

# A Study of the Three-Way Contract in Durham County

## Executive Summary

The Three-Way Contract was the result of the Appropriations Act of 2007 through which funds were allocated by the North Carolina General Assembly for the purchase of local psychiatric inpatient beds or bed days. In Durham County, this legislation created the opportunity for The Durham Center (TDC) to enter into a contract with the Duke University Hospital System (DUHS) for inpatient services that would serve as a local alternative to admissions to North Carolina State operated facilities.

The current study was designed to analyze certain DUHS service-related variables and to compile baseline data through which future trends could be identified. Parameters that were applied to the study included utilizing data obtained from DUHS patient discharge summaries (March 1-November 30, 2009), Durham County Access (DCA), and from the TDC internal paid claims and other databases.

The study revealed that:

- 71% of all admissions (97) were from Durham County while 29% (39) were from other counties.
- Bipolar disorders presented the highest percent of admissions (26%) and schizophrenia represented the smallest percent (8%).
- Only 7% of the 97 Durham County residents admitted to DUHS were repeat admissions and the average length of stay for all DUHS admissions during the study period was 6.1 days.
- The number of admissions to DCA services prior to admission to DUHS was 24 (25% of all DUHS admissions), while the number of individuals admitted to DCA following discharge was 10 (10% of all DUHS admissions). This represents a reduction of 14 admissions to DCA, a 58% reduction.
- The number of individuals admitted to all other services prior to admission to DUHS was 47 (48% of all DUHS admissions) and the number of individuals admitted to all other services following discharge was 50 (52% of all DUHS admissions), an increase of 3 individuals (a 6% increase).
- The number of Durham County residents who received community-based crisis services  $\leq$  30 days prior to admission to DUHS decreased from 15 to 6, a 60% reduction in crisis services. In addition, the number of residents who received non-crisis services  $\leq$  30 following discharge from DUHS, increased from 22 to 36, a 64% increase in non-crisis services.
- Of the 189 Durham County residents who were admitted to Central Regional Hospital (CRH) during the study period, 12 (6%) also received services from DUHS and of the 97 residents who received services from DUHS, 12 (12%) also received services from CRH.

The study of the Three-Way Contract proved illuminating and led naturally to a series of next steps and recommendations including expanding and refining the study, integrating data with direct care-related information, completing an expanded cost analysis of services, and creating an integrated database to facilitate data collection and analysis.

TDC plans to replicate this research protocol for admissions to CRH and DCA for the same study period.

## Introduction

The Three-Way Contract is the result of the Appropriations Act of 2007 through which funds were allocated by the North Carolina General Assembly to the North Carolina Department of Health and Human Services (DHHS) for the purchase of local psychiatric inpatient beds or bed days.

In Durham County, this legislation created the opportunity for the DHHS to enter into a contract with The Durham Center (TDC) and the Duke University Hospital System (DUHS) for inpatient beds to serve as a local alternative to admissions to North Carolina State-operated facilities.

Provisions attached to the contract included funding limitations, billing and payment criteria, utilization and bed management stipulations, and reporting requirements. The legislation was amended in 2009, preserving the original language virtually intact but increasing the monetary amount of the allocation, up from \$8,121,644 in 2007 to \$20,121,644.

## Impetus for the Study

The Durham Center undertook this study with the goal of analyzing mental health referrals to local hospital psychiatric inpatient units and to identify any significant trends that might have resulted. Additionally, there was a desire to identify data resources that could easily be retrieved, stored, updated and reviewed for ongoing analysis.

Several observations and questions gave logical rise to the study:

- The Durham Center experienced significant reductions in admissions to State-operated inpatient facilities (SOIFs) during FY09, yet was ranked number one in North Carolina in per-capita utilization of these facilities.
- TDC reductions to SOIFs may be attributed partially to admission delays within these facilities rather than solely to diversions from there to local inpatient units.
- TDC currently maintains contracts with local hospital inpatient facilities to provide psychiatric inpatient alternatives to SOIFs. We wished to confirm what population is served by local hospitals. Involuntary admissions, cases currently enrolled in services by TDC providers, Medicaid-eligible consumers?
- We also wished to confirm the regularity with which consumers being released from local hospital inpatient units were being connected to the public mental health system. When readmitted, do clients enter an SOIF or a local inpatient unit?

## Study Parameters

The following limitations apply to the study:

- The study utilizes data obtained from DUHS patient discharge summaries for the period March 1, 2009 through November 30, 2009.

- It also utilizes information obtained from the TDC internal paid claims and other databases for the period July 1, 2008 through February 10, 2010.
- Paid claims information was limited to those claims filed for services to individuals whose treatment was reimbursed through the North Carolina Integrated Payment and Reporting System (IPRS).
- Information compiled utilizing paid claims data only reflects services that were billed during the study period. It is possible that additional services were provided that had not yet been billed and consequently did not appear as paid claims in the database.

