6,275 (100.0%)	5,610 (100.0%)	22,424 (100.0%)

Evaluation Goal 2: Service Quality

Healthcare quality tends to have conceptual definitions that require further operationalization. For example, the Institutes of Medicine (2001) define quality health care as "safe, effective, patient-centered, timely, efficient and equitable" and the Agency for Healthcare Research and Quality (AHRQ, 2006) defines quality health care "as doing the right thing for the right patient, at the right time, in the right way to achieve the best possible results." With the data available, service quality was assessed by examining the available network of providers and utilization of more intensive services. A robust network of providers assures timely access to services and collaboration among providers in the network should lead to less use of intensive services. Service quality was also explored in more depth in evaluation goal 1.4 timely access to services and 1.5 continuity of care.

2.1 The NorthSTAR provider network.

Methods. The diversity and adequacy of the provider network was explored through the providers registered during the 2012, 2013, and 2014 fiscal years. Different options to identify the unique number of providers were explored. A total of 5,165 unique providers were identified using the Texas Provider Indicator (TPI). However, a review of the data suggested that this strategy resulted in providers being reflected more than once, under different TPIs. A more conservative strategy was utilized, such that providers were represented as unique by provider name. A potential weakness of this strategy is that there may be more than one individual with the exact same name; however, this is unlikely to represent more than a small number of individuals. A total of 4,705 unique providers were identified that were unique by provider name.

Description of Eligible Providers. The majority of providers were independent providers in the NorthSTAR system (89.0%), with 518 group providers (11.0%). Figure 8 illustrates this diversity. A more detailed categorization of the types of behavioral health providers represented in the network are summarized in Table 24. The network includes a substantial number of both private full-care hospitals and psychiatric hospitals. A large number of mental health clinics are also included in the network. A large percentage of the independent providers are physicians, with a much smaller number of psychologists, licensed professional counselors, or social workers. A large number of providers are identified as "unknown." A review of these providers suggests that the vast majority of these are individual providers (93.8%) and unlikely to represent treatment centers or facilities.

Figure 8. Types of Behavioral Health Providers

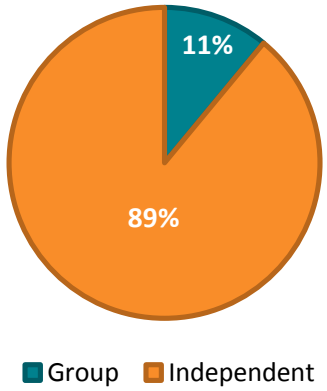


Table 24. Type of Providers in Network

Provider Type	Number	Percent
Hospital – Private Full	38	0.8
Hospital – Psychiatric	69	1.5
Chemical Dependency Treatment Facility	23	0.5
Mental Health Clinic	188	4.0
Physician Group (MD only)	40	0.9
Independent Physician (MD)	1,748	37.2
Independent Physician (DO)	45	1.0
Advanced Practice Nurse (APN)	18	0.4
Psychologist	191	4.1
Licensed Professional Counselor (LPC)	286	6.1
Social Worker	121	2.6
Other	73	1.3
Unknown	1,865	39.6
Total	4,705	100

Provider Service Delivery within NorthSTAR. The overall list of providers eligible to provide behavioral health services within NorthSTAR over-represents the actual provider service delivery in the system. Access to these eligible providers was examined by identifying whether providers have submitted an encounter claim within the three-year project period. Although a large number of providers are eligible to provide services within the NorthSTAR system, the vast majority (87.7%) did not provide any services within the time period. Table 25 represents the types of providers by whether they provided a service within the NorthSTAR system.

Table 25. Percent of NorthSTAR providers that provided at least one service.

Provider Type	Number of providers with at least 1 encounter	Total eligible providers	Percent of Eligible Providers Providing Services
Hospital – Private Full	9	38	23.7%
Hospital – Psychiatric	19	69	27.5%
Chemical Dependency Treatment Facility	13	23	56.5%
Mental Health Clinic	42	188	22.3%
Physician Group (MD only)	6	40	15.0%
Independent Physician (MD)	176	1,748	10.1%
Independent Physician (DO)	8	45	17.8%
Advanced Practice Nurse (APN)	3	18	16.7%
Psychologist	22	191	11.5%
Licensed Professional Counselor (LPC)	82	286	28.7%
Social Worker	20	121	16.5%
Other	6	73	8.2%
Unknown	101	1,869	5.4%
Total	507	4,705	11.1%

