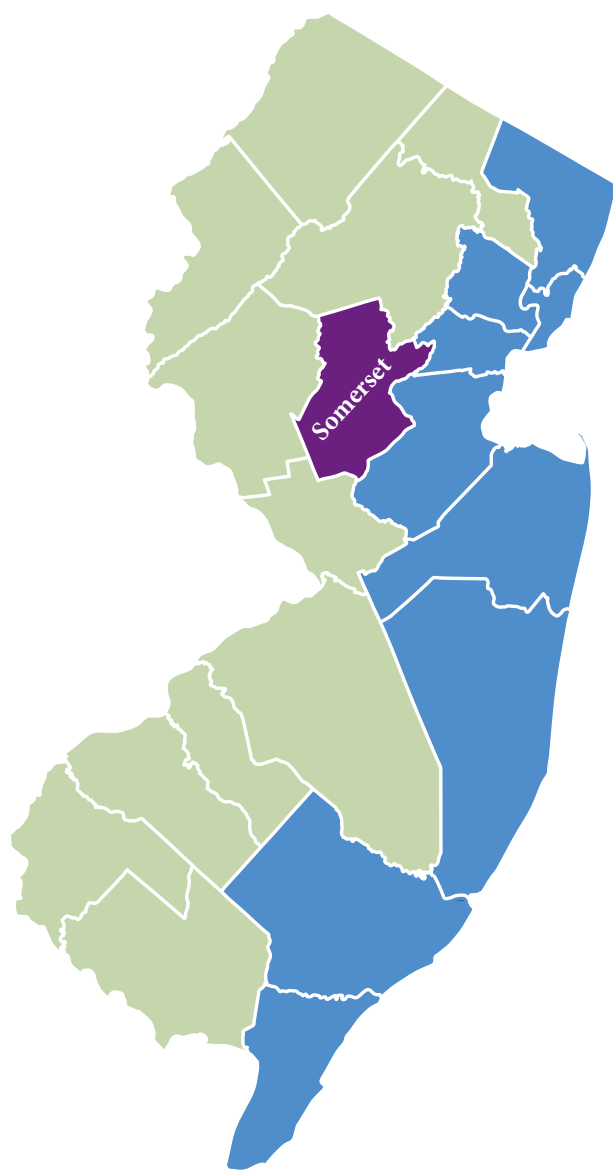# Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters

Final Data Profile: Somerset County Medicare Fee-for-Service Beneficiaries

Demographics, Behavioral Health Conditions, and Utilization of Health Services

June 23, 2014

Rev. (6/23/14)

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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 behavioral health issues such as post-traumatic stress disorder (PTSD), depression, and substance abuse.[1, 2] While disaster-related issues subside over time, evidence shows that victims can experience a prolonged period of elevated risk, especially those with pre-existing mental health issues.[3] Older adults and disabled residents with 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.[4, 5]

This final county profile can help healthcare professionals learn more about the behavioral health status and healthcare utilization patterns of Medicare Fee-for-Service (FFS) beneficiaries before and after Superstorm Sandy. As such, it may be a useful tool in planning for future disasters. This profile is one of 10 created for each of the Federal Emergency Management Agency (FEMA)-declared disaster counties in New Jersey. The profiles explore county-level health status and health determinants of post-disaster spikes in behavioral health issues and treatments. This last update includes one more quarter of comprehensive post-Sandy data than the previous profile, which was published in May 2014.

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 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 for Medicare 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. The initial set of county profiles, which covered the period January 1, 2011 to March 31, 2013, was published in January 2014. These profiles were then updated in May 2014 and covered the period from January 1, 2011 to September 30, 2013. This final profile is the last update planned for Somerset County and includes data from January 1, 2011 to December 31, 2013. This profile can be used to determine and compare the prevalence and incidence of the selected behavioral health conditions and utilization of services among all 10 FEMA-declared disaster counties before and after Superstorm Sandy.

HQSI also created profiles for 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 and other factors. The initial community profiles, along with the first updated version, are available at www.hqsi.org. The community profiles can be used to determine and compare the prevalence and incidence 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 may avoid utilizing behavioral health services, this profile also looks at the utilization of non-behavioral health services.

These profiles are being shared with state and local governments and agencies, health care 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 October 2011.

What's New in This Update

This second updated profile shows four quarters of post-Sandy data, with the most updated claims from January 2011 to December 2013. This profile compares the 12-month rates from the year before and after the storm. In this profile, we reference October 2011 to September 2012 as the year before Superstorm Sandy and January 2013 to December 2013 as the year after the storm.

How to Use This Profile

This profile includes an analysis of the eight behavioral health conditions which, based on literature review and feedback from the subject matter experts consulted for this project, were found to increase after natural disasters.

This profile is divided into the following sections, each of which is preceded by a user-friendly overview:

- Demographics (page 11)
- Prevalence and incidence of behavioral health conditions (page 17)
- Risk factors for depression or proxy disorders (page 34)
- Utilization of outpatient behavioral health assessments (page 41)
- Utilization of outpatient behavioral health therapies (page 53)
- Utilization of inpatient health services (page 61)
- Utilization of inpatient health services within 30 days of discharge (page 67)
- Utilization of other settings (page 72)

Here are some additional tips for using this profile:

- Use the Executive Summary (pages 9-10) for a quick overview of this profile's key points, as well as a snapshot table that summarizes the prevalence of the selected behavioral health conditions and utilization of behavioral health services before and after Sandy

- Use the Behavioral Health Conditions section (pages 17-33) for in-depth analyses and graphical comparison on the prevalence and incidence of eight behavioral health conditions before and after Superstorm Sandy

- Use the New Jersey and county maps to: identify areas with higher rates of Medicare FFS beneficiaries at risk for depression and proxy disorders (pages 25-26); and areas with low utilization of the depression screening benefit (pages 45-46)

INTRODUCTION

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.[6] 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 diseases/conditions related to behavioral health conditions such as depression. Appendices A through G contain documentation, technical notes, codes, algorithms, data sources, and references.

Medicare Part A claims were also used to analyze utilization of health services in 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 of 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 (i.e., anxiety and adjustment disorders).

Measurement Time Frames

This profile includes data from January 1, 2011 through December 31, 2013. Results are presented using different charts and measurement time frames as follows:

- Annual bar charts show the annual rates in the year before (October 1, 2011 to September 30, 2012) and after (January 1, 2011 to December 31, 2013) Superstorm Sandy. Statistics on demographics, prevalence of behavioral health conditions, and utilization of health services are presented for this 12-month period. These statistics allow for comparison across affected counties before and after Superstorm Sandy

- Annual trend charts with rolling quarters for the behavioral health conditions and utilization statistics are included to adjust for seasonal variation and to examine possible changes in the year before and after Superstorm Sandy. The time period includes nine data points from January 1, 2011 to December 31, 2013

- Annual percent change (relative change) bar charts show relative increase or decrease in rates from the year before and after Superstorm Sandy. These statistics allow for comparison across the 10 affected counties and to analyze the potential impact of Superstorm Sandy

- Quarterly new incidence charts for eight behavioral health conditions include eight quarters of data from January 1, 2012 to December 31, 2013. This allows for the identification of new cases in a given quarter when compared to the prior year

- Quarterly line charts show the trend in the utilization of depression screening for eight quarters from January 1, 2012 to December 31, 2013.

INTRODUCTION

DATA CONSIDERATIONS

There are now four quarters of post-storm data available, which is reflected in this final update. The claims data processing lag of 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 no accurate way to identify when certain health conditions began and ended when claims data is used.

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. The subject matter experts also indicated that estimating the prevalence of depression using claims data can be particularly difficult as depression is often undiagnosed or not documented. Depression can be present with symptoms of anxiety and adjustment disorders. Based on this feedback, a combination measure named "depression or proxy disorders" was created to estimate prevalence and incidence of depression. If a patient has at least one of the three conditions reported in Medicare claims, he/she will be flagged as having depression or proxy disorders.

This county profile can be used to compare the prevalence and incidence rates of eight selected behavioral health conditions (see page 19) based on the ICD-9-CM codes through the analysis of Medicare claims. This profile may 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.

This is the final update of these data profiles which includes one more quarter of data than the previous profile during the post-Superstorm Sandy time period as the project ends on July 31, 2014.

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KEY OBSERVATIONS

The following observations show Somerset County's percent change and ranking among all 10 counties after Superstorm Sandy among Medicare FFS beneficiaries.

1. Somerset County experienced a relative increase in all eight selected behavioral health conditions: depression or proxy disorders (2.38%), depression alone (1.81%), anxiety disorders (7.29%), adjustment disorders (3.28%), alcohol or substance abuse (15.64%), substance abuse alone (9.88%), PTSD (13.75%), and suicide and intentional self-inflicted injuries (8.01%).

2. The highest rates of depression or proxy disorders in Somerset County were among White beneficiaries (194.06 per 1,000 beneficiaries), female beneficiaries (218.84 per 1,000 beneficiaries), and beneficiaries below 65 years old (358.83 per 1,000 beneficiaries).

3. Somerset County experienced a relative increase in any of the top five risk factors for depression or proxy disorders (1.72%) and substance or alcohol abuse or tobacco use (11.97%).

4. Utilization of the depression screening benefit in Somerset increased from 7.11 per 1,000 beneficiaries before the storm to 23.76 per 1,000 beneficiaries after the storm, and this was the highest utilization rate among all 10 counties.

5. Somerset County had the largest increase in the utilization of neuropsychological tests (59.03%) among all 10 counties.

6. Somerset County had the highest rate of family psychotherapy (3.76 per 1,000 beneficiaries) despite a 2.08% relative decrease in utilization.

7. Somerset County had the largest decrease in the rate of psychiatric hospital admissions (28.12%) among all 10 counties.

8. Somerset County had the lowest rate of acute care hospital admissions (244.19 per 1,000 beneficiaries), emergency department visits (191.13 per 1,000 beneficiaries), and observation stays (4.11 per 1,000 beneficiaries) among all 10 counties.

9. Somerset County had the lowest rate of 30-day hospital readmissions (40.27 per 1,000 beneficiaries) and emergency department visits that occurred within 30 days of discharge (50.98 per 1,000 beneficiaries) among all 10 counties.

10. Somerset County had the largest decrease in the utilization of skilled nursing facility (12.91%) and medical rehabilitation (26.52%) services among all 10 counties.

EXECUTIVE SUMMARY

This *Snapshot of Somerset County* summarizes the prevalence of the behavioral health conditions, as well as risk factors for depression or proxy disorders, analyzed for this 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. It illustrates the change in conditions and utilization of services before and after Sandy.

Figure 1. Snapshot of Somerset County						
	Prevalence per 1,000 Medicare FFS Beneficiaries					
	Somerset County			10 County Rate		
Behavioral Health Conditions	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Depression or Proxy Disorders	177.21	181.43	2.38	192.99	197.65	2.41
• Depression alone	114.71	116.79	1.81	124.72	125.36	0.51
• Anxiety Disorders alone	95.39	102.34	7.29	105.70	113.91	7.77
• Adjustment Disorders alone	28.36	29.29	3.28	29.82	29.09	-2.45
Alcohol or Substance Abuse	26.92	31.13	15.64	30.51	33.73	10.55
• Substance Abuse alone	14.88	16.35	9.88	16.71	17.54	4.97
PTSD	4.51	5.13	13.75	4.18	4.69	12.20
Suicide and Intentional Self-Inflicted Injury	3.87	4.18	8.01	4.40	4.39	-0.23
Top Five Risk Factors* for Depression or Proxy Disorders						
• Any of the Top Five Risk Factors	123.31	125.43	1.72	136.36	136.15	-0.15
• Substance or Alcohol Abuse or Tobacco Use	64.09	71.76	11.97	78.33	81.78	4.40
• Alzheimer's Disease and related disorders or Senile Dementia	37.45	32.99	-11.91	39.11	34.91	-10.74
• Sleep Disturbance	26.03	24.96	-4.11	24.24	24.78	2.23
• Hip/Pelvic Fractures	8.53	7.32	-14.19	7.95	7.66	-3.65
• Amputations	0.72	0.72	0.00	1.11	0.99	-10.81
	Utilization per 1,000 Medicare FFS Beneficiaries					
	Somerset County			10 County Rate		
Behavioral Health Services	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Assessments						
• Depression Screening**	7.11	23.76	234.18	4.81	12.03	150.10
• Psychiatric Diagnostic Procedures	47.59	40.21	-15.51	53.41	45.69	-14.45
• Neuropsychological Tests	7.20	11.45	59.03	9.48	10.85	14.45
Therapy						
• Individual Psychotherapy	57.46	55.09	-4.12	54.56	53.07	-2.73
• Family Psychotherapy	3.84	3.76	-2.08	3.43	2.42	-29.45
• Group Psychotherapy	4.18	4.03	-3.59	2.98	2.71	-9.06
Psychiatric Hospital Admissions	8.89	6.39	-28.12	8.50	7.13	-16.06

* 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.
** Depression Screening comparison time frames are different (January 1, 2012 – December 31, 2012 vs. January 1, 2013 – December 31, 2013).

Medicare FFS Demographics	Somerset County

At A Glance
(January 1, 2013 – December 31, 2013)

Total Medicare FFS Population	42,860	
Females	24,100	(56.23%)
Males	18,760	(43.77%)
White	35,115	(81.93%)
Black	2,881	(6.72%)
Asian	1,970	(4.60%)
Hispanic	581	(1.36%)
Other	2,313	(5.40%)
Average Age	72.99	

Source: Medicare Claims Database

TOTAL MEDICARE FFS BENEFICIARY POPULATION BY COUNTY

Figure 2. Total Medicare FFS Beneficiaries by County*			
County	10/1/11-9/30/12	1/1/13-12/31/13	Absolute Change
Atlantic	47,571	46,666	-905
Bergen	142,502	139,126	-3,376
Cape May	23,769	23,291	-478
Essex	96,277	90,946	-5,331
Hudson	67,359	63,548	-3,811
Middlesex	107,061	104,272	-2,789
Monmouth	101,644	100,021	-1,623
Ocean	126,653	121,962	-4,691
Somerset	**43,115**	**42,860**	**-255**
Union	73,144	70,331	-2,813
10 counties**	**822,505**	**803,020**	**-19,485**

* Total beneficiaries who were under Medicare FFS coverage for at least one month during the time frame.
**Computing the total of all 10 counties in this table will not equal the total shown, as some beneficiaries moved from one county to another during this time frame.

The total Medicare FFS beneficiary population of Somerset County prior to Superstorm Sandy was 43,115. After the storm, the population decreased to 42,860.

DEMOGRAPHICS

PERCENT OF MEDICARE FFS BENEFICIARIES IN THE GENERAL POPULATION

FIGURE 3. PERCENT OF MEDICARE FFS BENEFICIARIES IN THE GENERAL POPULATION IN 2012*
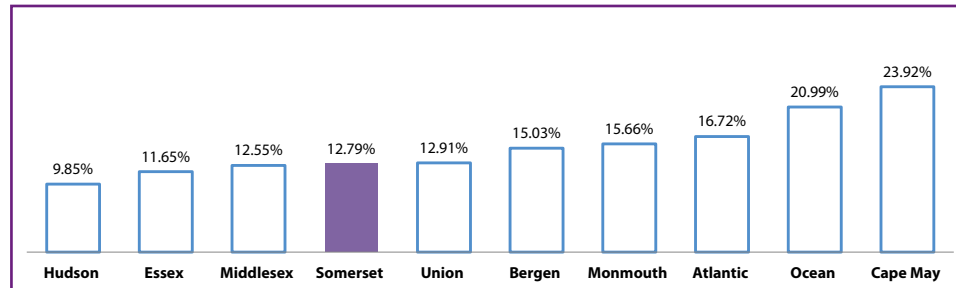
* Source: Medicare denominator file CY 2012, U.S. Census Bureau, American Cancer Survey (ACS), 2012 http://www.census.gov/.

Medicare FFS beneficiaries made up 12.79% of Somerset County's general population in calendar year 2012.

PERCENT OF MEDICARE FFS BENEFICIARY POPULATION BY GENDER BY COUNTY

Figure 4. Percent of Medicare FFS Beneficiary Population by Female by County			
County	10/1/11-9/30/12	1/1/13-12/31/13	Absolute Change*
Atlantic	55.11	54.99	-0.12
Bergen	57.00	56.73	-0.28
Cape May	53.96	53.88	-0.08
Essex	57.32	57.08	-0.23
Hudson	57.49	57.18	-0.31
Middlesex	56.31	56.06	-0.24
Monmouth	56.24	56.01	-0.23
Ocean	57.16	56.96	-0.20
Somerset	56.63	56.23	-0.40
Union	57.23	57.04	-0.19
10 counties	56.72	56.48	-0.24

* Due to rounding, the absolute change may not be the same as the difference subtracted from the two time frames shown.

