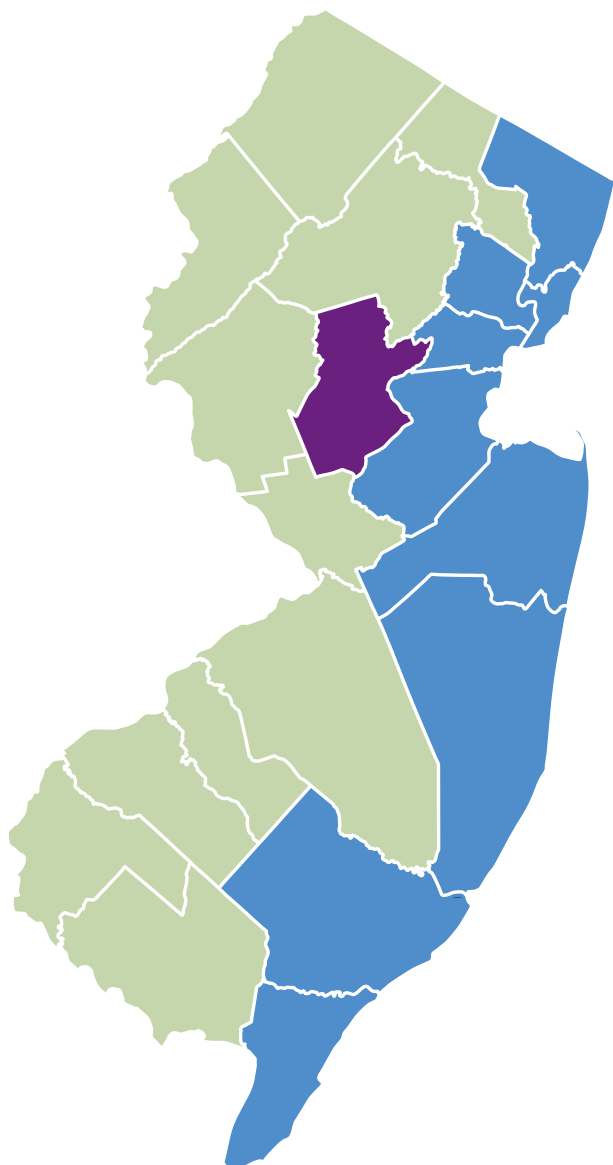# Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters

Identifying at-Risk Communities

Initial Data Profile: Somerset County

Demographics, Behavioral Health Conditions, and Utilization of Health Services (Medicare Fee-for-Service Beneficiaries)

January 7, 2014

Quality Improvement Organizations
Sharing Knowledge. Improving Health Care.
CENTERS FOR MEDICARE & MEDICAID SERVICES

HQSI

This page left intentionally blank

TABLE OF CONTENTS

TABLE OF CONTENTS

PREFACE

On October 29, 2012, Superstorm Sandy hit the Eastern Seaboard, impacting more than a dozen states. New Jersey, which took the brunt of the storm along its densely populated coastline, was devastated. Thousands of residents were displaced, their homes and communities damaged or destroyed.

Lessons learned from prior natural disasters showed that victims of storms like Superstorm Sandy are often at an elevated risk for acute or chronic behavioral health issues such as post-traumatic stress disorder (PTSD), depression, suicide, and alcohol abuse. While disaster-related issues subside over time, evidence shows that victims can experience a prolonged period of elevated risk, especially those with pre-existing chronic mental health issues. Older adults and disabled residents with chronic mental health conditions are at increased risk of deteriorating health, depression, increased isolation, and breakdown in the continuum of health care. Additionally, past natural disasters also show that access to informational resources on disaster-related mental health disorders, outcomes, and service utilization are important factors to consider.

This initial county profile – one of 10 being created for each of the Federal Emergency Management Agency (FEMA)-declared disaster counties in New Jersey – explores potential county and community level health status and health determinants of post-disaster spikes in behavioral health issues and treatments. Subsequent county profiles, to be produced in spring 2014, will include more comprehensive post-Sandy data and an analytic treatment of the predictive value of the initial county profiles in planning for and coordinating post-disaster response resources.

PREFACE

INTRODUCTION

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters is a Special Innovation Project funded by the Centers for Medicare & Medicaid Services (CMS). As part of this project, Healthcare Quality Strategies, Inc. (HQSI), the CMS quality improvement organization (QIO) for New Jersey, studied data on prevalence and incidence of selected behavioral health conditions, the utilization of health services, and demographic information from the Medicare claims database for Medicare Fee-for-Service (FFS) beneficiaries residing in the 10 New Jersey FEMA-declared disaster counties after Superstorm Sandy. These counties include Atlantic, Bergen, Cape May, Essex, Hudson, Ocean, Middlesex, Monmouth, Somerset, and Union.

From its analysis, HQSI created data profiles for each of these FEMA-designated counties. This is the initial profile for Somerset County. Separate county profiles have been developed for each of the FEMA-declared disaster counties. The county profiles can be used to determine and compare the baseline prevalence of the selected behavioral health conditions and utilization of services among all 10 FEMA-declared disaster counties pre-Superstorm Sandy.

In January 2014, additional profiles will be released that will feature a subset of 10 communities. These communities were selected because they had high rates of Medicare FFS beneficiaries both with and at risk for depression or proxy disorders. The community profiles can be used to determine and compare the baseline prevalence of the selected behavioral health conditions and utilization of services in the selected communities compared to their counties.

The county and community profiles are based on Medicare FFS claims data and provide a glimpse into the prevalence and incidence of selected behavioral health conditions and risk factors for depression, as well as the utilization of Medicare-covered behavioral health services among Medicare beneficiaries residing in the selected counties or communities before and after Superstorm Sandy. Since patients with behavioral health conditions may receive other health services because of medical problems caused by their behavioral health conditions or they may avoid utilizing behavioral health services, this report also looks at the utilization of non-behavioral health services.

These profiles are being shared with state and local governments and agencies, healthcare providers, community-based organizations, and the research community to support a community-based approach to enhance the coordination of behavioral health services after a natural disaster, and to increase utilization of the Medicare depression screening benefit which became a covered service in January 2012.

Methodology

Each county profile compares one county's statistics to the aggregate of the 10 counties and to the other nine counties. Primary data sources include Medicare FFS Part A and Part B claims, the Medicare enrollment database and U.S. Census data. The Medicare enrollment database includes basic demographic statistics such as age, gender, and race while the U.S. Census data provides a proxy indicator (average household income) for socio-economic status. Based on the ICD-9-CM (International Classification of Disease, Ninth Revision, Clinical Modification), CPT (Current Procedural Terminology) or HCPCS (Healthcare Common Procedure Coding System) codes in Medicare Part A and Part B claims, beneficiaries were identified for chronic conditions including diseases/conditions related to behavioral health, such as depression. Appendices A through F contain documentation, technical notes, codes, algorithms, data sources, and references.

Medicare Part A claims were also used to analyze utilization of health services in or by acute care hospitals, skilled nursing facilities, medical rehabilitation facilities, home health agencies, hospice, and inpatient psychiatric facilities. Medicare Part A and Part B claims provide information on the utilization of mental health outpatient services for assessment (e.g., depression screening, diagnostic psychological tests) and treatment (e.g., individual psychotherapy, biofeedback therapy).

To identify beneficiaries with an elevated risk of depression after the storm, HQSI conducted a literature review on risk factors for depression (see Appendix B). Previous studies identified psychosocial and biological factors, increased age, history of cancer, Parkinson's disease, Alzheimer's disease, changes in mental function, and medication side effects as risk factors for developing depression. Based on findings from the literature review and factors available through Medicare claims, logistic regression analysis was conducted with Medicare claims, and the top five risk factors (Alzheimer's disease and related disorders or senile dementia, hip/pelvic fractures, amputations, substance or alcohol abuse or tobacco use, and sleep disturbance) were used to identify beneficiaries with high risk for developing depression or proxy disorders.

Measurement Time Frames

This profile includes data from January 1, 2011 through March 31, 2013. October 1, 2012 through December 31, 2012 (Q4 2012) is defined as the quarter during which Superstorm Sandy occurred. The post-storm quarter is defined as Q1 2013 (January 1 – March 31, 2013). Results are presented using three different measurement time frames as follows:

- The pre-Sandy time period was defined as January 1, 2011 through September 30, 2012. Statistics on demographics, prevalence of behavioral health conditions and utilization of health services are presented for this 21-month period. These statistics allowed for comparison across affected counties prior to Superstorm Sandy.

- Annual prevalence with rolling quarters of behavioral health conditions and utilization statistics are included to adjust for seasonal variation and to examine possible changes pre- and post-Superstorm Sandy. The time period used for this analysis was January 1, 2011 through March 31, 2013. This time period includes six data time points.

- Quarterly new incidence of the behavioral health conditions that includes five quarters of data from Q1 2012 (January 1, 2012 – March 31, 2012) through Q1 2013 (January 1, 2013 – March 31, 2013) allows the identification of new cases in a quarter when compared to the prior year. It also allows identification of possible changes after the storm when comparing Q1 2013 data against Q1 2012.

DATA CONSIDERATIONS

The available data relating to behavioral health issues as a result of Superstorm Sandy are new, given that the disaster occurred recently. Currently, there is only one quarter of post-storm data available. To examine possible changes, profiles will be updated in 2014 (when another quarter of post-storm data will be available). Claims data processing lag (at least six months), coupled with the one-year project time frame, reduces the optimal time frame for more accurate estimation of post-Sandy effects.

Identification of beneficiaries with behavioral health conditions is based on diagnoses being reported in Medicare FFS claims and could result in underestimation. There is currently no accurate way to identify when certain health conditions began and ended.

According to the subject matter experts consulted for this project, unlike other conditions, behavioral health issues are often underdiagnosed in our society and the stigma associated with behavioral health conditions may prevent people from seeking care in mental health facilities.

This type of county profile can be used to provide a baseline for the prevalence and incidence rates of eight selected behavioral health conditions (see page 13) based on the ICD-9-CM codes through the Medicare claims database. Possibly, after further data collection and analytic development using post-Sandy data, it can also be used to prioritize and plan community and county preparation for the care, tracking and monitoring of Medicare beneficiary behavioral health status and health care utilization patterns.

HQSI will produce updated profiles in spring 2014 that will include additional data for the post-Superstorm Sandy time period.

Martin P. Margolies
Chief Executive Officer

Mary Jane Brubaker, MCIS
Chief Operating Officer

Diane Babuin, MS, CPHQ
Director, Quality Improvement and Communications

Ya-ping Su, PhD
Director, Research and Analysis

Suzanne Dalton, RN, BS, EdM
Project Manager

Andrew Miller, MD, MPH
Medical Director

HQSI Project Team

Mona Abdalla, BA
Administrative Associate

Zhengyu Bu, MS
Health Services Research Analyst

Sue Chen, MS
Health Services Research Analyst

Wei-Yi Chung, MS
Health Services Research Analyst

Dawn Cullen, BA
Communications Specialist

Kim Karnell, BS
Information Specialist

Janet Knoth, BS, RN, CHPN
Quality Improvement Specialist

Sai Loganathan, PhD
Health Services Research Analyst

Judy Miller, MS, RN
Quality Improvement Specialist

Barbara Perzyna, BS
Visual Communications Specialist

Ziphora Sam, MPH
Health Services Research Analyst

Marianne Sagarese, BSN, RN
Quality Improvement Specialist

Nicole Skyer-Brandwene, MS, R.Ph, BCPS
Quality Improvement Specialist

Ashley Strain, BA
Communications Specialist

ACKNOWLEDGEMENTS

Special thanks to the Subject Matter Experts who assisted with the project by providing feedback and guidance to the HQSI project team.

Carol Benevy, MSW
New Jersey Hope and Healing Project
Barnabas Health Institute for Prevention

Mary Ditri, MA, CHCC
New Jersey Hospital Association

Adrienne Fessler-Belli, MSW, LCSW
New Jersey Department of Human Services
Disaster & Terrorism Branch

Mark Firth, MA, MSW
New Jersey Department of Human Services
Division of Mental Health and Addiction Services

Mary Goepfert, MPA, APR, CPM
New Jersey Group for Access and Integration Needs in Emergencies and Disasters

Connie Greene, MA, CAS, CSW, CPS
Barnabas Health Institute for Prevention

Bob Kley
Mental Health Association in New Jersey, Inc.

Lynn Kovitch, MEd
New Jersey Department of Human Services
Division of Mental Health and Addiction Services

Karen McCoy, RN, BSN
Home Care Association of New Jersey

Elyse Perweiler, MPP, RN
NJ Institute for Successful Aging

Lynn Stefanowicz, MA, LCSW
Meridian Behavioral Health

Megan Sullivan, LPC, LCADC, DRCC
New Jersey Department of Human Services
Disaster & Terrorism Branch

Pete Summers
The New Jersey Association of County and City Health Officials (NJACCHO)

Vito Veneruso
New Jersey Primary Care Association

Key Observations

1. In the 21 months prior to Superstorm Sandy, 23.2% of Medicare FFS beneficiaries (232.06 per 1,000 beneficiaries) in Somerset County experienced depression or proxy disorders (anxiety and adjustment disorders).

2. In the 21 months prior to Superstorm Sandy, 15.9% of Medicare FFS beneficiaries (159.45 per 1,000 beneficiaries) in Somerset County were at risk for depression or proxy disorders. This was the lowest rate among all 10 counties.

3. The utilization rate of the Medicare depression screening benefit was low among all 10 counties. In Somerset County the rate was 7.11 per 1,000 Medicare FFS beneficiaries.

4. The most frequently used behavioral health assessment service in Somerset County was psychiatric diagnostic procedures (7.3%).

5. In the 21 months prior to Superstorm Sandy, Somerset County had the lowest utilization rate of diagnostic psychological testing (2.36 per 1,000 Medicare FFS beneficiaries).

6. The most frequently used behavioral health therapy in Somerset County was individual psychotherapy (7.3%).

EXECUTIVE SUMMARY

The *Snapshot of Somerset County* (Figure 1) summarizes the prevalence of the behavioral health conditions, as well as risk factors for depression or proxy disorders, analyzed for this county profile. This *Snapshot* also lists the most frequently performed behavioral health assessments and therapies in Somerset County compared to the average among all 10 counties included in this project. The non-behavioral health utilization measures that were calculated for this profile are not included in the *Snapshot*.

Figure 1. Snapshot of Somerset County		
Behavioral Health Disorders	**Prevalence per 1,000 Beneficiaries (21 Months Prior to Superstorm Sandy)**	
	Somerset County	**10 County Average**
Depression or Proxy Disorders	232.06	251.86
• Depression alone	152.38	164.75
• Anxiety Disorders alone	131.07	144.53
• Adjustment Disorders alone	40.32	43.45
PTSD	5.77	5.36
Alcohol or Substance Abuse	37.67	43.26
• Substance Abuse alone	21.12	23.75
Suicide and Intentional Self-Inflicted Injury	5.90	6.80
Top Five Risk Factors for Depression or Proxy Disorders*	159.45	175.56
• Alzheimer's Disease and related disorders or Senile Dementia	47.62	49.25
• Sleep Disturbance	33.70	32.26
• Substance or Alcohol Abuse or Tobacco Use	87.17	104.94
• Hip/Pelvic Fractures	11.85	10.99
• Amputations	1.09	1.50
Behavioral Health Services	**Utilization per 1,000 Beneficiaries (21 Months Prior to Superstorm Sandy)**	
	Somerset County	**10 County Average**
Assessments		
• Depression Screening	7.11	4.81
• Psychiatric Diagnostic Procedures	72.93	81.61
• Neuropsychological Test	10.37	14.18
Therapy		
• Individual Psychotherapy	73.16	69.31
• Family Psychotherapy	6.08	5.09
• Group Psychotherapy	5.46	3.88
Psychiatric Hospital Admissions	12.58	12.56

* The top five risk factors were identified based on findings from a literature review (Appendix B) and factors available through Medicare claims. Logistic regression analysis was conducted with Medicare claims.

Medicare FFS Demographics

At A Glance

Total Medicare FFS Population – 46,498

Females – 26,294 (56.55%)
Males – 20,204 (43.45%)

White	(82.59%)
Black	(6.77%)
Asian	(4.36%)
Hispanic	(1.37%)
Other	(4.91%)
Average Age	71.15

Source: Medicare Claims Database

SOMERSET

TOTAL MEDICARE FFS BENEFICIARY POPULATION BY COUNTY

The total Medicare FFS beneficiary population of Somerset County is 46,498 (Figure 2).

**FIGURE 2. TOTAL MEDICARE FFS BENEFICIARIES BY COUNTY
(JANUARY 1, 2011 – MARCH 31, 2013)**

Cape May	Somerset	Atlantic	Hudson	Union	Essex	Monmouth	Middlesex	Ocean	Bergen
25,615	46,498	51,469	74,205	79,887	105,708	109,941	115,895	136,215	153,378

DEMOGRAPHICS
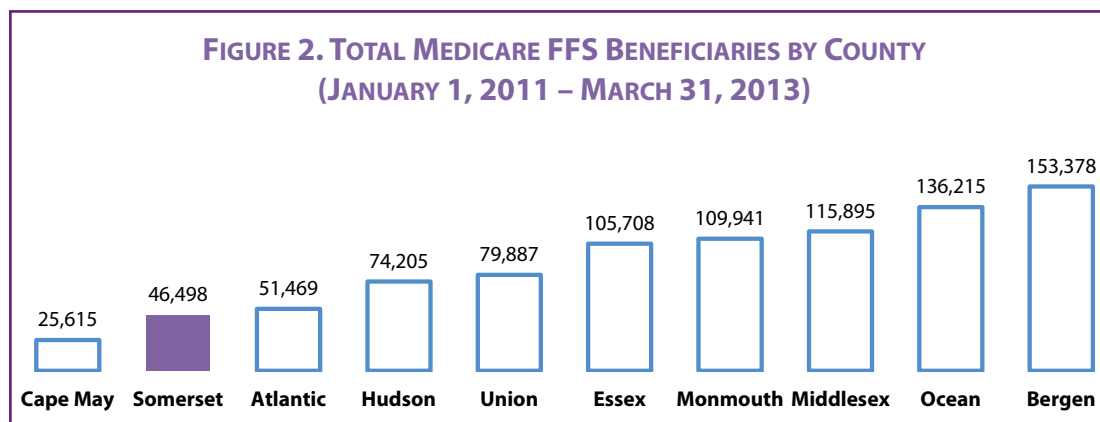
Percent of Medicare FFS Beneficiary Population by Gender by County

Females make up 56.55% of the entire Medicare FFS population in Somerset County and males 43.45% (Figure 3).

Figure 3. Percent of Medicare FFS Beneficiary Population by Gender by County (January 1, 2011 – March 31, 2013)		
County	**Percent of Males**	**Percent of Females**
Atlantic	45.03	54.97
Bergen	43.14	56.86
Cape May	46.10	53.90
Essex	42.89	57.11
Hudson	42.80	57.20
Middlesex	43.98	56.02
Monmouth	43.89	56.11
Ocean	43.01	56.99
Somerset	**43.45**	**56.55**
Union	43.04	56.96
Average of 10 counties*	**43.47**	**56.53**

*Computing the average of all 10 counties in this table will not equal the average shown, as some beneficiaries moved from one county to another during this time frame.

DEMOGRAPHICS

Percent of Medicare FFS Beneficiary Population by Race by County

The majority of this population is White (82.59 %) followed by Black (6.77%), Other (4.91%), Asian (4.36%), and Hispanic (1.37%) (Figure 4).

County	Percent of Whites	Percent of Blacks	Percent of Hispanics	Percent of Asians	Percent of Other
Atlantic	78.45	14.09	2.50	2.90	2.06
Bergen	83.43	4.85	2.46	4.57	4.69
Cape May	94.48	3.63	0.40	0.40	1.09
Essex	54.00	36.02	4.24	1.81	3.93
Hudson	61.15	12.20	14.82	5.29	6.54
Middlesex	77.29	7.65	3.48	6.26	5.32
Monmouth	87.67	7.01	0.80	1.55	2.97
Ocean	95.47	1.98	0.56	0.56	1.42
Somerset	82.59	6.77	1.37	4.36	4.91
Union	69.39	19.68	5.52	1.84	3.58
10 counties*	78.42	11.21	3.49	3.08	3.80

Figure 4. Percent of Medicare FFS Beneficiary Population by Race by County (January 1, 2011 – March 31, 2013)

*Computing the average of all 10 counties in this table will not equal the average shown, as some beneficiaries moved from one county to another during this time frame.

DEMOGRAPHICS

PERCENT OF MEDICARE FFS BENEFICIARY POPULATION BY AGE BY COUNTY

The beneficiary population in Somerset County varies by age group with the largest group between ages 65 and 74 years old followed by beneficiaries between 75 and 84 years old. The average age of beneficiaries in this county is 71.15 (Figure 5).

Figure 5. Percent of Medicare FFS Beneficiary Population by Age by County (January 1, 2011 – March 31, 2013)					Average Age by County (January 1, 2011 – March 31, 2013)
County	<65	65 – 74	75 – 84	85 and Above	
Atlantic	29.99	38.06	22.08	9.87	69.06
Bergen	21.57	38.27	26.67	13.49	72.08
Cape May	26.28	39.31	24.02	10.40	70.20
Essex	29.31	36.96	22.34	11.39	69.46
Hudson	28.69	37.76	23.29	10.26	69.55
Middlesex	26.36	37.27	24.57	11.80	70.51
Monmouth	26.33	38.08	23.62	11.97	70.59
Ocean	22.85	37.89	26.50	12.75	71.51
Somerset	23.73	39.98	24.28	12.01	71.15
Union	26.28	36.41	24.23	13.09	70.77
10 counties*	25.56	37.86	24.56	12.02	70.72

*Computing the average of all 10 counties in this table will not equal the average shown, as some beneficiaries moved from one county to another during this time frame.

SOCIOECONOMIC STATUS BY COUNTY

According to U.S. Census data from 2012, residents aged 65 and over in Somerset County had a median household income of $60,189. This is the highest income among all 10 counties (Figure 6).

FIGURE 6. 2012 MEDIAN HOUSEHOLD INCOME (65 YEARS AND ABOVE)

Hudson $29,692 | Essex $34,891 | Ocean $37,747 | Cape May $39,151 | Atlantic $39,246 | 10 Counties $44,035 | Middlesex $44,381 | Union $48,816 | Bergen $52,540 | Monmouth $53,705 | Somerset $60,189
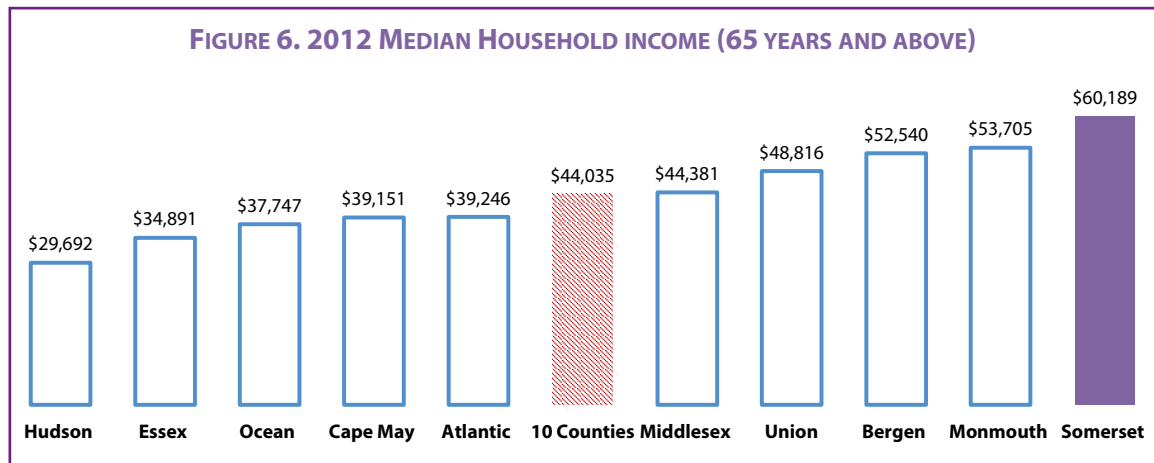
Source: U.S. Census Bureau, American Community Survey (ACS), 2012 http://www.census.gov/.

DEMOGRAPHICS

Prevalence and Incidence

Using Medicare FFS claims data, eight behavioral health conditions were analyzed: depression, depression or proxy disorders, adjustment disorder, anxiety disorder, post-traumatic stress disorder (PTSD), substance abuse, alcohol or substance abuse, and suicide and intentional self-inflicted injury.

Claims data can underestimate the real incidence of depression in the population and individuals with depression could be diagnosed as having anxiety or adjustment disorders as noted by the subject matter experts consulted for this project. Therefore, HQSI created a combination measure for depression (depression or proxy disorders) which includes beneficiaries who were reported for either depression, anxiety, or adjustment disorders.

The behavioral health data from January 1, 2011 to March 31, 2013 for these different measures were calculated to quantify disease occurrence:

1. Prevalence of the condition for the pre-Sandy time frame (Q1 2011 – Q3 2012, or 21 months)

2. Quarterly new incidence compared to prior year (Q1 2012 – Q1 2013)

3. The yearly prevalence of the condition with quarterly rolling trends to account for seasonal variation

Refer to Appendix A for measurement calculation and Appendix E for quarterly time frames and formulae.

— Behavioral Health Conditions —

Summary

Prevalence of the selected behavioral health conditions in the 21 months prior to Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each condition.

In the 21 months prior to Superstorm Sandy, the prevalence rate for all behavioral health conditions was lower in Somerset County than in all 10 counties, except for PTSD (Figure 7).

Figure 7. Prevalence of Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries – Pre-Sandy (Q1 2011 – Q3 2012)							
County	Depression or Proxy Disorders	Depression	Anxiety Disorder	Adjustment Disorder	PTSD	Alcohol or Substance Abuse	Substance Abuse	Suicide and Intentional Self-Inflicted Injury
Atlantic	269.50	171.36	163.83	45.32	7.13	60.37	34.67	9.24
Bergen	237.89	160.41	131.36	38.14	3.25	28.04	14.04	5.44
Cape May	273.48	169.64	168.71	36.62	6.74	55.75	28.95	6.22
Essex	242.98	158.79	124.32	54.16	4.92	56.59	33.80	7.02
Hudson	274.76	181.03	161.26	48.85	4.29	44.84	22.94	7.13
Middlesex	236.32	156.07	131.79	37.58	5.71	35.12	19.58	5.60
Monmouth	269.64	176.30	155.45	55.08	6.59	48.02	23.81	8.07
Ocean	272.03	173.97	170.82	42.95	7.48	50.61	30.52	8.47
Somerset	232.06	152.38	131.07	40.32	5.77	37.67	21.12	5.90
Union	225.96	148.14	126.46	31.27	3.32	34.96	17.45	5.12
10 counties	251.86	164.75	144.53	43.45	5.36	43.26	23.75	6.80

■ Highest   □ Lowest

Depression or Proxy Disorders

The prevalence rate of depression or proxy disorders in Somerset County in the 21 months prior to Superstorm Sandy was 232.06 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 8).

FIGURE 8. PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	274.76
Cape May	273.48
Ocean	272.03
Monmouth	269.64
Atlantic	269.50
10 Counties	251.86
Essex	242.98
Bergen	237.89
Middlesex	236.32
Somerset	232.06
Union	225.96

BEHAVIORAL HEALTH CONDITIONS
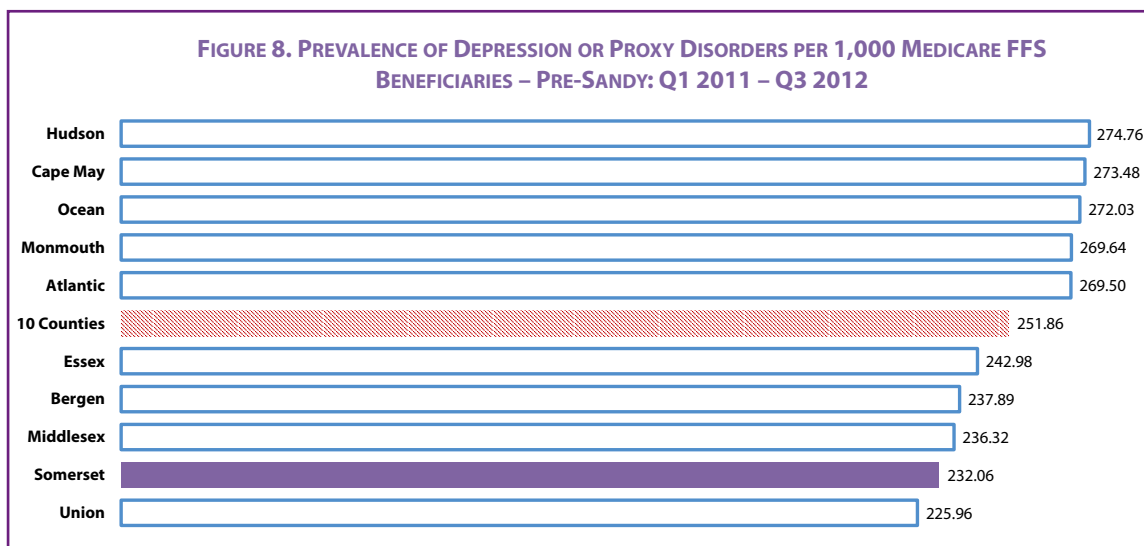
The color-coded map of New Jersey depicts prevalence of depression or proxy disorders from high (red) to low (blue) in the 10 FEMA-declared disaster counties. This map shows that parts of Somerset, along with Monmouth, Ocean, Atlantic, and Cape May Counties had a higher prevalence of depression or proxy disorders than the other counties (Figure 9).

FIGURE 9. PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES (PRE-SANDY: Q1 2011- Q3 2012)

| ■ 262.5 to 646.4 | ■ 231.5 to 262.4 | □ 213.1 to 231.4 | ■ 192.5 to 213.0 | ■ 73.4 to 192.4 |

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County

The color-coded map of Somerset County depicts regional variation of prevalence of depression or proxy disorders from high (red) to low (blue) (Figure 10).

FIGURE 10. SOMERSET COUNTY PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011- Q3 2012)

| ■ 232 to 353 | ■ 218 to 231 | □ 200 to 217 | ■ 170 to 199 | ■ 141 to 169 |
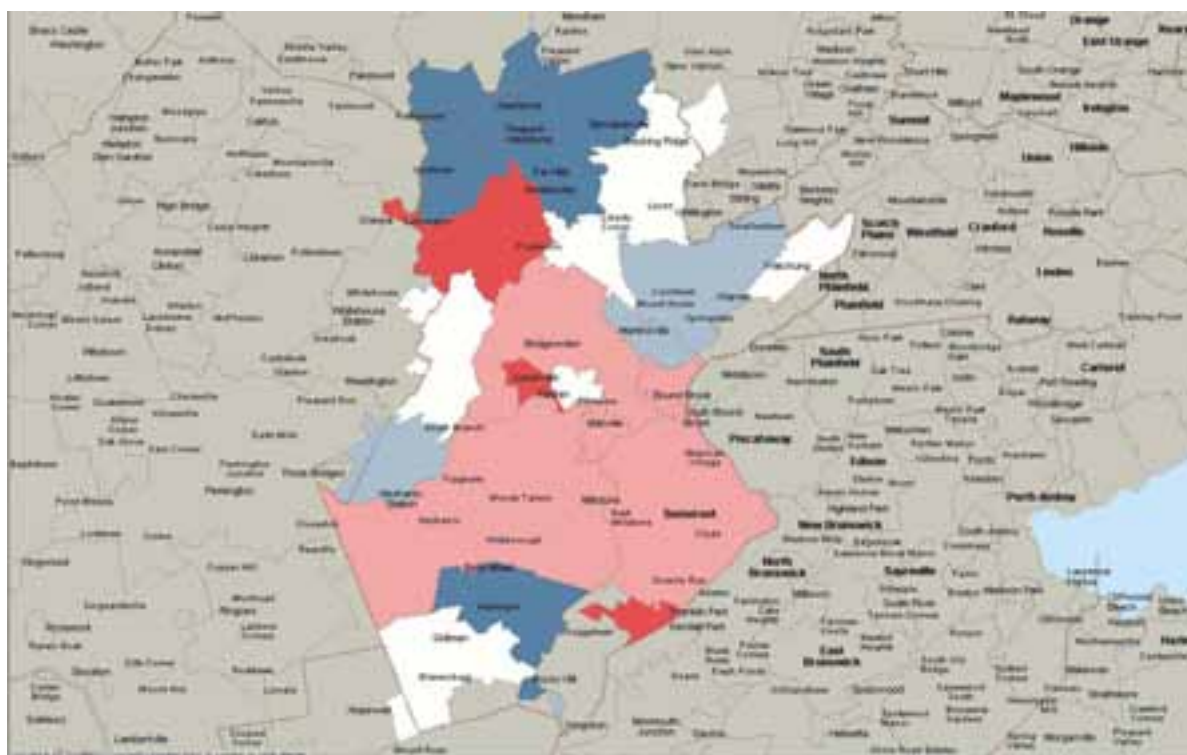
For Q1 2013, there were 20.19 Medicare FFS beneficiaries newly diagnosed with depression or proxy disorders per 1,000 beneficiaries in Somerset County compared to Q1 2012, which was 23.12 per 1,000 beneficiaries. This was lower than the quarterly rate among all 10 counties in Q1 2013 (Figure 11).