## Study Results

TABLE 1: ADMISSIONS TO DUHS BY GENDER	
Gender	Number/Percent
Male	73 (54%)
Female	63 (46%)
<b>Total Admissions</b>	<b>136 (100%)</b>

Source: DUHS patient discharge summaries

Table 1 indicates that 54% of all admissions to DHHS were male and 46% were female. This is comparable to the percent of males (52.4%) and females (47.6%) that served by the TDC provider network during FY09.

TABLE 2: ADMISSIONS TO DUHS BY ETHNICITY	
Culture	Number/Percent
African-American	64 (47%)
Caucasian	48 (35%)
Other (or not volunteered by the recipient)	24 (18%)
<b>Total Admissions</b>	<b>136 (100%)</b>

TABLE 3: PERSONS SERVED BY PROVIDER NETWORK BY ETHNICITY	
Culture	Percent
African-American	68%
Caucasian	25%
Other (or not volunteered by the recipient)	7%

Source: DUHS patient discharge summaries

Tables 2 and 3 reveal that admissions by ethnic group to DUHS during the study period were disproportionate to the ethnic categories of those persons served through TDC provider network during FY09.

A review of this information reveals that a lower percentage of African-Americans were served by DUHS during the study period than were served through the TDC provider network during FY09, while a higher percent of Caucasians and "others" were served by the DUHS than through the TDC provider network.

<b>TABLE 4: ADMISSIONS FROM COUNTIES OTHER THAN DURHAM COUNTY</b>		
<b>County</b>	<b>Other Admissions</b>	<b>% Other Admissions</b>
Wake	12	31%
Alamance	3	8%
Granville	3	8%
Cumberland	2	5%
Guilford	2	5%
Orange	2	5%
Person	2	5%
Sampson	2	5%
Warren	2	5%
Robeson	2	5%
Bertie	1	2.6%
Harnett	1	2.6%
Iredell	1	2.6%
Lincoln	1	2.6%
Mecklenburg	1	2.6%
New Hanover	1	2.6%
Pitt	1	2.6%
<b>Total Other County Admissions</b>	<b>39</b>	<b>29%</b>
<b>Total Durham County Admissions</b>	<b>97</b>	<b>71%</b>
<b>Total All Admissions</b>	<b>136</b>	<b>100%</b>

Source: DUHS patient discharge summaries

A review of Table 4 reveals that 71% of all admissions were from Durham County and 29% were from other counties. As reflected later in Table 6, only one of the 39 consumers admitted from other counties received services in Durham County following discharge from DUHS.

<b>TABLE 5: ADMITTING DIAGNOSIS BY MAJOR DIAGNOSTIC CATEGORY</b>	
<b>Number</b>	<b>Diagnosis</b>
26%	Bipolar disorders
24%	Major depressive disorders
21%	Psychotic disorders
12%	All others
9%	Mood disorders
8%	Schizophrenia
<b>136</b>	<b>Total Admissions</b>

Source: DUHS patient discharge summaries

Table 5 provides the number of admissions as calculated by major diagnostic categories. As indicated, bipolar disorders represent the highest percent of admissions.

<b>TABLE 6: SERVICES PROVIDED TO DURHAM COUNTY RESIDENTS</b>		
Number of Durham County resident admissions to DUHS (March-Nov 2009)*	97	100%
Number of Durham County residents with repeat admissions to DUHS (March-Nov 2009)* Five individuals had two admissions and two individuals had three	7	7%
<b>Number of individuals admitted to Durham Center Access (DCA) services (beds/chairs) prior to admission to DUHS (July 2008-February 10, 2010)**</b>		
Number of individuals admitted to Durham Center Access (DCA) services (beds/chairs) prior to admission to DUHS (July 2008-February 10, 2010)**	24	25%
Number of individuals admitted to all other services prior to admission to DUHS (July 2008-February 10, 2010)**	47	48%
<b>Number of individuals admitted to DCA services (beds/chairs) following discharge from DUHS (July 2008-February 10, 2010)**</b>		
Number of individuals admitted to DCA services (beds/chairs) following discharge from DUHS (July 2008-February 10, 2010)**	10	10%
Number of individuals admitted to all other services following discharge from DUHS (July 2008-February 10, 2010)	50	52%
<b>Number of non-Durham County admissions to Durham County services following discharge from DUHS – Durham Assessment Team</b>	1	

\*Source: DUHS patient discharge summaries

\*\*Source: TDC paid claims data - July 1, 2008 through February 10, 2010

A review of Table 6 reveals the following:

- There were 97 Durham County residents admitted to DUHS for the study period March 1, 2009 through November 30, 2009.