Prior to Superstorm Sandy, females made up 56.63% of the entire Medicare FFS population in Somerset County and males 43.37%. After the storm, the female beneficiary population decreased to 56.23% and males increased to 43.77%.

Percent of Medicare FFS Beneficiary Population by Race by County

Figure 5. Percent of Medicare FFS Beneficiary Population by Race by County

		County								Somerset		
		Atlantic	Bergen	Cape May	Essex	Hudson	Middlesex	Monmouth	Ocean	Somerset	Union	10 Counties
White	10/1/11-9/30/12	78.73	83.77	94.56	54.95	61.88	77.80	87.88	95.60	**82.96**	70.08	78.96
	1/1/13-12/31/13	78.81	83.00	94.53	55.19	61.02	77.00	87.54	95.30	**81.93**	69.27	78.60
	Absolute Change*	0.07	-0.76	-0.03	0.23	-0.86	-0.80	-0.35	-0.30	**-1.03**	-0.81	-0.37
Black	10/1/11-9/30/12	14.01	4.82	3.67	35.36	12.02	7.55	7.00	1.96	**6.68**	19.40	11.00
	1/1/13-12/31/13	13.43	4.79	3.46	34.58	12.04	7.57	6.70	1.92	**6.72**	19.54	10.76
	Absolute Change*	-0.58	-0.03	-0.21	-0.78	0.02	0.02	-0.30	-0.04	**0.04**	0.14	-0.24
Hispanic	10/1/11-9/30/12	2.52	2.48	0.40	4.21	14.98	3.53	0.81	0.57	**1.38**	5.46	3.48
	1/1/13-12/31/13	2.55	2.40	0.36	4.01	14.75	3.38	0.79	0.56	**1.36**	5.43	3.37
	Absolute Change*	0.03	-0.07	-0.04	-0.21	-0.23	-0.15	-0.02	-0.01	**-0.03**	-0.03	-0.12
Asian	10/1/11-9/30/12	3.00	4.65	0.40	1.87	5.38	6.38	1.57	0.57	**4.46**	1.88	3.14
	1/1/13-12/31/13	3.09	4.78	0.35	1.95	5.59	6.51	1.57	0.58	**4.60**	1.92	3.22
	Absolute Change*	0.09	0.13	-0.05	0.08	0.21	0.12	0.00	0.01	**0.13**	0.03	0.08
Other	10/1/11-9/30/12	1.73	4.29	0.98	3.59	5.74	4.74	2.73	1.30	**4.51**	3.18	3.42
	1/1/13-12/31/13	2.12	5.03	1.31	4.27	6.61	5.54	3.40	1.65	**5.40**	3.85	4.06
	Absolute Change*	0.39	0.74	0.32	0.68	0.87	0.81	0.67	0.34	**0.89**	0.67	0.64

* Due to rounding, the absolute change may not be the same as the difference subtracted from the two time frames shown.

Both before and after Superstorm Sandy, the majority of Medicare FFS beneficiaries in Somerset County were White followed by Black, Asian, and Hispanic.

Percent of Medicare FFS Beneficiary Population by Age by County

Figure 6. Percent of Medicare FFS Beneficiary Population by Age* by County

		Atlantic	Bergen	Cape May	Essex	Hudson	Middlesex	Monmouth	Ocean	Somerset	Union	10 Counties
<65	10/1/11-9/30/12	17.42	8.79	13.93	16.70	16.55	13.60	12.52	11.44	**9.95**	13.53	12.86
	1/1/13-12/31/13	17.00	8.48	13.19	16.07	16.26	13.20	12.08	11.28	**9.49**	13.30	12.55
	Absolute Change**	-0.42	-0.32	-0.74	-0.63	-0.29	-0.39	-0.43	-0.17	**-0.45**	-0.23	-0.31
65 – 74	10/1/11-9/30/12	45.11	44.84	45.69	43.97	43.81	44.33	46.43	43.25	**48.32**	43.60	44.73
	1/1/13-12/31/13	46.21	45.97	47.35	44.94	44.76	45.71	47.88	44.44	**49.37**	45.01	45.88
	Absolute Change**	1.10	1.12	1.67	0.97	0.95	1.38	1.45	1.19	**1.05**	1.41	1.15
75 – 84	10/1/11-9/30/12	24.90	29.20	26.86	24.89	26.27	26.78	25.92	29.02	**26.56**	26.32	27.05
	1/1/13-12/31/13	24.40	28.57	26.32	24.59	25.86	26.02	25.34	28.50	**26.25**	25.67	26.48
	Absolute Change**	-0.50	-0.63	-0.54	-0.30	-0.41	-0.75	-0.58	-0.52	**-0.30**	-0.65	-0.58
85 and Above	10/1/11-9/30/12	12.57	17.16	13.52	14.44	13.37	15.29	15.13	16.28	**15.18**	16.55	15.35
	1/1/13-12/31/13	12.39	16.99	13.13	14.40	13.12	15.06	14.70	15.78	**14.89**	16.02	15.09
	Absolute Change**	-0.18	-0.18	-0.38	-0.05	-0.26	-0.23	-0.43	-0.50	**-0.29**	-0.52	-0.26
Average Age	10/1/11-9/30/12	70.92	73.97	72.05	71.39	71.49	72.42	72.44	73.34	**73.00**	72.68	72.60
	1/1/13-12/31/13	70.95	73.92	72.10	71.47	71.41	72.39	72.40	73.24	**72.99**	72.56	72.56
	Absolute Change**	0.03	-0.05	0.06	0.08	-0.08	-0.03	-0.04	-0.11	**-0.01**	-0.12	-0.05

Note: Column group header "County" spans all county columns.

* Age calculated as end date of time frame or date of death minus birth date.
** Due to rounding, the absolute change may not be the same as the difference subtracted from the two time frames shown.

DEMOGRAPHICS

Both before and after Superstorm Sandy, the largest age group of the Medicare FFS beneficiary population in Somerset County was between ages 65 and 74 years old followed by beneficiaries between ages 75 and 84 years old.

The average age of Medicare FFS beneficiaries in this county decreased from 73.00 before the storm to 72.99 after the storm.

Income Status by County

Figure 7. 2012 Median Household Income (65 years and above)

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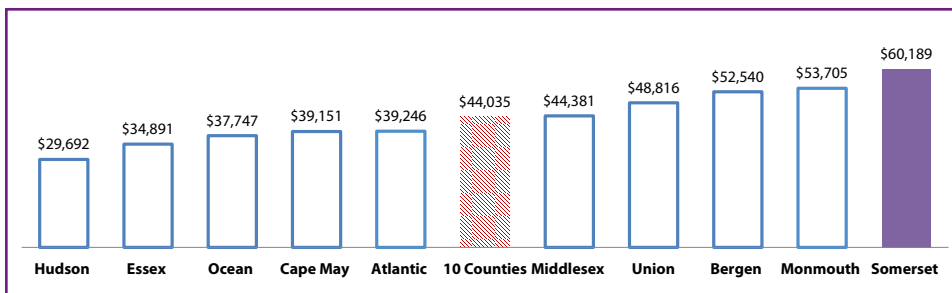
Source: U.S. Census Bureau, American Community Survey (ACS), 2012 http://www.census.gov/.

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 was the highest average income among all 10 counties.

DEMOGRAPHICS

DEMOGRAPHICS

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Prevalence and Incidence

Using Medicare FFS claims data, eight behavioral health conditions were analyzed: depression or proxy disorders, depression, adjustment disorder, anxiety disorder, post-traumatic stress disorder (PTSD), alcohol or substance abuse, substance abuse alone, and suicide and intentional self-inflicted injury. These conditions were chosen based on literature review and feedback from subject matter experts.

Claims data can underestimate the real prevalence and 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 December 31, 2013 for these different measures were calculated to quantify condition occurrence:

1. The annual prevalence bar chart compares rates in two annual time frames among all 10 counties

2. New incidence in a quarter for the specified condition that was not present in the prior 12 months (Q1 2012 – Q4 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

Figure 8. Annual Prevalence of Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries							
County	Depression or Proxy Disorders	Depression	Anxiety Disorders	Adjustment Disorders	Alcohol or Substance Abuse	Substance Abuse Alone	PTSD	Suicide and Intentional Self-Inflicted Injury
October 1, 2011 – September 30, 2012								
Atlantic	204.91	126.73	122.86	30.28	**42.98**	**25.26**	5.32	**6.47**
Bergen	184.06	123.64	96.76	26.53	19.75	9.88	2.56	3.46
Cape May	208.71	125.89	123.98	24.76	40.37	20.11	5.57	4.09
Essex	184.23	119.63	88.19	36.81	38.62	22.96	3.66	4.75
Hudson	**211.72**	**138.29**	117.35	32.63	31.87	16.46	3.28	4.33
Middlesex	180.87	117.77	96.04	25.53	25.52	14.52	4.65	3.49
Monmouth	206.98	133.28	114.40	**39.16**	34.42	17.34	5.15	5.28
Ocean	208.85	131.66	**125.55**	28.88	35.33	20.67	**5.86**	5.33
Somerset	177.21	114.71	95.39	28.36	26.92	14.88	4.51	3.87
Union	171.83	111.46	91.54	21.85	24.24	12.13	2.48	3.44
10 counties	**192.99**	**124.72**	**105.70**	**29.82**	**30.51**	**16.71**	**4.18**	**4.40**
January 1, 2013 – December 31, 2013								
Atlantic	210.08	125.42	128.82	30.29	39.76	22.18	5.51	**6.06**
Bergen	192.61	127.45	106.78	27.36	23.40	11.80	2.51	3.56
Cape May	204.77	118.74	125.15	23.79	37.25	17.20	6.59	4.44
Essex	182.99	115.44	94.01	34.18	38.46	**23.96**	4.47	4.64
Hudson	211.02	**136.51**	120.44	31.64	36.71	17.31	3.48	4.64
Middlesex	184.79	118.82	103.52	25.90	28.73	15.36	5.43	3.83
Monmouth	209.21	133.07	119.46	**37.29**	39.88	18.07	5.84	5.17
Ocean	**220.98**	135.96	**142.68**	26.27	**42.09**	22.36	**6.70**	5.34
Somerset	181.43	116.79	102.34	29.29	31.13	16.35	5.13	4.18
Union	175.55	111.48	98.16	22.66	26.02	12.68	2.67	2.61
10 counties	**197.65**	**125.36**	**113.91**	**29.09**	**33.73**	**17.54**	**4.69**	**4.39**

■ Highest   ☐ Lowest

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

After the storm, Somerset County experienced a relative increase in all eight of the selected behavioral health conditions.

Figure 9. Percent Change of Prevalence of Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Depression or Proxy Disorders	177.21	181.43	2.38	192.99	197.65	2.41
• Depression	114.71	116.79	1.81	124.72	125.36	0.51
• Anxiety	95.39	102.34	7.29	105.70	113.91	7.77
• Adjustment	28.36	29.29	3.28	29.82	29.09	-2.45
Alcohol or Substance Abuse	26.92	31.13	15.64	30.51	33.73	10.55
• Substance abuse alone	14.88	16.35	9.88	16.71	17.54	4.97
PTSD	4.51	5.13	13.75	4.18	4.69	12.20
Suicide and intentional self-inflicted injuries	3.87	4.18	8.01	4.40	4.39	-0.23

Somerset County experienced a larger increase in the rates of depression, alcohol or substance abuse, substance abuse alone, and PTSD than the 10 county rate.

FIGURE 10. QUARTERLY NEW INCIDENCE TREND OF SELECTED BEHAVIORAL HEALTH CONDITIONS: DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES
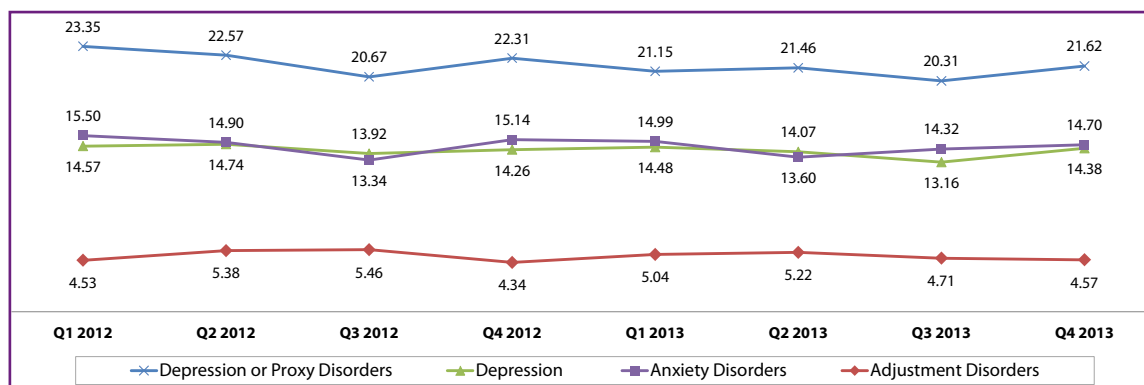
* Quarterly new incidence of conditions that were not diagnosed in the prior year.

FIGURE 11. QUARTERLY NEW INCIDENCE TREND OF OTHER SELECTED BEHAVIORAL HEALTH CONDITIONS* PER 1,000 MEDICARE FFS BENEFICIARIES
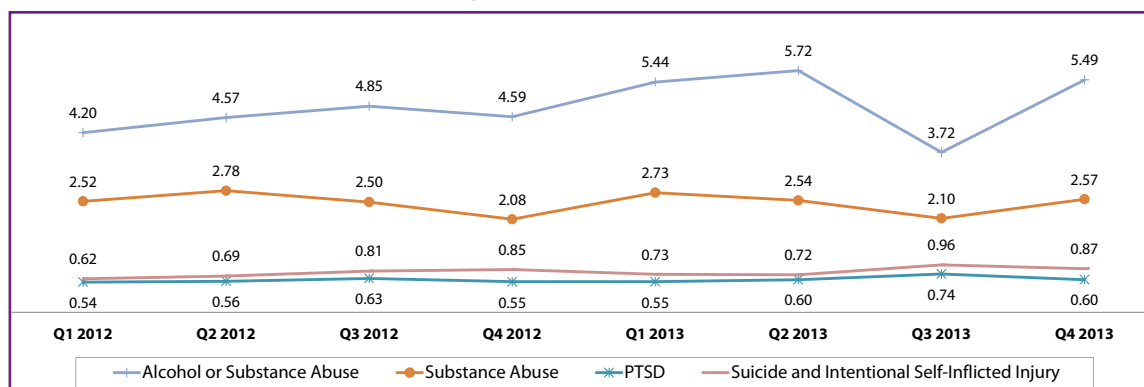
* Quarterly new incidence of conditions that were not diagnosed in the prior year.

The charts above reflect quarterly trending in new incidence of the selected behavioral health conditions among Medicare FFS beneficiaries in Somerset County.