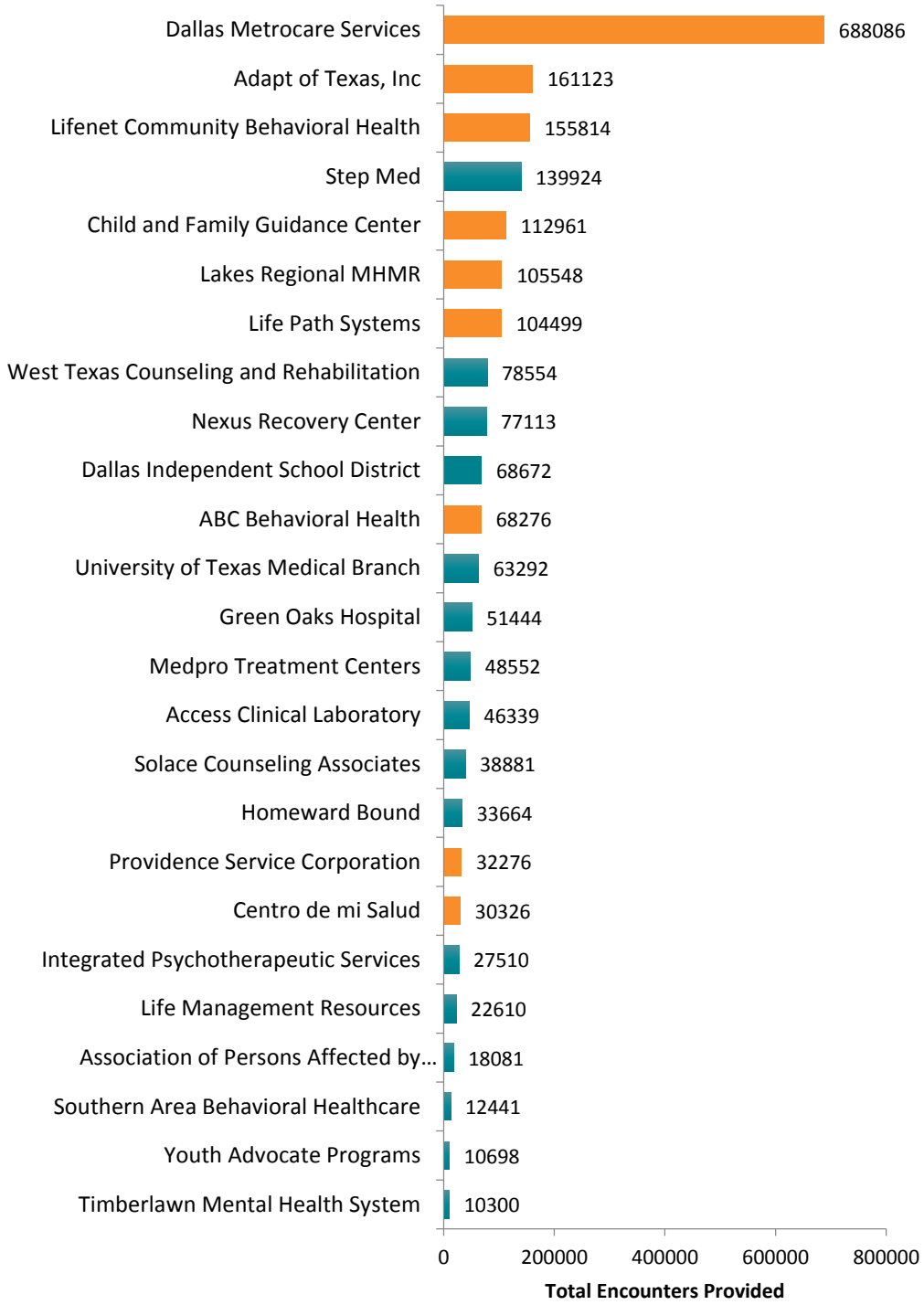
The data was also examined to determine which types of providers provided the most behavioral health encounters or services. This was calculated through a simple summary of the number of encounters billed by each provider type, regardless of the length or type of service provided. Table 26 describes the number of encounters by provider type, and as noted the majority of behavioral health services are provided by mental health clinics (71.4%).