FIGURE 11. QUARTERLY NEW INCIDENCE OF DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
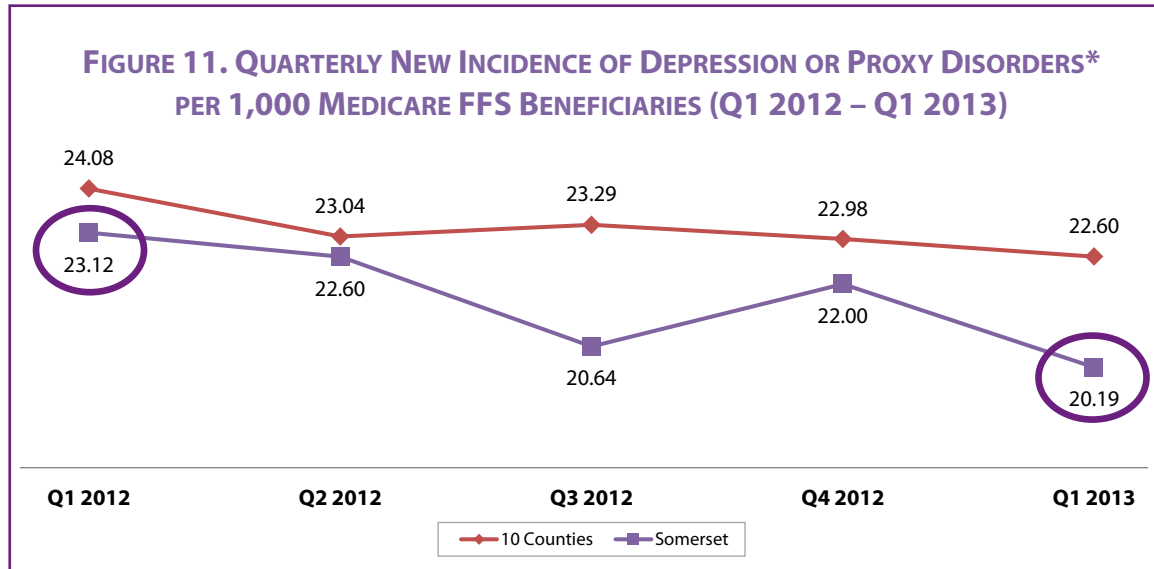
* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 12.7% relative decrease in new incidence of depression or proxy disorders in Somerset County (Figure 12).

FIGURE 12. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)

From Q2 2012 – Q1 2013, there was a 173.10 per 1,000 Medicare FFS beneficiaries yearly prevalence of depression or proxy disorders in Somerset County compared to Q2 2011 – Q1 2012, which was172.25 per 1,000 beneficiaries. Somerset County's yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 13).

FIGURE 13. YEARLY PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was a 0.5% relative increase in depression or proxy disorders in Somerset County (Figure 14).

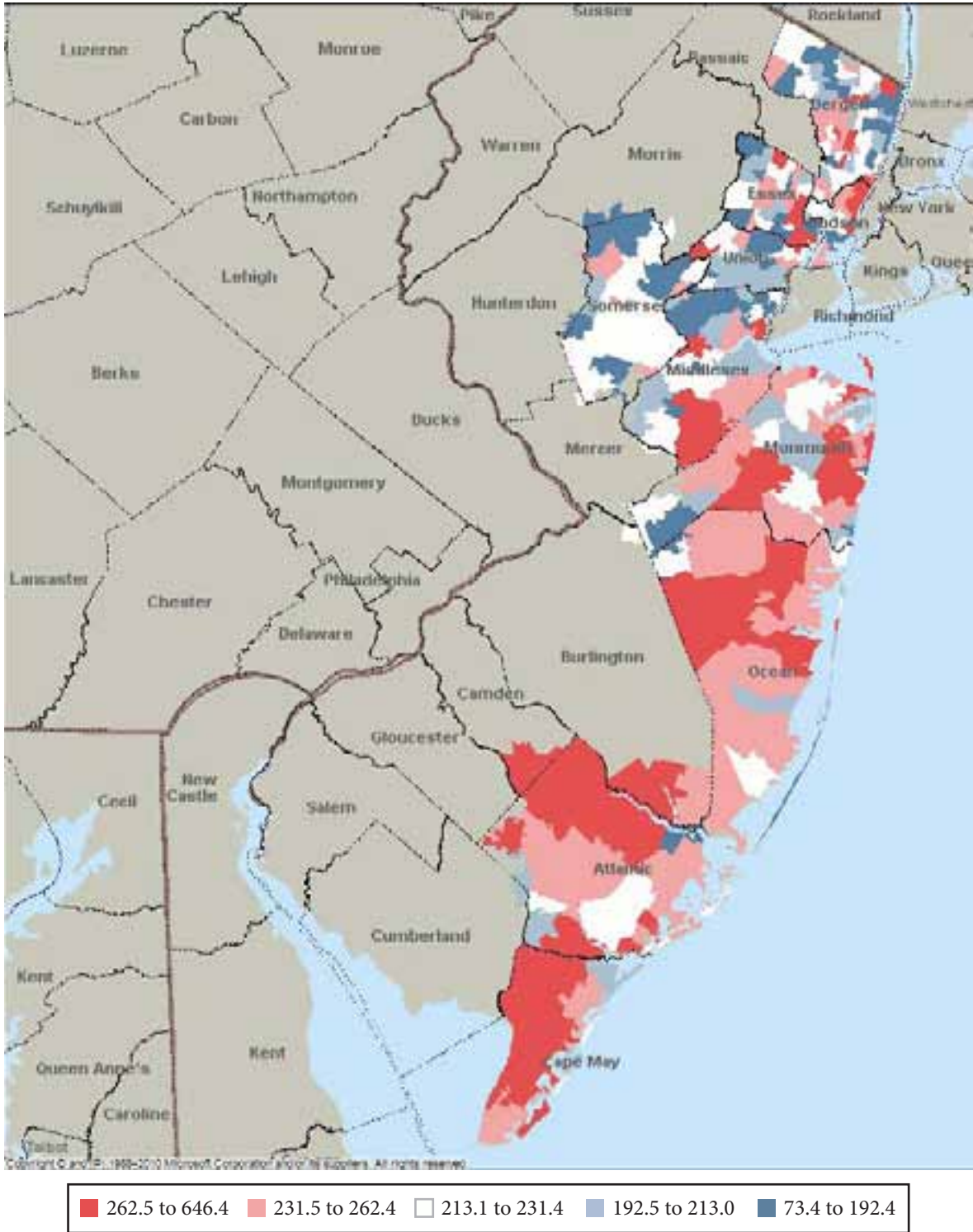**FIGURE 14. YEARLY RELATIVE CHANGE IN PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 VS. Q2 2011 – Q1 2012)**

Depression

The prevalence rate of depression in Somerset County in the 21 months prior to Superstorm Sandy was 152.38 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 15).

FIGURE 15. PREVALENCE OF DEPRESSION PER 1,000 MEDICARE FFS beneficiaries
PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	181.03
Monmouth	176.30
Ocean	173.97
Atlantic	171.36
Cape May	169.64
10 Counties	164.75
Bergen	160.41
Essex	158.79
Middlesex	156.07
Somerset	152.38
Union	148.14

20 | Healthcare Quality Strategies, Inc.

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County
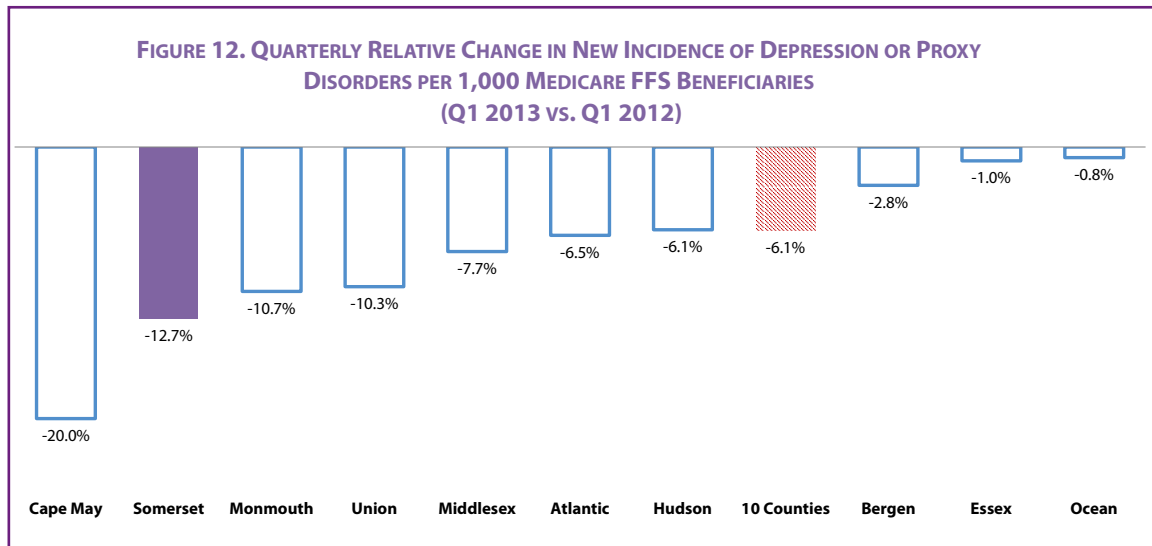
For Q1 2013, there were 13.62 Medicare FFS beneficiaries newly diagnosed with depression per 1,000 beneficiaries in Somerset County compared to Q1 2012, which was 14.42 per 1,000 beneficiaries. This was lower than the quarterly rate among all 10 counties in Q1 2013 (Figure 16).
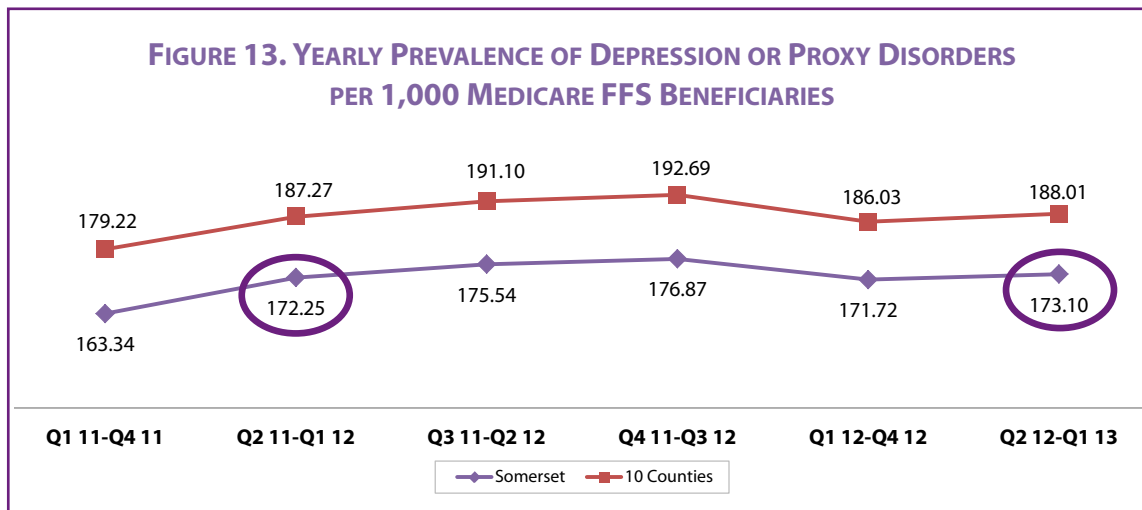
FIGURE 16. QUARTERLY NEW INCIDENCE OF DEPRESSION*
PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
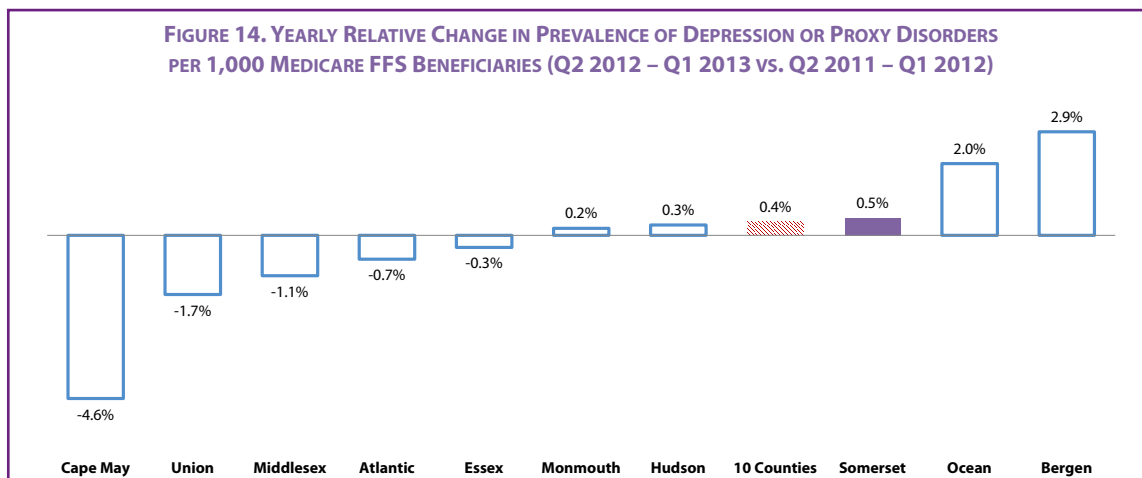

* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 5.6% relative decrease in new incidence of depression in Somerset County (Figure 17).

FIGURE 17. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF DEPRESSION
PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)
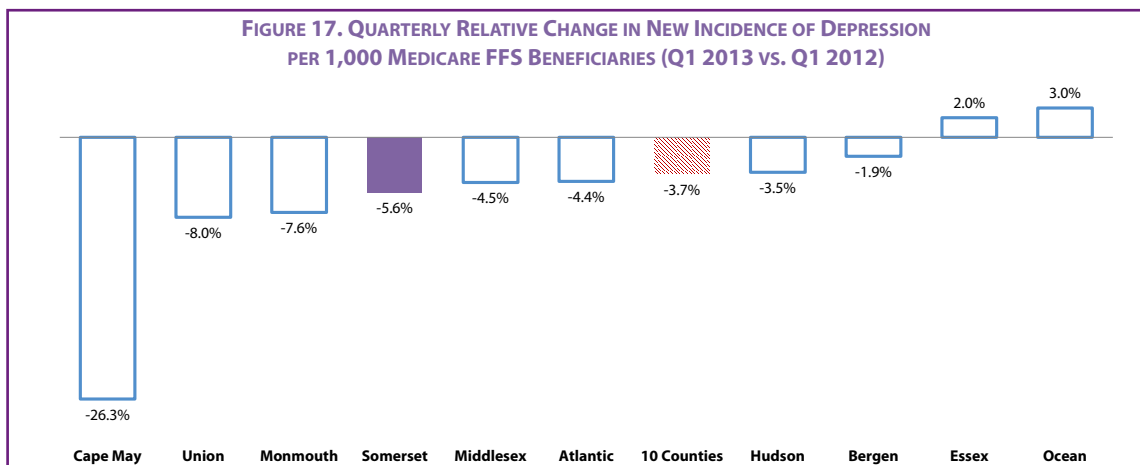
From Q2 2012 – Q1 2013, there was a 111.25 per 1,000 Medicare FFS beneficiaries yearly prevalence of depression in Somerset County compared to Q2 2011 – Q1 2012, which was 111.53 per 1,000 beneficiaries. Somerset County's yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 18).

FIGURE 18. YEARLY PREVALENCE OF DEPRESSION PER 1,000 MEDICARE FFS BENEFICIARIES
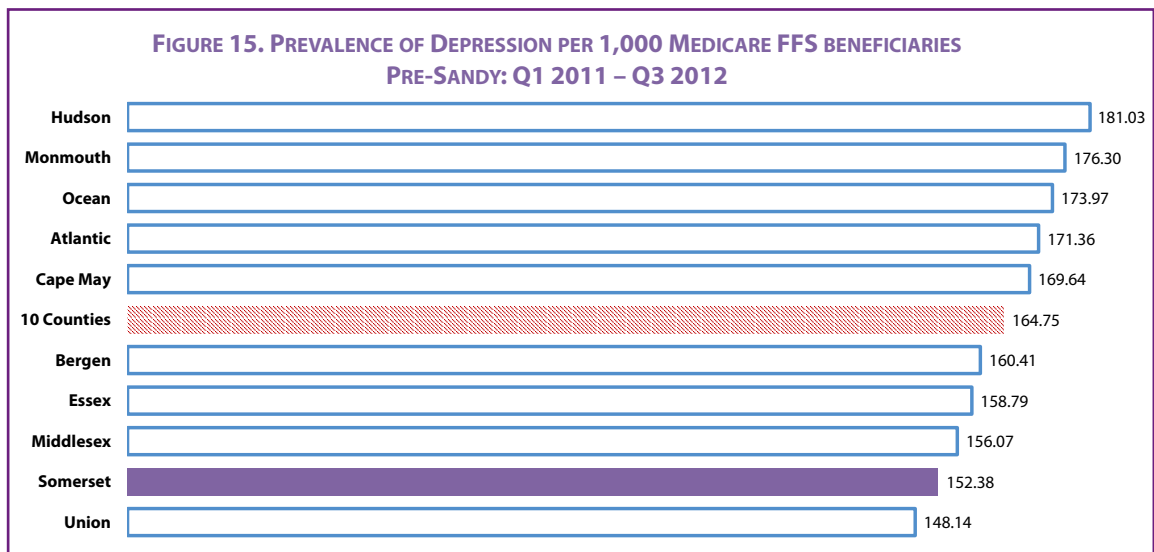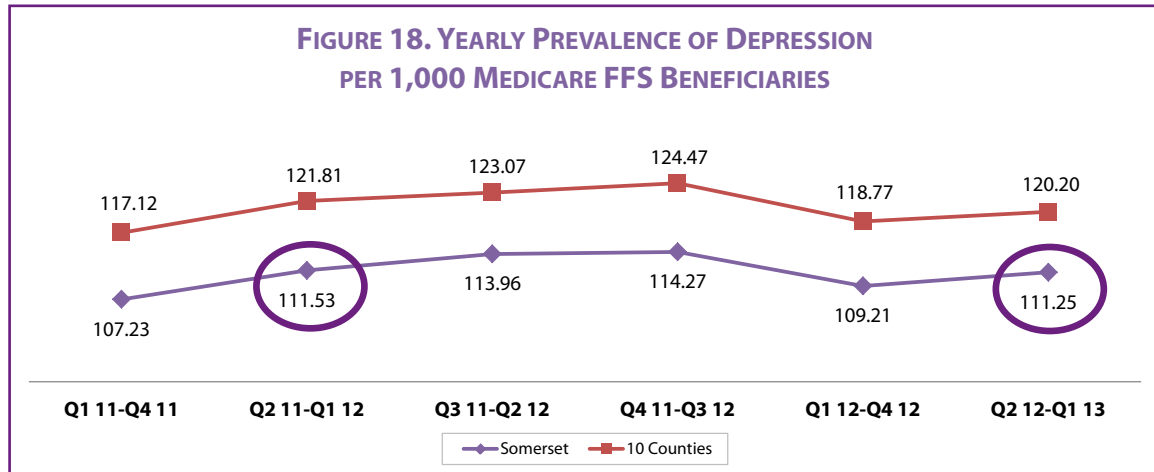
Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was a 0.3% relative decrease in depression in Somerset County (Figure 19).

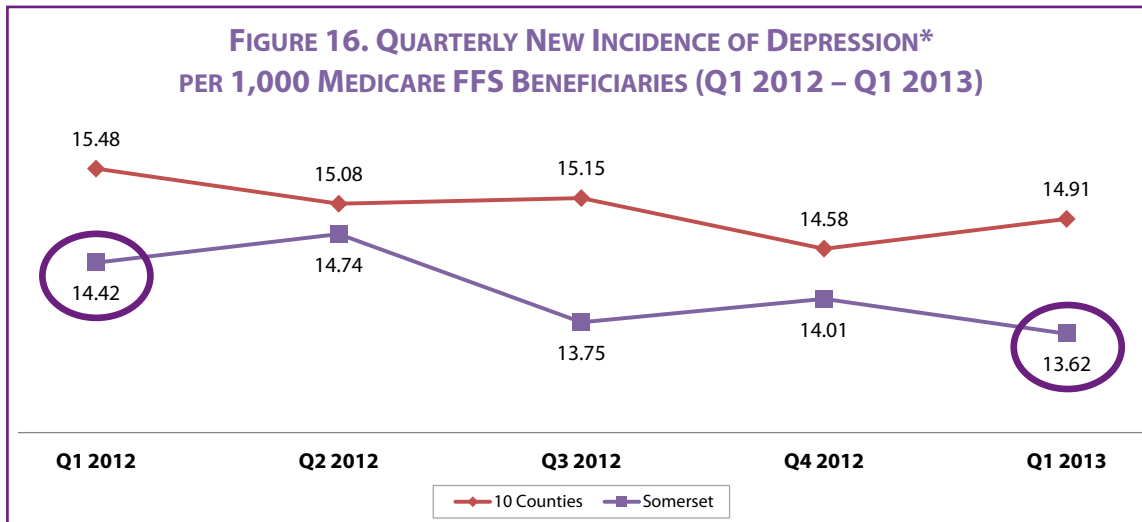FIGURE 19. YEARLY RELATIVE CHANGE IN PREVALENCE OF DEPRESSION PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 VS. Q2 2011 – Q1 2012)
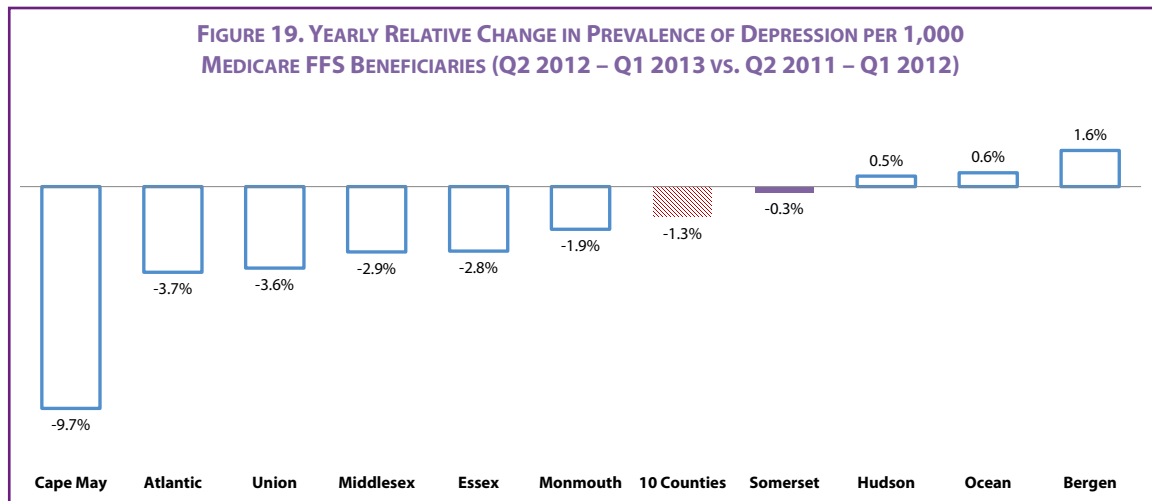
Anxiety Disorders

The prevalence rate of anxiety disorders in Somerset County in the 21 months prior to Superstorm Sandy was 131.07 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 20).

FIGURE 20. PREVALENCE OF ANXIETY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Ocean	170.82
Cape May	168.71
Atlantic	163.83
Hudson	161.26
Monmouth	155.45
10 Counties	144.53
Middlesex	131.79
Bergen	131.36
Somerset	131.07
Union	126.46
Essex	124.32
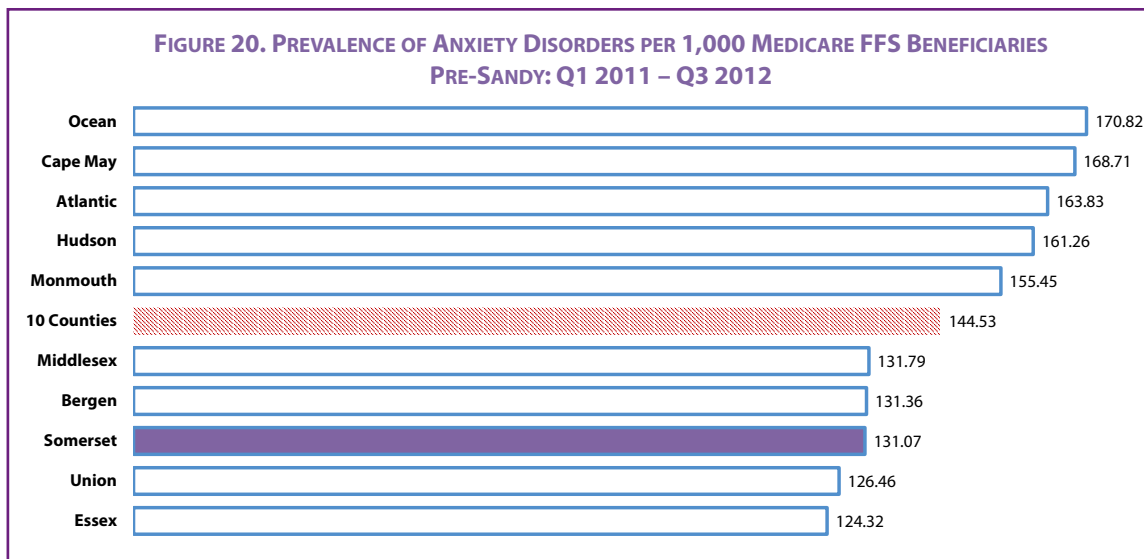
Adjustment Disorders

The prevalence rate of adjustment disorders in Somerset County in the 21 months prior to Superstorm Sandy was 40.32 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 21).

FIGURE 21. PREVALENCE OF ADJUSTMENT DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Monmouth	55.08
Essex	54.16
Hudson	48.85
Atlantic	45.32
10 Counties	43.45
Ocean	42.95
Somerset	40.32
Bergen	38.14
Middlesex	37.58
Cape May	36.62
Union	31.27

BEHAVIORAL HEALTH CONDITIONS
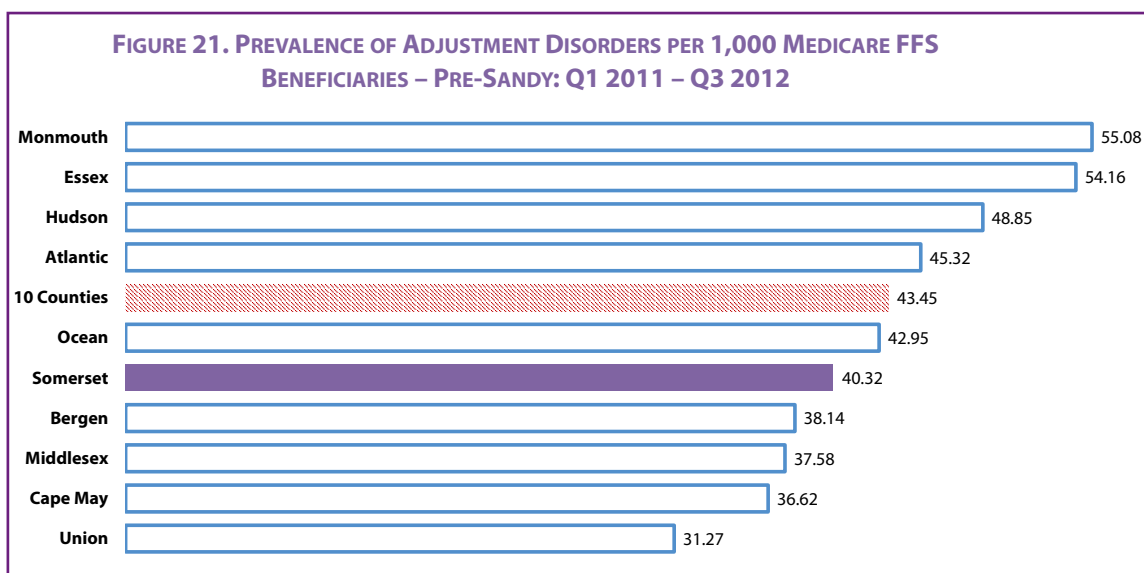
Post-Traumatic Stress Disorder (PTSD)

The prevalence rate of PTSD in Somerset County in the 21 months prior to Superstorm Sandy was 5.77 per 1,000 Medicare FFS beneficiaries. This was higher than the prevalence rate among all 10 counties (Figure 22).

FIGURE 22. PREVALENCE OF PTSD PER 1,000 MEDICARE FFS BENEFICIARIES
PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Ocean	7.48
Atlantic	7.13
Cape May	6.74
Monmouth	6.59
Somerset	5.77
Middlesex	5.71
10 Counties	5.36
Essex	4.92
Hudson	4.29
Union	3.32
Bergen	3.25

For Q1 2013, there were 0.52 Medicare FFS beneficiaries newly diagnosed with PTSD per 1,000 beneficiaries in Somerset County compared to Q1 2012, which was 0.51 per 1,000 beneficiaries. This was lower than the rate among all 10 counties in Q1 2013 (Figure 23).


FIGURE 23. QUARTERLY NEW INCIDENCE OF PTSD*
PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
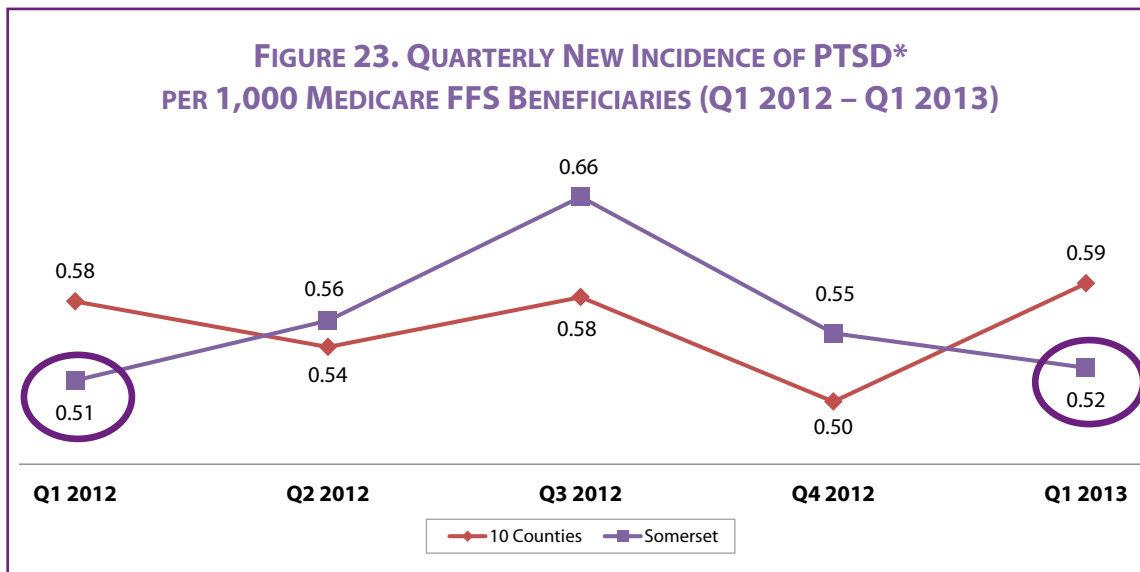
* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 1.9% relative increase in new incidence of PTSD in Somerset County (Figure 24).