—BEHAVIORAL HEALTH CONDITIONS—

BEHAVIORAL HEALTH CONDITIONS

FIGURE 12. ANNUAL PREVALENCE TREND OF SELECTED BEHAVIORAL HEALTH CONDITIONS: DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

Depression or Proxy Disorders: 163.45, 172.57, 175.84, 177.21, 172.49, 180.28, 181.09, 181.89, 181.43
Depression: 107.31, 111.75, 114.18, 114.71, 110.03, 116.49, 116.85, 117.04, 116.79
Anxiety Disorders: 85.28, 92.13, 94.68, 95.39, 94.13, 99.79, 99.63, 101.99, 102.34
Adjustment Disorders: 23.53, 24.89, 26.46, 28.36, 27.45, 29.99, 30.33, 29.91, 29.29
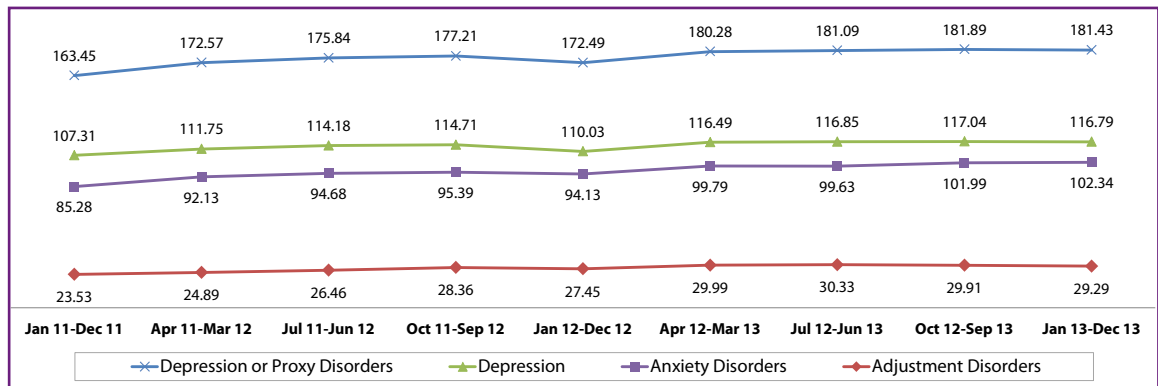
FIGURE 13. ANNUAL PREVALENCE TREND OF OTHER SELECTED BEHAVIORAL HEALTH CONDITIONS PER 1,000 MEDICARE FFS BENEFICIARIES

Alcohol or Substance Abuse: 23.03, 24.70, 25.68, 26.92, 26.18, 29.44, 30.88, 30.39, 31.13
Substance Abuse: 12.73, 13.53, 14.28, 14.88, 14.32, 16.02, 16.14, 15.99, 16.35
PTSD: 3.87, 4.10, 4.19, 4.51, 4.29, 4.69, 4.84, 5.18, 5.13
Suicide and Intentional Self-Inflicted Injury: 3.35, 3.58, 3.75, 3.87, 3.68, 4.29, 4.19, 4.38, 4.18
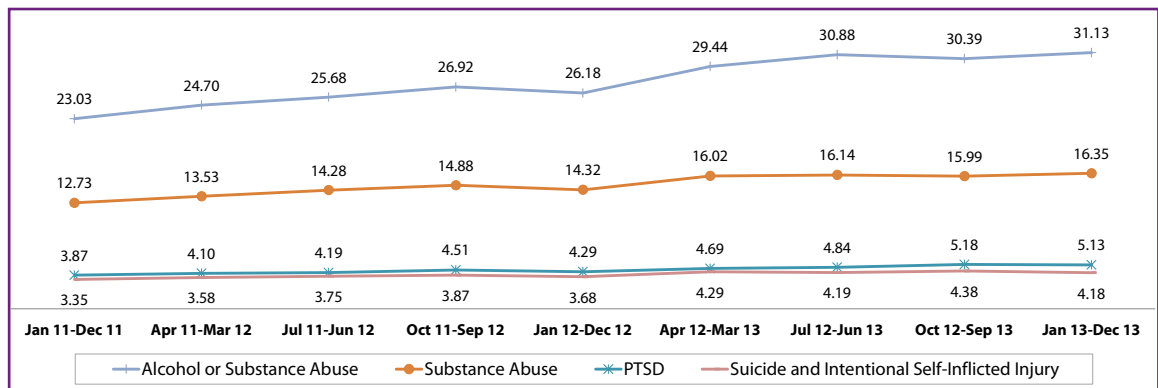
The charts above reflect annual trending in the prevalence of the selected behavioral health conditions among Medicare FFS beneficiaries in Somerset County.

Depression or Proxy Disorders

Figure 14. Demographics of Depression or Proxy Disorders among Medicare FFS Beneficiaries				
	10/1/11 – 9/30/12		1/1/13 – 12/31/13	
	Number of Beneficiaries	Percent (%)	Number of Beneficiaries	Percent (%)
Race				
• White	6,121	88.48	6,430	88.18
• Black	423	6.11	458	6.28
• Hispanic	96	1.39	90	1.23
• Asian	114	1.65	123	1.69
• Other	164	2.37	191	2.62
Gender				
• Males	2,160	31.22	2,331	31.97
• Females	4,758	68.78	4,961	68.03
Age				
• Below 65	1,285	18.57	1,337	18.34
• 65-74	2,172	31.40	2,374	32.56
• 75-84	1,841	26.61	1,912	26.22
• 85 and Above	1,620	23.42	1,669	22.89
Total	6,918	100.00	7,292	100.00

This table displays the number and percentage of Medicare FFS beneficiaries of each race, gender, and age diagnosed with depression or proxy disorders before and after Superstorm Sandy. There were 6,918 beneficiaries diagnosed with depression or proxy disorders in Somerset County before the storm. This increased to 7,292 beneficiaries after the storm.

BEHAVIORAL HEALTH CONDITIONS

BEHAVIORAL HEALTH CONDITIONS

Figure 15. Demographics of Depression or Proxy Disorders Rate per 1,000 Medicare FFS Beneficiaries					
	10/1/11 – 9/30/12			1/1/13 – 12/31/13		
	Numerator	Denominator*	Rate per 1,000 Beneficiaries	Numerator	Denominator*	Rate per 1,000 Beneficiaries
Race						
• White	6,121	32,605	187.73	6,430	33,134	194.06
• Black	423	2,563	165.04	458	2,674	171.28
• Hispanic	96	510	188.24	90	533	168.86
• Asian	114	1,687	67.58	123	1,802	68.26
• Other	164	1,676	97.85	191	2,050	93.17
Gender						
• Males	2,160	16,845	128.23	2,331	17,523	133.03
• Females	4,758	22,196	214.36	4,961	22,670	218.84
Age						
• Below 65	1,285	3,752	342.48	1,337	3,726	358.83
• 65-74	2,172	18,665	116.37	2,374	19,587	121.20
• 75-84	1,841	10,833	169.94	1,912	10,952	174.58
• 85 and Above	1,620	5,791	279.74	1,669	5,928	281.55
Total	6,918	39,041	177.20	7,292	40,193	181.42

* Total eligible beneficiaries (denominator) computed after adjusting for total enrolled FFS days divided by the total measurement days in the time frame.

This table displays the rate of Medicare FFS beneficiaries per 1,000 diagnosed with depression or proxy disorders by race, gender, and age both before and after Superstorm Sandy by different demographic groups. The numerator is the number of beneficiaries with a claim for depression or proxy disorders; the denominator is the total number of beneficiaries in the county for each group.

FIGURE 16. DEPRESSION OR PROXY DISORDERS RATE BY RACE PER 1,000 MEDICARE FFS BENEFICIARIES
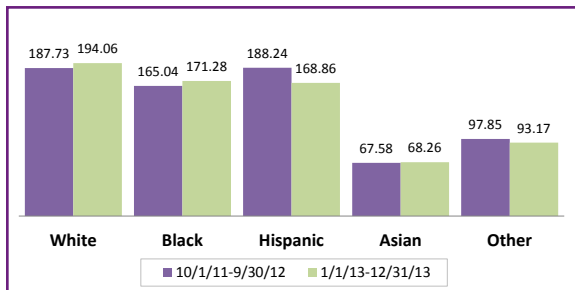
White Medicare FFS beneficiaries have the highest rate of depression or proxy disorders. In the 12 months prior to Superstorm Sandy, 187.73 per 1,000 White Medicare FFS beneficiaries were diagnosed with depression or proxy disorders. After the storm, this rate increased to 194.06 per 1,000 beneficiaries.

FIGURE 17. DEPRESSION OR PROXY DISORDERS RATE BY GENDER PER 1,000 MEDICARE FFS BENEFICIARIES
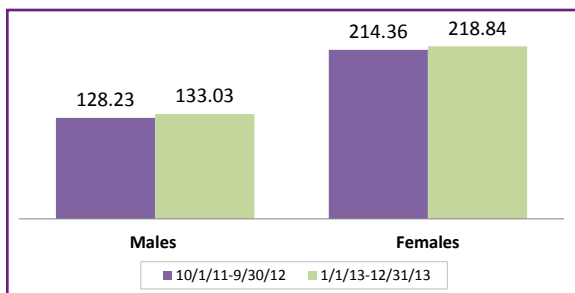
Female beneficiaries have a higher rate of depression or proxy disorder compared to males. In the 12 months prior to Superstorm Sandy, 214.36 per 1,000 female Medicare FFS beneficiaries were diagnosed with depression or proxy disorders. After the storm, this rate increased to 218.84 per 1,000 female beneficiaries.

FIGURE 18. DEPRESSION OR PROXY DISORDERS RATE BY AGE GROUP PER 1,000 MEDICARE FFS BENEFICIARIES
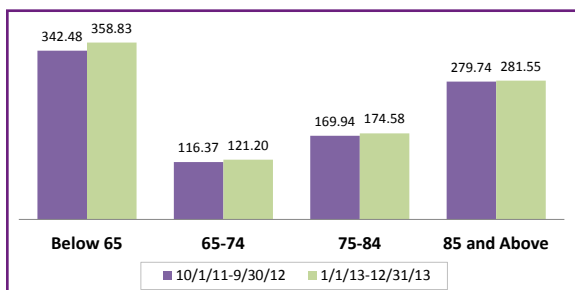
Beneficiaries below the age of 65 have the highest rate of depression or proxy disorders. In the 12 months prior to Superstorm Sandy, among Medicare FFS beneficiaries below the age of 65, 342.48 per 1,000 were diagnosed with depression or proxy disorders. After the storm, this rate increased to 358.83 per 1,000 beneficiaries.

BEHAVIORAL HEALTH CONDITIONS

FIGURE 19. DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

Union 171.83 175.55 | Somerset 177.21 181.43 | Essex 184.23 182.99 | Middlesex 180.87 184.79 | Bergen 184.06 192.61 | 10 County 192.99 197.65 | Cape May 208.71 204.77 | Monmouth 206.98 209.21 | Atlantic 204.91 210.08 | Hudson 211.72 211.02 | Ocean 208.85 220.98

□ 10/1/11-9/30/12   ■ 1/1/13-12/31/13

Annual Trend

Somerset: 163.45, 172.57, 175.84, 177.21, 172.49, 180.28, 181.09, 181.89, 181.43
10 County: 179.30, 187.40, 190.06, 192.99, 186.61, 193.07, 195.78, 197.54, 197.65

Jan 11-Dec 11 | Apr 11-Mar 12 | Jul 11-Jun 12 | Oct 11-Sep 12 | Jan 12-Dec 12 | Apr 12-Mar 13 | Jul 12-Jun 13 | Oct 12-Sep 13 | Jan 13-Dec 13

— Somerset — 10 County

Percent Change

Ocean 5.81%
Bergen 4.65%
Atlantic 2.52%
10 Counties 2.41%
Somerset 2.38%
Middlesex 2.17%
Union 2.16%
Monmouth 1.08%
Hudson -0.33%
Essex -0.67%
Cape May -1.89%

The prevalence rate of depression or proxy disorders in Somerset County in the 12 months prior to Superstorm Sandy was 177.21 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 181.43 per 1,000 beneficiaries, reflecting a 2.38% relative increase.

FIGURE 20. QUARTERLY NEW INCIDENCE OF DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES

Somerset: 23.35, 22.57, 20.67, 22.31, 21.15, 21.46, 20.31, 21.62
10 County: 24.11, 23.08, 23.39, 23.22, 23.55, 23.48, 23.05, 21.18

Q1 2012 | Q2 2012 | Q3 2012 | Q4 2012 | Q1 2013 | Q2 2013 | Q3 2013 | Q4 2013
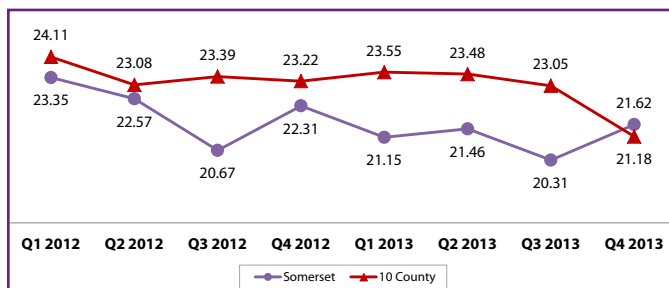
— Somerset — 10 County

This chart reflects trending of quarterly new incidence of depression or proxy disorders among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

FIGURE 21. PREVALENCE OF DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES

October 1, 2011 – September 30, 2012

January 1, 2013 – December 31, 2013
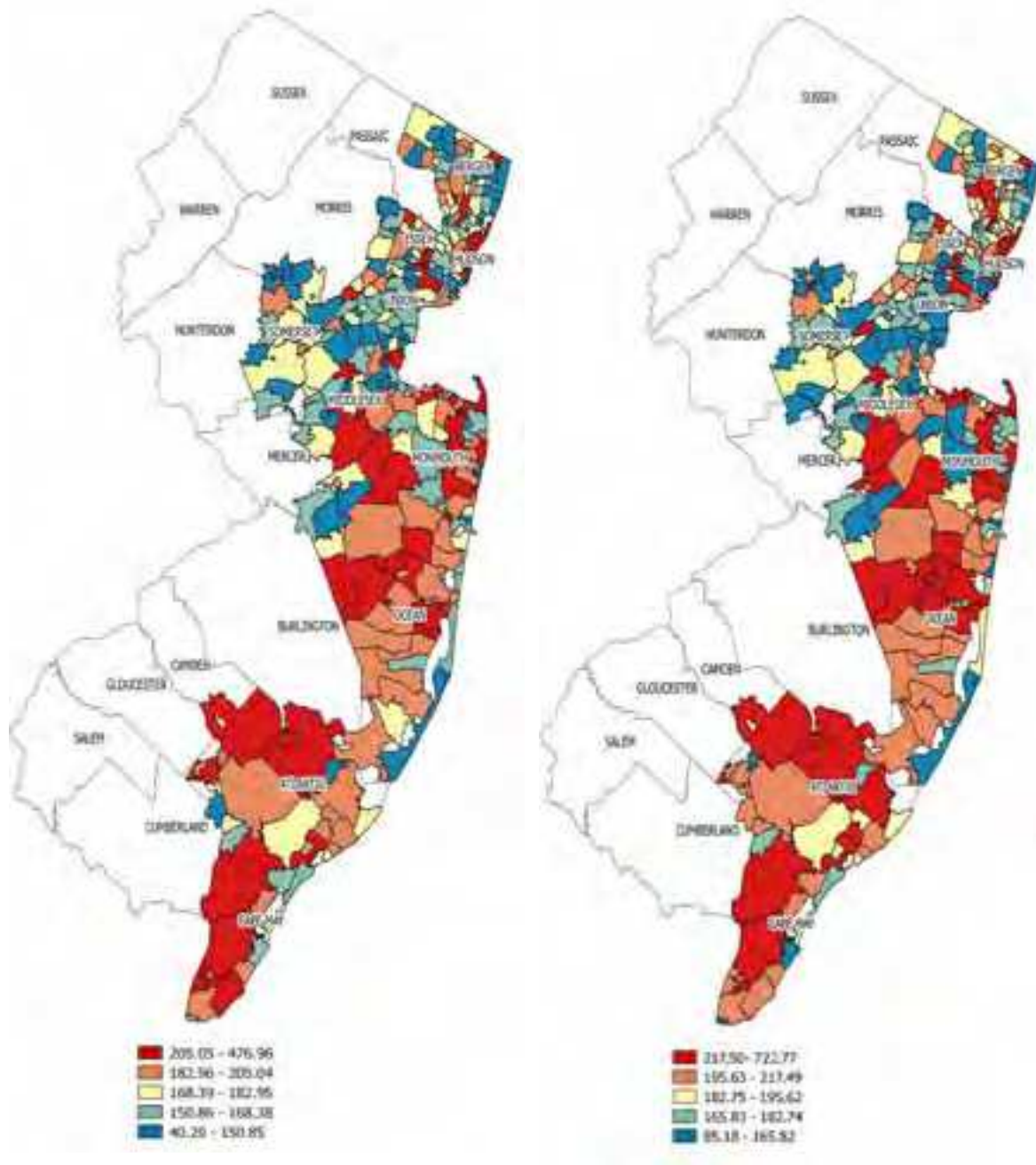
The color-coded map of New Jersey depicts prevalence of depression or proxy disorders from high (red) to low (blue) in the 10 FEMA-declared disaster counties before and after Superstorm Sandy.

* Mapped using ZIP codes of the 10 counties.