Table 26. Number of encounters by provider type

Provider Type	Providers Providing at least 1 encounter	Number of Encounters	Percent of Total Encounters
Hospital – Private Full	9	34,718	1.4%
Hospital – Psychiatric	19	11,575	0.5%
Chemical Dependency Treatment Facility	13	282,593	11.7%
Mental Health Clinic	42	1,729,976	71.4%
Physician Group (MD only)	6	113,574	4.7%
Independent Physician (MD)	176	34,243	1.4%
Independent Physician (DO)	8	9,898	0.4%
Advanced Practice Nurse (APN)	3	2,749	0.1%
Psychologist	22	4,571	0.2%
Licensed Professional Counselor (LPC)	82	50,120	2.1%
Social Worker	20	9,283	0.4%
Other	6	14,159	0.6%
Unknown	101	123,920	5.1%
Total	507	2,421,379	100%

To further explore the provider network, the top 25 providers with the greatest number of encounters are presented in Figure 9. By far, the largest provider is Dallas Metrocare Services, representing 28.4% of all encounters. Each of the nine specialty provider networks (SPINs) is represented in the top 25 and are designated using a different color. The SPINS include Dallas Metrocare, Adapt of Texas, Lifenet, Child and Family Guidance Center, Lakes Regional, Life Path, ABC Behavioral Health, Providence, and Centro de mi Salud.

Figure 9. NorthSTAR providers with the most encounters



2.2 Crisis service utilization and subsequent hospital or emergency room use

The state has invested in developing robust crisis services to reduce unnecessary hospitalizations and emergency rooms and improve linkage to more appropriate services. Effective crisis responses are typically measured by examining admission to psychiatric hospitals within 30 days of the start of the crisis service and hospital admissions after crisis service utilization. Of the 20,297 individuals who were admitted to the hospital between fiscal years 2012 and 2014 (Table 27), 22.5% (n = 4,560) were admitted 3 or more times in 180 days. Based on the percentage use of each intensive service (Table 27), in general, there was low use of intensive services in the system. Individuals were most likely to use inpatient hospitalization (11.0-11.3%), the most intensive crisis care, and least likely to use outpatient crisis or crisis alternative services (2.6-7.7%)

Table 27. Percentage of served individuals who utilized a crisis, emergency room, or hospital service

	FY2012	FY2013	FY2014
Utilized Crisis Services	1,842 (2.6%)	3,442 (4.6%)	3,317 (7.7%)
Utilized ER	4,092 (5.7%)	3,106 (4.2%)	3,440 (4.7%)
Utilized Hospital	7,837 (11.0%)	8,373 (11.2%)	8,245 (11.3%)

To assess the effectiveness of the crisis response, use of hospitalization and emergency room services after receipt of a crisis service was examined (Table 28). Of all individuals who received a crisis service, a high percentage (86.8%) did not have a hospital admission within 30 days of the crisis service and an even higher percentage (94.4%) did not have an ER visit within 30 days of the crisis service.

*Table 28. Emergency room and hospital utilization after receiving crisis services**

Hospitalization after crisis service	n (% of all crisis services provided)	Emergency Room visit after crisis service	n (% of all crisis services provided)
Hospital admission within 30 days of crisis service	667 (3.8%)	ER visit within 30 days of crisis service	218 (1.2%)
Hospital admission >30 days after crisis service	1,654 (9.4%)	ER visit >30 days after crisis service	769 (4.4%)
No hospital admission after crisis service	15,230 (86.8%)	No ER visit after crisis service	16,564 (94.4%)
Total Number Crisis Services Provided	17,551 (100.0%)	Total Number Crisis Services Provided	17,551 (100.0%)

*one individual can be represented more than one time in one or more categories.

Further examination of the data in Table 28 revealed that of all individuals admitted to the hospital after receiving a crisis service (n = 2,321; 13.2%), they were admitted on average 174.7 days after receiving the crisis service. For all individuals with an ER visit after receiving a crisis service (n = 987; 5.6%), they were admitted on average 196.0 days after receiving the crisis service. Approximately a six-month time period for each group.

Evaluation Goal 3: Service Outcomes

3.1 Improvement of outcomes related to services received

The assessment utilized in the system changed from the Texas Recommended Assessment Guidelines (TRAG) to the Child and Adolescent Needs and Strengths (CANS) and Adult Needs and Strengths Assessment (ANSA) in FY14. Exploration of outcomes was limited to FY14 to allow for the findings to be comparable to outcomes assessed in the future. The CANS is completed a minimum of every 90 days and the ANSA is completed a minimum of every 180 days. There were 33,130 children and youth and 83,763 with at least one CANS or ANSA in FY14.

Outcomes were measured by comparing ratings on the initial CANS/ANSA to those at a subsequent time point. The initial assessment selected was the first available CANS/ANSA in FY14. For children and adolescents, a 3-month comparison CANS was selected at 90 days (±45 days) and a 6-month comparison CANS at 180 days (±45 days). There were 7,066 individuals with valid baseline and 3-month assessments and 5,562 persons with baseline and 6-month assessments. For adults, a 6-month comparison ANSA was selected at 180 days (±90 days) and a 12-month comparison CANS at 360 days (±90 days). There were 20,759 persons with a valid baseline and 6-month ANSA, but only 7,221 individuals with a 12-month assessment. This more limited sample is the result of the narrow time period for available assessments, as most individuals assessed in FY14 would not be required to have a second follow-up assessment within the 12-month period.