FIGURE 24. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF PTSD
PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)
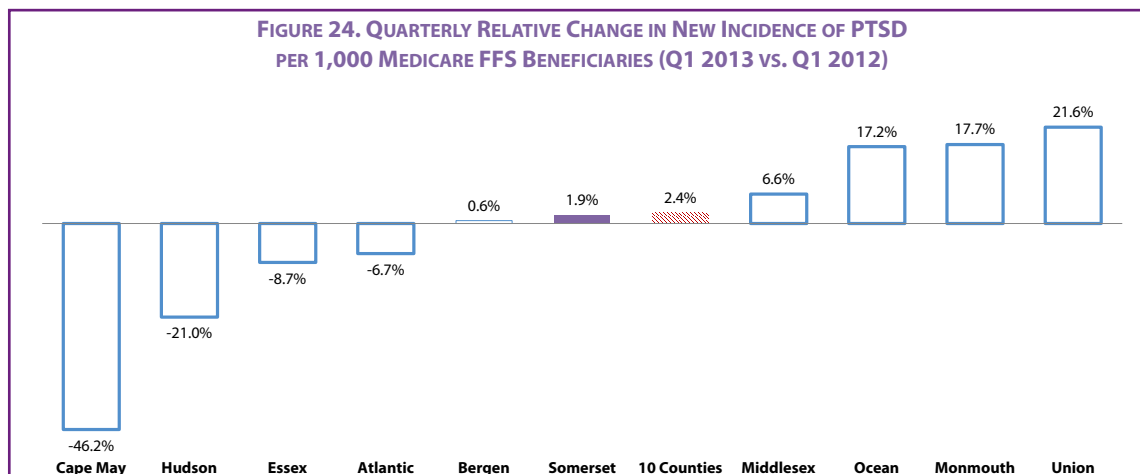
From Q2 2012 – Q1 2013, there was a 4.39 per 1,000 Medicare FFS beneficiaries yearly prevalence of PTSD in Somerset County compared to Q2 2011 – Q1 2012, which was 4.07 per 1,000 beneficiaries. The yearly rate of PTSD with rolling quarters was higher than the rate among all 10 counties (Figure 25).

FIGURE 25. YEARLY PREVALENCE OF PTSD PER 1,000 MEDICARE FFS BENEFICIARIES

Quarter	Somerset	10 Counties
Q1 11-Q4 11	3.87	3.46
Q2 11-Q1 12	4.07	3.80
Q3 11-Q2 12	4.16	4.13
Q4 11-Q3 12	4.51	4.16
Q1 12-Q4 12	4.29	3.92
Q2 12-Q1 13	4.39	4.08

Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was a 7.7% relative increase in PTSD in Somerset County (Figure 26).

FIGURE 26. YEARLY RELATIVE CHANGE IN PREVALENCE OF PTSD PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 VS. Q2 2011 – Q1 2012)

County	Relative Change
Atlantic	-8.1%
Union	-4.4%
Hudson	1.9%
Monmouth	1.9%
Ocean	7.1%
10 Counties	7.4%
Somerset	7.7%
Middlesex	10.0%
Cape May	13.8%
Bergen	14.6%
Essex	23.9%
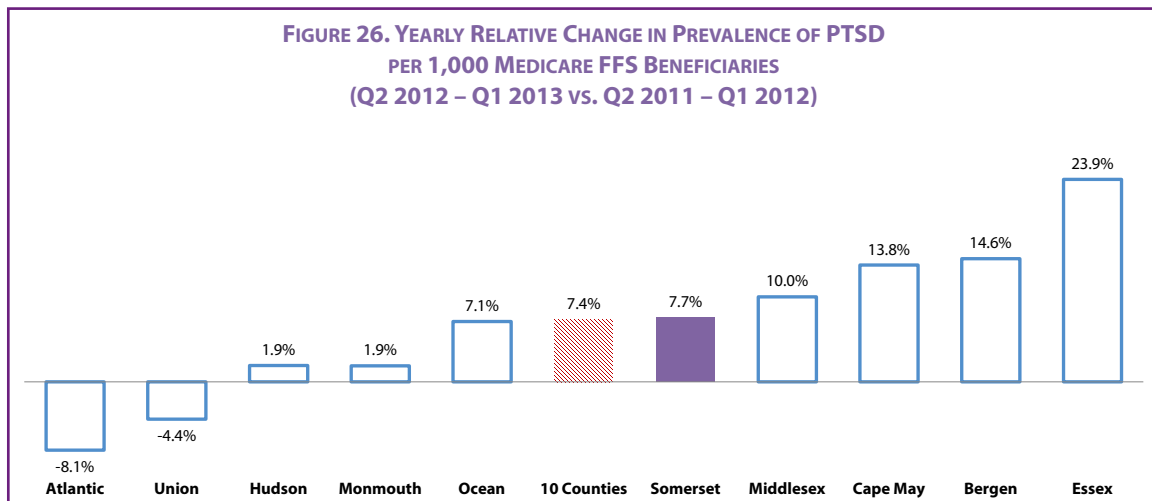
Alcohol or Substance Abuse

The alcohol or substance abuse measure includes Medicare FFS beneficiaries who were reported for either alcohol abuse or substance abuse.

The prevalence rate of alcohol or substance abuse in Somerset County in the 21 months prior to Superstorm Sandy was 37.67 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 27).
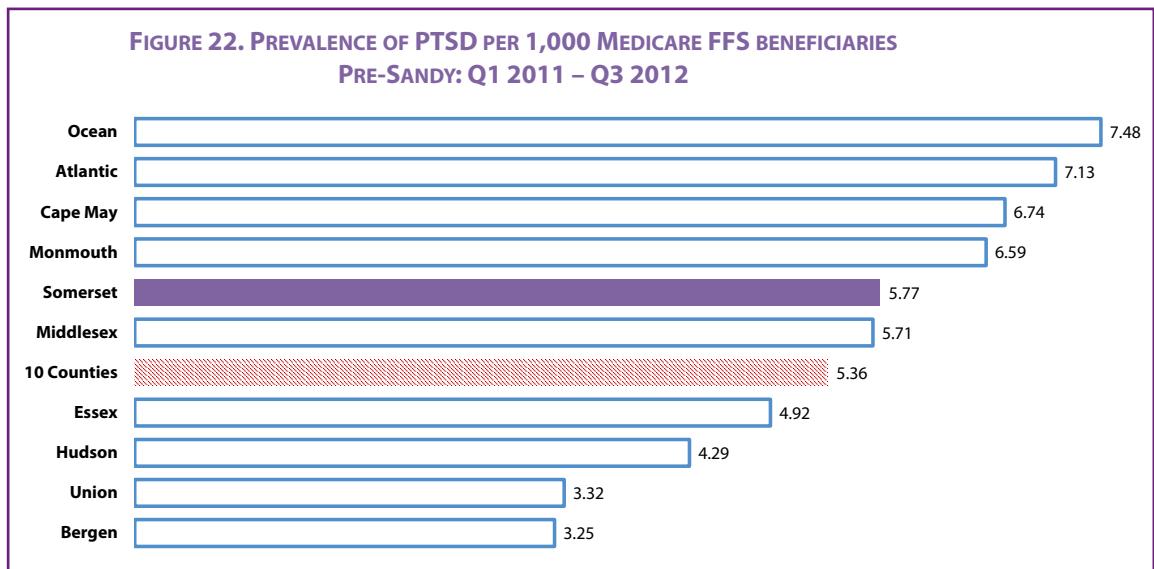
FIGURE 27. PREVALENCE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Atlantic	60.37
Essex	56.59
Cape May	55.75
Ocean	50.61
Monmouth	48.02
Hudson	44.84
10 Counties	43.26
Somerset	37.67
Middlesex	35.12
Union	34.96
Bergen	28.04

For Q1 2013, there were 5.40 Medicare FFS beneficiaries newly diagnosed with alcohol or substance abuse per 1,000 beneficiaries in Somerset County compared to Q1 2012, which was 4.17 per 1,000 beneficiaries. This was lower than the quarterly rate among all 10 counties in Q1 2013 (Figure 28).
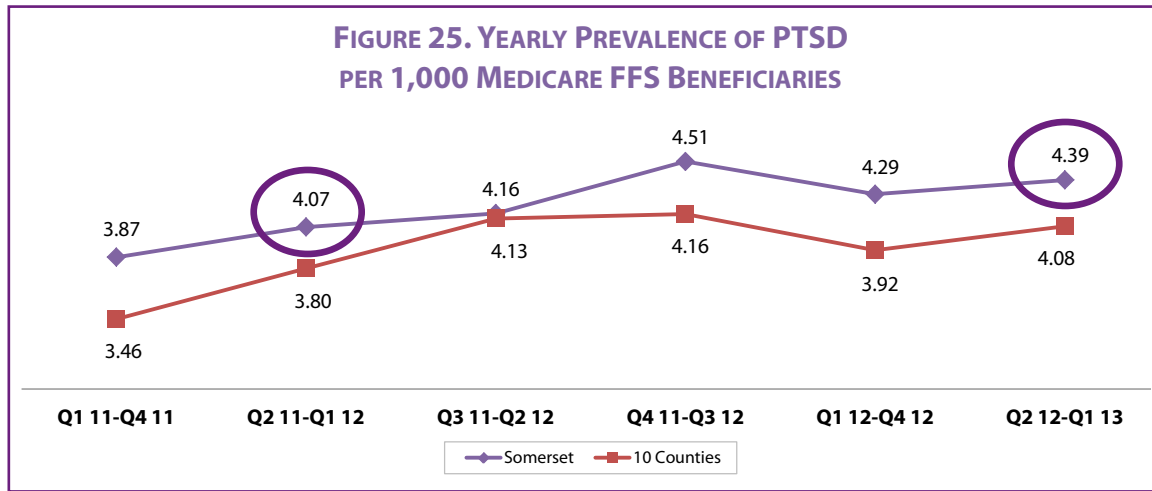

FIGURE 28. QUARTERLY NEW INCIDENCE OF ALCOHOL OR SUBSTANCE ABUSE* PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
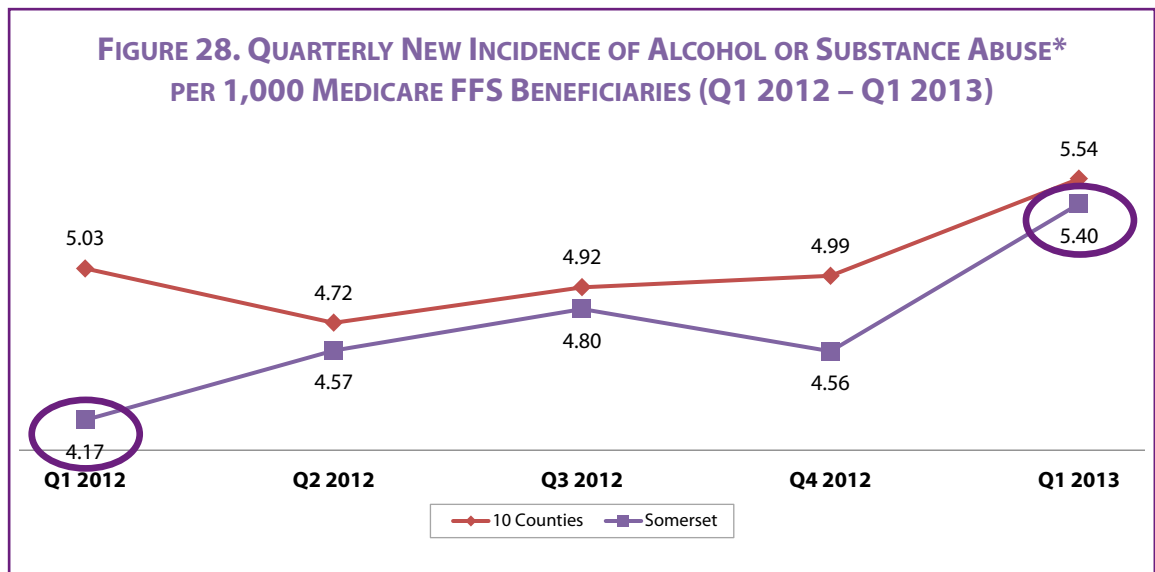
* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 29.4% relative increase in new incidence of alcohol or substance abuse in Somerset County (Figure 29).

FIGURE 29. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)

From Q2 2012 – Q1 2013, there was a 28.25 per 1,000 Medicare FFS beneficiaries yearly prevalence of alcohol or substance abuse in Somerset County compared to Q2 2011 – Q1 2012, which was 24.65 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 30).

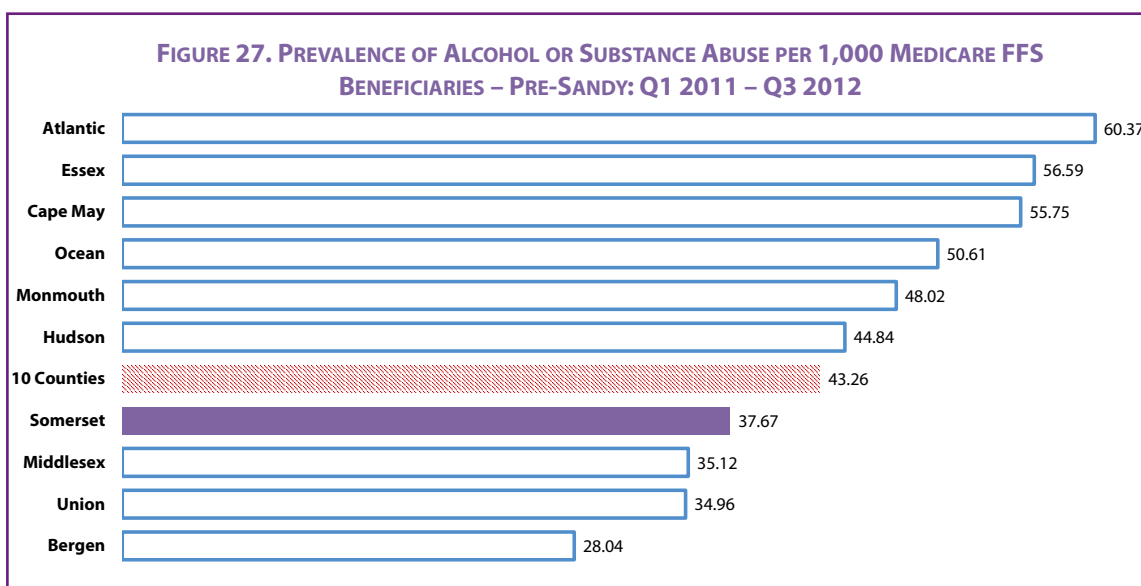**FIGURE 30. YEARLY PREVALENCE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES**

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	27.44	29.35	31.37	30.43	29.21	30.38
Somerset	23.01	24.65	25.63	26.79	26.03	28.25

Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was a 14.6% relative increase in alcohol or substance abuse in Somerset County (Figure 31).

FIGURE 31. YEARLY RELATIVE CHANGE IN PREVALENCE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 vs. Q2 2011 – Q1 2012)

Atlantic	Essex	Cape May	Middlesex	Union	Monmouth	10 Counties	Bergen	Hudson	Somerset	Ocean
-9.2%	-7.3%	-6.4%	-1.0%	-0.4%	0.0%	3.5%	7.9%	8.0%	14.6%	21.3%
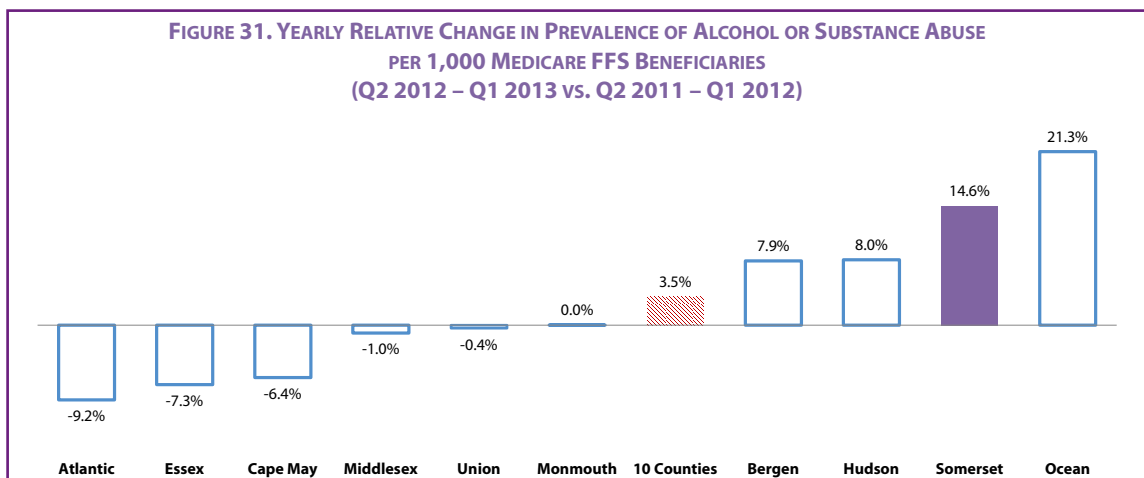
Substance Abuse

The prevalence rate of substance abuse in Somerset County in the 21 months prior to Superstorm Sandy was 21.12 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 32).
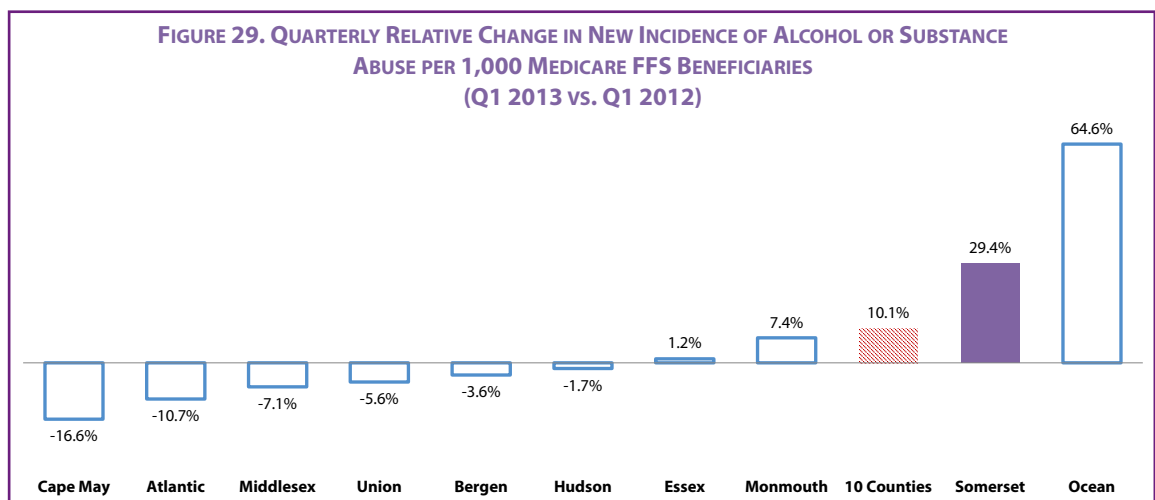
FIGURE 32. PREVALENCE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES
PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Atlantic	34.67
Essex	33.80
Ocean	30.52
Cape May	28.95
Monmouth	23.81
10 Counties	23.75
Hudson	22.94
Somerset	21.12
Middlesex	19.58
Union	17.45
Bergen	14.04

For Q1 2013, there were 2.57 Medicare FFS beneficiaries newly diagnosed with substance abuse per 1,000 beneficiaries in Somerset County compared to Q1 2012, which was 2.50 per 1,000 beneficiaries. This was lower than the quarterly rate among all 10 counties in Q1 2013 (Figure 33).
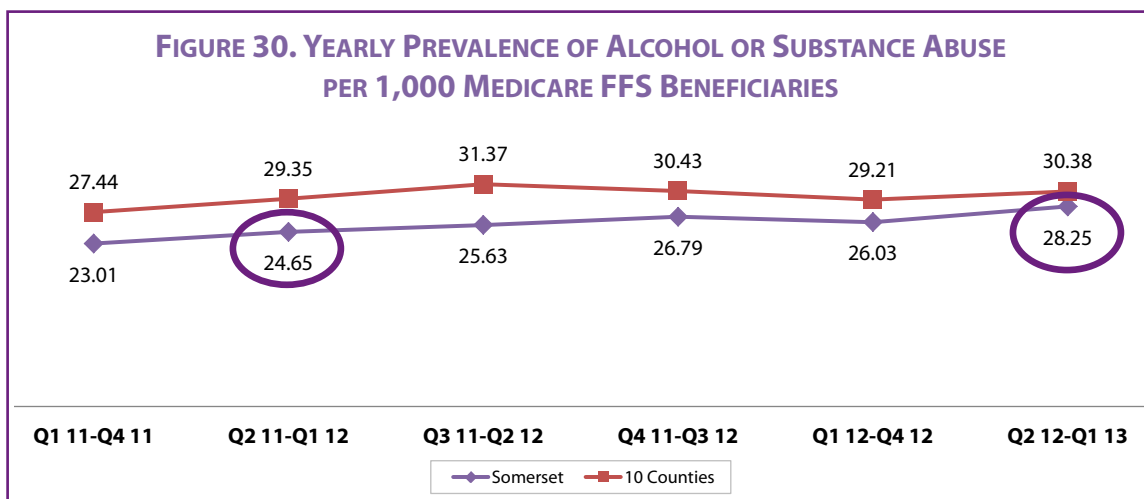

FIGURE 33. QUARTERLY NEW INCIDENCE OF SUBSTANCE ABUSE*
PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
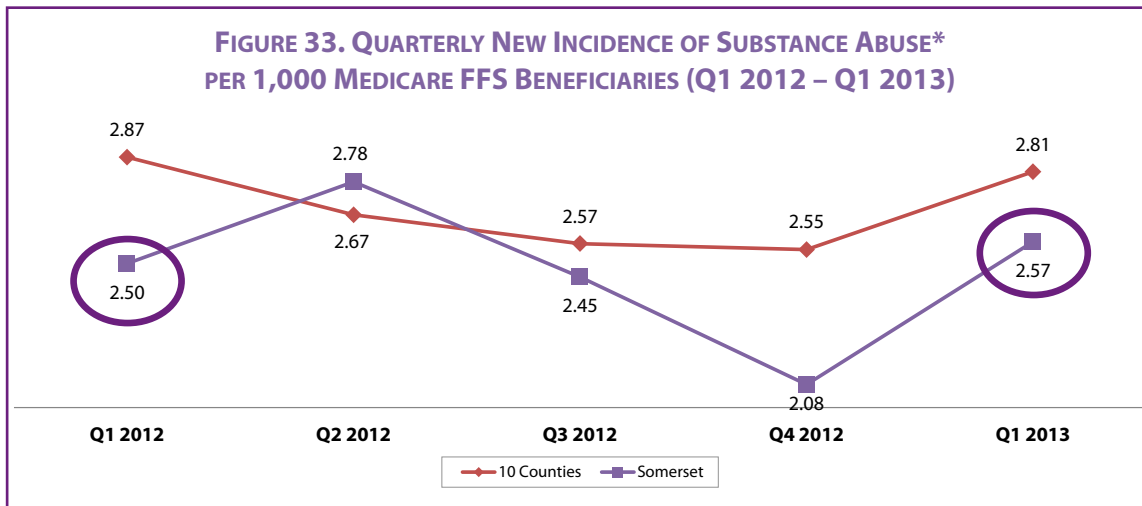
* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 3.0% relative increase in new incidence of substance abuse in Somerset County (Figure 34).

FIGURE 34. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)
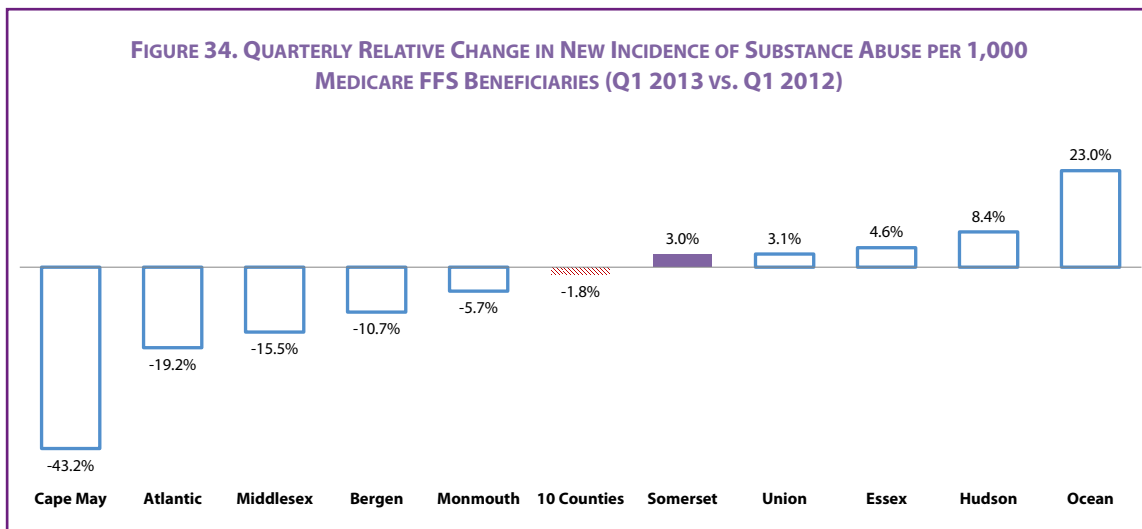
From Q2 2012 – Q1 2013, there was a 15.12 per 1,000 Medicare FFS beneficiaries yearly prevalence of substance abuse in Somerset County compared to Q2 2011 – Q1 2012, which was 13.50 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 35).
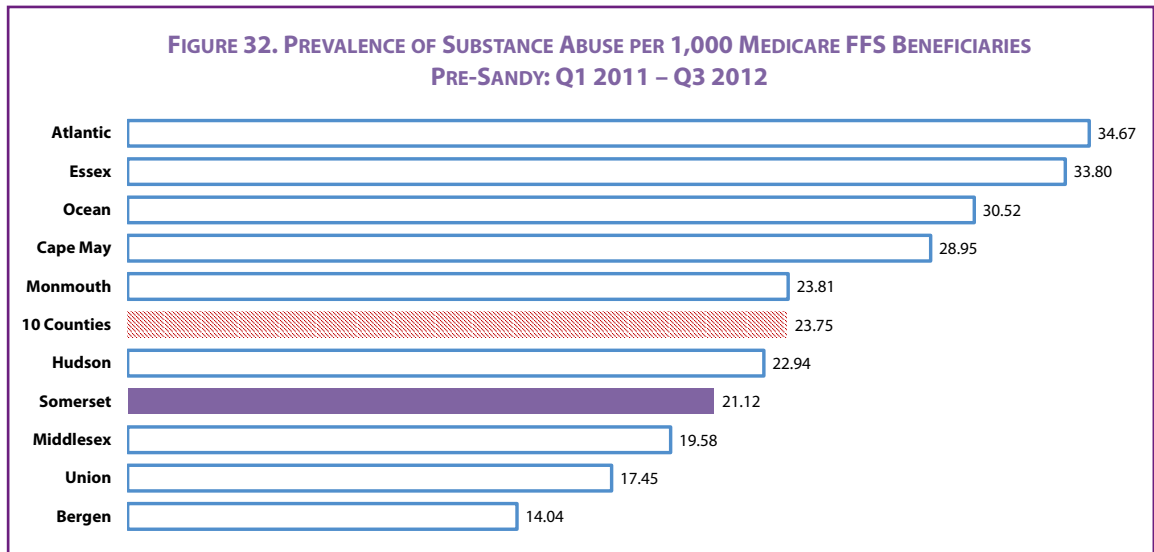
FIGURE 35. YEARLY PREVALENCE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES

Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was a 12.0% relative increase in substance abuse in Somerset County (Figure 36).

FIGURE 36. YEARLY RELATIVE CHANGE IN PREVALENCE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 VS. Q2 2011 – Q1 2012)

Suicide and Intentional Self-Inflicted Injury

The rate of suicide and intentional self-inflicted injury in Somerset County in the 21 months prior to Superstorm Sandy was 5.90 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 37).

FIGURE 37. RATE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Atlantic	9.24
Ocean	8.47
Monmouth	8.07
Hudson	7.13
Essex	7.02
10 Counties	6.80
Cape May	6.22
Somerset	5.90
Middlesex	5.60
Bergen	5.44
Union	5.12

BEHAVIORAL HEALTH CONDITIONS

For Q1 2013, there were 0.72 Medicare FFS beneficiaries newly diagnosed with suicide and intentional self-inflicted injury per 1,000 beneficiaries in Somerset County, compared to Q1 2012, which was 0.62 per 1,000 beneficiaries. This is lower than the quarterly rate among all 10 counties in Q1 2013 (Figure 38).
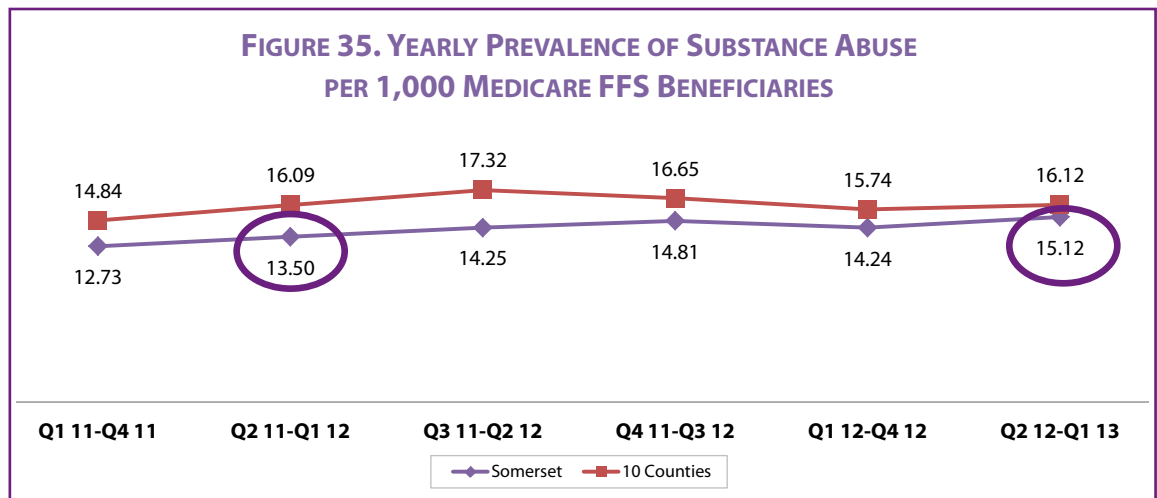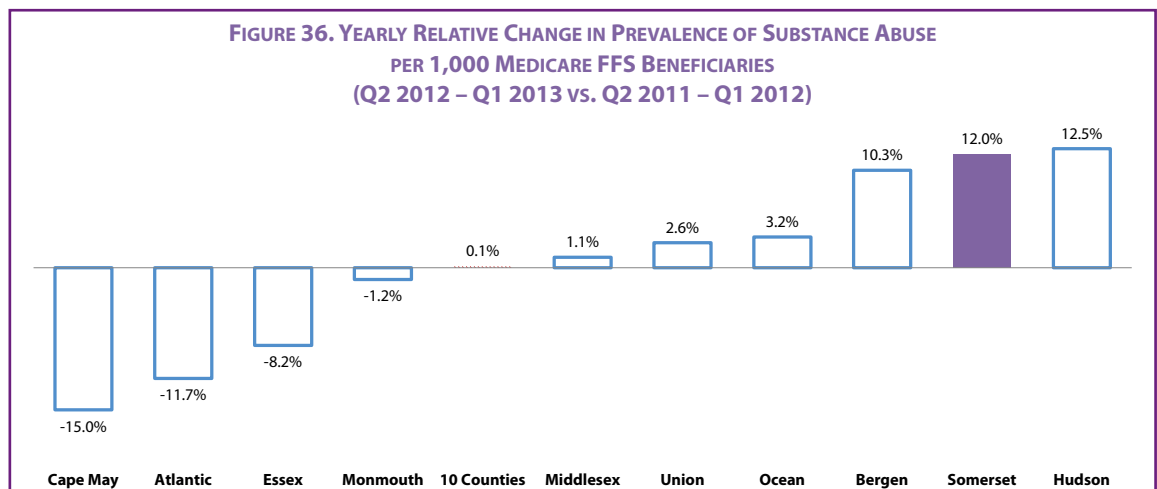
FIGURE 38. QUARTERLY NEW INCIDENCE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY* PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012 – Q1 2013)
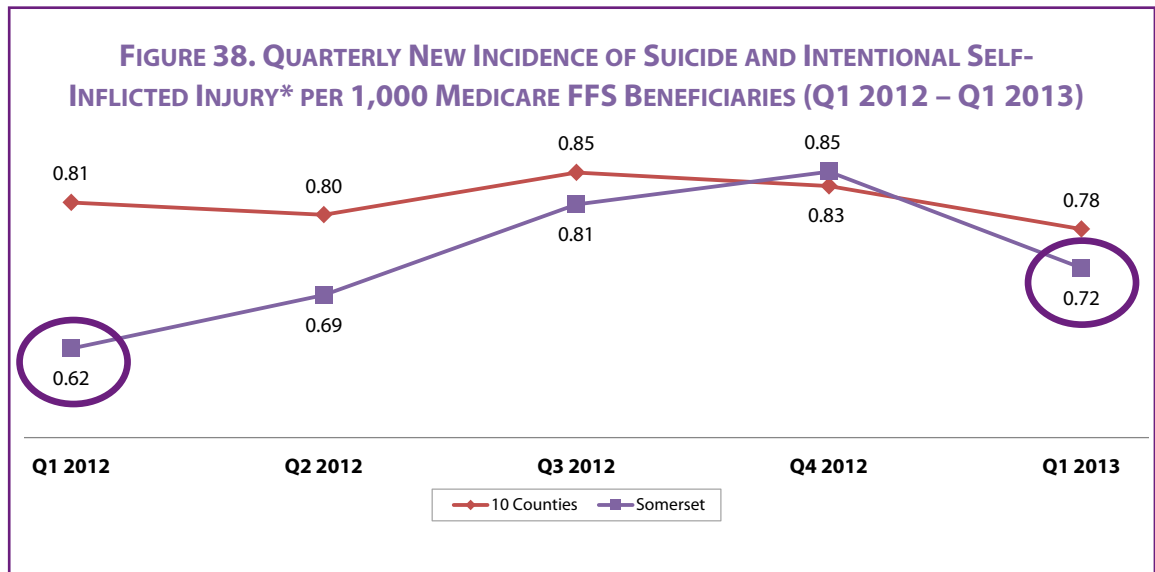
* Quarterly new incidences compared to prior year.