FIGURE 22. SOMERSET COUNTY PREVALENCE OF DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES

October 1, 2011 – September 30, 2012

January 1, 2013 – December 31, 2013
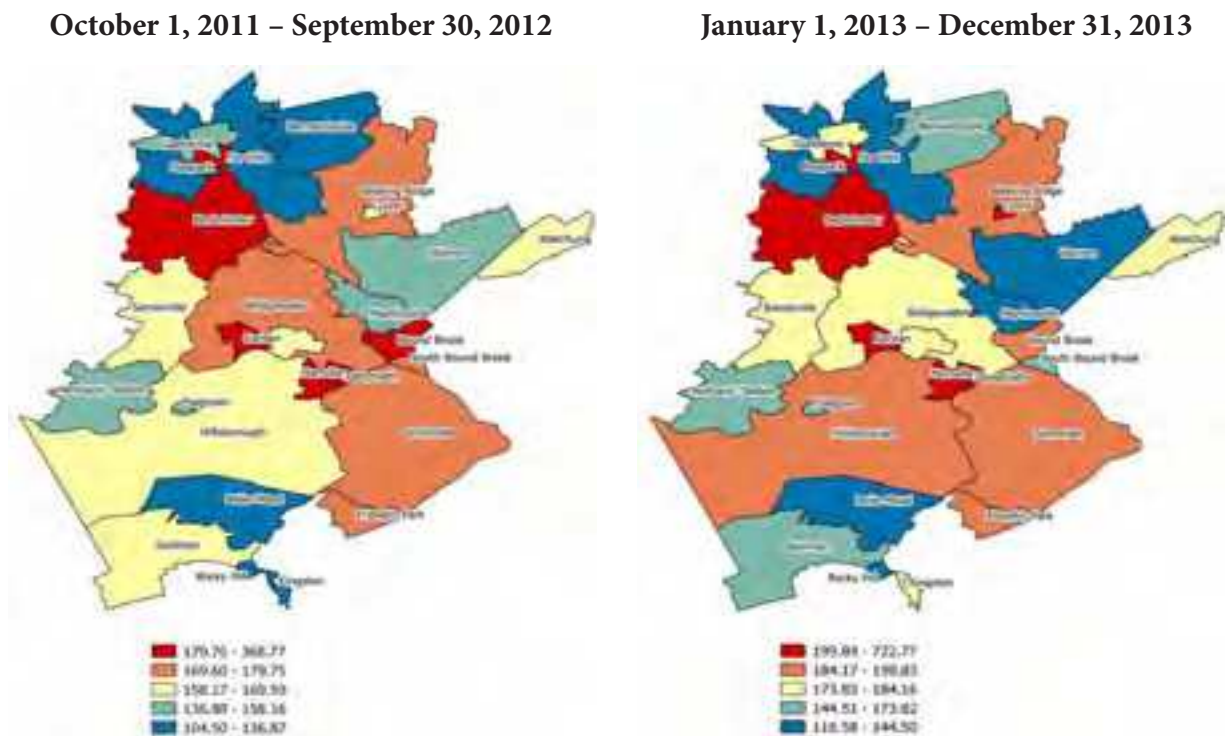
The color-coded map of Somerset County depicts regional variation of prevalence of depression or proxy disorders from high (red) to low (blue) before and after Superstorm Sandy.

* Mapped using ZIP codes; may not display all the city names located within the ZIP code.

Depression

FIGURE 23. DEPRESSION PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

	Union	Essex	Somerset	Cape May	Middlesex	10 County	Atlantic	Bergen	Monmouth	Ocean	Hudson
10/1/11-9/30/12	111.46	119.63	114.71	125.89	117.77	124.72	126.73	123.64	133.28	131.66	138.29
1/1/13-12/31/13	111.48	115.44	116.79	118.74	118.82	125.36	125.42	127.45	133.07	135.96	136.51

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	107.31	111.75	114.18	114.71	110.03	116.49	116.85	117.04	116.79
10 County	117.19	121.90	123.28	124.72	119.23	123.77	124.78	125.38	125.36

Percent Change

Ocean	3.27%
Bergen	3.08%
Somerset	1.81%
Middlesex	0.89%
10 Counties	0.51%
Union	0.02%
Monmouth	-0.16%
Atlantic	-1.03%
Hudson	-1.29%
Essex	-3.50%
Cape May	-5.68%

The prevalence rate of depression in Somerset County in the 12 months prior to Superstorm Sandy was 114.71 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 116.79 per 1,000 beneficiaries, reflecting a 1.81% relative increase.

FIGURE 24. QUARTERLY NEW INCIDENCE OF DEPRESSION* PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
Somerset	14.57	14.74	13.92	14.26	14.48	14.07	13.16	14.38
10 County	15.49	15.12	15.24	14.75	15.57	14.97	14.93	15.39
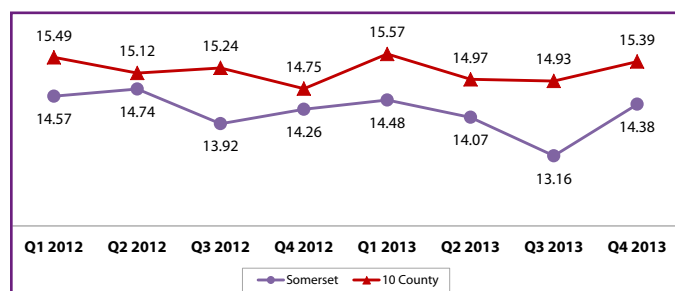
This chart reflects trending of quarterly new incidence of depression among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

Anxiety Disorders

FIGURE 25. ANXIETY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

County	10/1/11-9/30/12	1/1/13-12/31/13
Essex	88.19	94.01
Union	91.54	98.16
Somerset	95.39	102.34
Middlesex	96.04	103.52
Bergen	96.76	106.78
10 County	105.70	113.91
Monmouth	114.40	119.46
Hudson	117.35	120.44
Cape May	123.98	125.15
Atlantic	122.86	128.82
Ocean	125.55	142.68

Annual Trend

Somerset: 85.28 (Jan 11-Dec 11), 92.13 (Apr 11-Mar 12), 94.68 (Jul 11-Jun 12), 95.39 (Oct 11-Sep 12), 94.13 (Jan 12-Dec 12), 99.79 (Apr 12-Mar 13), 99.63 (Jul 12-Jun 13), 101.99 (Oct 12-Sep 13), 102.34 (Jan 13-Dec 13)

10 County: 94.82, 100.77, 103.28, 105.70, 103.37, 107.73, 110.70, 113.19, 113.91

Percent Change

County	Percent Change
Ocean	13.64%
Bergen	10.36%
Middlesex	7.79%
10 Counties	7.77%
Somerset	7.29%
Union	7.23%
Essex	6.60%
Atlantic	4.85%
Monmouth	4.42%
Hudson	2.63%
Cape May	0.94%

The prevalence rate of anxiety disorders in Somerset County in the 12 months prior to Superstorm Sandy was 95.39 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 102.34 per 1,000 beneficiaries, reflecting a 7.29% relative increase.

FIGURE 26. QUARTERLY NEW INCIDENCE OF ANXIETY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES

Somerset: 15.50 (Q1 2012), 14.90 (Q2 2012), 13.34 (Q3 2012), 15.14 (Q4 2012), 14.99 (Q1 2013), 13.60 (Q2 2013), 14.32 (Q3 2013), 14.70 (Q4 2013)

10 County: 16.59, 15.69, 15.93, 16.21, 16.36, 16.82, 16.46, 15.81

This chart reflects trending of quarterly new incidence of anxiety disorders among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

Adjustment Disorders

FIGURE 27. ADJUSTMENT DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

	Union	Cape May	Middlesex	Ocean	Bergen	10 County	Somerset	Atlantic	Hudson	Essex	Monmouth
10/1/11-9/30/12	21.85	24.76	25.53	28.88	26.53	29.82	28.36	30.28	32.63	36.81	39.16
1/1/13-12/31/13	22.66	23.79	25.90	26.27	27.36	29.09	29.29	30.29	31.64	34.18	37.29

Annual Trend

Somerset: 23.53, 24.89, 26.46, 28.36, 27.45, 29.72, 29.74, 29.60, 29.09
10 County: 26.15, 27.84, 28.83, 29.82, 28.50, 29.99, 30.33, 29.91, 29.29

Jan 11-Dec 11, Apr 11-Mar 12, Jul 11-Jun 12, Oct 11-Sep 12, Jan 12-Dec 12, Apr 12-Mar 13, Jul 12-Jun 13, Oct 12-Sep 13, Jan 13-Dec 13

Percent Change

Union	3.71%
Somerset	3.28%
Bergen	3.13%
Middlesex	1.45%
Atlantic	0.03%
10 Counties	-2.45%
Hudson	-3.03%
Cape May	-3.92%
Monmouth	-4.78%
Essex	-7.14%
Ocean	-9.04%

The prevalence rate of adjustment disorders in Somerset County in the 12 months prior to Superstorm Sandy was 28.36 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 29.29 per 1,000 beneficiaries, reflecting a 3.28% relative increase.

FIGURE 28. QUARTERLY NEW INCIDENCE OF ADJUSTMENT DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES

Somerset: 4.53, 5.30, 5.32, 4.34, 5.04, 5.22, 4.71, 4.57
10 County: 5.43, 5.38, 5.46, 5.08, 5.33, 5.00, 4.85, 4.92

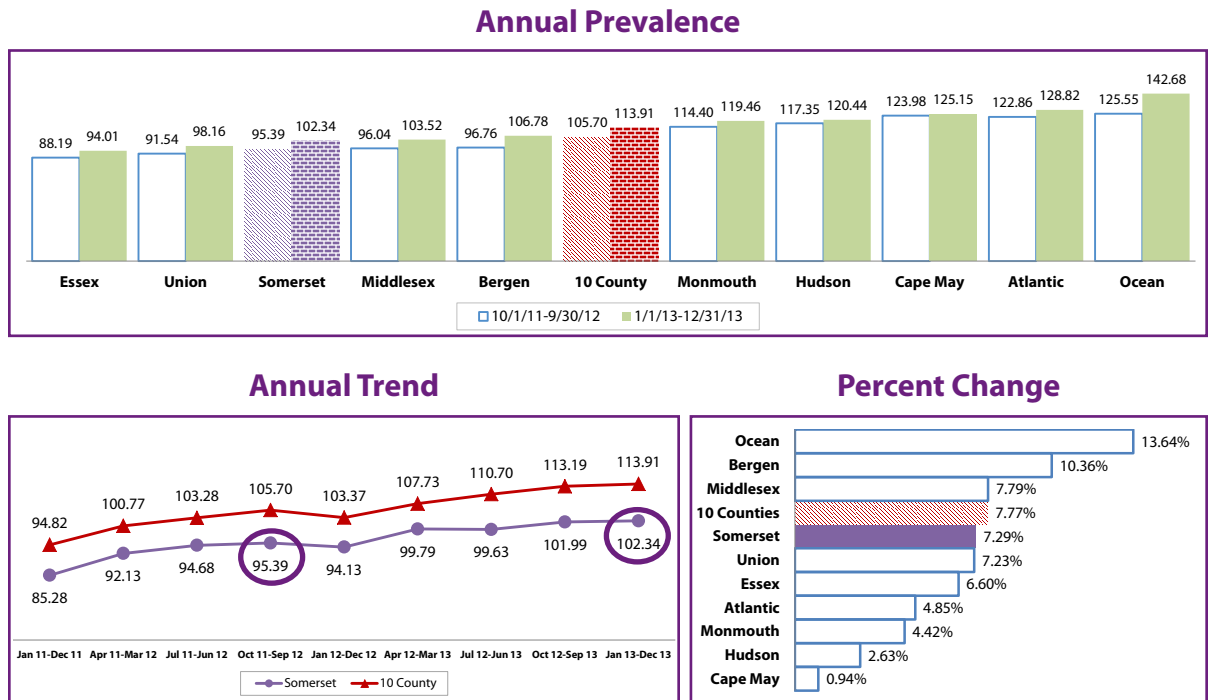Q1 2012, Q2 2012, Q3 2012, Q4 2012, Q1 2013, Q2 2013, Q3 2013, Q4 2013

This chart reflects trending of quarterly new incidence of adjustment disorders among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.
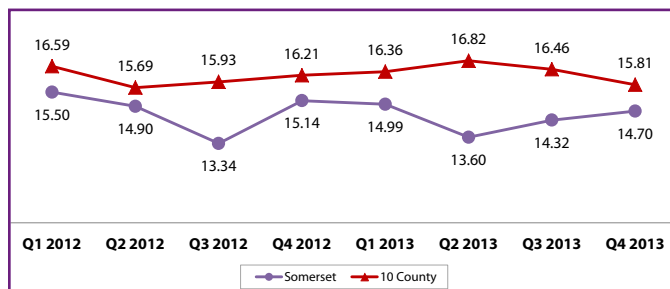
BEHAVIORAL HEALTH CONDITIONS

Post-Traumatic Stress Disorder (PTSD)

FIGURE 29. PTSD PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

	Bergen	Union	Hudson	Essex	10 County	Somerset	Middlesex	Atlantic	Monmouth	Cape May	Ocean
10/1/11-9/30/12	2.56	2.48	3.28	3.66	4.18	4.51	4.65	5.32	5.15	5.57	5.86
1/1/13-12/31/13	2.51	2.67	3.48	4.47	4.69	5.13	5.43	5.51	5.84	6.59	6.70

Annual Trend

Somerset: 3.87, 4.10, 4.19, 4.51, 4.29, 4.69, 4.84, 5.18, 5.13 (Jan 11-Dec 11 ... Jan 13-Dec 13)
10 County: 3.46, 3.81, 4.00, 4.18, 3.95, 4.30, 4.45, 4.57, 4.69

Percent Change

County	%
Essex	22.13%
Cape May	18.31%
Middlesex	16.77%
Ocean	14.33%
Somerset	13.75%
Monmouth	13.40%
10 Counties	12.20%
Union	7.66%
Hudson	6.10%
Atlantic	3.57%
Bergen	-1.95%

The prevalence rate of PTSD in Somerset County in the 12 months prior to Superstorm Sandy was 4.51 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 5.13 per 1,000 beneficiaries, reflecting a 13.75% relative increase.

FIGURE 30. QUARTERLY NEW INCIDENCE OF PTSD* PER 1,000 MEDICARE FFS BENEFICIARIES

Somerset: 0.54, 0.56, 0.63, 0.55, 0.55, 0.60, 0.74, 0.60
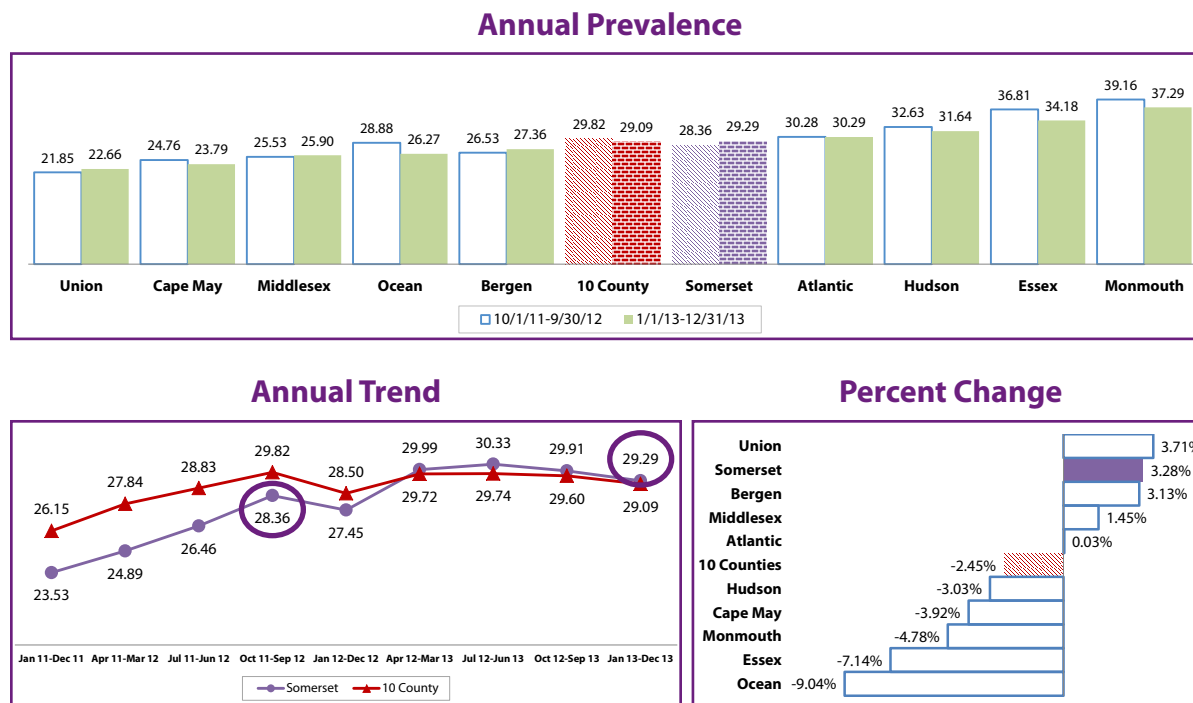10 County: 0.58, 0.54, 0.59, 0.51, 0.66, 0.60, 0.62, 0.86
(Q1 2012 ... Q4 2013)

This chart reflects trending of quarterly new incidence of PTSD among Medicare FFS beneficiaries in Somerset County.