Child Outcomes. The most frequent clinical concerns included hyperactivity/impulsivity and anger control, with the most frequent functional need being family functioning and discord and school difficulties. In terms of child strengths needing further development, active involvement in community, school involvement, and interpersonal skills were the most likely reported issues. A relatively small number of children were identified with issues related to adjustment to trauma, suicide risk, and substance use, possibly indicating the need for additional screening for these concerns. For most issues that were identified as clinical concerns, more than 50% of children demonstrated improvement. Relatively fewer youth demonstrated improvement on impulsivity/hyperactivity or community life. The issue areas with the greatest percentage of youth demonstrating improvement are Suicide Risk and Adjustment to Trauma, however few youth were identified with these concerns.

Table 29. Outcomes for Children and Youth Served on Selected CANS Items

CANS Items	% with clinical concern on initial CANS at baseline (n=13,490)	% with clinical concern showing improvement at 3 months	% with clinical concern showing improvement at 6 months
Behavioral, Emotional or Risk Behaviors			
Oppositional Behavior	17.9%	48.3% n=1,060	50.3% n=612
Impulsivity/ Hyperactivity	30.2%	38.9% n=1,854	39.8% n=1,154
Anger Control	21.3%	48.8% n=1,265	53.3% n=724
Depression	13.6%	54.6% n=720	63.1% n=374

Anxiety	13.7%	58.8% n=786	67.5% n=416
Adjustment to Trauma	3.8%	75.5% n=204	79.6% n=108
Suicide Risk	2.3%	84.3% n=127	87.7% n=73
Conduct Problems	7.4%	65.6% n=422	71.5% n=277
Substance Use	1.4%	79.6% n=54	66.5% n=24
Child Functioning			
School Functioning	19.2%	58.1% n=1,152	63.9% n=676
Living Situation	4.0%	65.6% n=227	82.2% n=146
Family Discord	19.7%	57.3% n=637	66.5% n=361
Social Functioning	10.9%	61.6% n=640	74.1% n=390
Recreational Functioning	9.5%	67.8% n=571	81.0% n=363
Child and Family Strengths			
Interpersonal	20.8%	50.9% n=1,178	57.8% n=772
Social Resources	12.8%	65.7% n=440	77.5% n=271
Educational	21.1%	52.7% n=1,150	50.6% n=720
Community Life	36.1%	35.0% n=2,104	41.8% n=1,298
Relationship Permanence	15.8%	53.0% n=846	55.5% n=566
Caregiver Supervision	9.0%	62.7% n=279	77.6% n=174
Caregiver Knowledge	9.7%	71.0% n=331	85.1% n=188
Family Stress	12.1%	67.0% n=379	76.4% n=225

Note: The sample size (n) reflected in the charts is the total number of youth with clinical concerns on the identified CANS domain with completed assessments at baseline and follow-up time points.

Adult Outcomes. The most common clinical concerns presented on the ANSA were Depression and Anxiety. The most frequently identified functional concerns included social functioning, recreational involvement, and employment. Between one in four or five individuals lacked community connections and natural support systems. There was relatively little information provided on family/caregiver strengths for most individuals, therefore outcomes on these domains were not explored.

Some of the more common clinical concerns, such as depression and anxiety, had slightly lower rates of improvement (between 38% and 42%) than other clinical concerns. Suicide Risk, Adjustment to Trauma and Substance Use, although identified as a concern infrequently, had the highest frequency of improvement (ranging from 75% to 95%). Individuals were less likely to show improvement in the Employment domain and Legal domain, suggesting these areas may be more challenging to impact. With regard to the functional concerns, individuals were most likely to show improvement in their Involvement in Recovery. At 12 months, residential stability and family functioning also demonstrated a high number of individuals with improvement.