Comparing Q1 2013 to Q1 2012, there was a 17.3% relative increase in new incidence of suicide and intentional self-inflicted injury in Somerset County (Figure 39).

FIGURE 39. QUARTERLY RELATIVE CHANGE IN NEW INCIDENCE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2013 VS. Q1 2012)

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County
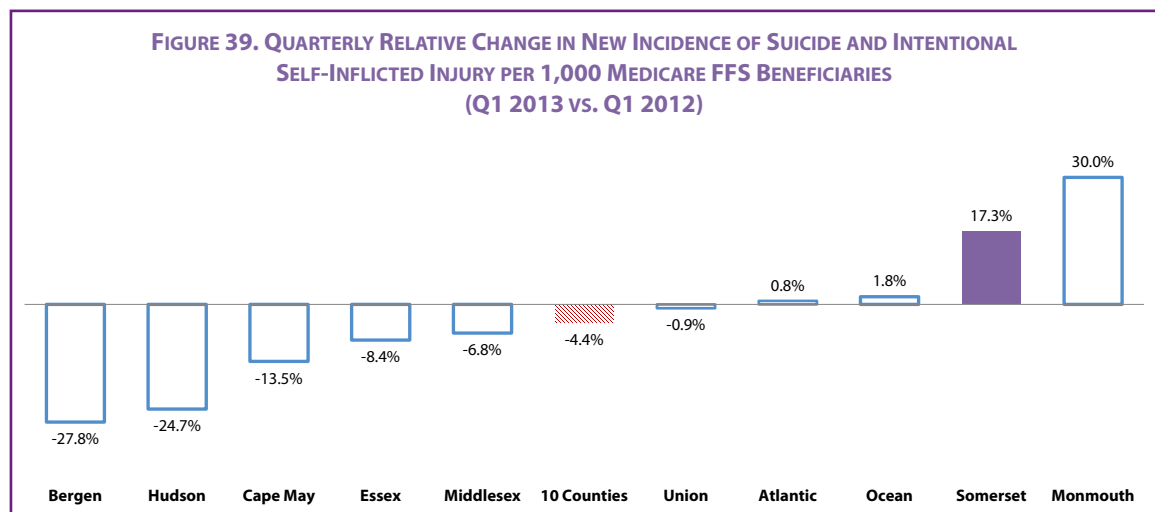
From Q2 2012 – Q1 2013, there was a 3.98 per 1,000 Medicare FFS beneficiaries yearly rate of suicide and intentional self-inflicted injury in Somerset County compared to Q2 2011 – Q1 2012, which was 3.58 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 40).
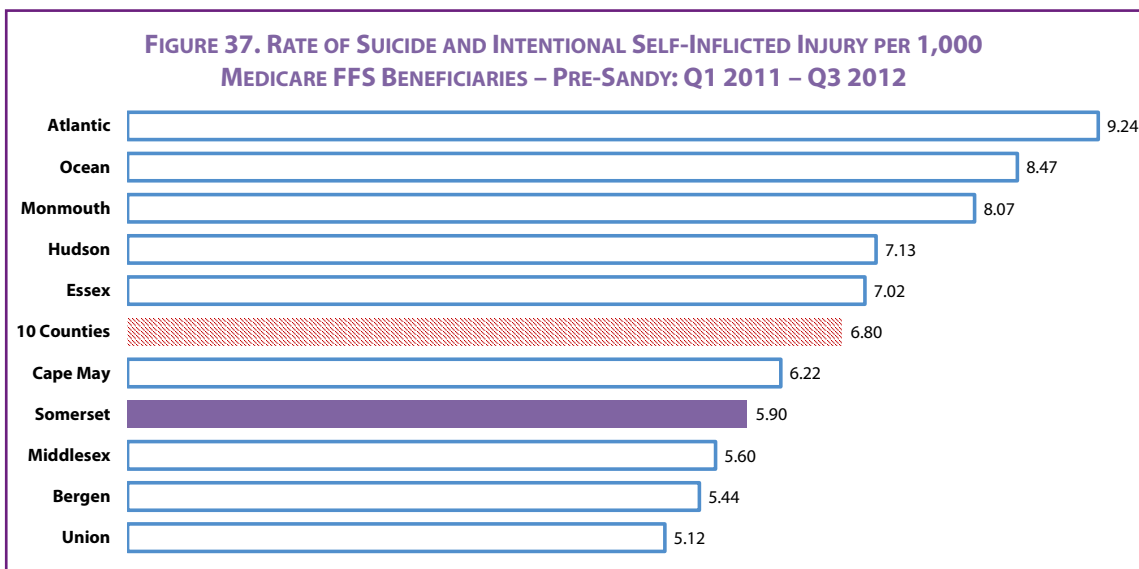

FIGURE 40. YEARLY RATE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES
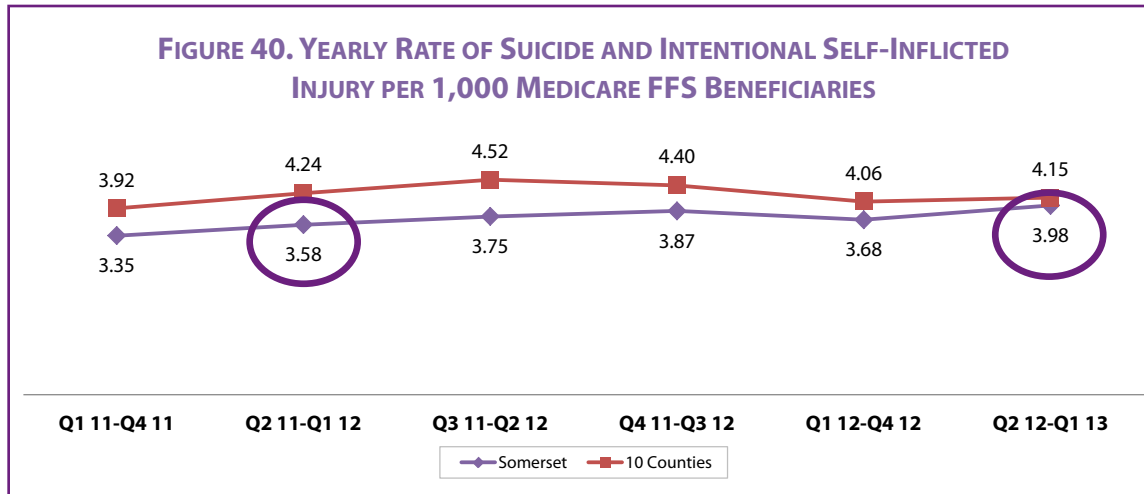
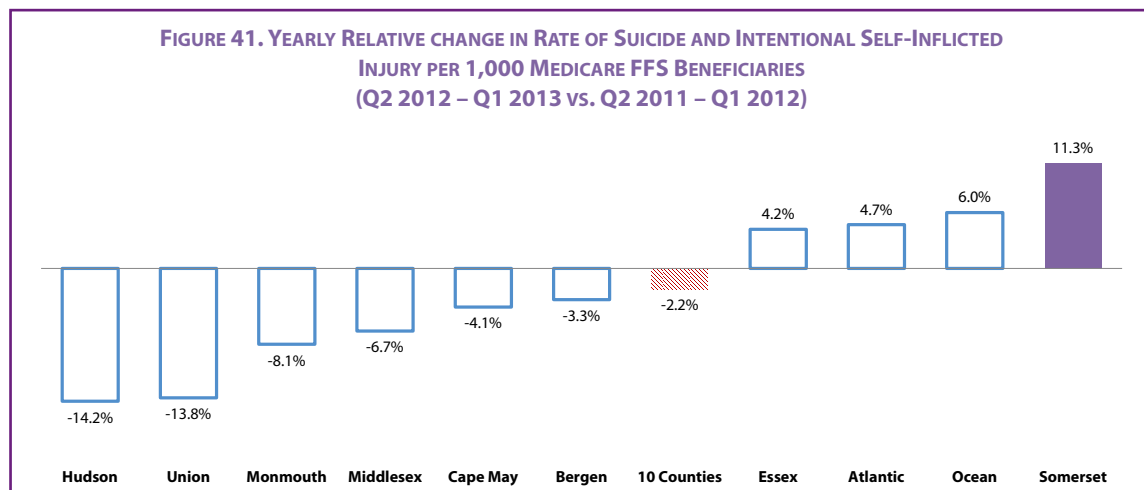Comparing Q2 2012 – Q1 2013 to Q2 2011 – Q1 2012, there was an 11.3% relative increase in suicide and intentional self-inflicted injury in Somerset County, the largest among all 10 counties (Figure 41).

FIGURE 41. YEARLY RELATIVE change in RATE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES (Q2 2012 – Q1 2013 vs. Q2 2011 – Q1 2012)

BEHAVIORAL HEALTH CONDITIONS
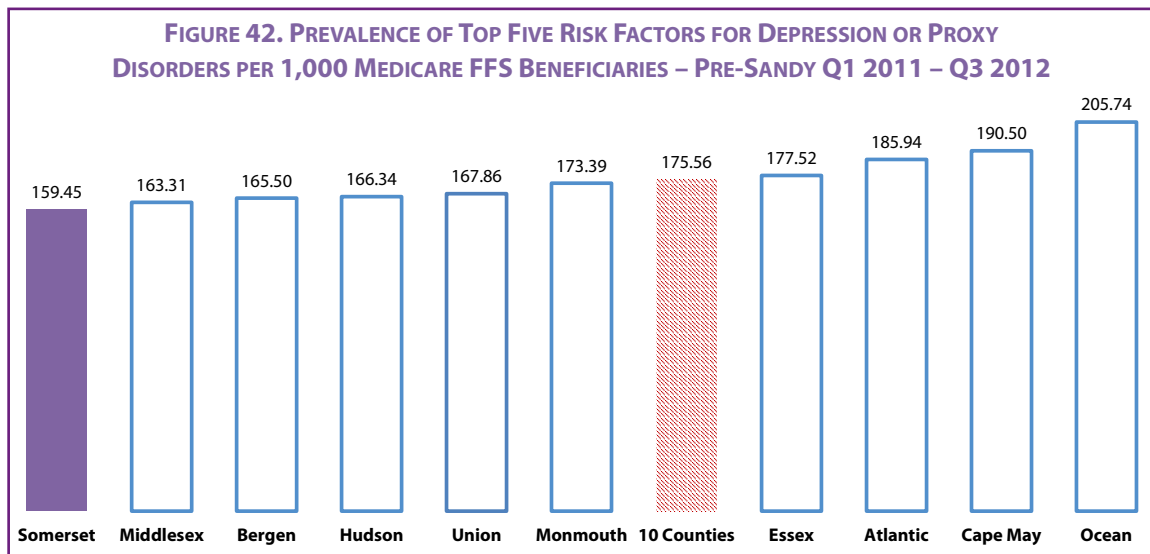
RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

To identify beneficiaries at risk of developing depression or proxy disorders, HQSI initially conducted a literature review on the potential risk factors for depression or proxy disorders. Previous studies suggested that psychosocial factors, biological factors, deteriorating physical functioning, and medication side effects could increase the risk of depression or proxy disorders.

Based on the literature review and running models using factors available through Medicare claims data, the top five risk factors for depression or proxy disorders were identified as: Alzheimer's disease and related disorders or senile dementia, sleep disturbance, substance or alcohol abuse or tobacco use, hip/pelvic fractures, and amputations (see Appendix B).

These risk factors were reported prior to the diagnosis of depression or proxy disorders thus indicating development of risk factors before diagnosis. The following figures show the prevalence rates for these five conditions in the 21 months prior to Superstorm Sandy.

TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

The prevalence rate of beneficiaries with one or more of the top five risk factors for depression or proxy disorders in Somerset County in the 21 months prior to Superstorm Sandy was 159.45 per 1,000 Medicare FFS beneficiaries. This was the lowest prevalence rate among all 10 counties (Figure 42).

FIGURE 42. PREVALENCE OF TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY Q1 2011 – Q3 2012

	Prevalence
Somerset	159.45
Middlesex	163.31
Bergen	165.50
Hudson	166.34
Union	167.86
Monmouth	173.39
10 Counties	175.56
Essex	177.52
Atlantic	185.94
Cape May	190.50
Ocean	205.74

The color-coded map of New Jersey depicts prevalence of any of the top five risk factors from high (red) to low (blue) in the 10 FEMA-declared disaster counties. This map shows that parts of Somerset, along with Monmouth, Ocean, Atlantic, and Cape May Counties had higher prevalence of one or more of the top five risk factors for depression or proxy disorders (Figure 43).

FIGURE 43. PREVALENCE OF TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES (PRE-SANDY: Q1 2011 – Q3 2012)

| 182.34 to 344.11 | 164.20 to 182.33 | 150.62 to 164.19 | 137.10 to 150.61 | 41.99 to 137.09 |

BEHAVIORAL HEALTH CONDITIONS
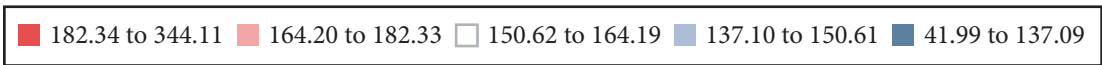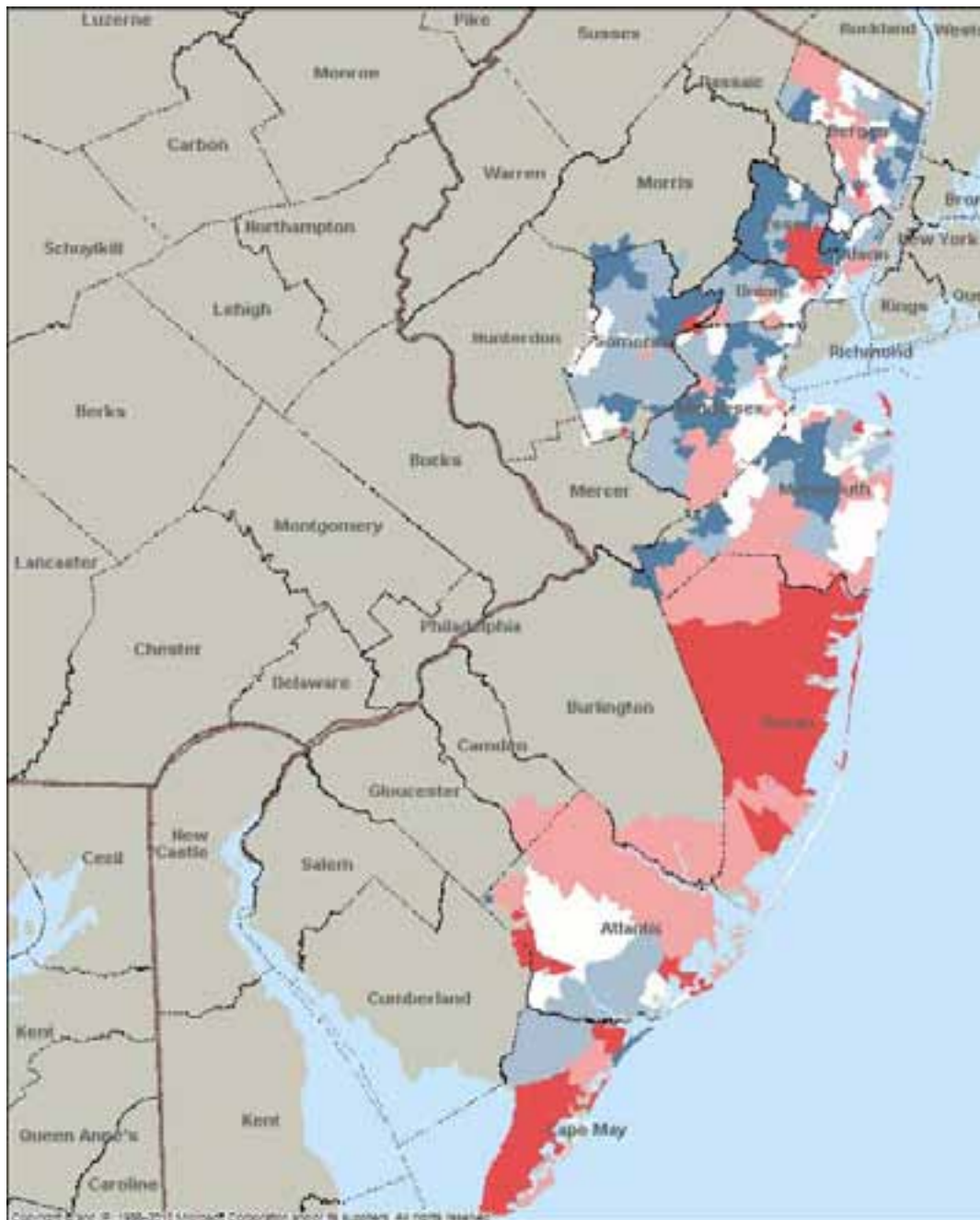
The color-coded map of Somerset County depicts regional variation of prevalence of any of the top five risk factors from high (red) to low (blue) (Figure 44).

FIGURE 44. SOMERSET COUNTY PREVALENCE OF TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)

170 to 279   147 to 169   138 to 146   120 to 137   64 to 119

Alzheimer's Disease and Related Disorders or Senile Dementia

The prevalence rate of Alzheimer's disease and related disorders or senile dementia in Somerset County in the 21 months prior to Superstorm Sandy was 47.62 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 45).
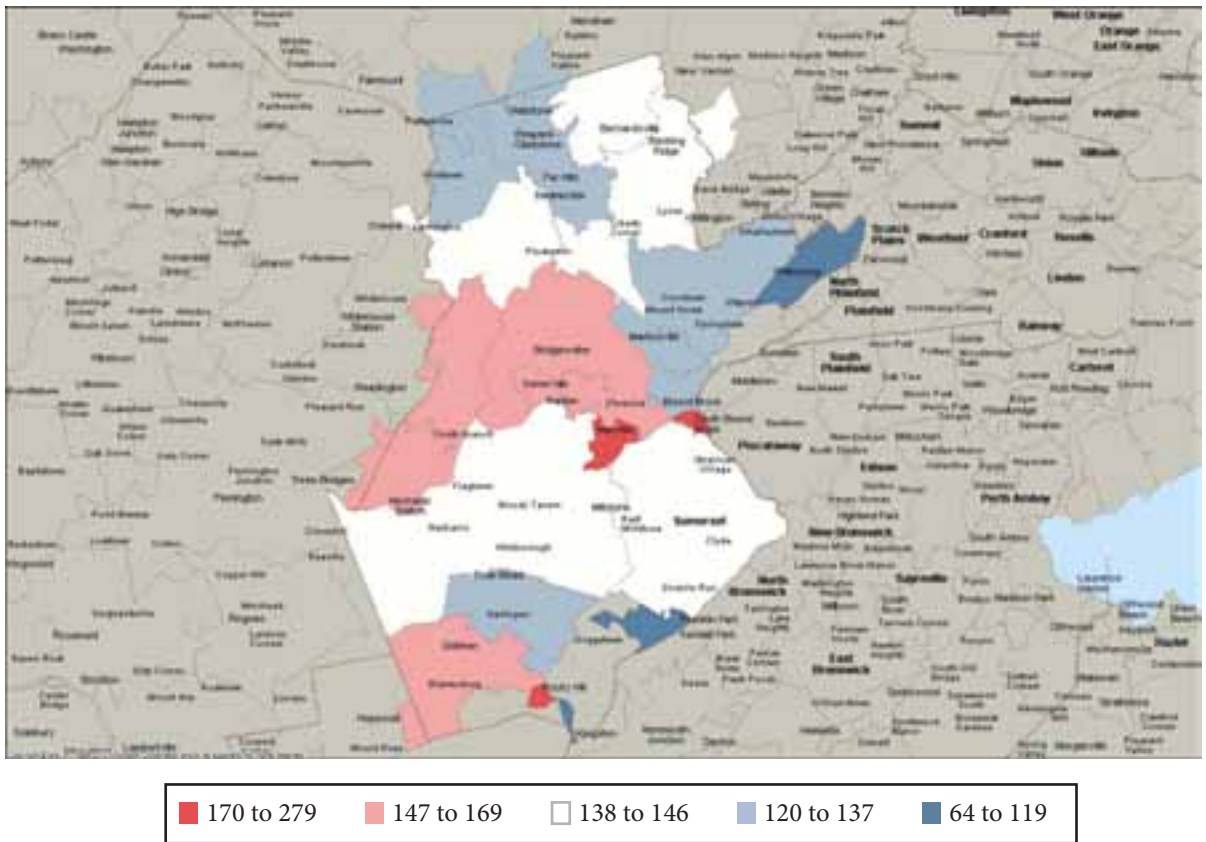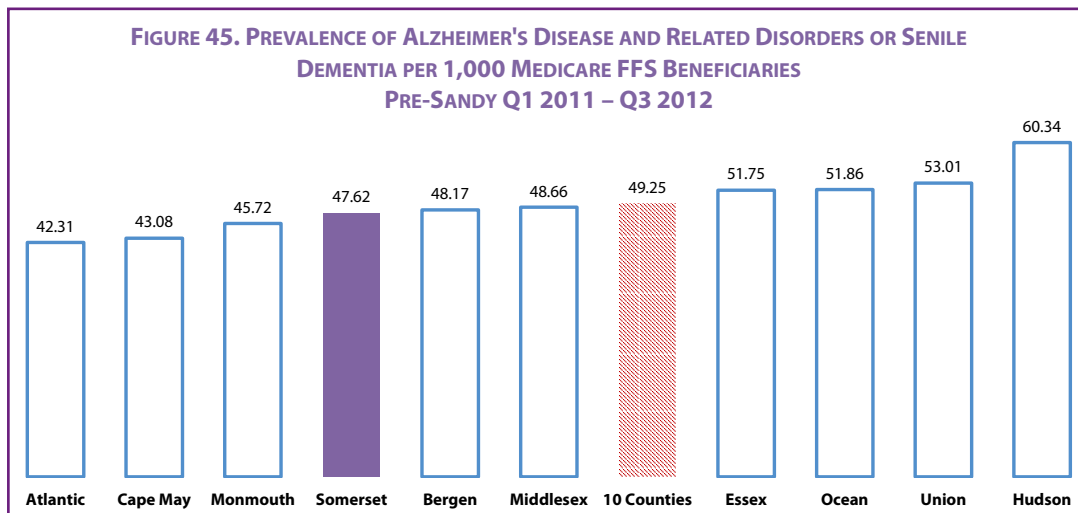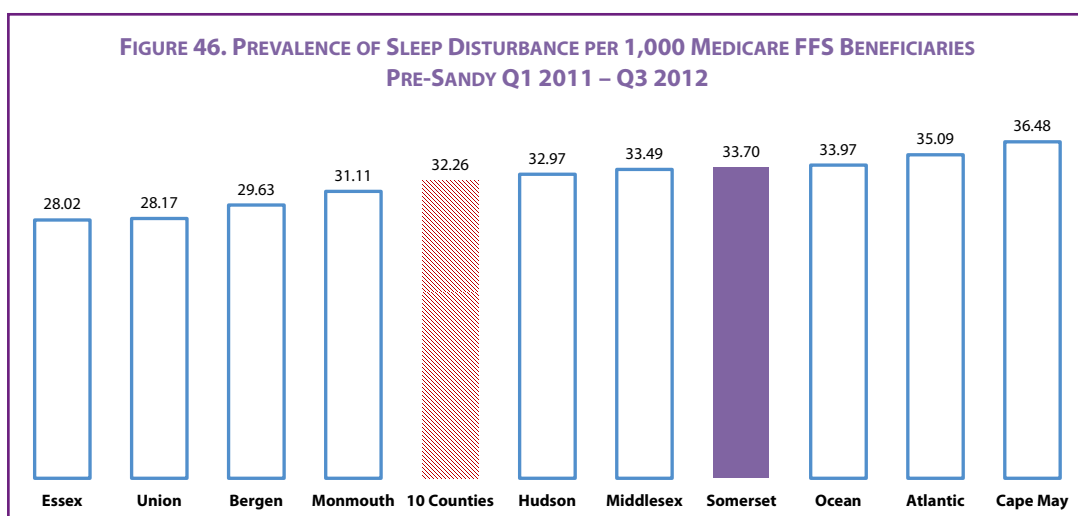
FIGURE 45. PREVALENCE OF ALZHEIMER'S DISEASE AND RELATED DISORDERS OR SENILE DEMENTIA PER 1,000 MEDICARE FFS BENEFICIARIES
PRE-SANDY Q1 2011 – Q3 2012

Atlantic	Cape May	Monmouth	Somerset	Bergen	Middlesex	10 Counties	Essex	Ocean	Union	Hudson
42.31	43.08	45.72	47.62	48.17	48.66	49.25	51.75	51.86	53.01	60.34

Sleep Disturbance

The prevalence rate of sleep disturbance in Somerset County in the 21 months prior to Superstorm Sandy was 33.70 per 1,000 Medicare FFS beneficiaries. This was higher than the prevalence rate among all 10 counties (Figure 46).

FIGURE 46. PREVALENCE OF SLEEP DISTURBANCE PER 1,000 MEDICARE FFS BENEFICIARIES
PRE-SANDY Q1 2011 – Q3 2012

Essex	Union	Bergen	Monmouth	10 Counties	Hudson	Middlesex	Somerset	Ocean	Atlantic	Cape May
28.02	28.17	29.63	31.11	32.26	32.97	33.49	33.70	33.97	35.09	36.48

BEHAVIORAL HEALTH CONDITIONS

Substance or Alcohol Abuse or Tobacco Use

The prevalence rate of substance or alcohol abuse or tobacco use in Somerset County in the 21 months prior to Superstorm Sandy was 87.17 per 1,000 Medicare FFS beneficiaries. This was lower than the prevalence rate among all 10 counties (Figure 47).

FIGURE 47. PREVALENCE OF SUBSTANCE OR ALCOHOL ABUSE OR TOBACCO USE PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY Q1 2011 – Q3 2012

Hudson	Somerset	Middlesex	Bergen	Union	10 Counties	Monmouth	Essex	Atlantic	Cape May	Ocean
85.09	87.17	89.12	94.14	94.80	104.94	107.21	110.05	119.73	125.54	136.52

Hip/Pelvic Fractures

The prevalence rate of hip/pelvic fractures in Somerset County in the 21 months prior to Superstorm Sandy was 11.85 per 1,000 Medicare FFS beneficiaries. This was higher than the prevalence rate among all 10 counties (Figure 48).
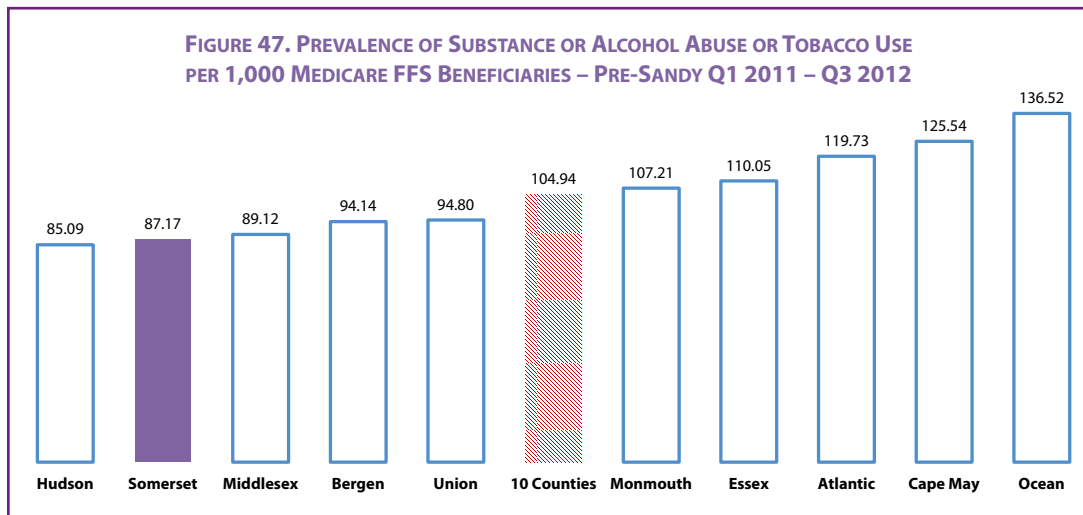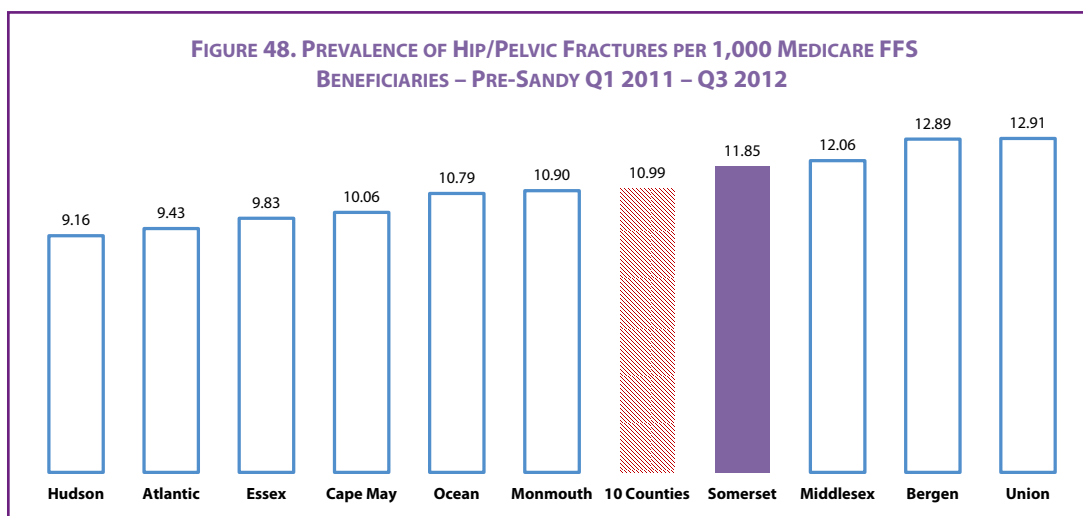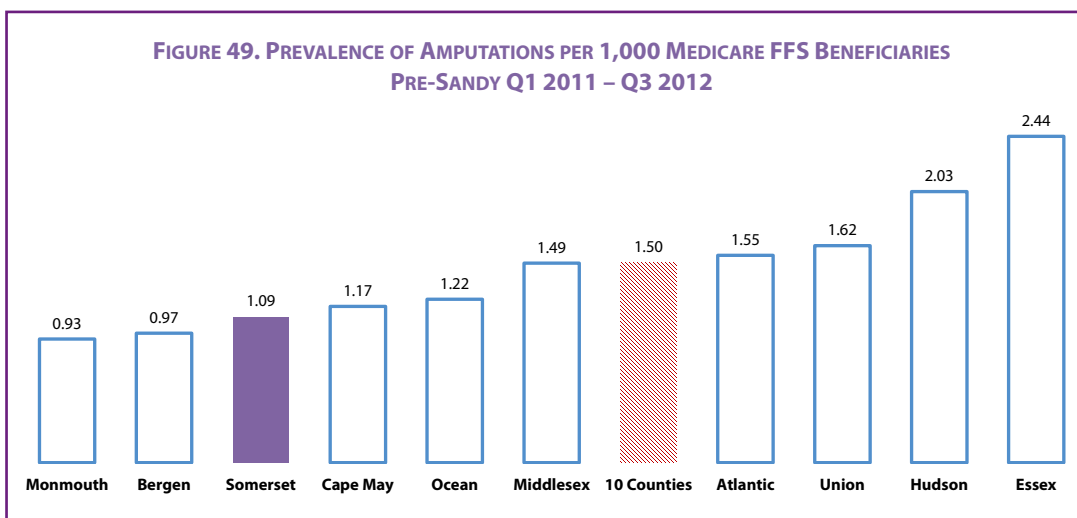
FIGURE 48. PREVALENCE OF HIP/PELVIC FRACTURES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY Q1 2011 – Q3 2012

Hudson	Atlantic	Essex	Cape May	Ocean	Monmouth	10 Counties	Somerset	Middlesex	Bergen	Union
9.16	9.43	9.83	10.06	10.79	10.90	10.99	11.85	12.06	12.89	12.91

Amputations

The prevalence rate of amputations in Somerset County in the 21 months prior to Superstorm Sandy was 1.09 per 1,000 Medicare FFS beneficiaries (Figure 49).