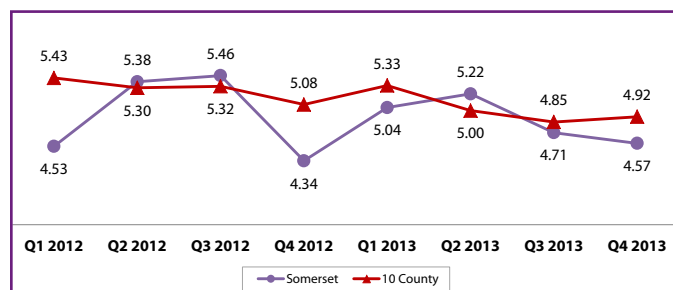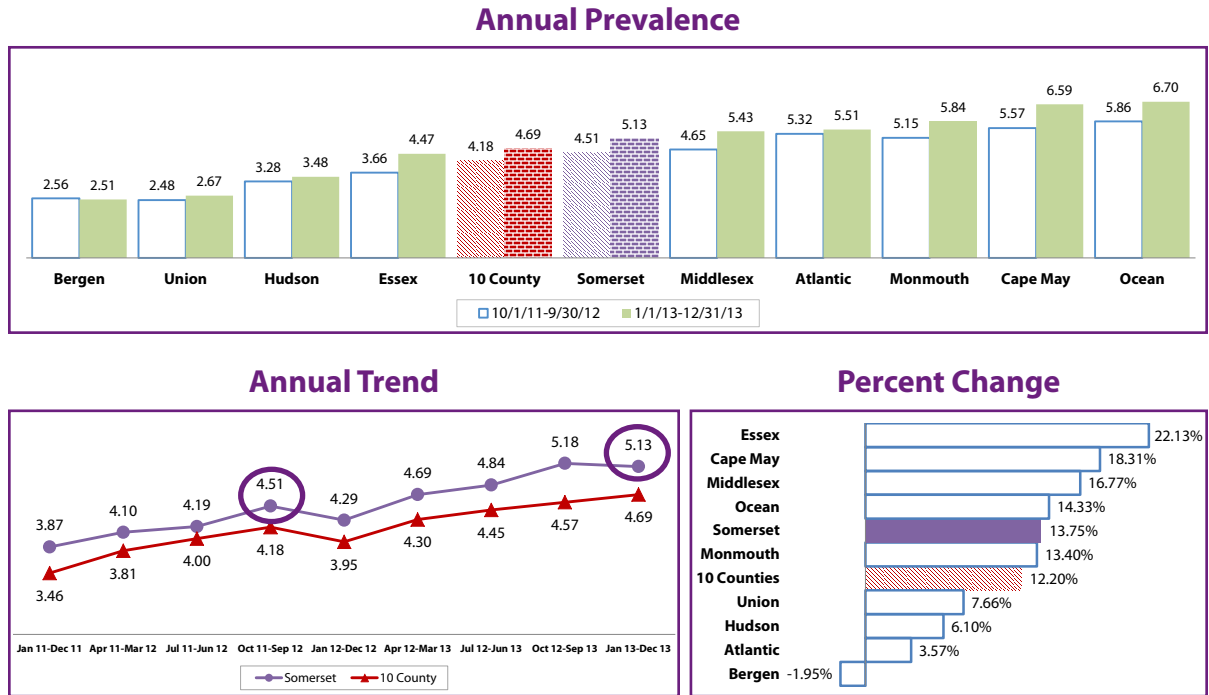* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

Alcohol or Substance Abuse

FIGURE 31. ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

	Bergen	Union	Middlesex	Somerset	10 County	Hudson	Cape May	Essex	Atlantic	Monmouth	Ocean
10/1/11-9/30/12	19.75	24.24	25.52	26.92	30.51	31.87	40.37	38.62	42.98	34.42	35.33
1/1/13-12/31/13	23.40	26.02	28.73	31.13	33.73	36.71	37.25	38.46	39.76	39.88	42.09

Annual Trend

Somerset: Jan 11-Dec 11: 23.03; Apr 11-Mar 12: 24.70; Jul 11-Jun 12: 25.68; Oct 11-Sep 12: 26.92; Jan 12-Dec 12: 26.18; Apr 12-Mar 13: 29.44; Jul 12-Jun 13: 30.88; Oct 12-Sep 13: 30.39; Jan 13-Dec 13: 31.13

10 County: Jan 11-Dec 11: 27.46; Apr 11-Mar 12: 29.38; Jul 11-Jun 12: 29.88; Oct 11-Sep 12: 30.51; Jan 12-Dec 12: 29.36; Apr 12-Mar 13: 31.38; Jul 12-Jun 13: 32.61; Oct 12-Sep 13: 33.40; Jan 13-Dec 13: 33.73

Percent Change

Ocean	19.13%
Bergen	18.48%
Monmouth	15.86%
Somerset	15.64%
Hudson	15.19%
Middlesex	12.58%
10 Counties	10.55%
Union	7.34%
Essex	-0.41%
Atlantic	-7.49%
Cape May	-7.73%

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 12 months prior to Superstorm Sandy was 26.92 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 31.13 per 1,000 beneficiaries, reflecting a 15.64% relative increase.

FIGURE 32. QUARTERLY NEW INCIDENCE OF ALCOHOL OR SUBSTANCE ABUSE* PER 1,000 MEDICARE FFS BENEFICIARIES

Somerset: Q1 2012: 4.20; Q2 2012: 4.57; Q3 2012: 4.85; Q4 2012: 4.59; Q1 2013: 5.44; Q2 2013: 5.70; Q3 2013: 3.72; Q4 2013: 5.49

10 County: Q1 2012: 5.04; Q2 2012: 4.74; Q3 2012: 4.98; Q4 2012: 5.04; Q1 2013: 5.67; Q2 2013: 5.72; Q3 2013: 5.36; Q4 2013: 5.01

This chart reflects trending of quarterly new incidence of alcohol or substance abuse among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.
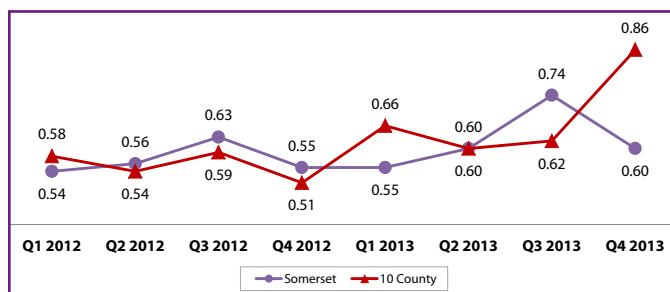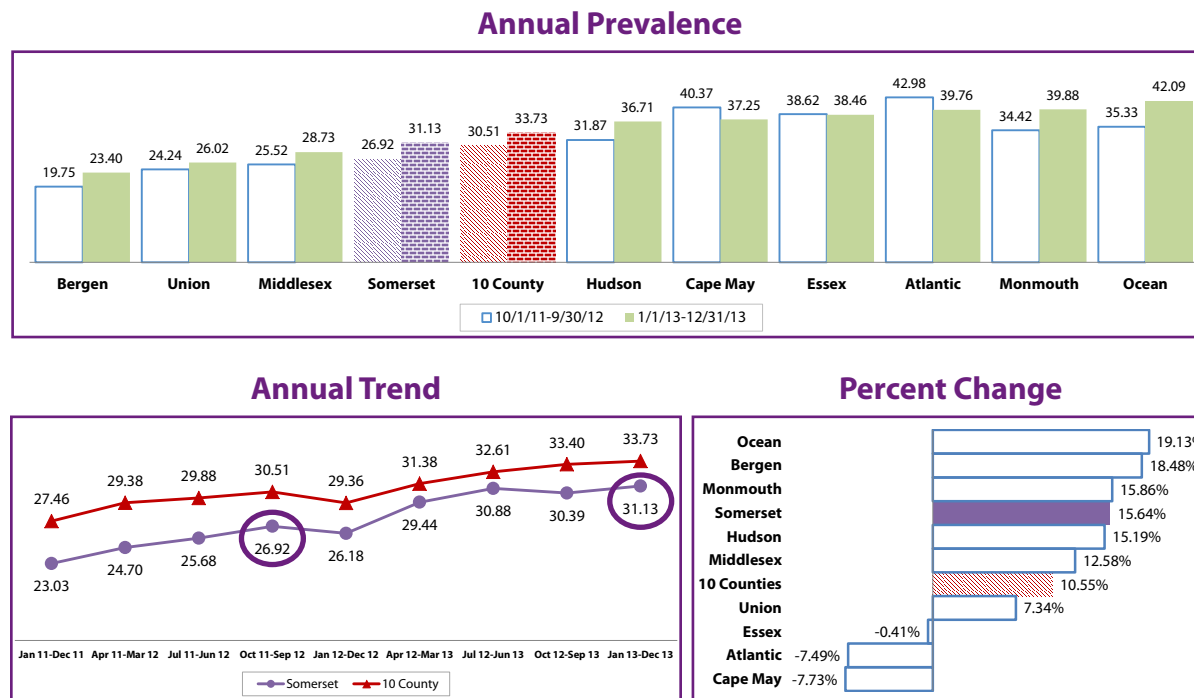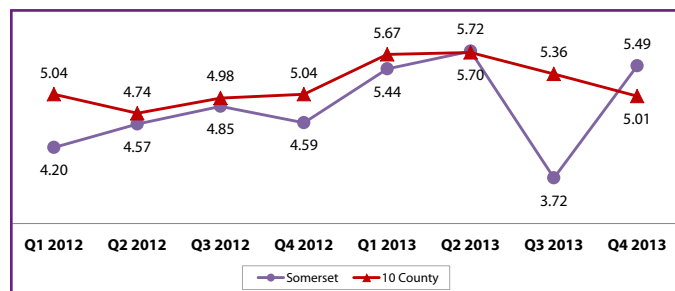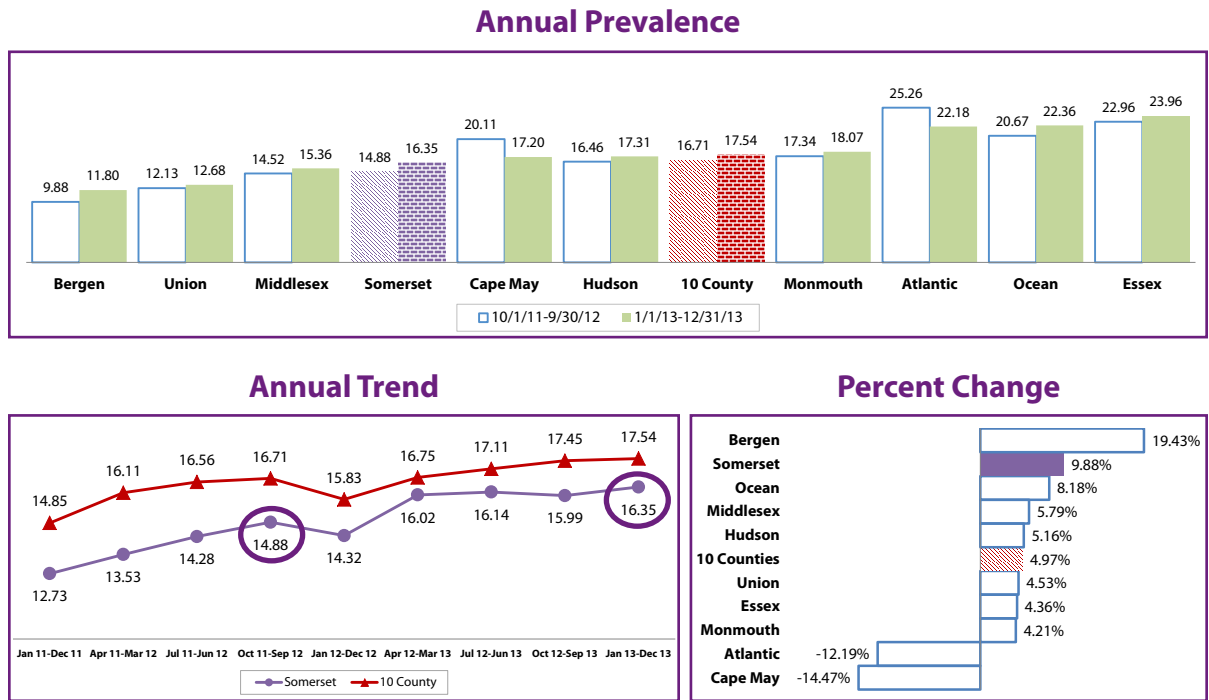
BEHAVIORAL HEALTH CONDITIONS

Substance Abuse Alone

FIGURE 33. SUBSTANCE ABUSE ALONE PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

	Bergen	Union	Middlesex	Somerset	Cape May	Hudson	10 County	Monmouth	Atlantic	Ocean	Essex
10/1/11-9/30/12	9.88	12.13	14.52	14.88	20.11	16.46	16.71	17.34	25.26	20.67	22.96
1/1/13-12/31/13	11.80	12.68	15.36	16.35	17.20	17.31	17.54	18.07	22.18	22.36	23.96

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	12.73	13.53	14.28	14.88	14.32	16.02	16.14	15.99	16.35
10 County	14.85	16.11	16.56	16.71	15.83	16.75	17.11	17.45	17.54

Percent Change

Bergen	19.43%
Somerset	9.88%
Ocean	8.18%
Middlesex	5.79%
Hudson	5.16%
10 Counties	4.97%
Union	4.53%
Essex	4.36%
Monmouth	4.21%
Atlantic	-12.19%
Cape May	-14.47%

The prevalence rate of substance abuse alone in Somerset County in the 12 months prior to Superstorm Sandy was 14.88 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 16.35 per 1,000 beneficiaries, reflecting a 9.88% relative increase.

FIGURE 34. QUARTERLY NEW INCIDENCE OF SUBSTANCE ABUSE ALONE* PER 1,000 MEDICARE FFS BENEFICIARIES

	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013
Somerset	2.52	2.78	2.50	2.08	2.73	2.54	2.10	2.57
10 County	2.87	2.68	2.60	2.58	2.88	2.84	2.68	2.87

This chart reflects trending of quarterly new incidence of substance abuse alone among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.
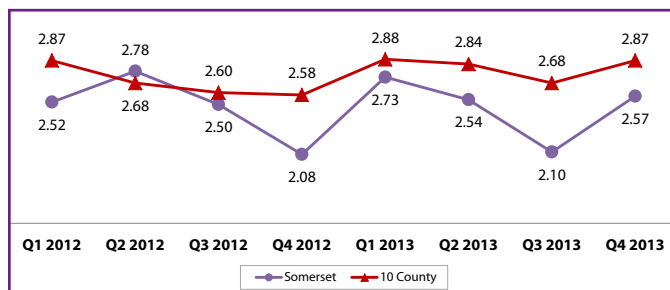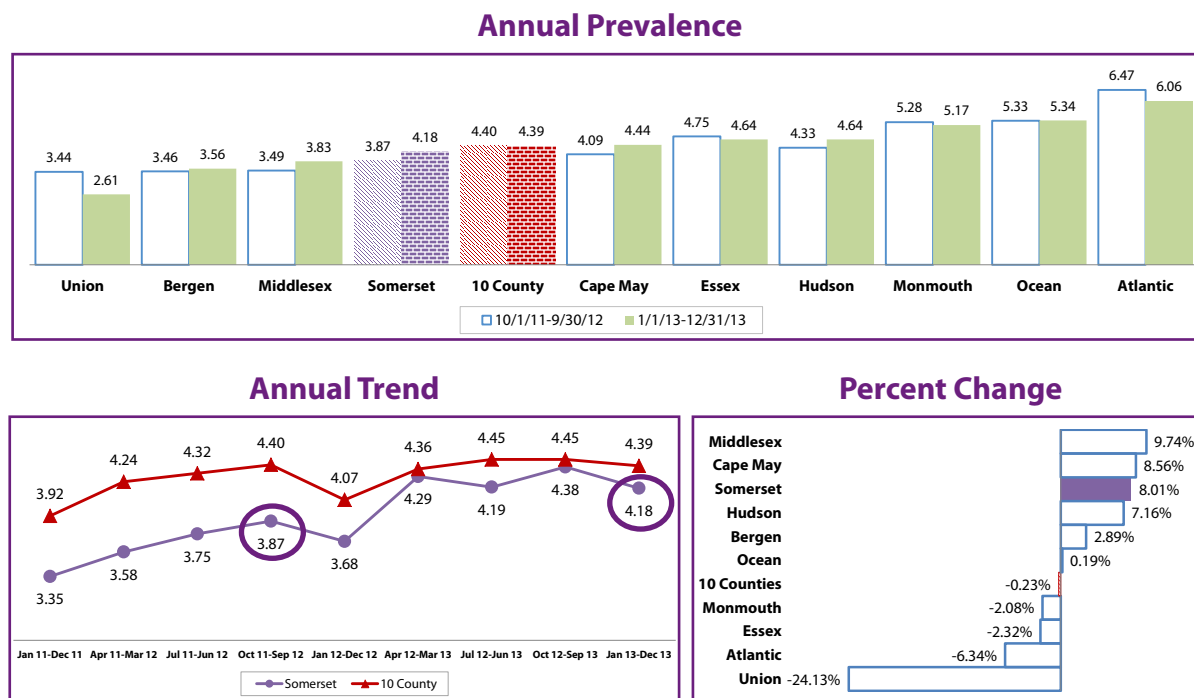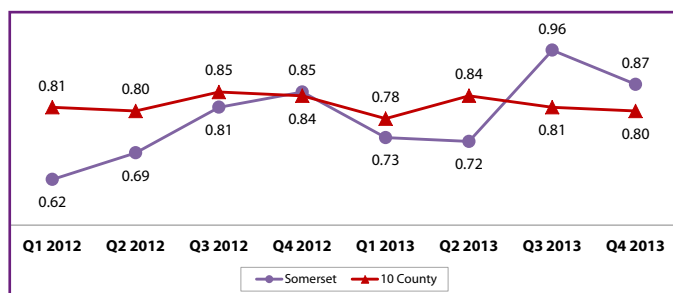
Suicide and Intentional Self-Inflicted Injury