Table 30. Outcomes for Adults Served in FY14 on Selected ANSA Items

ANSA Items	% with clinical concern on initial ANSA at baseline (n=42,487)	% with clinical concern showing improvement at 6 months	% with clinical concern showing improvement at 12 months
Behavioral Health Needs or Risk Behaviors			
Depression	27.2%	42.3% n=3,286	39.0% n=344
Anxiety	23.9%	41.3% n=2,832	37.5% n=307
Adjustment to Trauma	7.1%	74.1% n=810	84.1% n=82
Impulse Control	8.5%	68.3% n=893	73.3% n=90
Interpersonal Problems/ Problems Relating to Others	8.2%	68.4% n=914	70.5% n=105
Mania	7.9%	66.5% n=913	70.8% n=89
Psychosis or Thought Disturbance	10.0%	54.0% n=1,372	53.3% n=152
Substance Use	4.9%	74.8% n=440	77.8% n=54
Suicide Risk	1.9%	89.4% n=217	94.7% n=19
Adult Functioning			
Employment	11.7%	40.7% n=960	38.8% n=85
Decision Making	9.2%	65.7% n=1,074	60.8% n=120
Family Functioning	9.6%	65.5% n=1,076	76.9% n=117
Legal Difficulties	5.9%	45.6% n=666	48.5% n=68
Recreational and Leisure Activities	12.8%	69.1% n=1,633	63.2% n=152
Residential Stability	7.4%	65.6% n=746	75.3% n=81
Involvement in Recovery	5.3%	79.6% n=584	70.5% n=61
Social Functioning	13.9%	62.8%	64.4%

		n=1,650	n=180
Strengths			
Community Connection	26.8%	42.1% n=3,598	42.5% n=435
Family Strengths	15.2%	57.3% n=2,020	63.4% n=262
Natural Supports	21.4%	52.2% n=2,972	54.6% n=361

3.2 Outcomes based on level of care

Outcomes by Level of Care. Outcomes on the CANS and ANSA were explored by the various levels of care identified in the DSHS Texas Resiliency and Recovery Utilization Guidelines. There is no clear pattern across all or most CANS elements. Children with oppositional behavior or challenges with impulsivity/hyperactivity who are receiving Medication Management alone appeared to have less improvement than those receiving higher levels of care. There also appears to be fewer caregivers with improved supervision capacity in Level of Care 1. Level of Care 1 seems to have the highest rates of improvement of child social resources and caregiver knowledge. Intensive Services (Level of Care 4) appears to have the highest rate of improvement for children with depression and anxiety.

Table 31. Outcomes for Children and Youth within Levels of Care

	% demonstrating improvement at 6 months			
CANS Element	**Medication Management LOC 1**	**Targeted Services LOC 2**	**Complex Services LOC 3**	**Intensive Services LOC 4**
Oppositional Behavior	22.6% n=86	49.6% n=510	45.4% n=392	51.2% n=41
Anger Control	44.7% n=103	49.6% n=577	48.0% n=508	51.3% n=39
Impulsivity/Hyperactivity	35.1% n=218	56.4% n=1,029	42.7% n=522	47.5% n=40
Depression	56.0% n=50	50.8% n=307	57.2% n=327	64.7% n=14
Anxiety	59.3% n=54	50.7% n=285	64.6% n=395	75.0% n=24
Adjustment to Trauma	63.6% n=11	70.8% n=50	79.7% n=128	50.0% n=6
Suicide Risk	100% N=3	84.6% N=26	82.1% N=78	80.0% N=5
School Functioning	79.7% n=69	56.4% n=601	56.8% n=419	59.3% n=27
Interpersonal Functioning	48.3% n=201	48.4% n=572	56.7% n=351	50.0% n=26
Family Functioning	67.4% N=43	59.5% N=299	52.7% N=262	68.2% n=22
Community Life	32.4% n=398	35.1% n=1,121	36.5% n=502	39.4% n=33

Social Resource	77.1% n=45	67.0% n=216	61.7% n=139	68.4% n=19
Family Stress	66.7% n=18	69.8% n=149	64.8% n=169	60.0% n=20
Caregiver Supervision	45.0% n=20	71.4% n=101	57.6% n=121	52.4% n=20
Caregiver Knowledge	87.0% n=24	75.2% n=128	65.2% n=150	71.4% n=14

The pattern of improvement across ANSA domains for adults is also complex. The Basic Skills Training Level (LOC 1S) has the highest rate of improvement on Impulse Control, Interpersonal problems, Suicide Risk, Family Functioning, Social Functioning, Community Connection, and Family Strengths. Individuals assigned to Assertive Community Treatment (LOC 4) tended to be less likely to improve on most ANSA measures, which may indicate the greater likelihood of co-occurring disorders, complex behavioral health histories, and greater impairment.