FIGURE 49. PREVALENCE OF AMPUTATIONS PER 1,000 MEDICARE FFS BENEFICIARIES PRE-SANDY Q1 2011 – Q3 2012

Monmouth	Bergen	Somerset	Cape May	Ocean	Middlesex	10 Counties	Atlantic	Union	Hudson	Essex
0.93	0.97	1.09	1.17	1.22	1.49	1.50	1.55	1.62	2.03	2.44

BEHAVIORAL HEALTH CONDITIONS

BEHAVIORAL HEALTH CONDITIONS

This page left intentionally blank

Outpatient Behavioral Health Services

Summary

HQSI analyzed five behavioral health assessment services and five behavioral health therapies. Utilization of outpatient health services is color coded with lowest (red) and highest (light blue).

The most frequently used behavioral health assessment service in Somerset County was psychiatric diagnostic procedures. Somerset County had the lowest utilization rate of diagnostic psychological tests among all 10 counties. (Figure 50).

County	Depression Screening*	Diagnostic Psychological Tests	Health and Behavior Assessment/ Intervention	Neuropsychological Tests	Psychiatric Diagnostic Procedures
Atlantic	1.12	4.59	1.46	12.04	90.99
Bergen	4.33	4.12	**0.82**	15.55	79.98
Cape May	**0.65**	2.71	0.94	**8.98**	72.68
Essex	0.83	7.81	0.97	12.77	88.05
Hudson	2.83	8.92	0.96	24.69	78.45
Middlesex	7.50	6.39	1.58	11.22	74.20
Monmouth	4.71	8.23	1.36	15.42	94.74
Ocean	9.49	4.39	1.03	14.83	82.92
Somerset	7.11	**2.36**	1.48	10.37	72.93
Union	3.02	2.63	1.33	10.60	**71.56**
10 counties	**4.81**	**5.53**	**1.16**	**14.18**	**81.61**

Figure 50. Utilization of Outpatient Behavioral Health Services per 1,000 Medicare FFS Beneficiaries – Pre-Sandy Q1 2011 – Q3 2012 Assessments

* Depression screening rates are for Calendar Year 2012.

Lowest   Highest

The most frequently used behavioral health therapy in Somerset County was individual psychotherapy (Figure 51).

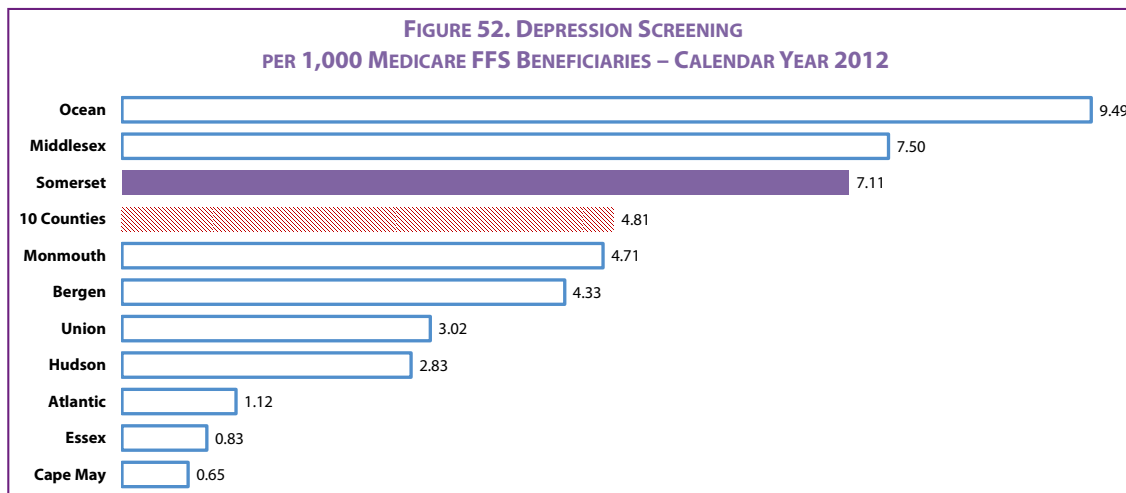| Figure 51. Utilization of Outpatient Behavioral Health Services per 1,000 Medicare FFS Beneficiaries – Pre-Sandy Q1 2011 – Q3 2012 Therapies					
County	Biofeedback Therapy	Electroconvulsive Therapy	Family Psychotherapy	Group Psychotherapy	Individual Psychotherapy
Atlantic	1.20	0.40	4.02	7.83	69.00
Bergen	1.56	0.54	5.89	2.81	79.79
Cape May	0.89	0.98	1.64	2.01	50.28
Essex	0.88	0.63	6.04	3.23	78.83
Hudson	1.78	0.52	8.27	2.70	71.79
Middlesex	2.18	0.70	4.60	6.69	68.07
Monmouth	0.45	0.99	5.39	4.37	68.01
Ocean	0.80	0.84	3.76	2.11	61.53
Somerset	0.88	1.07	6.08	5.46	73.16
Union	0.84	0.54	3.25	3.29	55.35
10 counties	1.19	0.70	5.09	3.88	69.31

■ Lowest   □ Highest

UTILIZATION

Assessments

Depression Screening

One of the long-term goals of this project is to increase the awareness and use of Medicare-covered depression screening among at-risk Medicare FFS beneficiaries residing in the 10 counties during Superstorm Sandy. The depression screening utilization rates have been low in all 10 counties.

Beginning January 2012, depression screening became a Medicare-covered service. According to the CMS Screening for Depression booklet, Medicare Part B covers an annual 15-minute screening for depression for Medicare FFS beneficiaries in primary care settings when staff-assisted depression care supports are in place to assure accurate diagnosis and effective treatment and follow-up.

The rate of depression screening in Somerset County for calendar year 2012 was 7.11 per 1,000 Medicare FFS beneficiaries. This was higher than the rate among all 10 counties (Figure 52).

FIGURE 52. DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES – CALENDAR YEAR 2012

County	Rate
Ocean	9.49
Middlesex	7.50
Somerset	7.11
10 Counties	4.81
Monmouth	4.71
Bergen	4.33
Union	3.02
Hudson	2.83
Atlantic	1.12
Essex	0.83
Cape May	0.65

The color-coded map of New Jersey depicts the use of depression screening from low (red) to high (blue) in the 10 FEMA-declared disaster counties (Figure 53).

FIGURE 53. DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES (CALENDAR YEAR 2012)

| ■ 0.00 to 0.19 | ■ 0.20 to 1.37 | □ 1.38 to 3.22 | ■ 3.23 to 7.54 | ■ 7.55 to 45.68 |

UTILIZATION
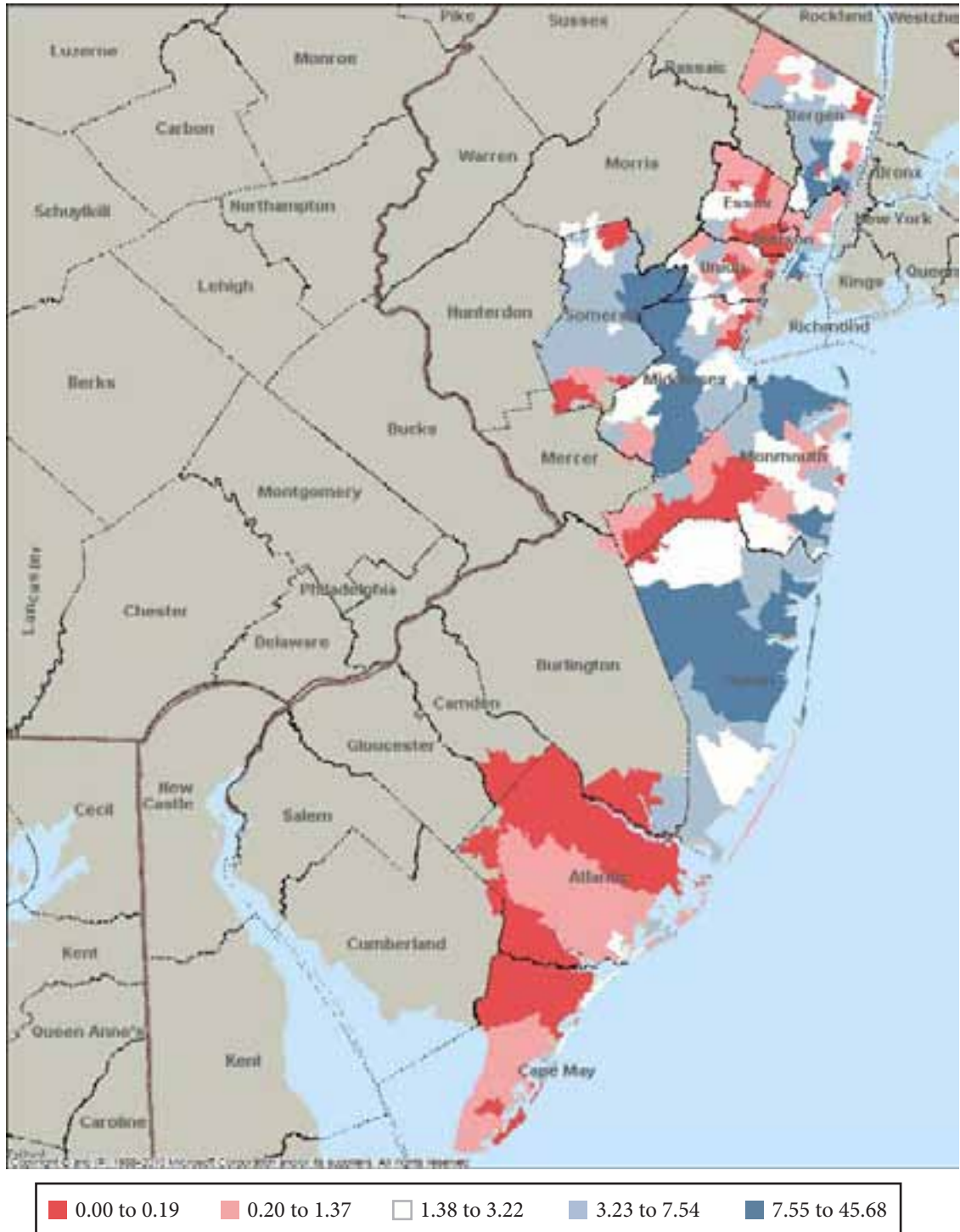
The color-coded map of Somerset County depicts regional variation in the rates of the use of the depression screening benefit from low (red) to high (blue) (Figure 54).

FIGURE 54. SOMERSET COUNTY DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES (CALENDAR YEAR 2012)

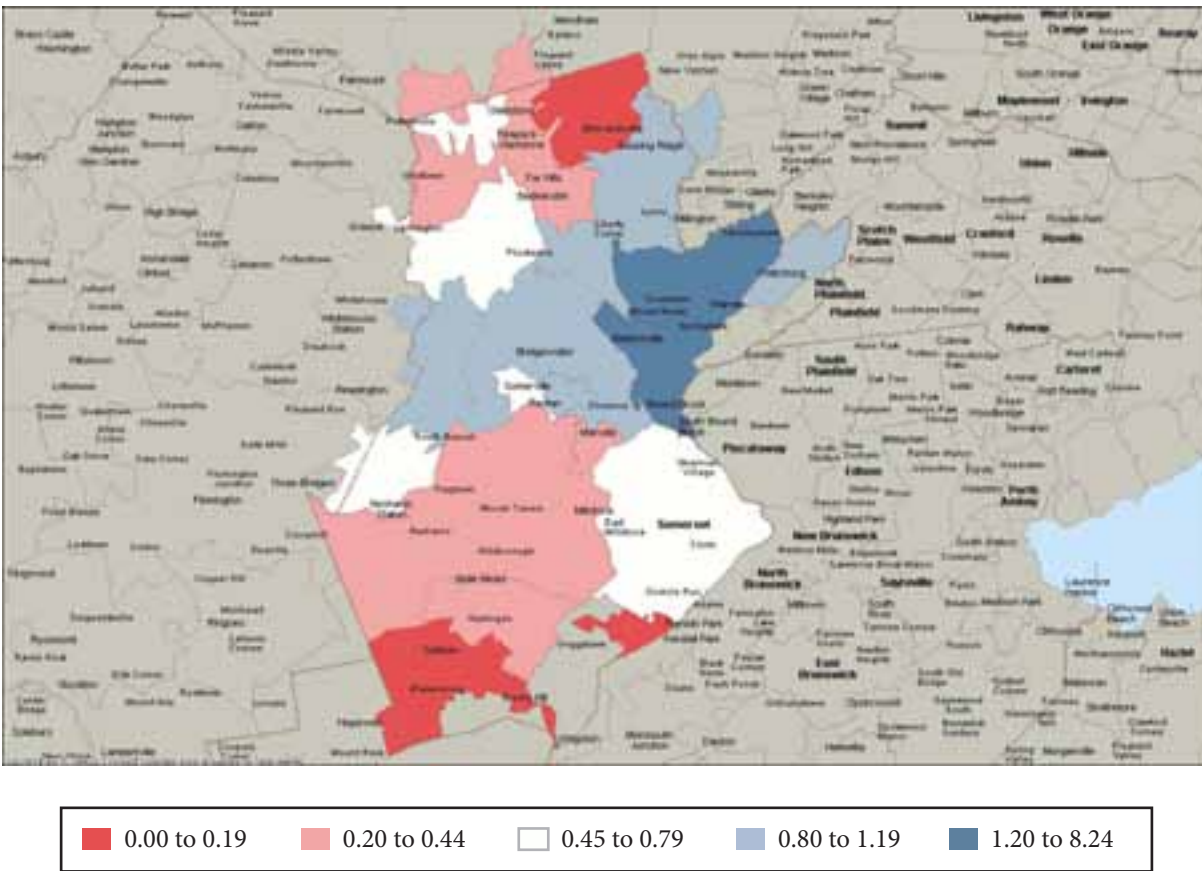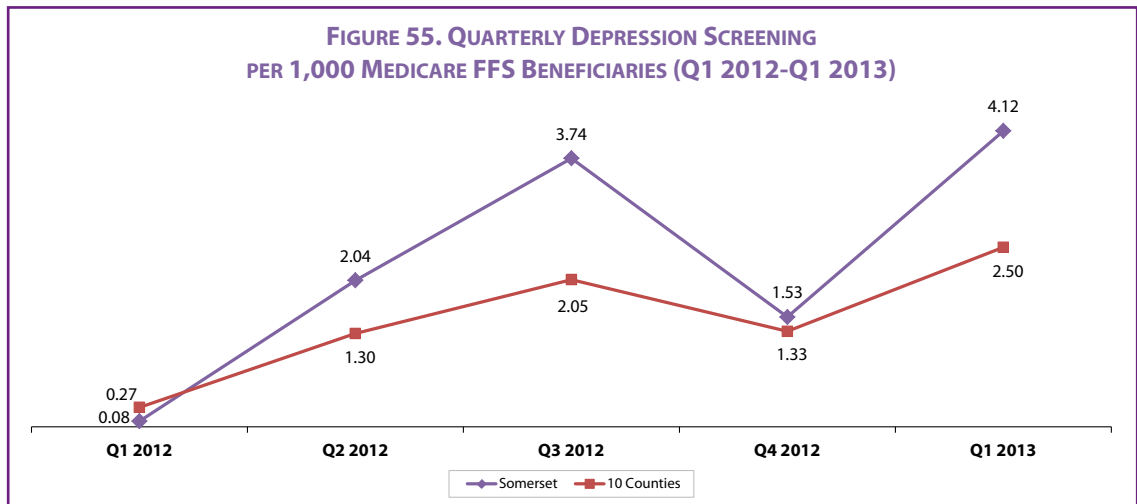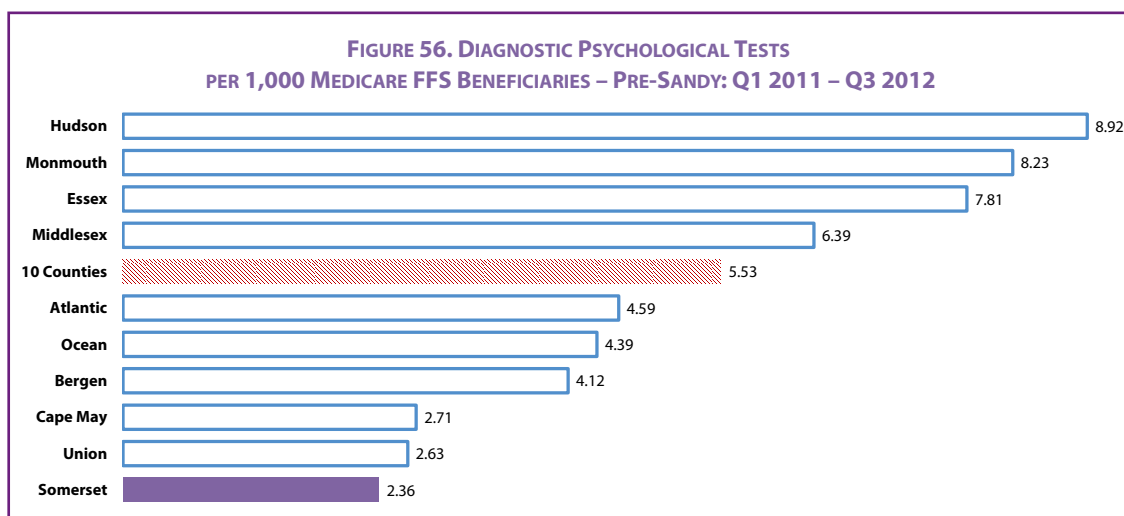| ■ 0.00 to 0.19 | ■ 0.20 to 0.44 | □ 0.45 to 0.79 | ■ 0.80 to 1.19 | ■ 1.20 to 8.24 |

Figure 55 shows five quarters of data to reflect trending in the use of the depression screening benefit per 1,000 Medicare FFS beneficiaries in Somerset County and in the 10 FEMA-declared disaster counties.

FIGURE 55. QUARTERLY DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2012-Q1 2013)

Diagnostic Psychological Tests

According to the CMS Mental Health Services Billing Guide, psychological testing includes psychodiagnostic assessment of emotionality, intellectual abilities, personality, and psychopathology (e.g., Minnesota Multiphasic Personality Inventory, Rorschach, or Wechsler Adult Intelligence Scale).
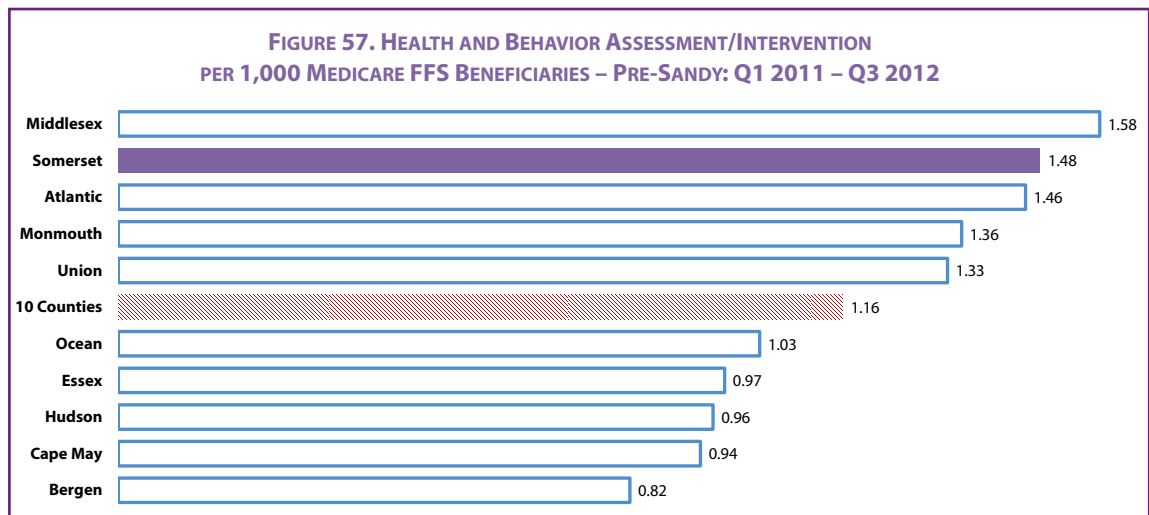
The rate of psychological testing in Somerset County in the 21 months prior to Superstorm Sandy was 2.36 per 1,000 Medicare FFS beneficiaries. This was the lowest rate among all 10 counties (Figure 56).

FIGURE 56. DIAGNOSTIC PSYCHOLOGICAL TESTS
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	8.92
Monmouth	8.23
Essex	7.81
Middlesex	6.39
10 Counties	5.53
Atlantic	4.59
Ocean	4.39
Bergen	4.12
Cape May	2.71
Union	2.63
Somerset	2.36

UTILIZATION

Health and Behavior Assessment/Intervention

According to the CMS Mental Health Services Billing Guide, health and behavior assessments are used to identify the psychological, behavioral, emotional, cognitive, and social factors important to the prevention, treatment, or management of physical health problems.

The rate of health and behavior assessment in Somerset County in the 21 months prior to Superstorm Sandy was 1.48 per 1,000 Medicare FFS beneficiaries. This was higher than the rate among all 10 counties (Figure 57).

FIGURE 57. HEALTH AND BEHAVIOR ASSESSMENT/INTERVENTION PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Middlesex	1.58
Somerset	1.48
Atlantic	1.46
Monmouth	1.36
Union	1.33
10 Counties	1.16
Ocean	1.03
Essex	0.97
Hudson	0.96
Cape May	0.94
Bergen	0.82

UTILIZATION

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County

Neuropsychological Tests

According to the CMS Mental Health Services Billing Guide, neuropsychological tests are evaluations designed to determine the functional consequences of known or suspected brain injury through testing of the neurocognitive domains responsible for language, perception, memory, learning, problem solving, and adaptation.

The rate of neuropsychological testing in Somerset County in the 21 months prior to Superstorm Sandy was 10.37 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 58).

**FIGURE 58. NEUROPSYCHOLOGICAL TESTS
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012**

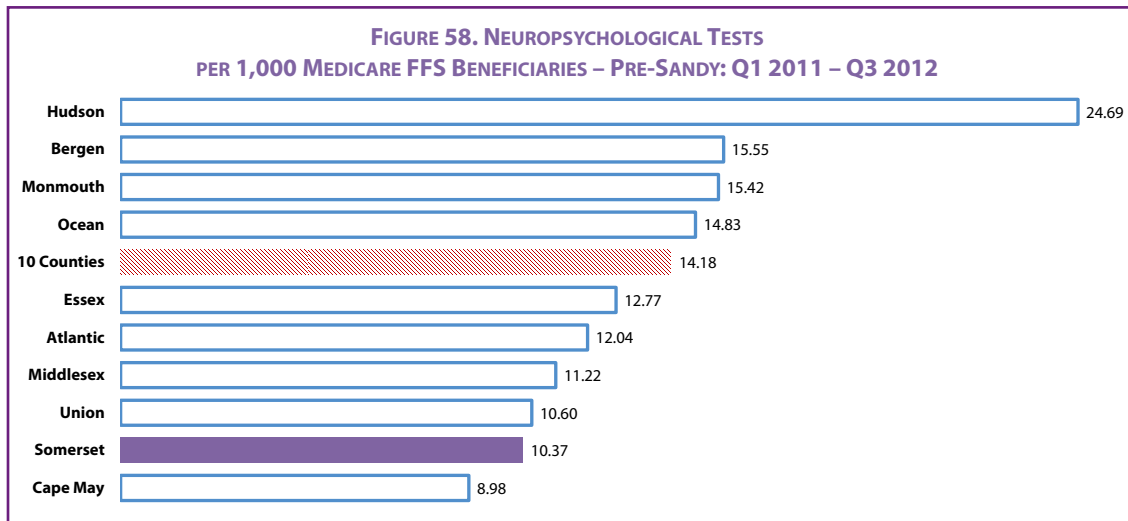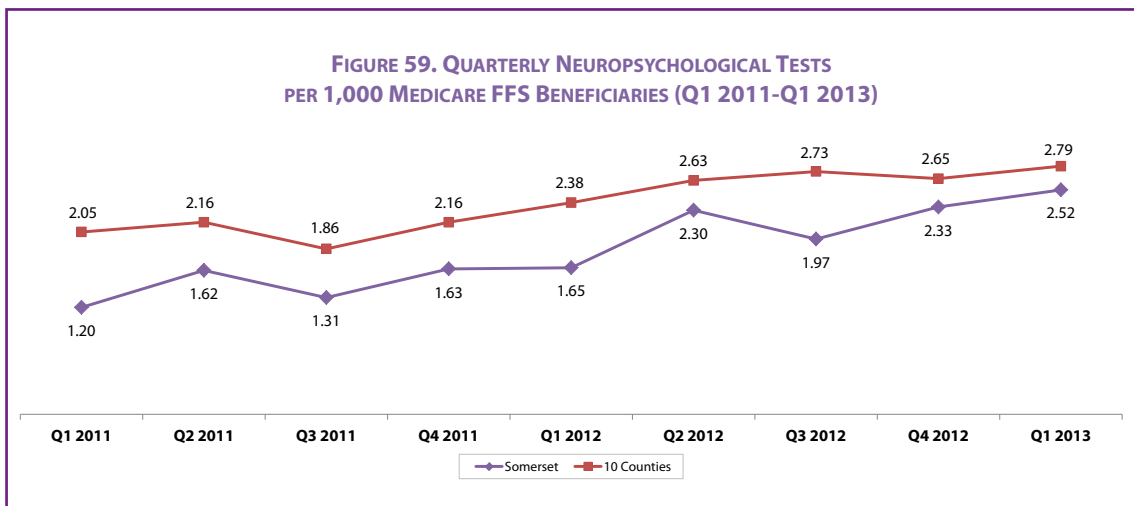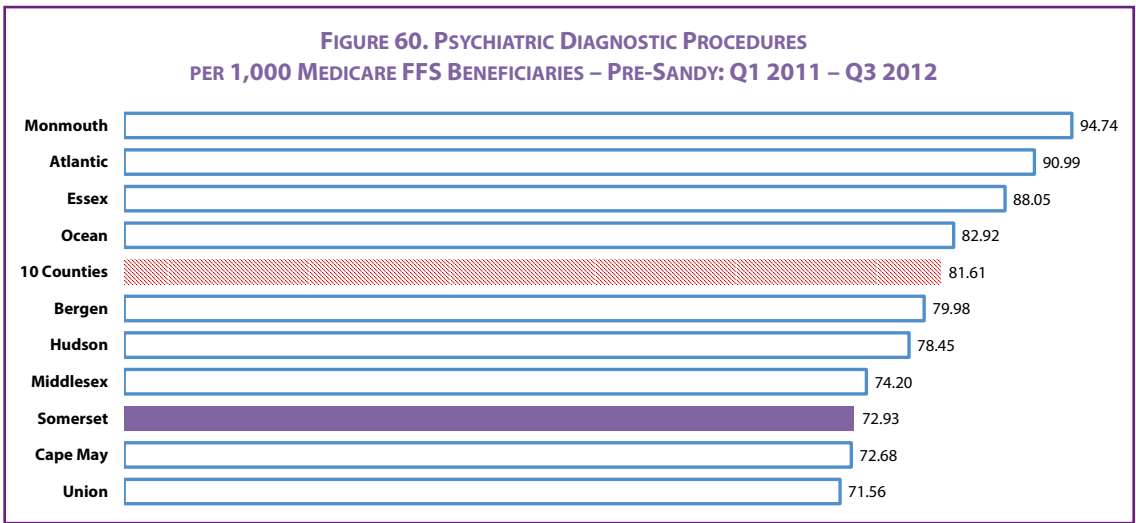| County	Rate
Hudson	24.69
Bergen	15.55
Monmouth	15.42
Ocean	14.83
10 Counties	14.18
Essex	12.77
Atlantic	12.04
Middlesex	11.22
Union	10.60
Somerset	10.37
Cape May	8.98

UTILIZATION

Figure 59 shows nine quarters of data to reflect trending in the use of neuropsychological testing per 1,000 Medicare FFS beneficiaries in Somerset County and in the 10 FEMA-declared disaster counties.

UTILIZATION

FIGURE 59. QUARTERLY NEUROPSYCHOLOGICAL TESTS PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2011-Q1 2013)

	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013
10 Counties	2.05	2.16	1.86	2.16	2.38	2.63	2.73	2.65	2.79
Somerset	1.20	1.62	1.31	1.63	1.65	2.30	1.97	2.33	2.52

Somerset — 10 Counties

Psychiatric Diagnostic Procedures

According to the CMS Mental Health Services Billing Guide, psychiatric diagnostic evaluation is an integrated biopsychosocial assessment, including history, mental status, and recommendations. The evaluation may include communication with family or other sources and review of diagnostic studies.