FIGURE 35. SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Prevalence

Union: 3.44, 2.61
Bergen: 3.46, 3.56
Middlesex: 3.49, 3.83
Somerset: 3.87, 4.18
10 County: 4.40, 4.39
Cape May: 4.09, 4.44
Essex: 4.75, 4.64
Hudson: 4.33, 4.64
Monmouth: 5.28, 5.17
Ocean: 5.33, 5.34
Atlantic: 6.47, 6.06

□ 10/1/11-9/30/12   ■ 1/1/13-12/31/13

Annual Trend

10 County: 3.92, 4.24, 4.32, 4.40, 4.07, 4.36, 4.45, 4.45, 4.39
Somerset: 3.35, 3.58, 3.75, 3.87, 3.68, 4.29, 4.19, 4.38, 4.18

Jan 11-Dec 11, Apr 11-Mar 12, Jul 11-Jun 12, Oct 11-Sep 12, Jan 12-Dec 12, Apr 12-Mar 13, Jul 12-Jun 13, Oct 12-Sep 13, Jan 13-Dec 13

— Somerset   — 10 County

Percent Change

Middlesex: 9.74%
Cape May: 8.56%
Somerset: 8.01%
Hudson: 7.16%
Bergen: 2.89%
Ocean: 0.19%
10 Counties: -0.23%
Monmouth: -2.08%
Essex: -2.32%
Atlantic: -6.34%
Union: -24.13%

The prevalence rate of suicide and intentional self-inflicted injury in Somerset County in the 12 months prior to Superstorm Sandy was 3.87 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 4.18 per 1,000 beneficiaries, reflecting an 8.01% relative increase.

FIGURE 36. QUARTERLY NEW INCIDENCE OF SUICIDE AND INTENTIONAL SELF-INFLICTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES

10 County: 0.81, 0.80, 0.85, 0.85, 0.78, 0.84, 0.81, 0.80
Somerset: 0.62, 0.69, 0.81, 0.84, 0.73, 0.72, 0.96, 0.87

Q1 2012, Q2 2012, Q3 2012, Q4 2012, Q1 2013, Q2 2013, Q3 2013, Q4 2013

— Somerset   — 10 County

This chart reflects trending of quarterly new incidence of suicide and intentional self-inflicted injury among Medicare FFS beneficiaries in Somerset County.

* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

BEHAVIORAL HEALTH CONDITIONS

RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

To identify Medicare FFS beneficiaries at risk of developing depression or proxy disorders, HQSI 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 regression 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 before and after Superstorm Sandy.
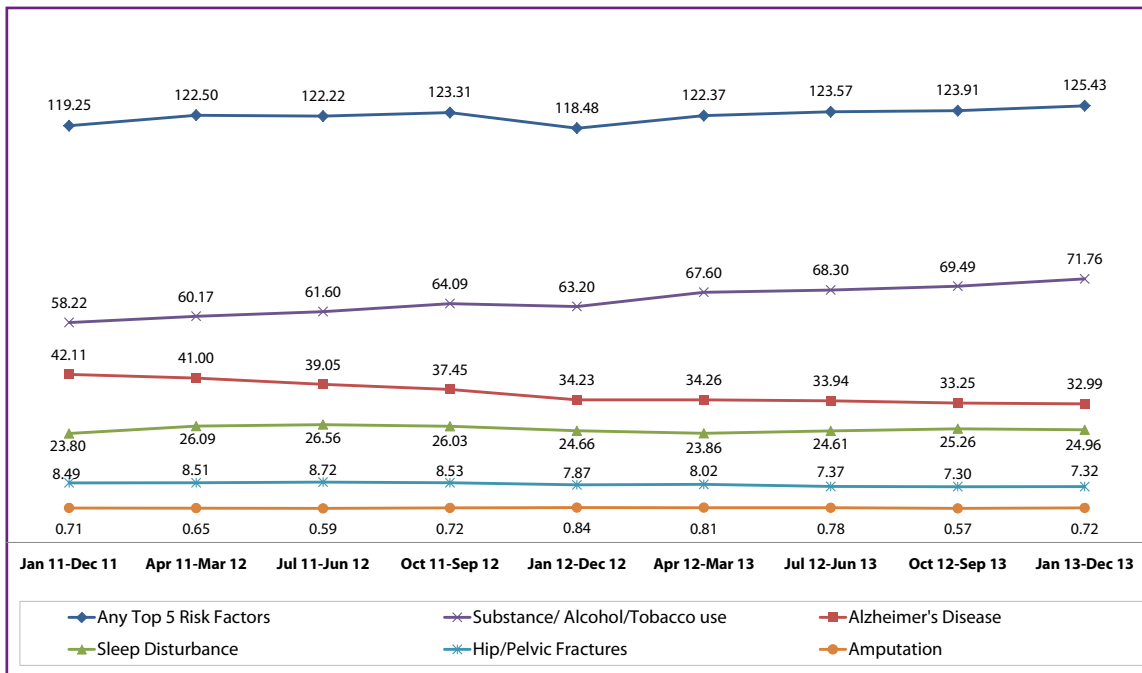
Summary

Figure 37. Percent Change of Prevalence of the Top Five Risk Factors of Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Any of the Top Five Risk Factors for Depression or Proxy Disorders	123.31	125.43	1.72	136.36	136.15	-0.15
• Substance or Alcohol Abuse or Tobacco Use	64.09	71.76	11.97	78.33	81.78	4.40
• Alzheimer's Disease and Related Disorders or Senile Dementia	37.45	32.99	-11.91	39.11	34.91	-10.74
• Sleep Disturbance	26.03	24.96	-4.11	24.24	24.78	2.23
• Hip/Pelvic Fractures	8.53	7.32	-14.19	7.95	7.66	-3.65
• Amputations*	0.72	0.72	0.00	1.11	0.99	-10.81

* Rates lower than 5 per 1,000 beneficiaries.

Somerset County experienced an increase in any of the top five risk factors for depression or proxy disorders and substance or alcohol abuse or tobacco use.

FIGURE 38. ANNUAL PREVALENCE TREND FOR RISK FACTORS OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES

This chart reflects annual trending in prevalence of the top five risk factors for depression or proxy disorders among Medicare FFS beneficiaries in Somerset County.

ANY OF THE TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

FIGURE 39. ANNUAL PREVALENCE OF ANY OF THE TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES
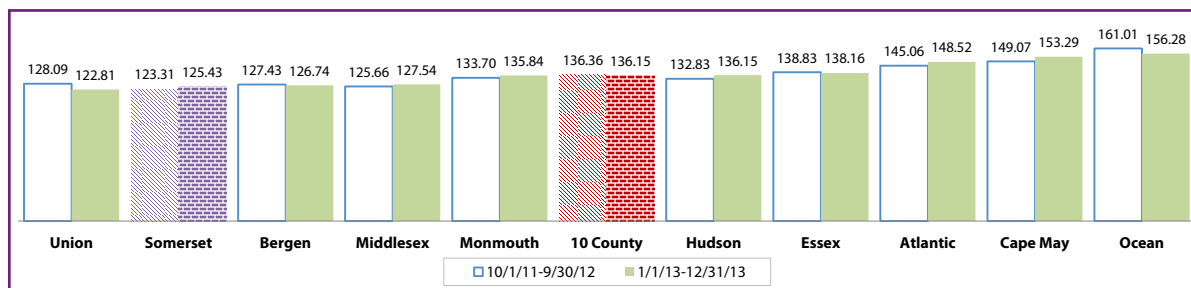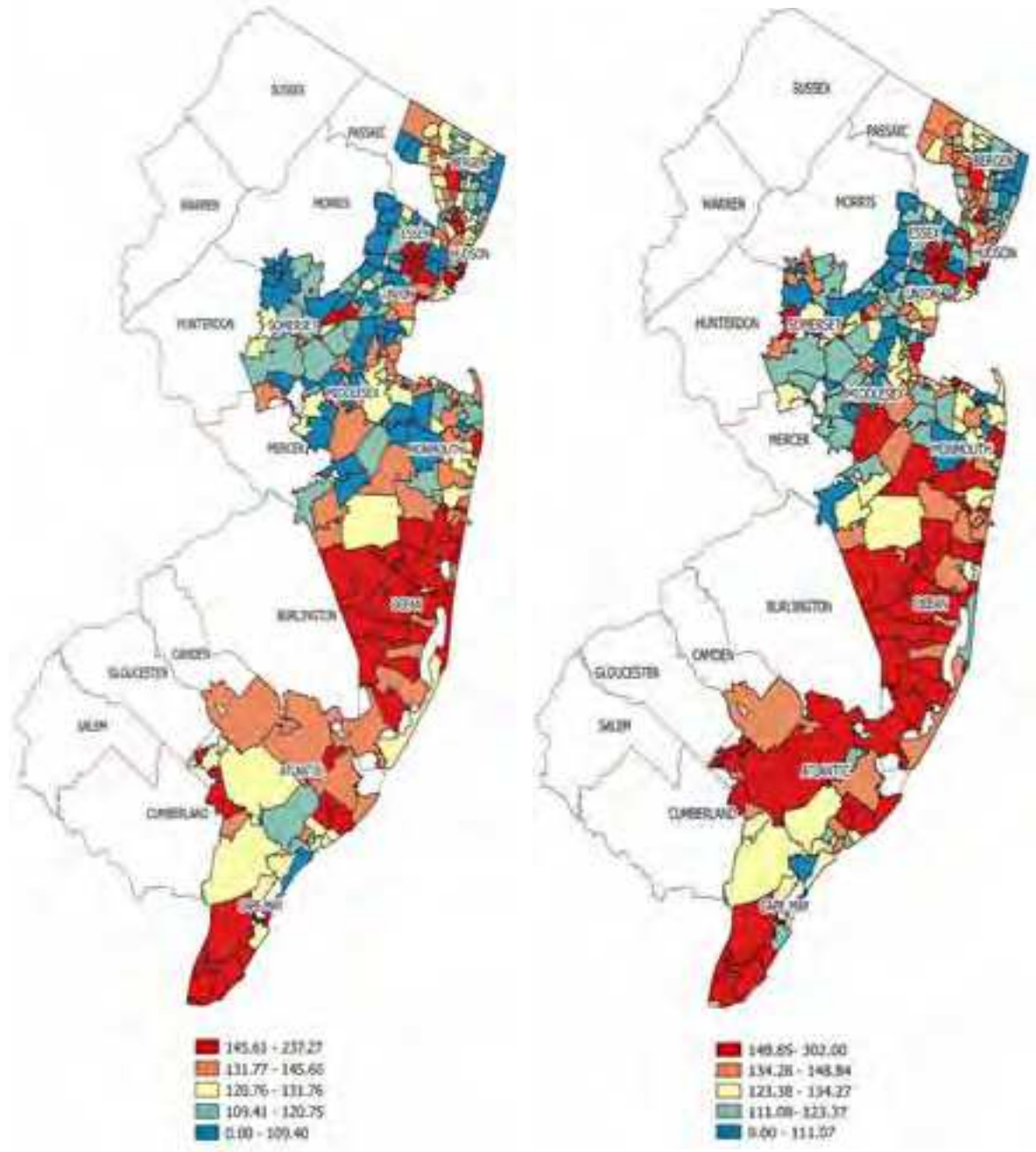

The prevalence rate of Medicare FFS beneficiaries with any of the top five risk factors for depression or proxy disorders in Somerset County in the 12 months prior to Superstorm Sandy was 123.31 per 1,000 beneficiaries. After the storm, the rate increased to 125.43 per 1,000 beneficiaries.

BEHAVIORAL HEALTH CONDITIONS

FIGURE 40. PREVALENCE OF ANY OF THE TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES

October 1, 2011 – September 30, 2012   **January 1, 2013 – December 31, 2013**
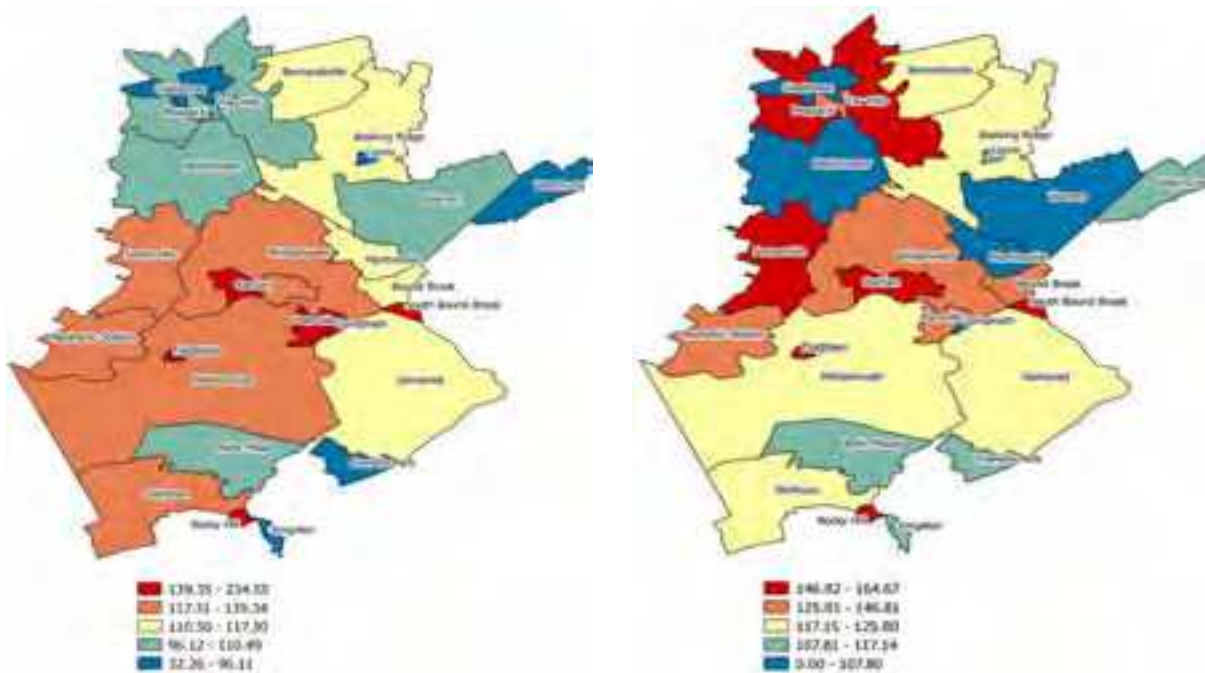

The color-coded map of New Jersey depicts prevalence of any of the top five risk factors from high (red) to low (blue) in the 10 FEMA-declared disaster counties before and after Superstorm Sandy.

* Mapped using ZIP codes of the 10 counties.