Table 32. Outcomes for Adults within Levels of Care

	% demonstrating improvement at 6 months			
ANSA Element	**Basic Skills Training Services LOC 1S**	**Basic Counseling Services LOC 2**	**Intensive Services LOC 3**	**Assertive Community Treatment LOC 4**
Depression	41.0% n=2,290	40.4% n=302	46.0% n=500	46.7% n=60
Anxiety	40.5% n=1,993	36.8% n=231	44.2% n=430	38.1% n=63
Adjustment to Trauma	74.7% n=510	72.4% n=58	69.7% n=165	61.5% n=26
Impulse Control	71.0% n=489	65.4% n=52	65.9% n=229	44.1% n=59
Interpersonal Problems	76.9% n=506	58.5% n=65	65.2% n=201	34.8% n=69
Mania	69.8% n=590	72.5% n=40	57.2% n=194	45.7% n=35
Psychosis	56.3% n=855	58.8% n=68	48.2% n=272	31.6% n=95
Substance Use	76.3% n=228	63.0% n=27	76.7% n=103	48.3% n=29
Suicide Risk	97.6% n=85	82.4% n=17	81.0% n=42	66.7% n=12
Employment	42.9% n=683	41.3% n=63	36.1% n=147	20.0% n=30
Decision Making	61.9% n=677	71.6% n=74	64.5% n=251	26.4% n=87
Family Functioning	76.0% n=595	47.1% n=70	55.9% n=299	35.2% n=54
Legal Difficulties	43.8% n=393	38.9% n=18	44.5% n=182	55.6% n=36

Recreational and Leisure Activities	68.8% n=1,168	64.4% n=118	57.9% n=280	39.7% n=78
Residential Stability	75.5% n=339	72.4% n=29	54.6% n=291	51.1% n=43
Involvement in Recovery	86.6% n=299	84.4% n=32	74.5% n=137	55.6% n=63
Social Functioning	68.0% n=1,038	58.1% n=129	55.7% n=307	60.7% n=84
Community Connection	43.8% n=2,539	35.8% n=265	38.2% n=534	38.0% n=121
Family Strengths	58.4% n=1,283	53.6% n=151	46.2% n=413	45.7% n=92
Natural Supports	54.1% n=2052	49.0% n=200	48.5% n=491	43.2% n=111

3.3 Difference in outcomes for MH, SUD or COD populations

The baseline to 6-month and 12-month ANSA items were compared among individuals who were placed into the categories of mental health, substance use disorders, and co-occurring disorders based on their diagnoses. Due to small sample sizes at 12-months, outcome comparisons are presented informationally and interpretation is not recommended. The total sample for each group was n = 29,293 for mental health, n = 1,261 for substance use, and n = 4,428 for co-occurring disorders.

The most common clinical concerns presented for the three groups were Depression and Anxiety and a smaller percentage showed improvement on these items at 6-months. A larger percentage of individual's demonstrated improvement from baseline to 6-months on Adjustment to Trauma (10.1 to 18.7%), Interpersonal Problems (9.7 to 19.2%), and Suicide Risk (13.6 to 25.0%) although these were not identified as a concern at baseline as frequently. Within adult functioning, Decision-Making (10.1 to 17.3%) and Involvement in Recovery (10.9 to 20.3%) items had a larger percentage of improvement although other items such as Social Functioning were more frequently reported as a concern at baseline. Family (5.6 to 14.8%) and Natural Supports (4.4 to 13.3%) demonstrated the greatest improvement in strengths although Community Connections was reported more frequently as a concern at baseline.

Overall, there was a pattern of more improvement among individuals with mental health or co-occurring disorders than those with substance use disorder. The Addiction Severity Index-Lite assessment data from the substance use treatment system was not provided for analysis and results may have differed using this instrument that is validated for a substance use population. However, the individuals included in this descriptive analysis had ANSA assessments in the system. On every item, individuals with substance use disorders as the primary diagnosis had less improvement at six-months, with the percentage showing improvement usually in the single digits (see Table 33).

Table 33. Outcomes for adults by mental health, substance use, or Co-occurring categories