- Of this number, seven individuals (7%) experienced repeat admissions.
- The number of admissions to DCA services prior to admission to DUHS was 24 (25% of all DUHS admissions) while the number of individuals admitted to DCA following discharge was 10 (10% of all DUHS admissions). This represents a reduction of 14 admissions to DCA (a 58% reduction).
- The number of individuals admitted to all other services prior to admission to DUHS was 47 (48% of all DUHS admissions) while the number of individuals admitted to all other services following discharge was 50 (52% of all DUHS admissions), an increase of three (a 6% increase).

<b>TABLE 7: DUHS AVERAGE LENGTH OF STAY DURING STUDY PERIOD</b>				
<b>Month</b>	<b>Mean</b>	<b>Median</b>	<b>Mode(s)</b>	<b>Range</b>
March	5.8	4.5	2	20
April	6.4	4	2	22
May	4.1	3	1	11
June	5.3	4.5	1 and 5	20
July	5.6	4	2, 3 and 4	18
August	7.3	5	2	17
September	7.2	6	1, 4, 6, 7 and 17	16
October	6.5	6	6	17
November	6.7	6	2	15
<b>Mean length of stay during study period - 6.1 days</b>				

Source: DUHS patient discharge summaries

Table 7 provides information regarding the length of stay for all DUHS admissions during the study period. The mean length of stay (6.1 days) is considered within normal limits for individuals admitted with diagnoses as indicated in Table 5.

<b>TABLE 8: DURHAM COUNTY RESIDENTS RECEIVING COMMUNITY-BASED CRISIS AND NON-CRISIS SERVICES 30 DAYS BEFORE AND AFTER DUHS</b>			
<b>Total Number Admitted to DUHS</b>	<b>97</b>		
	<b>≤ 30 days Prior To Admission</b>	<b>≤ 30 days Following Discharge</b>	<b>Variance</b>
Number who Received Crisis Services	15	6	↓60%
Number who Received Non-Crisis Services	22	36	↑64%

Source: TDC paid claims data July 1, 2008-February 10, 2010

Table 8 reveals that the number of Durham County residents who received community-based crisis services ≤30 days prior to admission to DUHS decreased from 15 to 6, a 60% reduction in crisis services. In addition, the number of residents who received non-crisis services ≤30 days following discharge from DUHS increased from 22 to 36, a 64% increase in non-crisis services.

<b>TABLE 9: DURHAM COUNTY RESIDENTS ADMITTED TO CRH WHO WERE ALSO ADMITTED TO DUHS DURING STUDY PERIOD*</b>	
Total Admitted to CRH	189
Total Admitted to DUHS	97
Total Admitted to CRH also Admitted to DUHS	12 (6%)
Total Admitted to DUHS also Admitted to CRH	12 (12%)

\*Includes repeat admissions to CRH and DUHS for some individuals

Table 9 indicates that of the 189 Durham County residents who were admitted to CRH during the study period, 12 (6%) also received services from DUHS and of the 97 residents who received services from DUHS, 12 (12%) also received services from CRH.

<b>TABLE 10: ADMISSIONS TO INPATIENT UNITS DURING STUDY PERIOD</b>										
	March	April	May	June	July	Aug	Sept	Oct	Nov	TOTALS
<b>CRH</b>	25	27	19	19	21	21	19	22	16	189
<b>DUHS</b>	14	12	16	18	17	11	15	13	19	135
<b>DCA</b>	124	126	125	135	119	134	131	119	114	1127

Table 10 provides information regarding admissions to CRH, DUHS and DCA for the study period. Admissions to CRH and DCA reflect a downward trend while admissions to DUHS indicate a slight upward trend.

<b>TABLE 11: TOTAL MONTHLY CHARGE FOR ADMISSIONS TO DUHS INPATIENT UNIT</b>	
Month	Charge
March	\$45,000
April	\$55,500
May	\$54,750
June	\$6,750
July	\$64,500
August	\$68,250
September	\$88,500
October	\$71,250
November	\$12,000
<b>Total for Nine-Month Study Period</b>	<b>\$466,500</b>

Source: TDC paid claims data - July 1, 2008 through February 10, 2010

**Recommendations**

This study of the Three-Way Contract proved illuminating and led naturally to a series of next steps and recommendations:

- Continue to collect information, such as paid claims data and DUHS admission data, to expand and refine the study and identify trends in service delivery
- Integrate the data with direct care-related information and analysis, such as care coordination activities and system of care statistics, to include a qualitative assessment of the information and evaluate the influence of engagement activities
- Conduct case studies to identify and investigate high risk consumers, particularly those with multiple admissions to crisis and inpatient services
- Conduct a cost analysis of services provided to assist with program and budget planning
- As the TDC Information Technology process is enhanced, create an integrated database to facilitate data collection and analysis
- Review the contents of this and future studies to identify activities designed to strengthen the provider network

Additionally, The Durham Center plans to replicate this study protocol for admissions to Central Regional Hospital and Durham Center Access for the same study period.