FIGURE 41. SOMERSET COUNTY PREVALENCE OF ANY OF THE TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS* PER 1,000 MEDICARE FFS BENEFICIARIES

October 1, 2011 – September 30, 2012

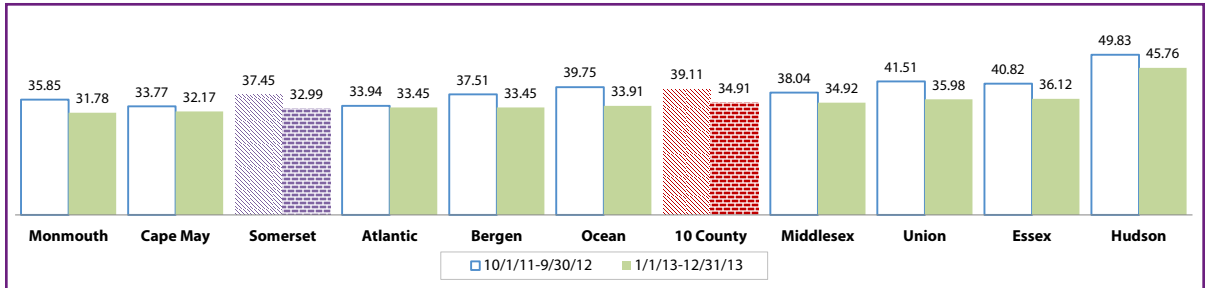**January 1, 2013 – December 31, 2013**

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) before and after Superstorm Sandy.

* Mapped using ZIP codes; may not display all the city names located within the ZIP code.

BEHAVIORAL HEALTH CONDITIONS
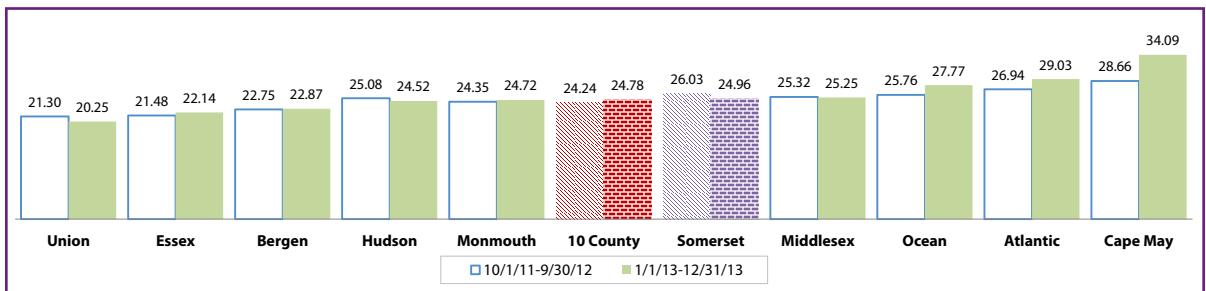
Alzheimer's Disease and Related Disorders or Senile Dementia

FIGURE 42. ANNUAL PREVALENCE OF ALZHEIMER'S DISEASE AND RELATED DISORDERS OR SENILE DEMENTIA PER 1,000 MEDICARE FFS BENEFICIARIES

	Monmouth	Cape May	Somerset	Atlantic	Bergen	Ocean	10 County	Middlesex	Union	Essex	Hudson
10/1/11-9/30/12	35.85	33.77	37.45	33.94	37.51	39.75	39.11	38.04	41.51	40.82	49.83
1/1/13-12/31/13	31.78	32.17	32.99	33.45	33.45	33.91	34.91	34.92	35.98	36.12	45.76

The prevalence rate of Medicare FFS beneficiaries with Alzheimer's disease and related disorders or senile dementia in Somerset County in the 12 months prior to Superstorm Sandy was 37.45 per 1,000 beneficiaries. After the storm, the rate decreased to 32.99 per 1,000 beneficiaries.
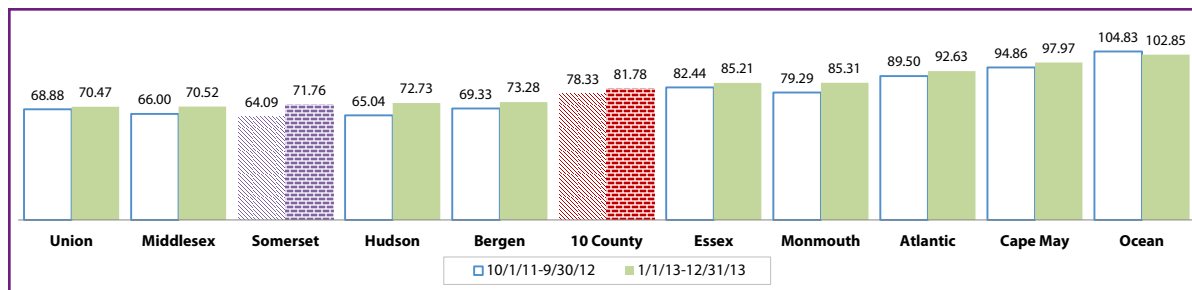
Sleep Disturbance

FIGURE 43. ANNUAL PREVALENCE OF SLEEP DISTURBANCE PER 1,000 MEDICARE FFS BENEFICIARIES

	Union	Essex	Bergen	Hudson	Monmouth	10 County	Somerset	Middlesex	Ocean	Atlantic	Cape May
10/1/11-9/30/12	21.30	21.48	22.75	25.08	24.35	24.24	26.03	25.32	25.76	26.94	28.66
1/1/13-12/31/13	20.25	22.14	22.87	24.52	24.72	24.78	24.96	25.25	27.77	29.03	34.09

The prevalence rate of Medicare FFS beneficiaries with sleep disturbance in Somerset County in the 12 months prior to Superstorm Sandy was 26.03 per 1,000 beneficiaries. After the storm, the rate decreased to 24.96 per 1,000 beneficiaries.
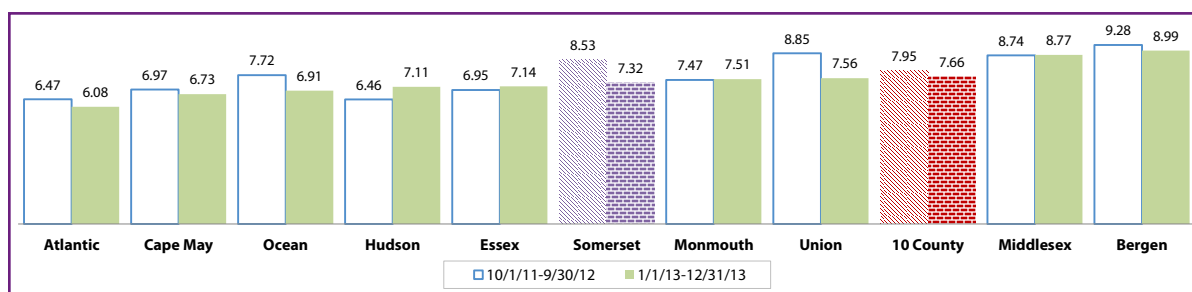
Substance or Alcohol Abuse or Tobacco Use

	Union	Middlesex	Somerset	Hudson	Bergen	10 County	Essex	Monmouth	Atlantic	Cape May	Ocean
10/1/11-9/30/12	68.88	66.00	64.09	65.04	69.33	78.33	82.44	79.29	89.50	94.86	104.83
1/1/13-12/31/13	70.47	70.52	71.76	72.73	73.28	81.78	85.21	85.31	92.63	97.97	102.85

The prevalence rate of Medicare FFS beneficiaries with substance or alcohol abuse or tobacco use in Somerset County in the 12 months prior to Superstorm Sandy was 64.09 per 1,000 beneficiaries. After the storm, the rate increased to 71.76 per 1,000 beneficiaries.
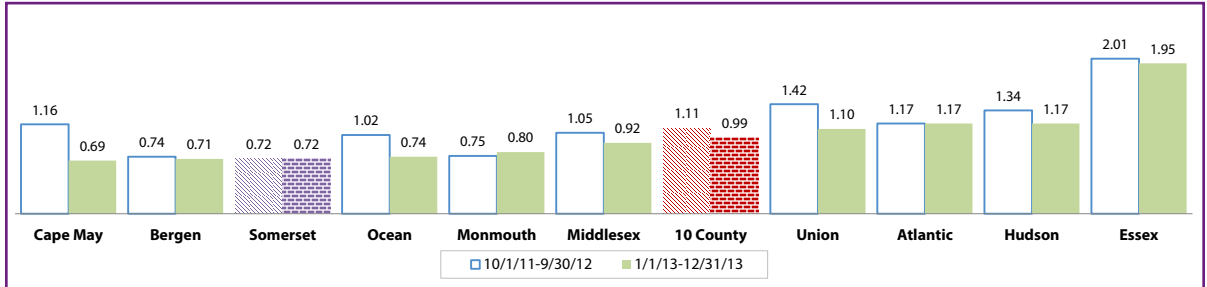
Hip/Pelvic Fractures

	Atlantic	Cape May	Ocean	Hudson	Essex	Somerset	Monmouth	Union	10 County	Middlesex	Bergen
10/1/11-9/30/12	6.47	6.97	7.72	6.46	6.95	8.53	7.47	8.85	7.95	8.74	9.28
1/1/13-12/31/13	6.08	6.73	6.91	7.11	7.14	7.32	7.51	7.56	7.66	8.77	8.99

The prevalence rate of Medicare FFS beneficiaries with hip/pelvic fractures in Somerset County in the 12 months prior to Superstorm Sandy was 8.53 per 1,000 beneficiaries. After the storm, the rate decreased to 7.32 per 1,000 beneficiaries.

BEHAVIORAL HEALTH CONDITIONS

Amputations

**FIGURE 46. ANNUAL PREVALENCE OF AMPUTATIONS
PER 1,000 MEDICARE FFS BENEFICIARIES**

	Cape May	Bergen	Somerset	Ocean	Monmouth	Middlesex	10 County	Union	Atlantic	Hudson	Essex
10/1/11-9/30/12	1.16	0.74	0.72	1.02	0.75	1.05	1.11	1.42	1.17	1.34	2.01
1/1/13-12/31/13	0.69	0.71	0.72	0.74	0.80	0.92	0.99	1.10	1.17	1.17	1.95

The prevalence rate of Medicare FFS beneficiaries with amputations in Somerset County in the 12 months prior to Superstorm Sandy was 0.72 per 1,000 beneficiaries. After the storm, the rate remained the same.

OUTPATIENT BEHAVIORAL HEALTH SERVICES

Assessments

Summary

County	Depression Screening*	Psychiatric Diagnostic Procedures	Neuropsy-chological Tests	Diagnostic Psychological Tests**	Health and Behavior Assessment/ Intervention**
Figure 47. Annual Utilization of Behavioral Health Assessment Services per 1,000 Medicare FFS Beneficiaries					
October 1, 2011 – September 30, 2012					
Atlantic	1.12	59.08	7.14	3.29	1.03
Bergen	4.33	52.45	10.53	3.04	**0.42**
Cape May	**0.65**	48.08	**6.13**	**1.77**	0.70
Essex	0.83	58.52	8.31	5.55	0.53
Hudson	2.83	50.84	16.90	7.88	0.44
Middlesex	7.51	48.20	7.83	5.47	0.98
Monmouth	4.72	61.59	10.46	6.79	0.62
Ocean	9.50	54.39	9.77	3.41	0.59
Somerset	7.11	47.59	7.20	1.90	1.02
Union	3.02	**46.97**	6.75	2.20	0.61
10 counties	**4.81**	**53.41**	**9.48**	**4.39**	**0.65**
January 1, 2013 – December 31, 2013					
Atlantic	11.61	52.76	8.96	3.73	1.41
Bergen	12.04	45.55	11.00	3.20	0.35
Cape May	**0.92**	41.41	**5.95**	**1.97**	1.19
Essex	5.91	53.37	9.05	2.79	0.82
Hudson	9.95	45.13	17.34	8.71	**0.19**
Middlesex	11.39	40.15	8.94	5.38	1.25
Monmouth	13.97	54.19	10.99	6.20	0.49
Ocean	16.27	43.28	12.54	5.34	0.24
Somerset	23.76	40.21	11.45	5.03	0.87
Union	9.20	**37.01**	9.28	2.71	0.78
10 counties	**12.03**	**45.69**	**10.85**	**4.61**	**0.66**

* Depression screening comparison time frames are different (January 1, 2012 – December 31, 2012 vs. January 1, 2013 – December 31, 2013).

** Rates lower than 5 per 1,000 beneficiaries.

■ Lowest   □ Highest

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).

In the 12 months prior to Superstorm Sandy, Somerset County did not have the the highest utilization of any of the outpatient behavioral health assessment services. After the storm, Somerset County had the highest utilization rate of the depression screening.

| Figure 48. Percent Change of Behavioral Health Service Utilization – Assessments per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Annual Depression screening*	7.11	23.76	234.18	4.81	12.03	150.10
Psychiatric Diagnostic Procedures	47.59	40.21	-15.51	53.41	45.69	-14.45
Neuropsychological Tests	7.20	11.45	59.03	9.48	10.85	14.45
Diagnostic Psychological Tests**	1.90	5.03	164.74	4.39	4.61	5.01
Health and Behavior Assessment/ Intervention**	1.02	0.87	-14.71	0.65	0.66	1.54

* Depression screening comparison time frames are different (January 1, 2012 – December 31, 2012 vs. January 1, 2013 – December 31, 2013).
** Rates lower than 5 per 1,000 beneficiaries.

The utilization of the annual depression screening benefit in Somerset County increased from 7.11 per 1,000 beneficiaries before the storm to 23.76 per 1,000 beneficiaries after the storm.

FIGURE 49. ANNUAL UTILIZATION TREND OF BEHAVIORAL HEALTH ASSESSMENT SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES
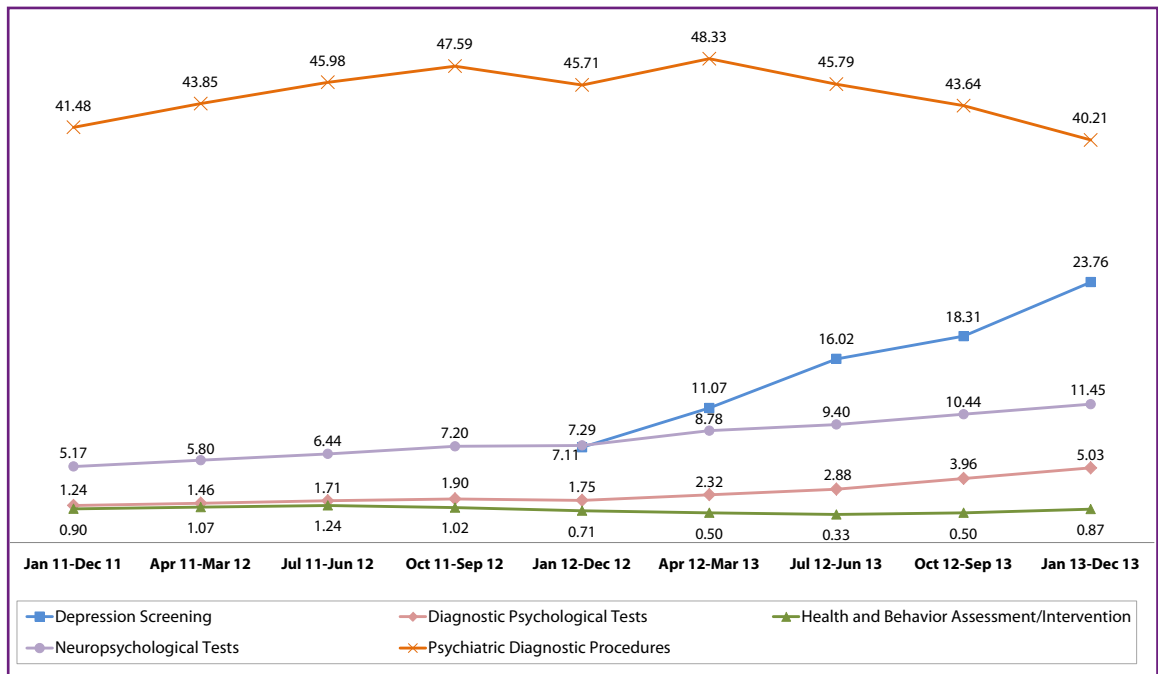

This chart reflects annual trending in the utilization of behavioral health assessment services among Medicare FFS beneficiaries in Somerset County.

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.

Beginning October 2011, depression screening became a Medicare-covered service. According to the CMS Screening for Depression Booklet,[7] Medicare Part B covers an annual screening for depression of 15 minutes in length for beneficiaries in primary care settings when staff-assisted depression care supports are in place to assure accurate diagnosis, effective treatment, and follow-up. The first quarter of data in this profile for depression screening starts on January 2012 since there were only 14 claims filed for depression screening in the last quarter of 2011.