ANSA Item	Population	% with clinical concern on initial ANSA at baseline	% with clinical concern showing improvement at 6 months	% with clinical concern showing improvement at 12 months
Behavioral Health Needs or Risk Behaviors				
Depression	Mental Health	29.8% n=8,715	9.1% n=792	0.9% n=75
	Substance Use	43.1% n=544	4.0% n=22	0.0% n=0
	Co-Occurring	35.9% n=1,590	7.5% n=120	0.4% n=6
Anxiety	Mental Health	26.0% N=7,612	9.1% n=692	0.9% n=65
	Substance Use	38.1% n=481	4.2% n=20	0.0% n=0
	Co-Occurring	31.2% n=1,383	7.3% n=101	0.4% n=5
Adjustment to Trauma	Mental Health	7.8% n=2,291	18.7% n=428	2.3% n=53
	Substance Use	11.7% n=148	10.1% n=15	0.0% n=0
	Co-Occurring	9.1% n=403	17.4% n=70	2.0% n=8
Anger Control	Mental Health	12.6% n=3,701	14.3% n=528	1.4% n=52
	Substance Use	19.6% n=247	7.3% n=18	0.8% n=2
	Co-Occurring	17.3% n=767	13.7% n=105	1.2% n=9
Impulse Control	Mental Health	8.7% n=2,552	16.4% n=412	1.7% n=44
	Substance Use	17.4% n=219	9.1% n=20	1.8% n=4
	Co-Occurring	13.2% n=584	17.0% n=99	1.9% n=11
Interpersonal Problems	Mental Health	9.1% n=2,663	16.9% n=450	2.1% n=56
	Substance Use	14.0% n=176	9.7% n=17	2.3% n=4
	Co-Occurring	10.0% n=442	19.2% n=85	1.1% n=5
Mania	Mental Health	8.2% n=2,408	17.3% n=417	1.9% n=45
	Substance Use	15.7% n=198	10.6% n=21	0.0% n=0
	Co-Occurring	15.3% n=679	13.1% n=89	2.1% n=14
Psychosis	Mental Health	10.4% n=3,061	16.2% n=496	1.9% n=57

	Substance Use	14.4% n=182	12.1% n=22	0.5% n=1
	Co-Occurring	15.6% n=690	12.9% n=89	1.7% n=12
Substance Use	Mental Health	4.0% n=1,181	17.4% n=206	2.6% n=31
	Substance Use	20.9% n=263	6.1% n=16	0.4% n=1
	Co-Occurring	12.2% n=543	14.4% n=78	1.5% n=8
Suicide Risk	Mental Health	2.0% n=596	25.0% n=149	2.2% n=13
	Substance Use	3.5% n=44	13.6% n=6	0.0% n=0
	Co-Occurring	3.0% n=133	21.8% n=29	3.0% n=4
Adult Functioning				
Employment	Mental Health	12.7% n=3,733	6.5% n=243	0.6% n=24
	Substance Use	19.9% n=251	3.2% n=8	0.4% n=1
	Co-Occurring	15.6% n=693	8.2% n=57	0.1% n=1
Decision Making	Mental Health	9.9% n=2,909	17.3% n=503	1.7% n=48
	Substance Use	15.7% n=198	10.1% n=20	0.0% n=0
	Co-Occurring	11.9% n=526	17.3% n=91	2.5% n=13
Legal	Mental Health	5.2% n=1,516	13.7% n=208	1.6% n=25
	Substance Use	14.0% n=177	6.8% n=12	0.0% n=0
	Co-Occurring	15.6% n=693	7.9% n=55	0.9% n=6
Recreational	Mental Health	13.5% n=3,960	18.6% n=736	1.6% n=65
	Substance Use	20.1% n=253	9.1% n=23	0.0% n=0
	Co-Occurring	20.3% n=897	15.9% n=143	1.1% n=10
Residential Stability	Mental Health	7.4% n=2,173	13.9% n=301	2.2% n=48
	Substance Use	22.3% n=281	5.7% n=16	1.1% n=3
	Co-Occurring	12.9% n=571	16.1% n=92	1.1% n=6
Involvement in Recovery	Mental Health	5.6% n=1,643	20.3% n=333	2.1% n=35
	Substance Use	10.2% n=128	10.9% n=14	0.0% n=0

	Co-Occurring	7.4% n=328	19.2% n=63	0.9% n=3
Social Functioning	Mental Health	15.1% n=4,434	16.3% n=721	1.8% n=78
	Substance Use	19.3% n=243	7.0% n=17	0.4% n=1
	Co-Occurring	18.7% n=826	14.4% n=119	1.3% n=11
Strengths				
Community Connection	Mental Health	29.3% n=8,577	9.5% n=815	1.1% n=93
	Substance Use	40.7% n=513	3.1% n=16	0.2% n=1
	Co-Occurring	34.6% n=1,533	9.2% n=141	1.0% n=16
Family	Mental Health	16.3% n=4,779	15.6% n=745	2.2% n=103
	Substance Use	30.9% n=899	5.6% n=22	0.0% n=0
	Co-Occurring	20.3% n=390	14.8% n=133	2.0% n=18
Natural Supports	Mental Health	23.2% n=6,796	13.3% n=901	1.6% n=110
	Substance Use	34.6% n=436	4.4% n=19	0.5% n=2
	Co-Occurring	28.2% n=1,247	12.3% n=153	1.8% n=22

3.4 Difference in outcomes for high utilizers compared to other individuals in services.

For high utilizers, we examined number of hospitalizations and length of stay in comparison to individuals who were not high utilizers. High utilization was based on costs and the methodology used to determine high utilizers is described previously in the report (evaluation item 1.4).