The utilization rate of psychiatric diagnostic procedures in Somerset County in the 21 months prior to Superstorm Sandy was 72.93 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 60).
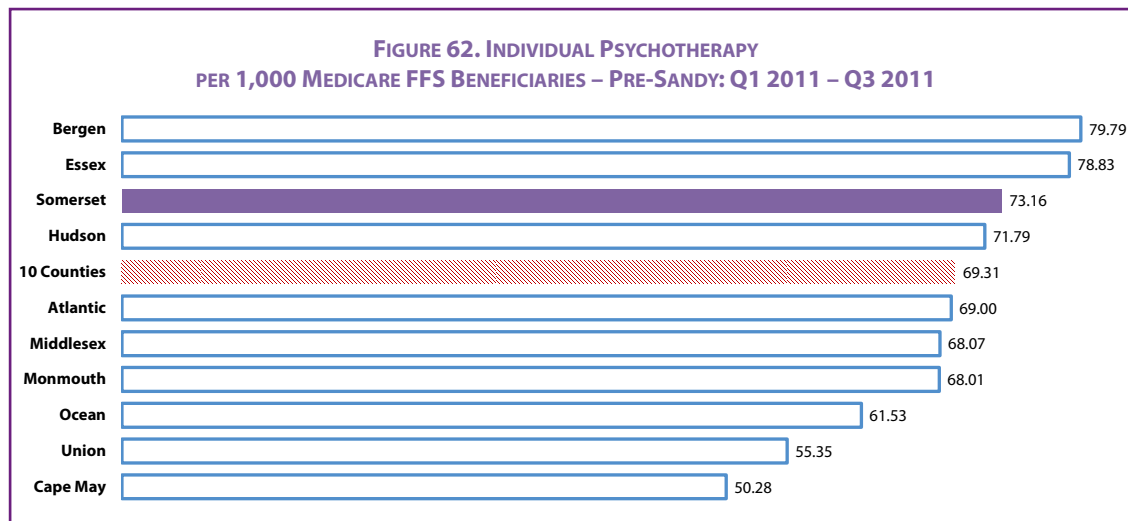
FIGURE 60. PSYCHIATRIC DIAGNOSTIC PROCEDURES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Monmouth	94.74
Atlantic	90.99
Essex	88.05
Ocean	82.92
10 Counties	81.61
Bergen	79.98
Hudson	78.45
Middlesex	74.20
Somerset	72.93
Cape May	72.68
Union	71.56

UTILIZATION

Figure 61 shows nine quarters of data to reflect trending in the use of psychiatric diagnostic procedures per 1,000 Medicare FFS beneficiaries in Somerset County and in the 10 FEMA-declared disaster counties.

FIGURE 61. QUARTERLY PSYCHIATRIC DIAGNOSTIC PROCEDURES PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2011-Q1 2013)

UTILIZATION
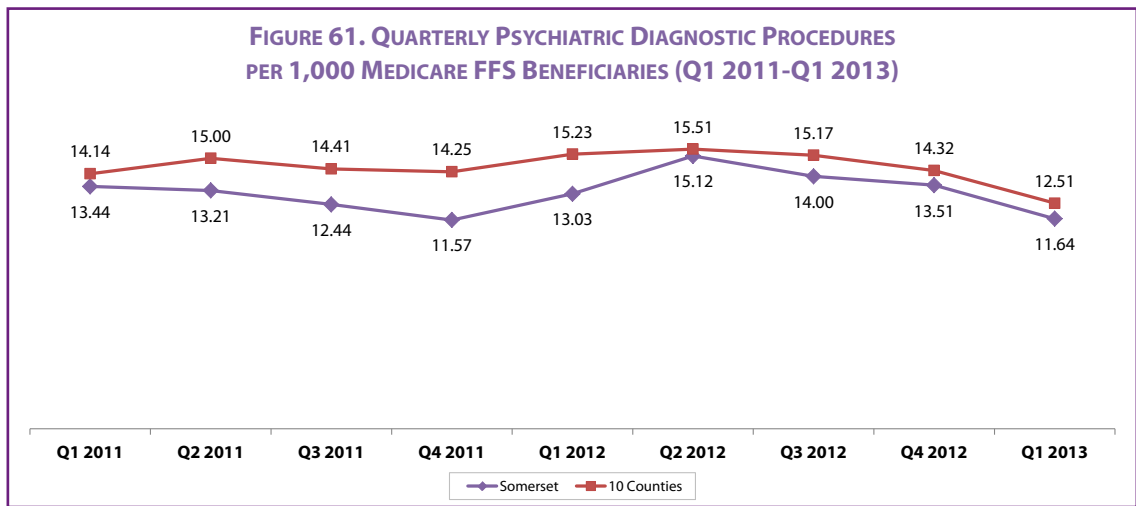
Therapies

Individual Psychotherapy

According to the CMS Mental Health Services Billing Guide, individual psychotherapy is the treatment of mental illness and behavioral disturbances where the physician or other qualified health professional attempts to alleviate the emotional disturbances, reverse or change maladaptive patterns of behavior, and encourage personality growth and development. This is done through the use of definitive therapeutic communication.

The utilization rate of individual psychotherapy in Somerset County in the 21 months prior to Superstorm Sandy was 73.16 per 1,000 Medicare FFS beneficiaries. This was higher than the rate among all 10 counties (Figure 62).

FIGURE 62. INDIVIDUAL PSYCHOTHERAPY
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2011

County	Rate
Bergen	79.79
Essex	78.83
Somerset	73.16
Hudson	71.79
10 Counties	69.31
Atlantic	69.00
Middlesex	68.07
Monmouth	68.01
Ocean	61.53
Union	55.35
Cape May	50.28

UTILIZATION

Figure 63 shows nine quarters of data to reflect trending in the use of individual psychotherapy per 1,000 Medicare FFS beneficiaries in Somerset County and in the 10 FEMA-declared disaster counties.
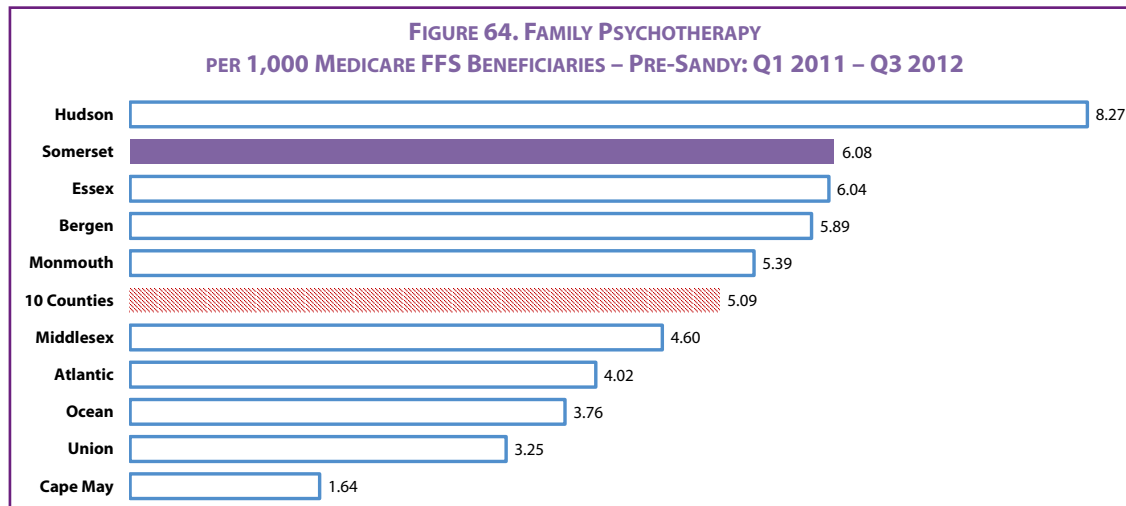
FIGURE 63. QUARTERLY INDIVIDUAL PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES (Q1 2011-Q1 2013)

	Q1 2011	Q2 2011	Q3 2011	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013
Somerset	31.71	31.83	31.28	31.06	31.13	32.77	34.47	33.28	30.21
10 Counties	29.17	30.21	30.45	30.31	30.28	30.74	31.10	30.51	26.83

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County

UTILIZATION
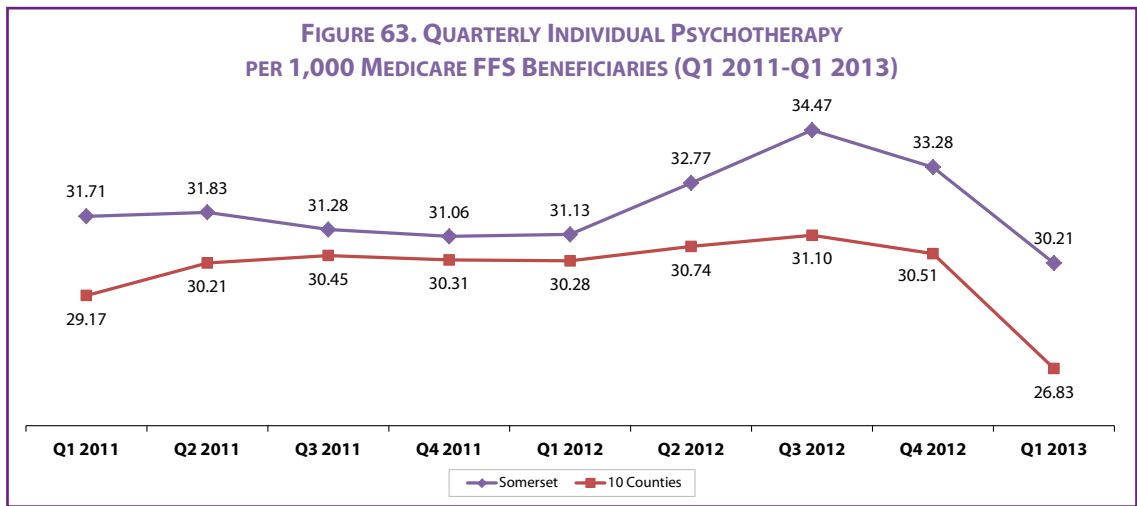
Family Psychotherapy

According to the CMS Mental Health Services Billing Guide, family psychotherapy describes the treatment of the family unit when maladaptive behaviors of family members are exacerbating the beneficiary's mental illness or interfering with treatment. It can also be used to assist the family in addressing the maladaptive behaviors of the patient and improve treatment compliance.

The utilization rate of family psychotherapy was 6.08 per 1,000 Medicare FFS beneficiaries in Somerset County in the 21 months prior to Superstorm Sandy. This was higher than the rate among all 10 counties (Figure 64).

Due to these low numbers, no quarterly trending data has been provided for this therapy.
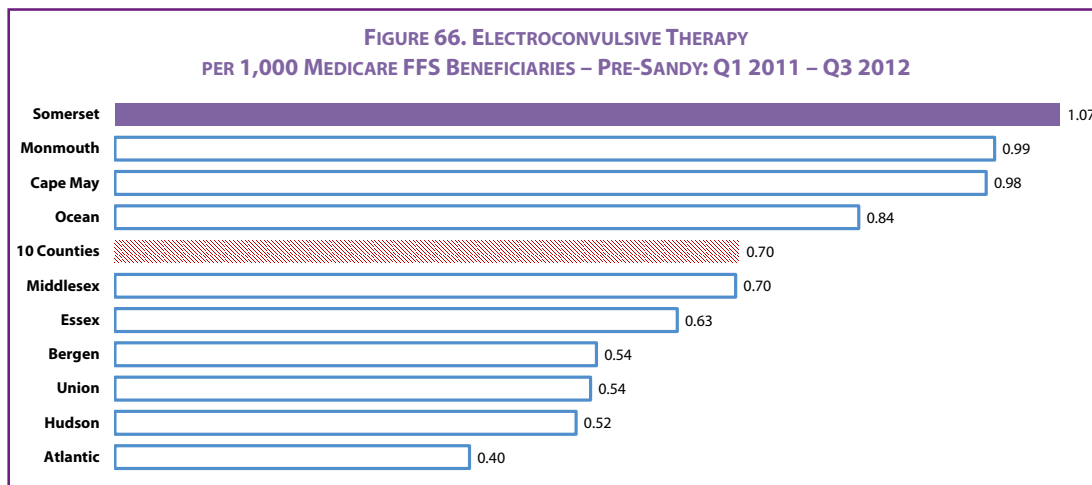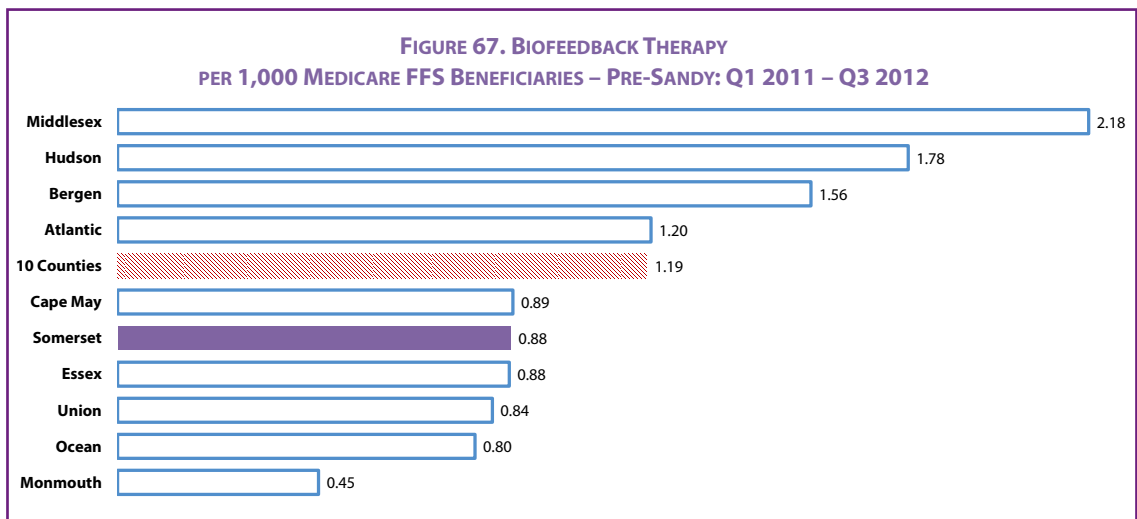
FIGURE 64. FAMILY PSYCHOTHERAPY
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	8.27
Somerset	6.08
Essex	6.04
Bergen	5.89
Monmouth	5.39
10 Counties	5.09
Middlesex	4.60
Atlantic	4.02
Ocean	3.76
Union	3.25
Cape May	1.64

UTILIZATION

Group Psychotherapy

According to the CMS Mental Health Services Billing Guide, group psychotherapy is a form of treatment where a selected group is guided by a licensed psychotherapist to help change maladaptive patterns that interfere with social functioning and are associated with a diagnosable psychiatric illness.

The utilization rate of group psychotherapy was 5.46 per 1,000 Medicare FFS beneficiaries in Somerset County in the 21 months prior to Superstorm Sandy. This was higher than the rate among all 10 counties (Figure 65).

Due to these low numbers, no quarterly trending data has been provided for this therapy.

FIGURE 65. GROUP PSYCHOTHERAPY
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Atlantic	7.83
Middlesex	6.69
Somerset	5.46
Monmouth	4.37
10 Counties	3.88
Union	3.29
Essex	3.23
Bergen	2.81
Hudson	2.70
Ocean	2.11
Cape May	2.01

UTILIZATION
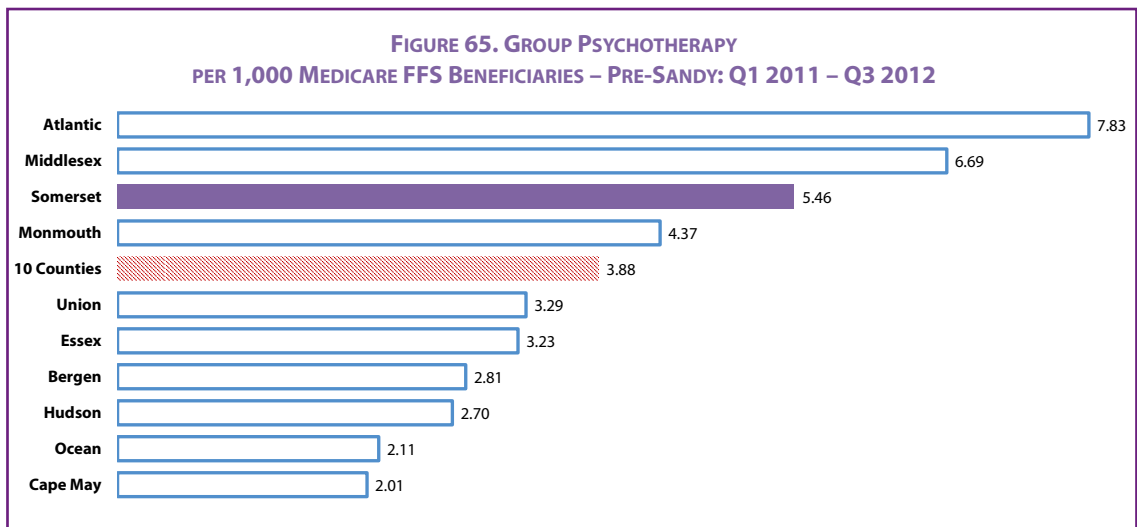
Electroconvulsive Therapy

According to the CMS Mental Health Services Billing Guide, electroconvulsive therapy (ECT) is the application of electric current to the brain through scalp electrodes to induce a single seizure to produce a therapeutic effect. It is used primarily to treat major depressive disorders when antidepressant medication should not be used because it may be harmful to the patient. This type of therapy can be used for certain other clinical conditions as well.

The utilization rate of ECT was 1.07 per 1,000 Medicare FFS beneficiaries in Somerset County in the 21 months prior to Superstorm Sandy, the highest utilization rate among all 10 counties (Figure 66).

Due to these low numbers, no quarterly trending data has been provided for this therapy.

FIGURE 66. ELECTROCONVULSIVE THERAPY
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Somerset	1.07
Monmouth	0.99
Cape May	0.98
Ocean	0.84
10 Counties	0.70
Middlesex	0.70
Essex	0.63
Bergen	0.54
Union	0.54
Hudson	0.52
Atlantic	0.40

UTILIZATION

Biofeedback Therapy

According to the CMS Mental Health Services Billing Guide, biofeedback therapy provides visual, auditory, or other evidence of the status of certain body functions so a person can exert voluntary control over those functions, and thereby alleviate an abnormal bodily condition.

The utilization rate of biofeedback therapy rate was 0.88 per 1,000 Medicare FFS beneficiaries in Somerset County in the 21 months prior to Superstorm Sandy (Figure 67).

Due to these low numbers, no quarterly trending data has been provided for this therapy.

FIGURE 67. BIOFEEDBACK THERAPY
PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Middlesex	2.18
Hudson	1.78
Bergen	1.56
Atlantic	1.20
10 Counties	1.19
Cape May	0.89
Somerset	0.88
Essex	0.88
Union	0.84
Ocean	0.80
Monmouth	0.45

Inpatient Services

Summary

Utilization of inpatient health services per 1,000 Medicare FFS beneficiaries in the 21 months prior to Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each measure. These additional services were analyzed because beneficiaries with underlying behavioral health issues may seek non-behavioral health services.

Inpatient services included four measures of service utilization: inpatient psychiatric facilities, acute care hospital admissions, observation stays with or without a subsequent hospital admission, and emergency department visits with or without a subsequent hospital admission. The second set of measures is tied to utilization of services within 30 days of an acute care episode, often used as proxy indicators of care coordination, and include all-cause 30-day hospital readmissions, observation stays within 30 days of discharge, and emergency department visits within 30 days of discharge.

Somerset County was below the average rate of the 10 counties for acute care hospital admissions, observation stays, and emergency department visits (Figure 68).

Figure 68. Utilization of Inpatient Health Services per 1,000 Medicare FFS Beneficiaries – Pre-Sandy (Q1 2011-Q3 2012)				
County	Psychiatric Hospital Admissions	Acute Care Hospital Admissions	Observation Stays	Emergency Department Visits
Atlantic	10.58	**642.49**	25.54	**510.52**
Bergen	13.31	514.96	11.18	390.06
Cape May	7.81	639.80	8.00	474.60
Essex	**14.35**	625.28	**53.49**	502.88
Hudson	14.25	611.20	34.01	459.27
Middlesex	10.33	535.00	25.09	427.85
Monmouth	13.96	575.84	8.23	448.58
Ocean	12.34	602.84	7.82	455.17
Somerset	12.58	502.79	8.34	392.45
Union	11.77	500.74	12.13	395.58
10 counties	12.56	567.94	19.45	440.57

■ Highest   □ Lowest

UTILIZATION

Somerset County had a lower than average rate of 30-day hospital readmissions, observation stays within 30 days of discharge, and emergency department visits within 30 days of discharge among all 10 counties (Figure 69).

Figure 69. Utilization of Inpatient Health Services per 1,000 Medicare FFS Beneficiaries Within 30 Days of Discharge Pre-Sandy (Q1 2011-Q3 2012)			
County	30-Day Hospital Readmissions	Observation Stays	Emergency Department Visits
Atlantic	129.80	14.35	**167.45**
Bergen	96.03	7.45	112.75
Cape May	117.17	10.66	150.19
Essex	**142.86**	**21.39**	164.37
Hudson	139.88	19.76	155.26
Middlesex	104.29	12.81	124.80
Monmouth	109.54	9.46	132.57
Ocean	115.31	11.52	143.97
Somerset	93.09	7.72	112.03
Union	92.61	9.08	110.27
10 counties	**112.70**	**12.25**	**134.83**

■ Highest ☐ Lowest

Psychiatric Hospital Admissions

Standalone psychiatric hospitals or distinct part psychiatric units in acute care hospitals in Somerset County in the 21 months prior to Superstorm Sandy had an admissions rate of 12.58 per 1,000 Medicare FFS beneficiaries (Figure 70).

FIGURE 70. PSYCHIATRIC HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Essex	14.35
Hudson	14.25
Monmouth	13.96
Bergen	13.31
Somerset	12.58
10 Counties	12.56
Ocean	12.34
Union	11.77
Atlantic	10.58
Middlesex	10.33
Cape May	7.81
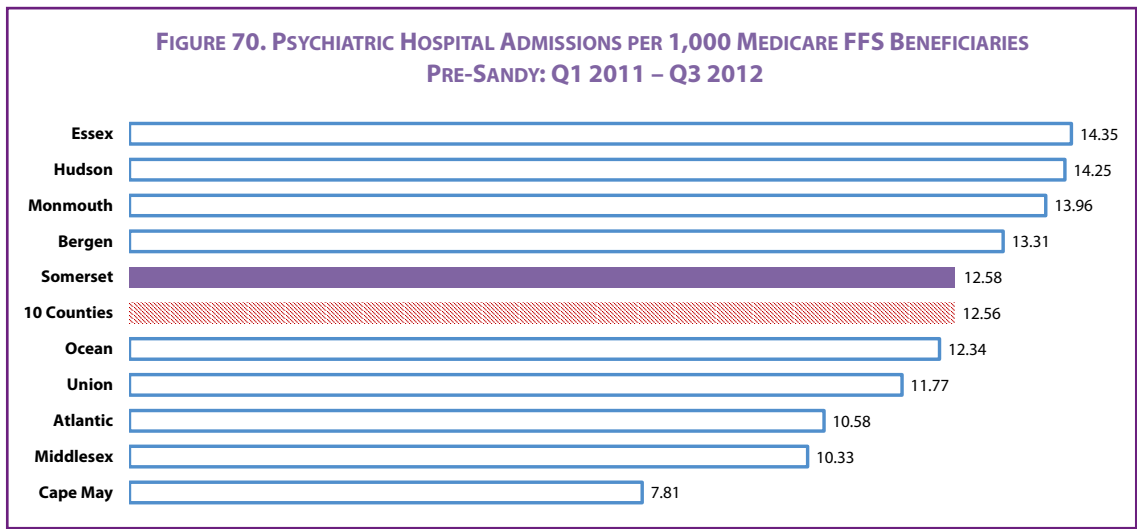
From Q2 2012 – Q1 2013, there were 7.89 per 1,000 Medicare FFS beneficiaries admitted to psychiatric hospitals in Somerset County compared to Q2 2011 – Q1 2012, which was 8.83 per 1,000 beneficiaries. The yearly rate of psychiatric hospital admissions with rolling quarters was higher than the rate among all 10 counties (Figure 71).

FIGURE 71. YEARLY PSYCHIATRIC HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
Somerset	7.72	8.83	9.08	8.89	8.05	7.89
10 Counties	7.86	8.49	8.54	8.48	7.57	7.60
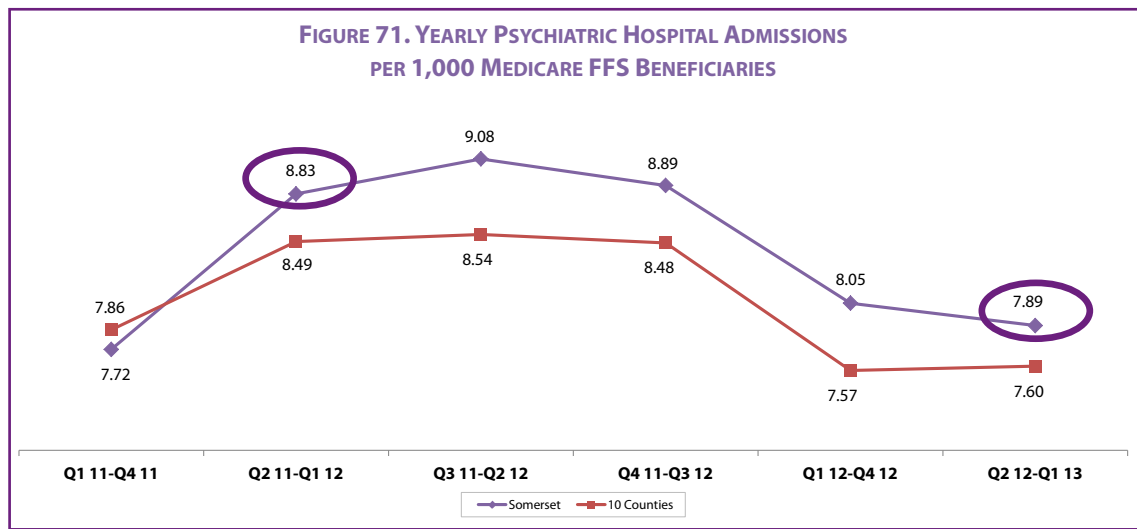
UTILIZATION

Acute Care Hospitals

Admissions

The following data shows all-cause utilization measures and includes all Medicare FFS beneficiaries, not just beneficiaries with behavioral health conditions. The data are ranked from the lowest utilization (top) to the highest utilization (bottom).

The rate of hospital admissions in Somerset County in the 21 months prior to Superstorm Sandy was 502.79 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 72).
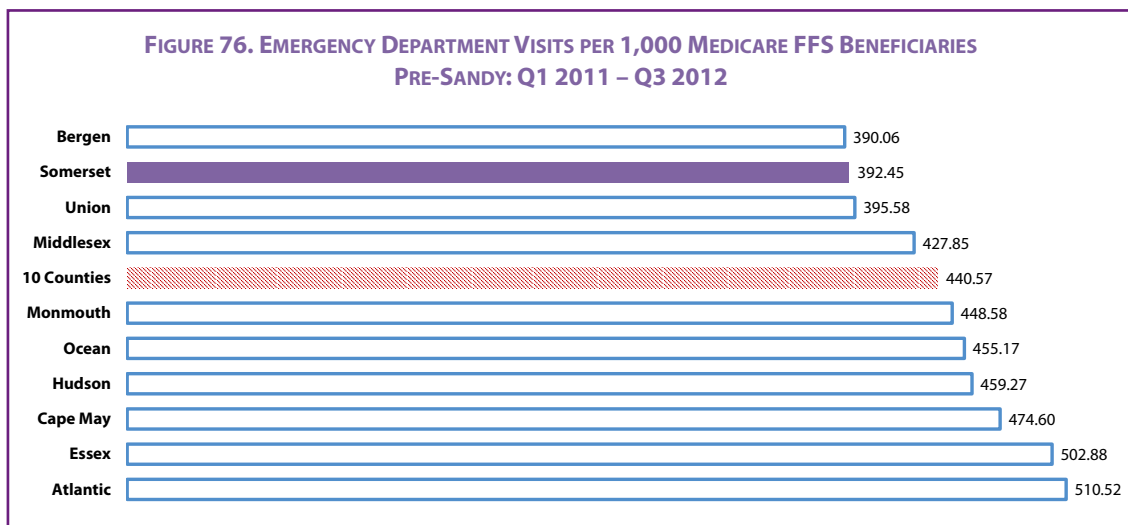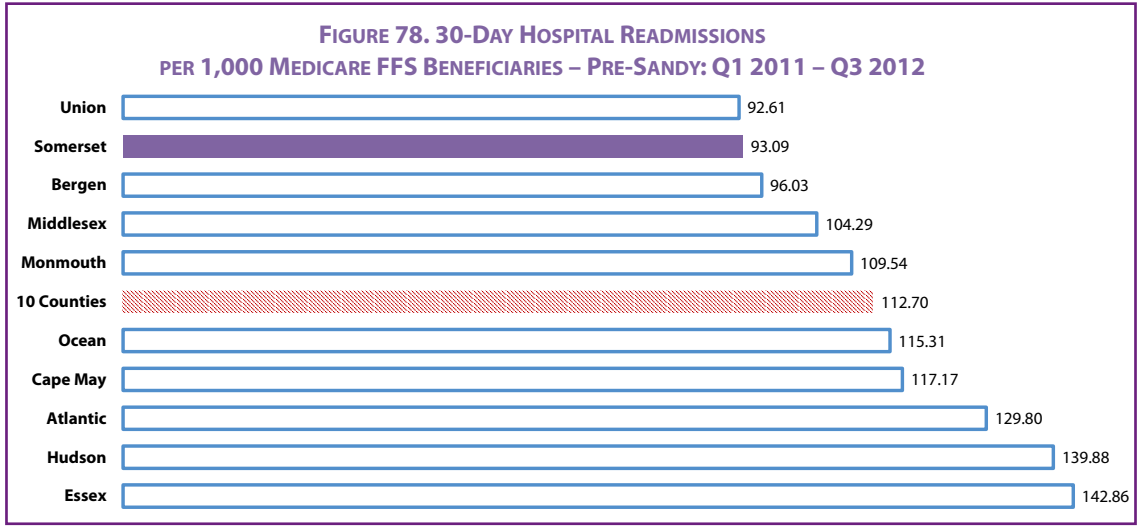