Across the three fiscal years, high utilizers had about two more hospitalizations than individuals who were not high utilizers and almost twice the length of stay. Although hospital stays are more costly and cost was used to determine who was a high utilizer, these results still present opportunities to assist high utilizers in different ways to improve their outcomes and reduce costs.

Table 34. Number of hospitalizations and length of stay by high utilizers and not high utilizers

	Service and LOS	Mean	Range	S.D.
High Utilizer	Number of Hospitalizations	4.9	1 - 66	2.4
	Length of Stay	19.0	1 - 346	14.1
Not a high utilizer	Number of Hospitalizations	2.3	1 - 42	4.3
	Length of Stay	10.0	1 - 401	25.3

Summary

As NorthSTAR concludes and a new system of care is established, monitoring certain aspects of the newly established system will be important to ensure that strengths of the past system are preserved and quality improvement continues. The collection and monitoring of data will be important to ensure the following goals are realized:

- continuity of care for clinically similar individuals with Medicaid and those who are indigent;
- adequate funding for treatment of indigent individuals when funding is no longer blended;
- access to DSRIP funding is realized;
- integrated care is provided; and,
- any efficiencies and best practices developed in NorthSTAR continue in the new system of care (Metzinger, 2014).

The new systems of care that are developed to replace NorthSTAR will create at least one local behavioral health authority (LBHA) that provides integrated care to address both mental health and substance use issues. This LBHA may be an opportunity to assess a behavioral health care model that could have application in other areas of the state.

More detailed information and interpretation is provided in the report but overall, a descriptive review of three fiscal years (2012, 2013, 2014) of NorthSTAR data reveals:

Characteristics of Members

- Females and Hispanics (both male and female) were more represented in the enrolled population than in the population who actually received a NorthSTAR mental health or substance use treatment service.
- More individuals were served in the NorthSTAR system each fiscal year than in the traditional public mental health system, however, those served also includes individuals with less intense behavioral health needs who may not meet eligibility requirements within the traditional system.
- A majority of individuals who were assessed and assigned to a service package or level of care were assigned to lower levels of care (Level of Care 1S-Basic Services and Skills Training for adults and moderate levels of care for children (Level of Care 2-Targeted Services for Children/Adolescents).

Service Access and Continuity of Care

- A higher percentage of the estimated treatment need was met in the NorthSTAR system.
- The most frequently utilized mental health services were medication management, psychosocial rehabilitation, skills training and development, and targeted case management. The most frequently utilized substance use treatment services were methadone and treatment program services.
- Across all three fiscal years, time from authorization to receipt of first service was 3.2 days.
- High utilizers of service (determined by cost) had higher use of emergency room services than not-high utilizers, but this use declined significantly across the three years, from 36.1% in FY2012 to 10.4% in FY2014.

- Peer provided services was relatively low and stable across all three fiscal years, with a majority of peer services provided as a substance use treatment service.

Service Quality

- There are a large number of independent and group providers, hospitals, and psychiatric hospitals in the network. However, with the exception of substance use treatment facilities, a minority of eligible providers actually provided services in the system.
- The top 25 NorthSTAR providers with the most encounters included the nine specialty provider networks (SPINs).
- Of all individuals who received a crisis service, 86.8% did not have a hospital admission and 94.4% did not have an emergency room visit within 30 days of the crisis service. Of those who were admitted to either the hospital or ER, admission occurred approximately 6 months after the crisis service.

Service Outcomes

Outcomes were examined using FY2014 CANS and ANSA data and included adults and youth who had follow up assessments.

- More than 50% of children demonstrated improvement on most issues identified as clinical concerns, like depression and anxiety. Fewer youth demonstrated improvement on impulsivity/hyperactivity or community life.
- There was less improvement on common clinical concerns like depression and anxiety among adults (38 to 42%) and higher improvement on concerns such as suicide risk, adjustment to trauma, and substance use (75 to 95%) although these were identified as concerns less frequently.
- Although some specific differences exist, there is no clear pattern for youth or adults when examining outcomes by level of care placement.
- When examining outcomes by primary diagnoses of mental health, substance use, or co-occurring disorder, there was a pattern of more improvement for individuals experiencing mental health or co-occurring challenges. The Addiction Severity Index assessment data was not available for this evaluation, so it is unknown if outcomes would have demonstrated more improvement based on this assessment versus the ANSA. This may also indicate that these individuals would have benefitted from co-occurring disorder treatment if they had elevated mental health needs indicated on the ANSA.

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