FIGURE 72. ACUTE CARE HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Union	500.74
Somerset	502.79
Bergen	514.96
Middlesex	535.00
10 Counties	567.94
Monmouth	575.84
Ocean	602.84
Hudson	611.20
Essex	625.28
Cape May	639.80
Atlantic	642.49
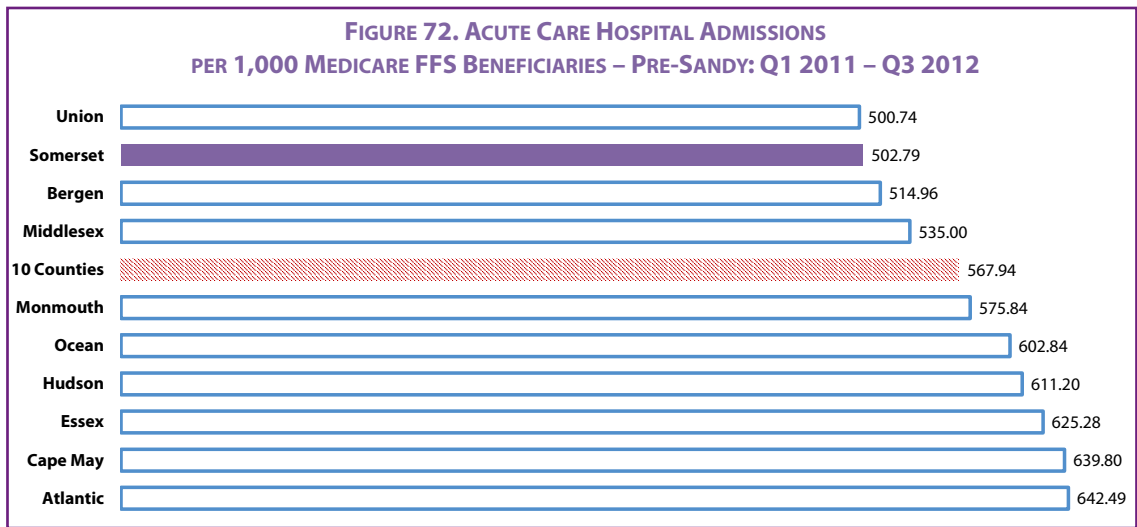
From Q2 2012 – Q1 2013, the hospital admissions rate was 261.28 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 289.24 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 73).
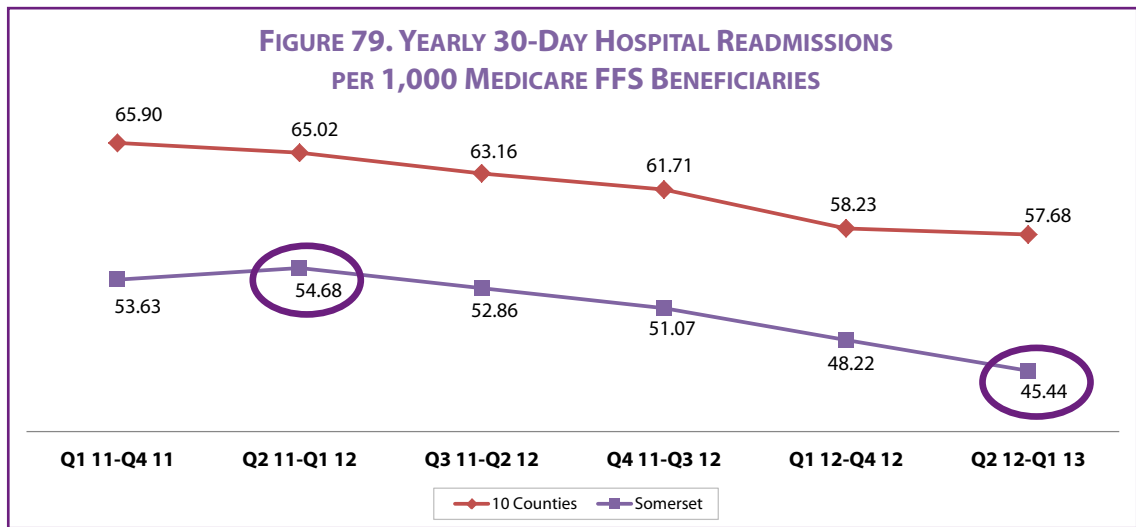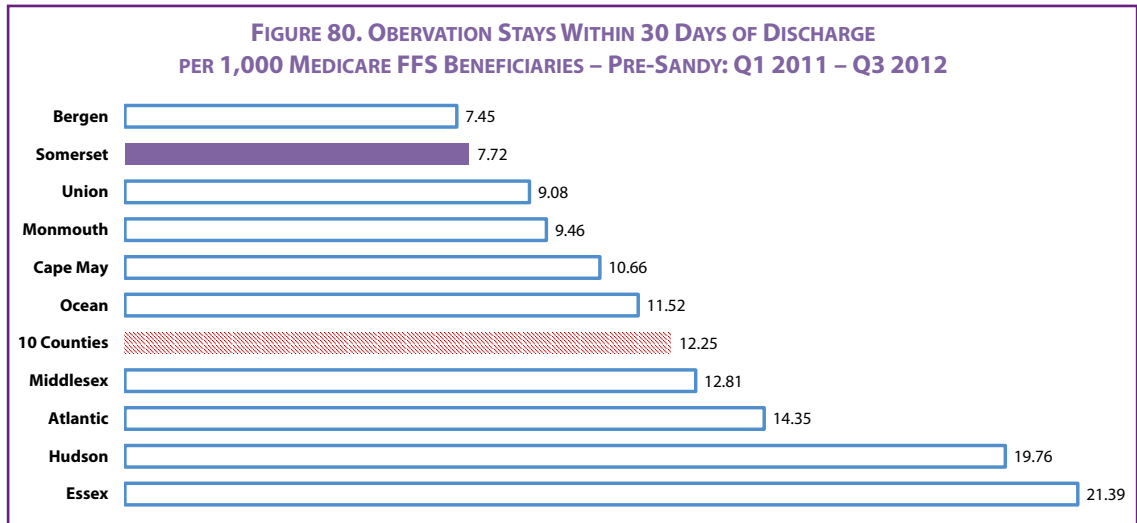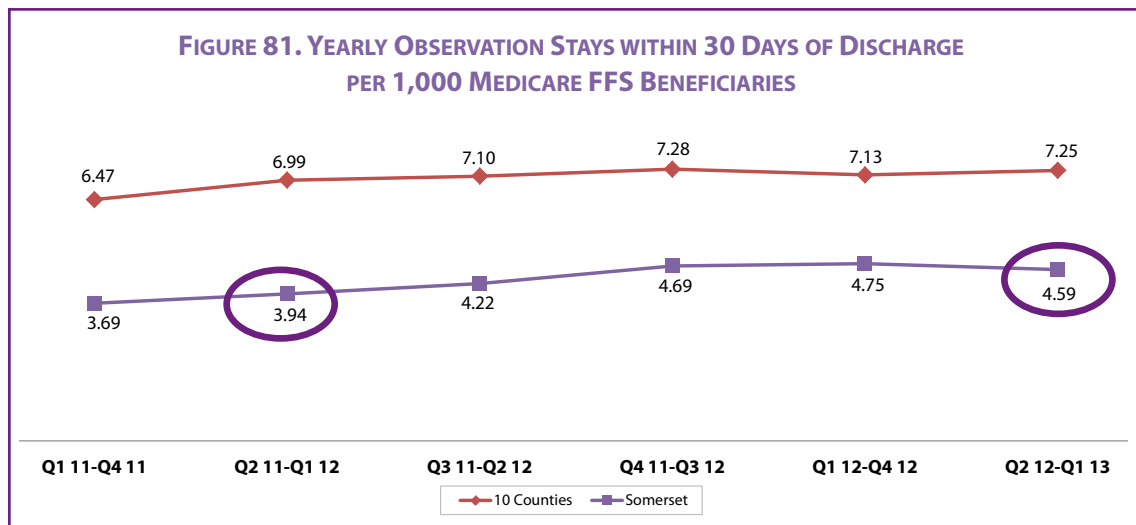

FIGURE 73. YEARLY ACUTE CARE HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	324.48	327.46	322.90	318.07	303.66	300.80
Somerset	285.70	289.24	282.83	278.91	264.81	261.28

UTILIZATION
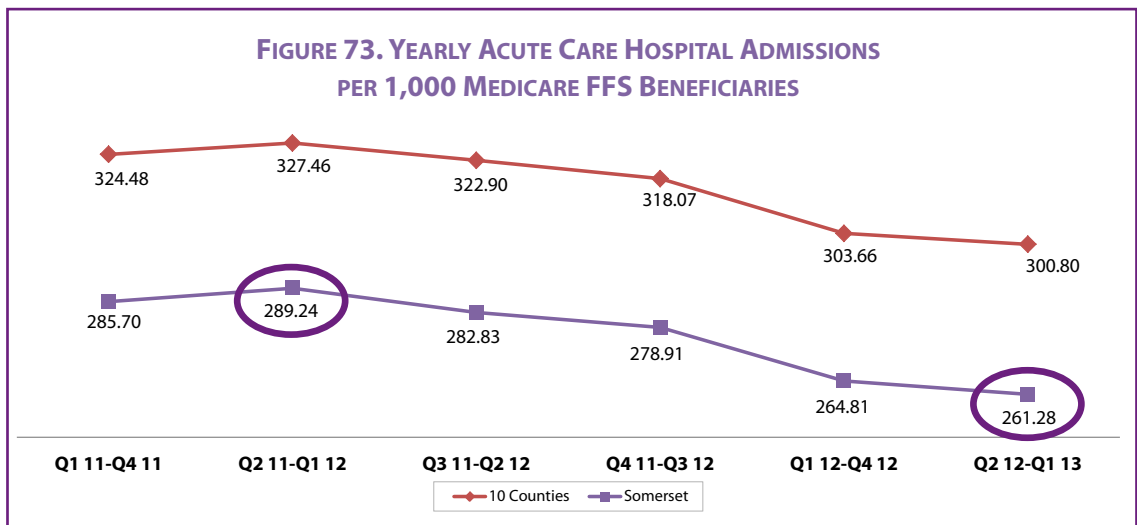
Observation Stays

According to the U.S. Department of Health and Human Services, observation stays are short-term treatments and assessments provided to outpatients to determine whether Medicare FFS beneficiaries require further treatment as inpatients or can be discharged.

The rate of observation stays in Somerset County in the 21 months prior to Superstorm Sandy was 8.34 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 74).
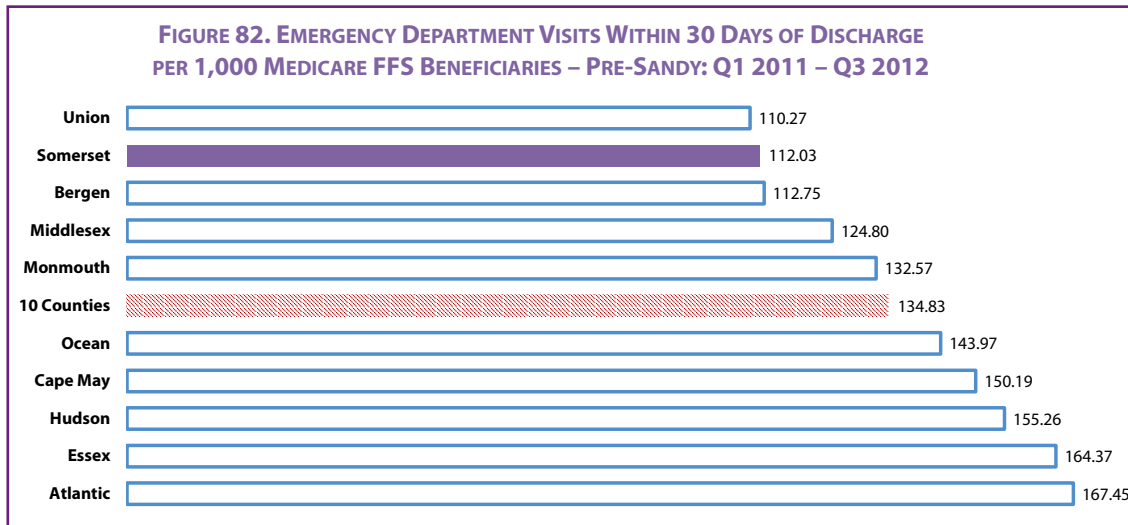
FIGURE 74. OBSERVATION STAYS PER 1,000 MEDICARE FFS BENEFICIARIES PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Ocean	7.82
Cape May	8.00
Monmouth	8.23
Somerset	8.34
Bergen	11.18
Union	12.13
10 Counties	19.45
Middlesex	25.09
Atlantic	25.54
Hudson	34.01
Essex	53.49
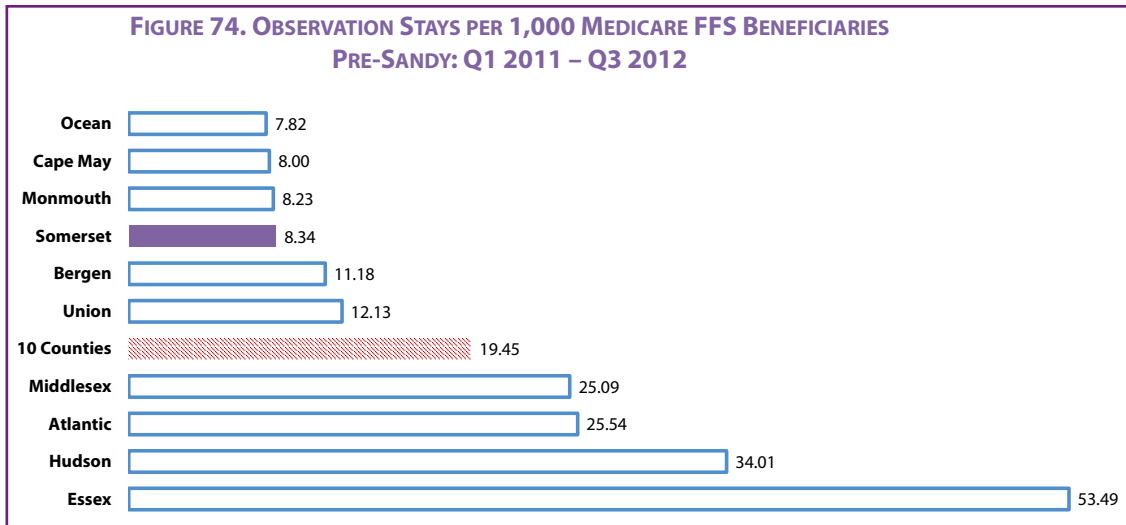
From Q2 2012 – Q1 2013, the rate of observation stays was 4.51 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 4.73 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 75).

FIGURE 75. YEARLY OBSERVATION STAYS PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	10.00	11.14	11.55	11.95	12.09	12.31
Somerset	4.61	4.73	4.42	4.79	4.52	4.51

UTILIZATION
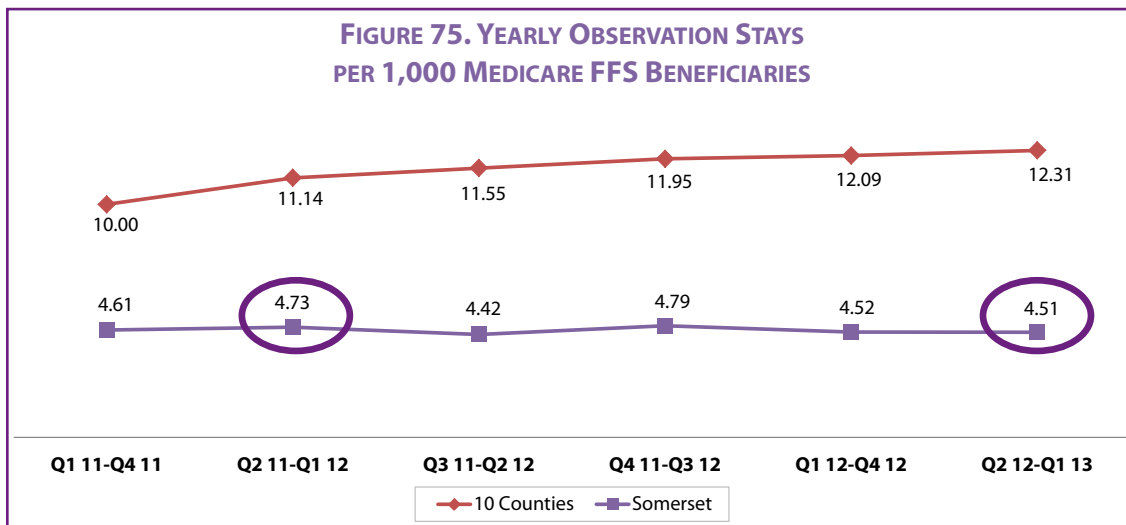
Emergency Department Visits

The rate of emergency department visits in Somerset County in the 21 months prior to Superstorm Sandy was 392.45 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 76).

FIGURE 76. EMERGENCY DEPARTMENT VISITS PER 1,000 MEDICARE FFS BENEFICIARIES PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Bergen	390.06
Somerset	392.45
Union	395.58
Middlesex	427.85
10 Counties	440.57
Monmouth	448.58
Ocean	455.17
Hudson	459.27
Cape May	474.60
Essex	502.88
Atlantic	510.52

From Q2 2012 – Q1 2013, the rate of emergency department visits was 205.35 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 225.13 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 77).

FIGURE 77. YEARLY EMERGENCY DEPARTMENT VISITS PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	251.71	252.87	249.28	246.11	234.85	234.77
Somerset	222.39	225.13	220.33	216.87	207.78	205.38

UTILIZATION
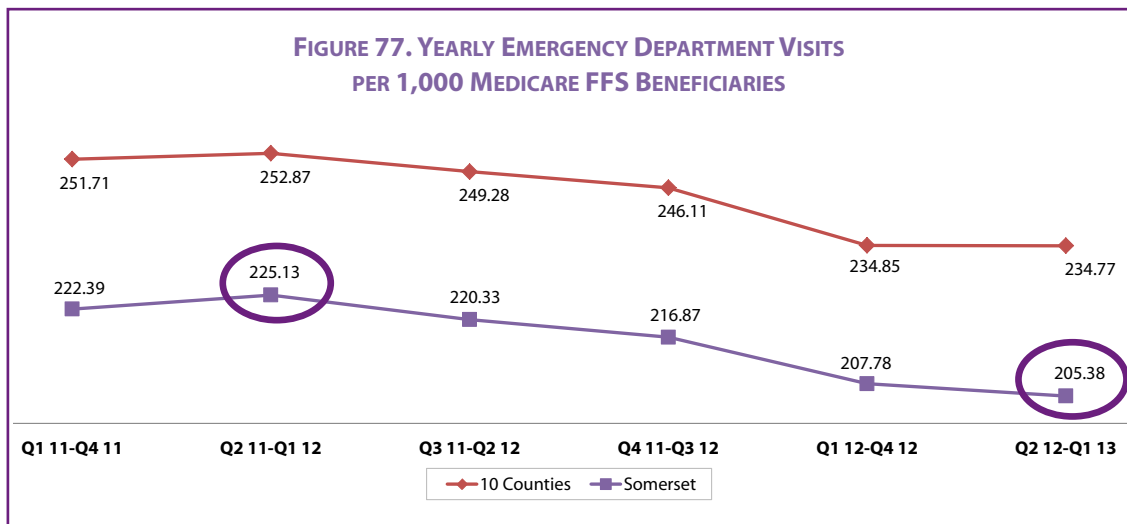
30-Day Hospital Readmissions

The rate of 30-day hospital readmissions in Somerset County in the 21 months prior to Superstorm Sandy was 93.09 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 78).

FIGURE 78. 30-DAY HOSPITAL READMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Union	92.61
Somerset	93.09
Bergen	96.03
Middlesex	104.29
Monmouth	109.54
10 Counties	112.70
Ocean	115.31
Cape May	117.17
Atlantic	129.80
Hudson	139.88
Essex	142.86

From Q2 2012 – Q1 2013, the rate of 30 day hospital readmissions was 45.44 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 54.68 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 79).

FIGURE 79. YEARLY 30-DAY HOSPITAL READMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	65.90	65.02	63.16	61.71	58.23	57.68
Somerset	53.63	54.68	52.86	51.07	48.22	45.44

UTILIZATION

Observation Stays Within 30 Days of Discharge

The rate of observation stays within 30 days of discharge in Somerset County in the 21 months prior to Superstorm Sandy was 7.72 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 80).
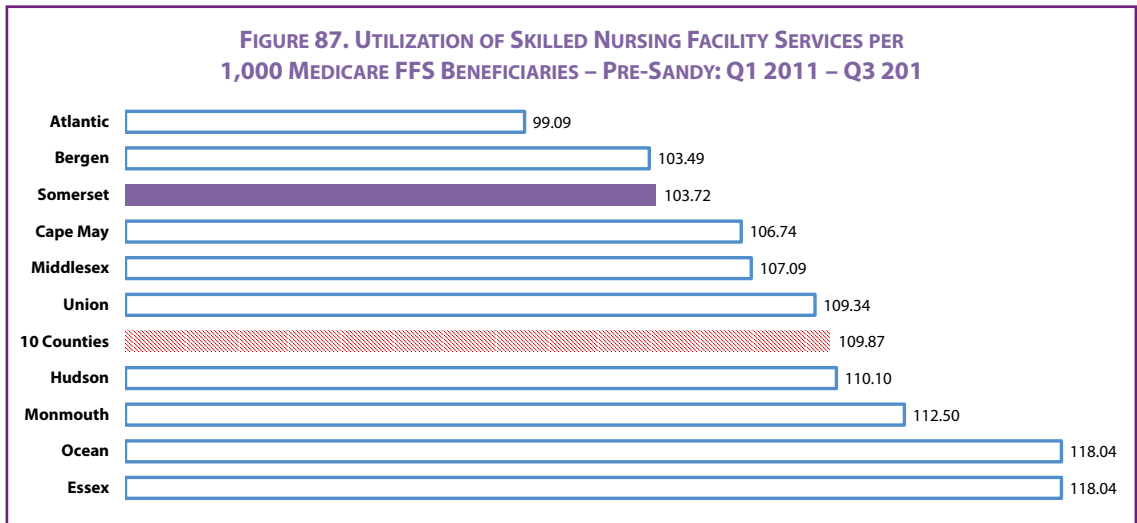
FIGURE 80. OBERVATION STAYS WITHIN 30 DAYS OF DISCHARGE per 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Bergen	7.45
Somerset	7.72
Union	9.08
Monmouth	9.46
Cape May	10.66
Ocean	11.52
10 Counties	12.25
Middlesex	12.81
Atlantic	14.35
Hudson	19.76
Essex	21.39

From Q2 2012 – Q1 2013, the rate of observation stays within 30 days of discharge was 4.59 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 3.94 per 1,000 beneficiaries. The yearly rate of observation stays within 30 days of discharge with rolling quarters was lower than the rate among all 10 counties (Figure 81).

FIGURE 81. YEARLY OBSERVATION STAYS WITHIN 30 DAYS OF DISCHARGE per 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	6.47	6.99	7.10	7.28	7.13	7.25
Somerset	3.69	3.94	4.22	4.69	4.75	4.59

Emergency Department Visits Within 30 Days of Discharge

The rate of emergency department visits within 30 days of discharge in Somerset County in the 21 months prior to Superstorm Sandy was 112.03 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 82).
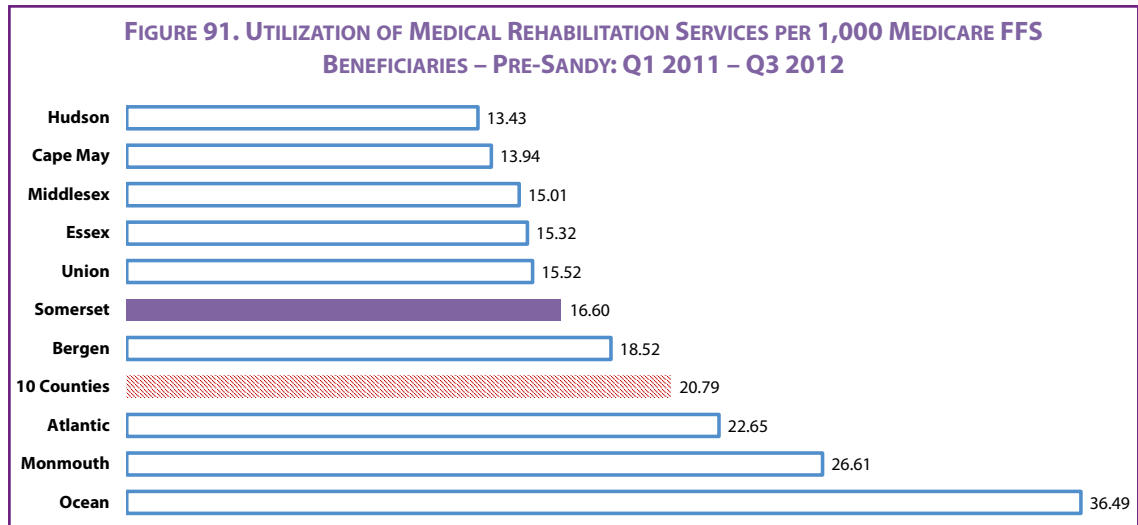
FIGURE 82. EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Union	110.27
Somerset	112.03
Bergen	112.75
Middlesex	124.80
Monmouth	132.57
10 Counties	134.83
Ocean	143.97
Cape May	150.19
Hudson	155.26
Essex	164.37
Atlantic	167.45

From Q2 2012 – Q1 2013, the rate of emergency department visits within 30 days of discharge was 55.32 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 65.52 per 1,000 beneficiaries. The yearly rate of emergency department visits within 30 days of discharge with rolling quarters was lower than the rate among all 10 counties (Figure 83).

FIGURE 83. YEARLY EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	78.07	77.62	75.82	74.24	70.43	70.22
Somerset	64.62	65.52	63.10	61.40	58.50	55.32
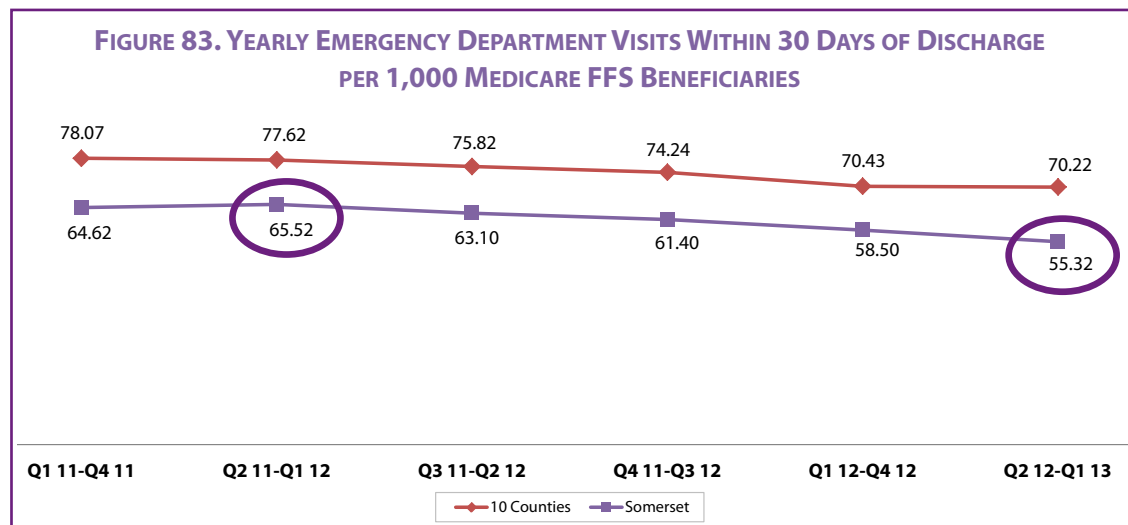
UTILIZATION

Other Settings

Summary

This profile also looks at the utilization of home health agency, skilled nursing facility, hospice, and medical rehabilitation services. These additional services were analyzed because Medicare FFS beneficiaries with underlying behavioral health issues may seek these non-behavioral health services. Utilization of health services per 1,000 Medicare FFS beneficiaries for these settings in the 21 months prior to Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each measure.

Somerset County had lower than average utilization of home health agency, skilled nursing facility and medical rehabilitation services (Figure 84).

County	**Figure 84. Utilization of Health Services per 1,000 Medicare FFS Beneficiaries – Pre-Sandy (Q1 2011-Q3 2012)**			
County	**Home Health Agency Services**	**Skilled Nursing Facility Services**	**Hospice Services**	**Medical Rehabilitation Services**
Atlantic	144.57	99.09	44.90	22.65
Bergen	134.21	103.49	34.63	18.52
Cape May	141.72	106.74	46.96	13.94
Essex	121.71	**118.04**	31.68	15.32
Hudson	138.52	110.10	27.96	13.43
Middlesex	124.56	107.09	34.23	15.01
Monmouth	146.06	112.50	48.77	26.61
Ocean	**153.02**	**118.04**	**49.43**	**36.49**
Somerset	125.70	103.72	39.73	16.60
Union	126.23	109.34	33.87	15.52
10 counties	**135.89**	**109.87**	**38.86**	**20.79**

■ Highest   ☐ Lowest

UTILIZATION

Home Health Agency Services

T he rate of home health agency use in Somerset County in the 21 months prior to Superstorm Sandy was 125.70 per 1,000 Medicare FFS beneficiaries. This was the lower than the rate among all 10 counties (Figure 85).

FIGURE 85. UTILIZATION OF HOME HEALTH AGENCY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Essex	121.71
Middlesex	124.56
Somerset	125.70
Union	126.23
Bergen	134.21
10 Counties	135.89
Hudson	138.52
Cape May	141.72
Atlantic	144.57
Monmouth	146.06
Ocean	153.02
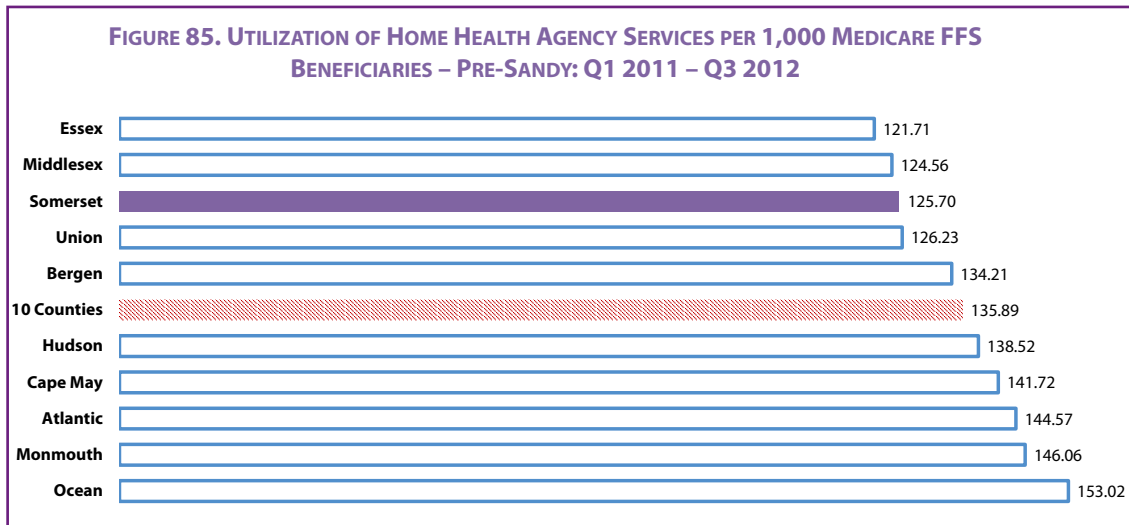
From Q2 2012 – Q1 2013, the utilization rate of home health agency services was 79.44 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 84.84 per 1,000 beneficiaries. The yearly rate of home health agency use with rolling quarters was lower than the rate among all 10 counties (Figure 86).

FIGURE 86. YEARLY UTILIZATION OF HOME HEALTH AGENCY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

10 Counties   Somerset

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	89.68	91.65	91.10	90.55	86.65	87.34
Somerset	82.67	84.84	83.35	81.43	78.59	79.44
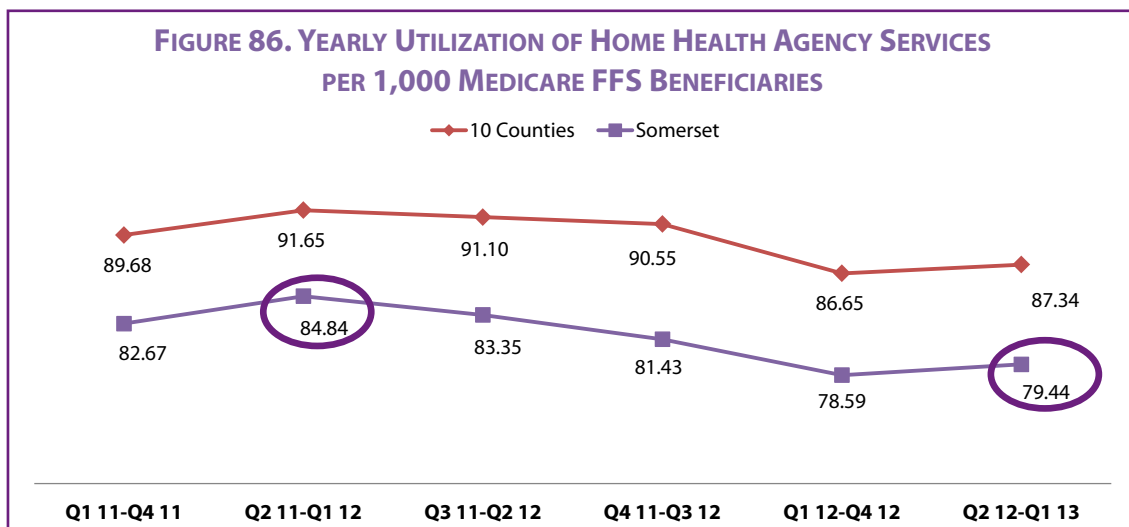
UTILIZATION

Skilled Nursing Facility Services

The rate of skilled nursing facility services in Somerset County in the 21 months prior to Superstorm Sandy was 103.72 per 1,000 Medicare FFS beneficiaries (Figure 87).

FIGURE 87. UTILIZATION OF SKILLED NURSING FACILITY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 201

County	Rate
Atlantic	99.09
Bergen	103.49
Somerset	103.72
Cape May	106.74
Middlesex	107.09
Union	109.34
10 Counties	109.87
Hudson	110.10
Monmouth	112.50
Ocean	118.04
Essex	118.04

From Q2 2012 – Q1 2013, the utilization rate of skilled nursing facility services was 63.89 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 67.66 per 1,000 beneficiaries. The yearly rate of skilled nursing facility use with rolling quarters was lower than the rate among all 10 counties (Figure 88).

FIGURE 88. YEARLY UTILIZATION OF SKILLED NURSING FACILITY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	70.19	71.83	71.39	70.97	68.11	69.44
Somerset	64.91	67.66	66.25	66.98	63.71	63.89

72 | Healthcare Quality Strategies, Inc.

Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters | Somerset County

UTILIZATION

Hospice Services

The rate of hospice use in Somerset County in the 21 months prior to Superstorm Sandy was 39.73 per 1,000 Medicare FFS beneficiaries. This was higher than the rate among all 10 counties (Figure 89).

FIGURE 89. UTILIZATION OF HOSPICE SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	27.96
Essex	31.68
Union	33.87
Middlesex	34.23
Bergen	34.63
10 Counties	38.86
Somerset	39.73
Atlantic	44.90
Cape May	46.96
Monmouth	48.77
Ocean	49.43
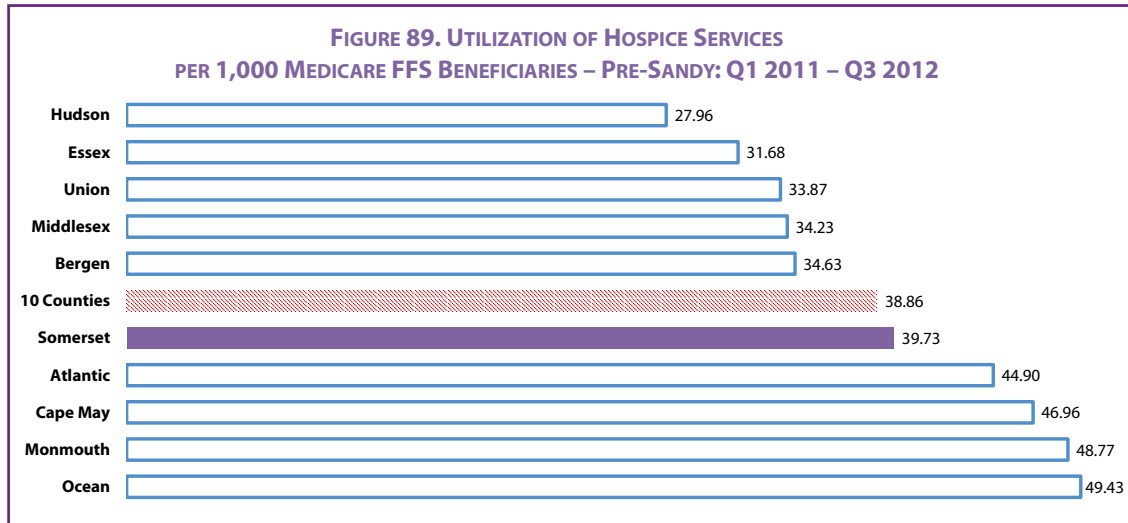
From Q2 2012 – Q1 2013, the rate of hospice use was 23.89 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 24.47 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 90).

FIGURE 90. YEARLY UTILIZATION OF HOSPICE SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	23.76	23.89	23.97	24.22	23.84	24.10
Somerset	24.22	24.47	24.98	24.92	24.02	23.89
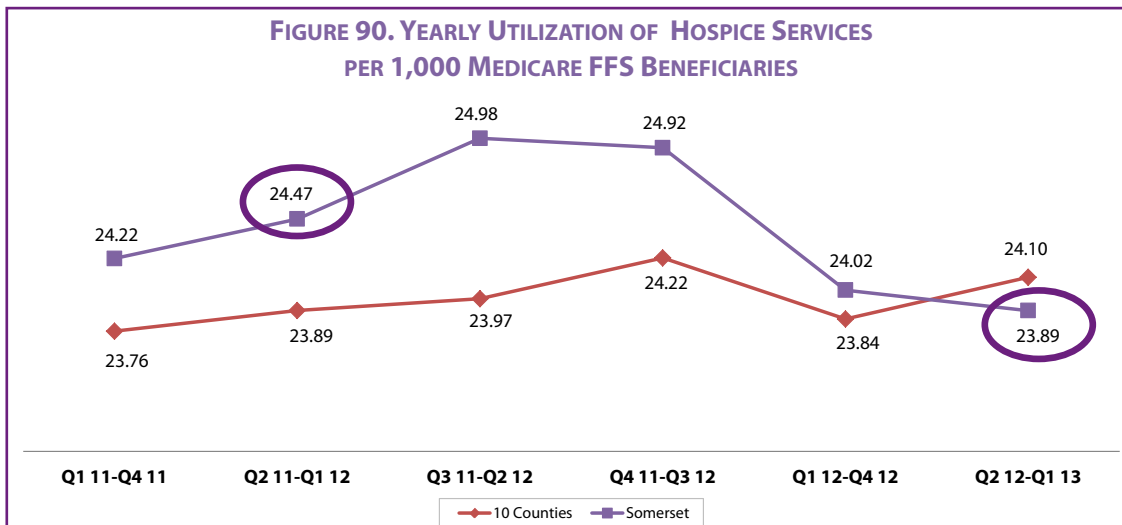
Medical Rehabilitation Services

The rate of the use of medical rehabilitation services in Somerset County in the 21 months prior to Superstorm Sandy was 16.60 per 1,000 Medicare FFS beneficiaries. This was lower than the rate among all 10 counties (Figure 91).

FIGURE 91. UTILIZATION OF MEDICAL REHABILITATION SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES – PRE-SANDY: Q1 2011 – Q3 2012

County	Rate
Hudson	13.43
Cape May	13.94
Middlesex	15.01
Essex	15.32
Union	15.52
Somerset	16.60
Bergen	18.52
10 Counties	20.79
Atlantic	22.65
Monmouth	26.61
Ocean	36.49

From Q2 2012 – Q1 2013, the rate of medical rehabilitation use was 8.64 per 1,000 Medicare FFS beneficiaries in Somerset County compared to Q2 2011 – Q1 2012, which was 9.84 per 1,000 beneficiaries. The yearly rate with rolling quarters was lower than the rate among all 10 counties (Figure 92).

FIGURE 92. YEARLY UTILIZATION OF MEDICAL REHABILITATION SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 11-Q4 11	Q2 11-Q1 12	Q3 11-Q2 12	Q4 11-Q3 12	Q1 12-Q4 12	Q2 12-Q1 13
10 Counties	11.99	12.58	12.66	12.73	12.09	12.07
Somerset	9.22	9.84	10.06	10.37	9.06	8.64
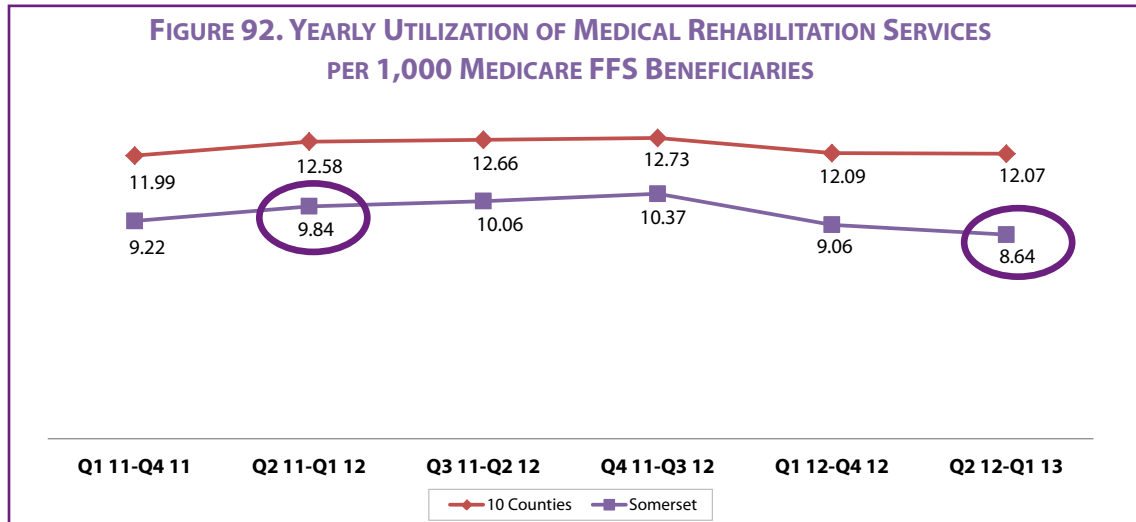
Appendix A: Behavioral Health Conditions

Documentation and Technical Notes

The following defines the study population, the time frames, and the exclusion and inclusion criteria:

Data Source

- New Jersey Medicare Part A and Part B FFS claims data and denominator file

Reference Time Period

- Prevalence of the condition for the pre-Sandy time frame (Q1 2011- Q3 2012 or 21 months)
- Yearly prevalence of the condition with quarterly rolling (Q1 2011-Q1 2013)
- Quarterly new incidence of conditions that were not existent (not reported) in the prior year

Denominator

- All Medicare beneficiaries who were in CMS denominator file during measurement time frame
- With FFS coverage AND eligible enrollment in FFS days/total measurement days > 0

Numerator

- Unique beneficiaries with disease-specific inpatient OR outpatient claim during the time frame
- CCW and AHRQ disease diagnosis code match (ICD-9-CM codes) Part A dgns_cd_1-25 and dgns_e_cd_1-3; Match Part B dgns_cd_1_12

Exclusions

- HMO coverage period
- Age <18 or >= 110
- Eligible FFS days/total measurement days = 0

Resources

More information on the classification codes, requirements, and processing of the behavioral health conditions highlighted in this profile can be located at the following links:

- https://www.ccwdata.org/cs/groups/public/documents/document/clin_cond_algo_req_proc.pdf
- http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

APPENDIX A

The following table shows the ICD-9-CM codes for the eight behavioral health conditions:

Behavioral Health Conditions	Numerator: Valid ICD-9-CM Codes
Depression or Proxy Disorders (Depression, Anxiety Disorders or Adjustment Disorders)	29384, 29620, 29621, 29622, 29623, 29624, 29625, 29626, 29630, 29631, 29632, 29633, 29634, 29635, 29636, 30000, 30001, 30002, 30009, 30010, 30020, 30021, 30022, 30023, 30029, 3003, 3004, 3005, 30089, 3009, 3080, 3081, 3082, 3083, 3084, 3089, 3090, 3091, 30922, 30923, 30924, 30928, 30929, 3093, 3094, 30981, 30982, 30983, 30989, 3099, 311, 3130, 3131, 31321, 31322, 3133, 31382, 31383, V790
Depression	29620, 29621, 29622, 29623, 29624, 29625, 29626, 29630, 29631, 29632, 29633, 29634, 29635, 29636, 3004, 311, V790
Anxiety Disorders	29384, 30000, 30001, 30002, 30009, 30010, 30020, 30021, 30022, 30023, 30029, 3003, , 3005, 30089, 3009, 3080, 3081, 3082, 3083, 3084, 3089, 3130, 3131, 31321, 31322, 3133, 31382, 31383
Adjustment Disorders	3090, 3091, 30922, 30923, 30924, 30928, 30929, 3093, 3094, 30981, 30982, 30983, 30989, 3099
Post-Traumatic Stress Disorder (PTSD)	30981
Alcohol or Substance Abuse	2920, 29211, 29212, 2922, 29281, 29282, 29283, 29284, 29285, 29289, 2929, 30400, 30401, 30402, 30403, 30410, 30411, 30412, 30413, 30420, 30421, 30422, 30423, 30430, 30431, 30432, 30433, 30440, 30441, 30442, 30443, 30450, 30451, 30452, 30453, 30460, 30461, 30462, 30463, 30470, 30471, 30472, 30473, 30480, 30481, 30482, 30483, 30490, 30491, 30492, 30493, 30520, 30521, 30522, 30523, 30530, 30531, 30532, 30533, 30540, 30541, 30542, 30543, 30550, 30551, 30552, 30553, 30560, 30561, 30562, 30563, 30570, 30571, 30572, 30573, 30580, 30581, 30582, 30583, 30590, 30591, 30592, 30593, 64830, 64831, 64832, 64833, 64834, 65550, 65551, 65553, 76072, 76073, 76075, 7795, 96500, 96501, 96502, 96509, V6542 Alcohol Abuse: 2910, 2911, 2912, 2913, 2914, 2915, 2918, 29181, 29182, 29189, 2919, 30300, 30301, 30302, 30303, 30390, 30391, 30392, 30393, 30500, 30501, 30502, 30503, 76071, 9800
Substance Abuse	2920, 29211, 29212, 2922, 29281, 29282, 29283, 29284, 29285, 29289, 2929, 30400, 30401, 30402, 30403, 30410, 30411, 30412, 30413, 30420, 30421, 30422, 30423, 30430, 30431, 30432, 30433, 30440, 30441, 30442, 30443, 30450, 30451, 30452, 30453, 30460, 30461, 30462, 30463, 30470, 30471, 30472, 30473, 30480, 30481, 30482, 30483, 30490, 30491, 30492, 30493, 30520, 30521, 30522, 30523, 30530, 30531, 30532, 30533, 30540, 30541, 30542, 30543, 30550, 30551, 30552, 30553, 30560, 30561, 30562, 30563, 30570, 30571, 30572, 30573, 30580, 30581, 30582, 30583, 30590, 30591, 30592, 30593, 64830, 64831, 64832, 64833, 64834, 65550, 65551, 65553, 76072, 76073, 76075, 7795, 96500, 96501, 96502, 96509, V6542
Suicide and Intentional Self-Inflicted Injury	E9500, E9501, E9502, E9503, E9504, E9505, E9506, E9507, E9508, E9509, E9510, E9511, E9518, E9520, E9521, E9528, E9529, E9530, E9531, E9538, E9539, E954, E9550, E9551, E9552, E9553, E9554, E9555, E9556, E9557, E9559, E956, E9570, E9571, E9572, E9579, E9580, E9581, E9582, E9583, E9584, E9585, E9586, E9587, E9588, E9589, E959, V6284

APPENDIX A

Appendix B: Risk Factors for Depression or Proxy Disorders

Documentation and Technical Notes

The following defines the study population, the time frame, the exclusion and inclusion criteria, and the literature review references:

Data Source

- New Jersey Medicare Part A and Part B FFS claims data and denominator file

Reference Time Period

- Prevalence of the condition for the pre-Sandy time frame (January 2011 – September 2012 or 21 months)

Denominator

- All Medicare beneficiaries who were in CMS denominator file during measurement time frame
- With FFS coverage AND eligible enrollment in FFS days/total measurement days > 0

Numerator

- Unique beneficiaries with disease-specific inpatient OR outpatient claim during the time frame
- CCW and AHRQ disease diagnosis code match (ICD-9-CM codes) Part A dgns_cd_1-25 and dgns_e_cd_1-3; Match Part B dgns_cd_1_12

Exclusions

- HMO coverage period
- Age <18 or >= 110
- Eligible FFS days/total measurement days = 0

Model

- Logistic Regression Models were used to determine the top five risk factors with the highest Odds Ratios (OR) (p<0.001)

Resources

More information on the classification codes, requirements, and processing of the combination measure of depression or proxy disorders which includes beneficiaries reported for either depression, anxiety, or adjustment disorders can be located at the following links:

- https://www.ccwdata.org/cs/groups/public/documents/document/clin_cond_algo_req_proc.pdf
- http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

Appendix B

Literature Review References for Risk Factors for Depression or Proxy Disorders

National Alliance on Mental Illness. Information Helpline: Depression in Older Persons Fact Sheet [Internet]. Arlington (VA): National Alliance on Mental Illness; 2009 Oct [cited 2013 Sep 17]. Available from: http://www.nami.org/Template.cfm?Section=Helpline1&Template=/ContentManagement/ContentDisplay.cfm&ContentID=144039

National Institute of Mental Health. Depression: Causes and Risk Factors [Internet]. Bethesda (MD): National Institute of Mental Health; 2013 Jul [cited 2013 Sep 17]. Available from: http://nihseniorhealth.gov/depression/causesandriskfactors/01.html

Centers for Disease Control and Prevention and National Association of Chronic Disease Directors. The State of Mental Health and Aging in America [Internet]. Atlanta (GA): National Association of Chronic Disease Directors, 2008 [cited 2013 Sep 19]. 11 p. Available from: http://www.cdc.gov/aging/pdf/mental_health.pdf

Jacques L, Jensen T, Schafer J, Caplan S, Schott L. Final Coverage Decision Memorandum for Screening for Depression in Adults [Internet]. Baltimore (MD): Centers for Medicare & Medicaid Services; 2011 Oct 14 [cited 2013 Sep 18]. 42 p. Available from: http://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=251

Thakur M, Blazer DG. Depression in long-term care. Journal of the American Medical Directors Association [Internet]. 2008 Feb [cited 2013 Sep 19];9(2):82-87. Available from: http://www.amda.com/tools/clinical/depression/DepressioninLongTermCare.pdf

Sozeri-Varma G. Depression in the elderly: clinical features and risk factors. Aging and Disease [Internet]. 2012 Dec [cited 2013 Sep 18];3(6):465-471. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3522513/

Qian J, Simoni-Wastila L, Rattinger GB, Lehmann S, Langenberg P, et al. Associations of depression diagnosis and antidepressant treatment with mortality among young and disabled Medicare beneficiaries with COPD. General Hospital Psychiatry. 2013 Jul 18 [cited 2013 Sep 22]; 35(6):612-618.

Shao W, Ahmad R, Khutoryansky N, Aagren M, Bouchard J. Evidence supporting an association between hypoglycemic events and depression. Current Medical Research and Opinion. 2013 Sep 23 [cited 2013 Sep 22]: 1-7.

Substance Abuse and Mental Health Services Administration. The Treatment of Depression in Older Adults: Depression and Older Adults: Key Issues [Internet]. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services, 2011 [cited 2013 Sep 24]. HHS Pub. No. SMA-11-4631. 24 p. Available from: http://store.samhsa.gov/shin/content/SMA11-4631CD-DVD/SMA11-4631CD-DVD-KeyIssues.pdf

Himelhoch S, Weller WE, Wu AW, Anderson GF, Cooper LA. Chronic medical illness, depression, and use of acute medical services among Medicare beneficiaries. Medical Care. 2004 Jun [cited 2013 Sep 25];42(6):512-521.

Mohile SG, Fan L, Reeve E, Jean-Pierre P, Mustian K, et al. Association of cancer with geriatric syndromes in older Medicare beneficiaries. Journal of Clinical Oncology: Official Journal of the American Society of Clinical Oncology [Internet]. 2011 Apr 10 [cited 2013 Sep 25];29(11): 1458-1464. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3082984/

Jayadevappa R, Malkowicz SB, Chhatre S, Johnson JC, Gallo JJ. The burden of depression in prostate cancer. Psycho-oncology. 2012 Dec [cited 2013 Sep 26];21(12):1338-1345.

Missouri Department of Mental Health. CPS Facts: Depression and Older Adults [Internet]. Jefferson City(MO): Missouri Department of Mental Health, [date unknown, cited 2013 Sep 26], 2 p. Available from: http://dmh.mo.gov/docs/mentalillness/elderlydepress.pdf

Oregon State University, Washington State University, University of Idaho. Depression in Later Life: Recognition and Treatment [Internet]. Corvallis(OR): Pacific Northwest Extension Publication; 2004 Jul [Published April 1990; revised July 2000; cited 2013 Sep 29]; 32 p. Available from: http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/20713/pnw347. pdf

Cole MG, Dendukuri N. Risk factors for depression among elderly community subjects: a systematic review and meta-analysis. American Journal of Psychiatry [Internet]. 2003 Jun [cited 2013 Sep 29]; 160(6):1147-1156. Available from: http://ajp.psychiatryonline.org/article. aspx?articleid=176272

Kohn R, Levav I, Garcia ID, Machuca ME, Tamashiro R. Prevalence, risk factors and aging vulnerability for psychopathology following a natural disaster in a developing country. International Journal of Geriatric Psychiatry. 2005 Sep [cited 2013 Sep 29];20(9):835-841.

Pietrzak RH, Southwick SM, Tracy M, Galea S, Norris FH. Posttraumatic stress disorder, depression, and perceived needs for psychological care in older persons affected by Hurricane Ike. Journal of Affective Disorders [Internet]. 2012 Apr [cited 2013 Sep 30];138(1-2):96-103. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3306486/

Oriol W. Psychosocial Issues for Older Adults in Disasters [Internet]. Washington (DC): Emergency Services and Disaster Relief Branch, Center for Mental Health Services (CMHS), Substance Abuse and Mental Health Services Administration; 1999 [cited 2013 Sep 30]; DHHS Publication No. ESDRB SMA 99-3323. 79 p. Available from: http://store.samhsa.gov/ shin/content/SMA99-3323/SMA99-3323.pdf

O'Connor EA, Whitlock EP, Gaynes B, Beil TL. Screening for Depression in Adults and Older Adults in Primary Care: An Updated Systematic Review. [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2009 Dec [cited 2013 Sept 30]. 167 p. (Evidence Synthesis No. 75. AHRQ Publication No. 10-05143-EF-1).   Available from: http://www.ncbi. nlm.nih.gov/books/NBK36403/pdf/TOC.pdf

Noyes K, Liu H, Lyness JM, Friedman B. Medicare beneficiaries with depression: comparing diagnoses in claims data with the results of screening. Psychiatric Services [Internet]. 2011 Oct [cited 2013 Sep 30];62(10):1159-1166. Available from: http://ps.psychiatryonline.org/ data/Journals/PSS/4336/pss6210_1159.pdf

APPENDIX B

The following table shows the ICD-9-CM codes for the top five risk factors for depression or proxy disorders:

Top Five Risk Factors for Depression or Proxy Disorders*	Numerator: Valid ICD-9-CM Codes
Alzheimer's Disease and Related Disorders or Senile Dementia	3311, 33111, 33119, 3312, 3317, 2900, 29010, 29011, 29012, 29013, 29020, 29021, 2903, 29040, 29041, 29042, 29043, 2940, 2941, 29410, 29411, 2948, 797
Sleep Disturbance	04672, 29182, 29285, 30740, 30741, 30742, 30748, 30749, 32700, 32701, 32702, 32709, 78050, 78051, 78052, 78059
Substance or Alcohol Abuse or Tobacco Use	2910, 2911, 2912, 2913, 2914, 2915, 2918, 29181, 29182, 29189, 2919, 2920, 29211, 29212, 2922, 29281, 29282, 29283, 29284, 29285, 29289, 2929, 30300, 30301, 30302, 30303, 30390, 30391, 30392, 30393, 30400, 30401, 30402, 30403, 30410, 30411, 30412, 30413, 30420, 30421, 30422, 30423, 30430, 30431, 30432, 30433, 30440, 30441, 30442, 30443, 30450, 30451, 30452, 30453, 30460, 30461, 30462, 30463, 30470, 30471, 30472, 30473, 30480, 30481, 30482, 30483, 30490, 30491, 30492, 30493, 30500, 30501, 30502, 30503, 3051, 30510, 30511, 30512, 30513, 30520, 30521, 30522, 30523, 30530, 30531, 30532, 30533, 30540, 30541, 30542, 30543, 30550, 30551, 30552, 30553, 30560, 30561, 30562, 30563, 30570, 30571, 30572, 30573, 30580, 30581, 30582, 30583, 30590, 30591, 30592, 30593, 33392, 3575, 4255, 5353, 53530, 53531, 5710, 5711, 5712, 5713, 64830, 64831, 64832, 64833, 64834, 65550, 65551, 65553, 76071, 76072, 76073, 76075, 7795, 7903, 96500, 96501, 96502, 96509, 9800, V110, V111, V112, V113, V114, V118, V119, V154, V1541, V1542, V1549, V1582, V6285, V6542, V663, V701, V702, V7101, V7102, V7109, V790, V791, V792, V793, V798, V799
Hip/Pelvic Fractures	73314, 73315, 73396, 73397, 73398, 8080, 8081, 8082, 8083, 80841, 80842, 80843, 80849, 80851, 80852, 80853, 80859, 8088, 8089, 82000, 82001, 82002, 82003, 82009, 82010, 82011, 82012, 82013, 82019, 82020, 82021, 82022, 82030, 82031, 82032, 8208, 8209
Amputations	8870, 8871, 8872, 8873, 8874, 8875, 8876, 8877, 8960, 8961, 8962, 8963, 8970, 8971, 8972, 8973, 8974, 8975, 8976, 8977, 9059, 99760, 99761, 99762, 99769

* Other risk factors for depression or proxy disorders analyzed include Acute Myocardial Infarction (AMI), Stroke/Transient Ischemic Attack, Coronary Artery Bypass Graft Surgery (CABG), Parkinson's Disease, Chronic Obstructive Pulmonary Disease and Bronchiectasis (COPD), Diabetes, Chronic Kidney Disease, Rheumatoid Arthritis/Osteoarthritis (RA/OA), Macular Degeneration, Disability, History of Cancer, Heart Failure, and Acquired Hypothyroidism.

APPENDIX B

Appendix C: Utilization of Outpatient Mental Health Services

Documentation and Technical Notes

The following defines the study population, the time frame, and the exclusion and inclusion criteria:

Data Source

- New Jersey Medicare Part A and Part B FFS claims data and denominator file

Reference Time Period

- Utilization during pre-Sandy time frame (January 2011 – September 2012 or 21 months)
- Depression Screening: Calendar Year (CY) 2012
- Quarterly utilization (January 2011 – March 2013 or nine quarters)

Denominator

- All Medicare beneficiaries who were in CMS denominator file during measurement time frame
- With FFS coverage AND eligible enrollment in FFS days/total measurement days > 0

Numerator

Unique beneficiaries with specific outpatient mental health service claims

Exclusions

- HMO coverage period
- Age <18 or >= 110
- Eligible FFS days/total measurement days =0

Resources

More information on the definitions and uses of the outpatient mental health services highlighted in this profile can be located at http://www.medicarenhic.com/providers/pubs/REF-EDO-0012MentalHealthBillingGuide2013.pdf.

The following table shows the CPT/HCPCS codes for the outpatient mental health services:

Mental Health Services	Numerator: CPT/HCPCS Codes
Assessments	
Depression Screening	G0444
Diagnostic Psychological Tests	96101, 96102, 96103, 96105, 96110, 96111
Health and Behavior Assessment/Intervention	96150, 96151, 96152 96153, 96154, 96155
Neuropsychological Tests	96116, 96118, 96119, 96120
Psychiatric Diagnostic Procedures	90801, 90802, 90791, 90792
Therapies	
Individual Psychotherapy	90804, 90805, 90832, 90833, 90806, 90807, 9083490836, 90808, 90809, 90810, 90811, 90812, 90813, 90814, 90815, 90816, 90817, 90818, 90819, 90821, 90822, 90823, 90824, 90826, 90827, 90828, 90829, 90837, 90838, 90839, 90840
Family Psychotherapy	90846, 90847
Group Psychotherapy	90849, 90853, 90857
Electroconvulsive Therapy	90870
Biofeedback Therapy	90901, 90911

Appendix D: Utilization of services – Inpatient and Other Settings

Documentation and Technical Notes

The following defines the study population, the time frame, and the exclusion and inclusion criteria:

Data Source

New Jersey Medicare Part A and Part B FFS claims data and denominator file

Reference Time Period

- Utilization during pre-Sandy time frame (January 2011 – September 2012 or 21 months)
- Quarterly utilization of services (January 2011 – March 2013 or nine quarters)
- Yearly utilization of services with quarterly rolling (January 2011 – March 2013)

Denominator

- All Medicare beneficiaries who were in CMS denominator file during measurement time frame
- With FFS coverage AND eligible enrollment in FFS days/total measurement days>0

Exclusions

- HMO coverage period
- Age <18 or >= 110
- Eligible FFS days/total measurement days =0

Utilization Measure

Refer to Appendix E.

Numerator

Utilization Measure Description	Numerator
Psychiatric Hospital Admissions	Number of eligible beneficiaries with at least one psychiatric hospital admission claim
Acute Care Hospital Admissions	Number of acute care hospital admissions
Observation Stays	Number of observation stays
Emergency Department Visits	Number of emergency department visits
30-Day Hospital Readmissions	Number of 30-day hospital readmissions
Observation Stays Within 30 Days of Hospital Discharge	Number of observation stays within 30 days of hospital discharge
Emergency Department Visits Within 30 Days of Hospital Discharge	Number of emergency department visits within 30 days of hospital discharge
Home Health Agency Services	Number of eligible beneficiaries with at least one home health agency claim
Skilled Nursing Facility Services	Number of eligible beneficiaries with at least one skilled nursing facility claim
Hospice Services	Number of eligible beneficiaries with at least one hospice claim
Medical Rehabilitation Services	Number of eligible beneficiaries with at least one medical rehabilitation claim

APPENDIX D

Appendix E: Time Frames and Formulae

Time Frames	
Quarters	**Dates**
Q1	January 1 to March 31
Q2	April 1 to June 30
Q3	July 1 to September 30
Q4	October 1 to December 31

Formulae

$$\text{Incidence} = \frac{\text{(Number of new cases in a time frame, not present in prior year)}}{\text{(Total beneficiaries at risk during the time frame)}}$$

$$\text{Prevalence} = \frac{\text{(Number of cases in a time frame)}}{\text{(Total beneficiaries in the population during the time frame)}}$$

$$\text{Utilization} = \frac{\text{(Number of beneficiaries or measures with specific service utilization)}}{\text{(Total beneficiaries)}}$$

$$\text{Relative change} = \frac{\text{(Current rate-Former rate)}}{\text{(Former rate)}}$$

Appendix E

REFERENCES

APPENDIX F

1. Weiss MG, Saraceno B, Saxena S, van Ommeren M. Mental health in the aftermath of disasters: consensus and controversy. The Journal of Nervous and Mental Disease. 2003 Sep; 191(9):611-615.

2. Foa EB, Stein DJ, McFarlane AC. Symptomatology and psychopathology of mental health problems after disaster. The Journal of Clinical Psychology [Internet]. 2006;[cited 16 Sep 2013];67 Suppl 2:15-25.

3. Wang PS, Gruber MJ, Powers RE, Schoenbaum M, Speier AH, Wells KB, Kessler RC. Mental health service use among hurricane Katrina survivors in the eight months after the disaster. Psychiatry Services [Internet]. 2007 Nov [cited 16 Sep 2013]; 58(11):1403-1411. Available from: http://ps.psychiatryonline.org/data/Journals/PSS/3824/07ps1403.pdf

4. Voelker R. Post-katrina mental health needs prompt group to compile disaster medicine guide. JAMA. 2006 Jan [cited 2013 Sep 17]; 295(3):259-260.

5. Centers for Medicare & Medicaid Services. Medicare Claims Database, Parts A and B, January 1, 2011 – March 31, 2013. Baltimore (MD): CMS, Department of Health and Human Services. Accessed: September 15, 2013.

6. U.S. Department of Commerce: United States Census Bureau, American Fact Finder [Internet]. Washington (DC): U.S. Department of Commerce. Median Income in the Past 12 Months (in 2012 Inflation-Adjusted Dollars); 2012 [cited 15 Sep 2013]; [about 2 screens]. Available from: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_1YR_S1903&prodType=table

7. Buccaneer, A General Dynamics Company. Chronic Condition Data Warehouse: Additions and Access – Task Order 10 New Clinical Conditions: Requirements and Processing [Internet]. [unknown]: Buccaneer, A General Dynamics Company. 2013 May 22 [cited 17 Sep 2013]. Available from: https://www.ccwdata.org/cs/groups/public/documents/document/clin_cond_algo_req_proc.pdf

8. Healthcare Cost and Utilization Project (H-CUP). Clinical Classifications Software (CCS) for ICD-9-CM [Internet]. Rockville (MD): Agency for Healthcare Research and Quality; Nov 2013 [15 Sep 2013]. Available from: http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp

9. Centers for Medicare & Medicaid Services. Mental Health Services Billing Guide, April 2013. Hingham (MA): NHIC, Corp. Apr 2013. 40 p.

Executive Summary

Demographics

Prevalence and Incidence

INDEX OF FIGURES

Inpatient Services

Admissions

Other Settings

INDEX OF FIGURES

INDEX OF FIGURES

This page left intentionally blank