FIGURE 50. DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Annual Trend


Percent Change
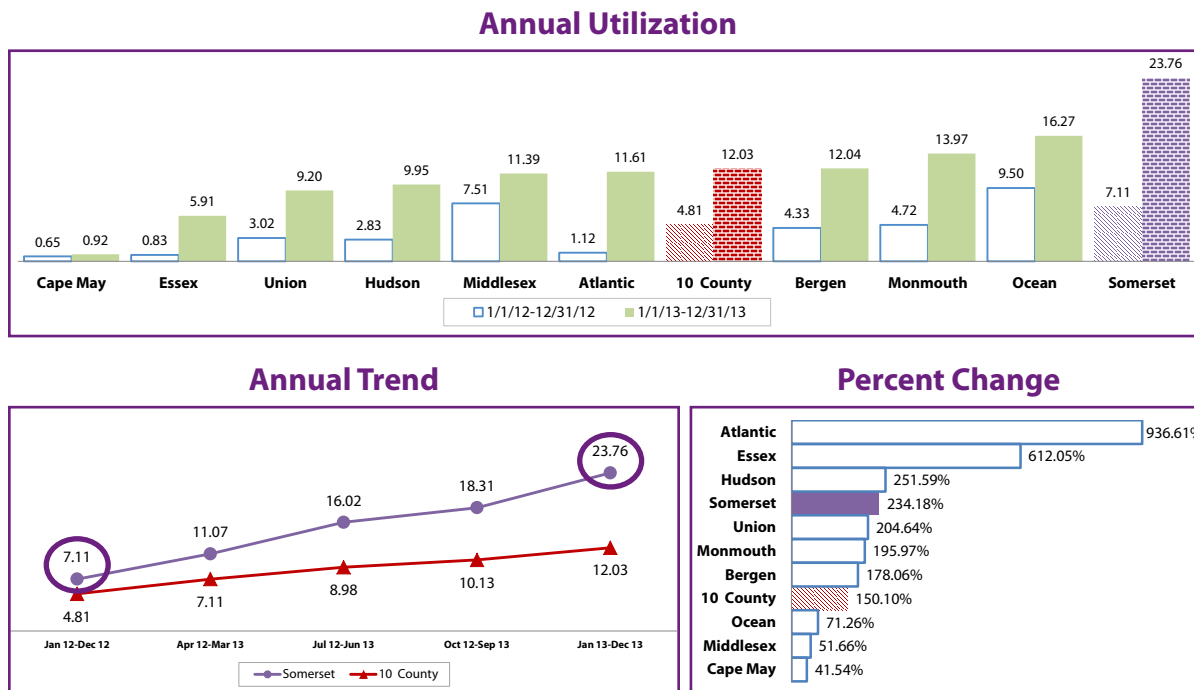
The rate of depression screening in Somerset County for calendar year 2012 was 7.11 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 23.76 per 1,000 beneficiaries, the highest rate among all 10 counties. This change reflects a 234.18% relative increase.

UTILIZATION

FIGURE 51. QUARTERLY DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES
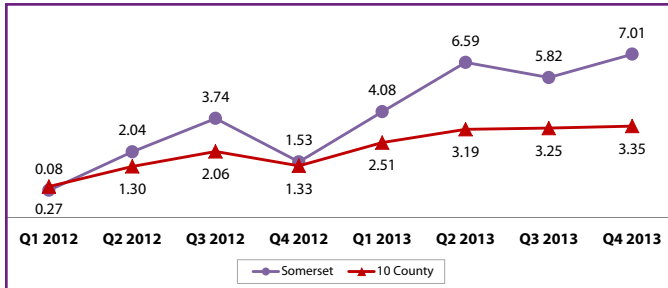
This chart reflects trending of quarterly utilization of depression screening among Medicare FFS beneficiaries in Somerset County.

## FIGURE 52. DEPRESSION SCREENING* CLAIMS FOR MEDICARE FFS BENEFICIARIES
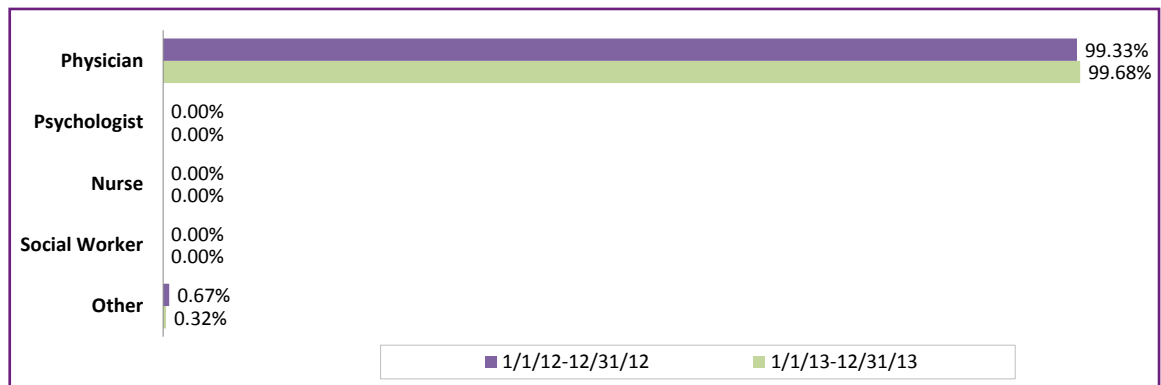
* Depression screening is a one-time benefit in 12 months.

In calendar year 2012, 99.33% of depression screening claims were filed by physicians and 0.67% were filed by others. After the storm, 99.68% were filed by physicians and 0.32% were filed by others.

FIGURE 53. DEPRESSION SCREENING*
PER 1,000 MEDICARE FFS BENEFICIARIES IN 10 COUNTIES

January 1, 2012 – December 31, 2012

**January 1, 2013 – December 31, 2013**
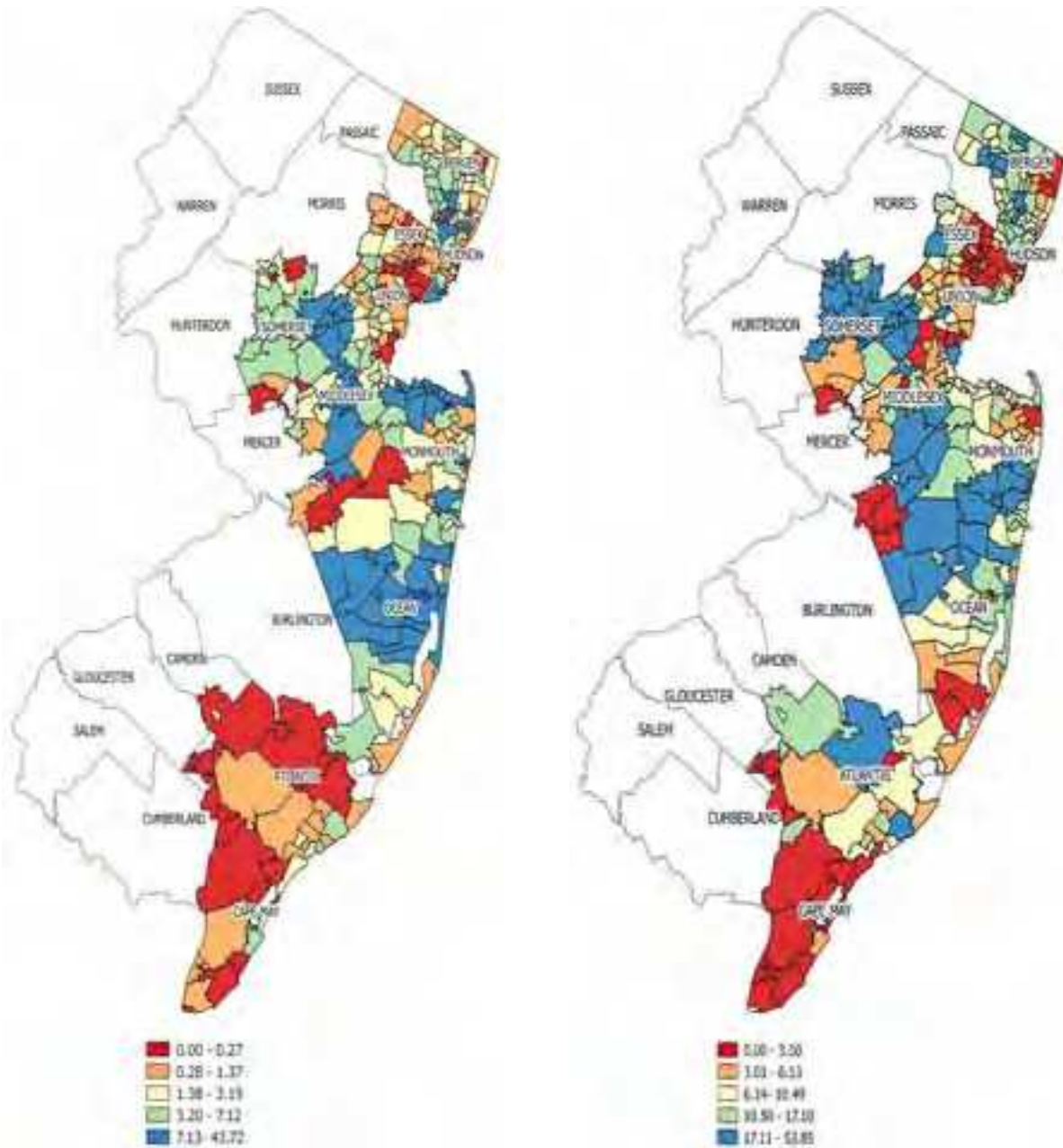
UTILIZATION

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 before and after Superstorm Sandy.

* Mapped using ZIP codes of the 10 counties.

FIGURE 54. SOMERSET COUNTY DEPRESSION SCREENING*
PER 1,000 MEDICARE FFS BENEFICIARIES

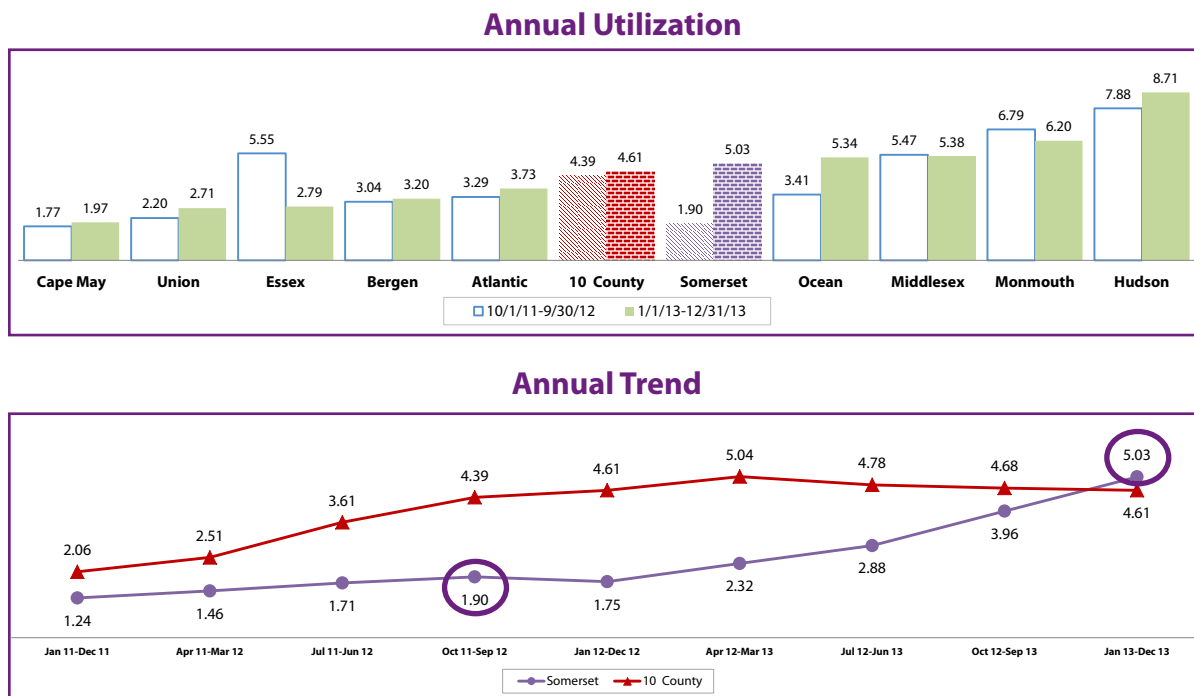**January 1, 2012 – December 31, 2012**   **January 1, 2013 – December 31, 2013**
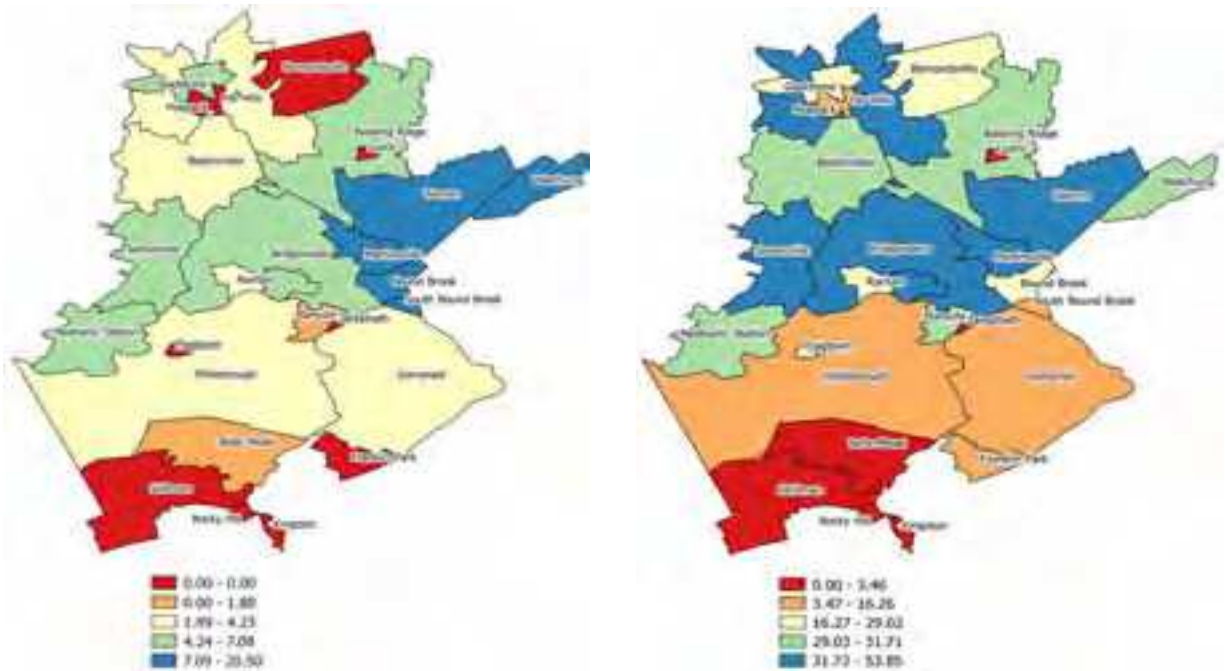
The color-coded map of Somerset County depicts regional variation in the rates of the use of the depression screening benefit from low (red) to high (blue) before and after Superstorm Sandy.

* Mapped using ZIP codes; may not display all the city names located within the ZIP code.

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).[8]

FIGURE 55. DIAGNOSTIC PSYCHOLOGICAL TESTS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Cape May	Union	Essex	Bergen	Atlantic	10 County	Somerset	Ocean	Middlesex	Monmouth	Hudson
10/1/11-9/30/12	1.77	2.20	5.55	3.04	3.29	4.39	1.90	3.41	5.47	6.79	7.88
1/1/13-12/31/13	1.97	2.71	2.79	3.20	3.73	4.61	5.03	5.34	5.38	6.20	8.71

Annual Trend

|	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	1.24	1.46	1.71	1.90	1.75	2.32	2.88	3.96	5.03
10 County	2.06	2.51	3.61	4.39	4.61	5.04	4.78	4.68	4.61

The rate of diagnostic psychological tests in Somerset County in the 12 months prior to Superstorm Sandy was 1.90 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 5.03 per 1,000 beneficiaries.

Due to these low numbers, no percent change data has been provided for this assessment.

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.[8]

FIGURE 56. HEALTH AND BEHAVIOR ASSESSMENT/INTERVENTION PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Annual Trend
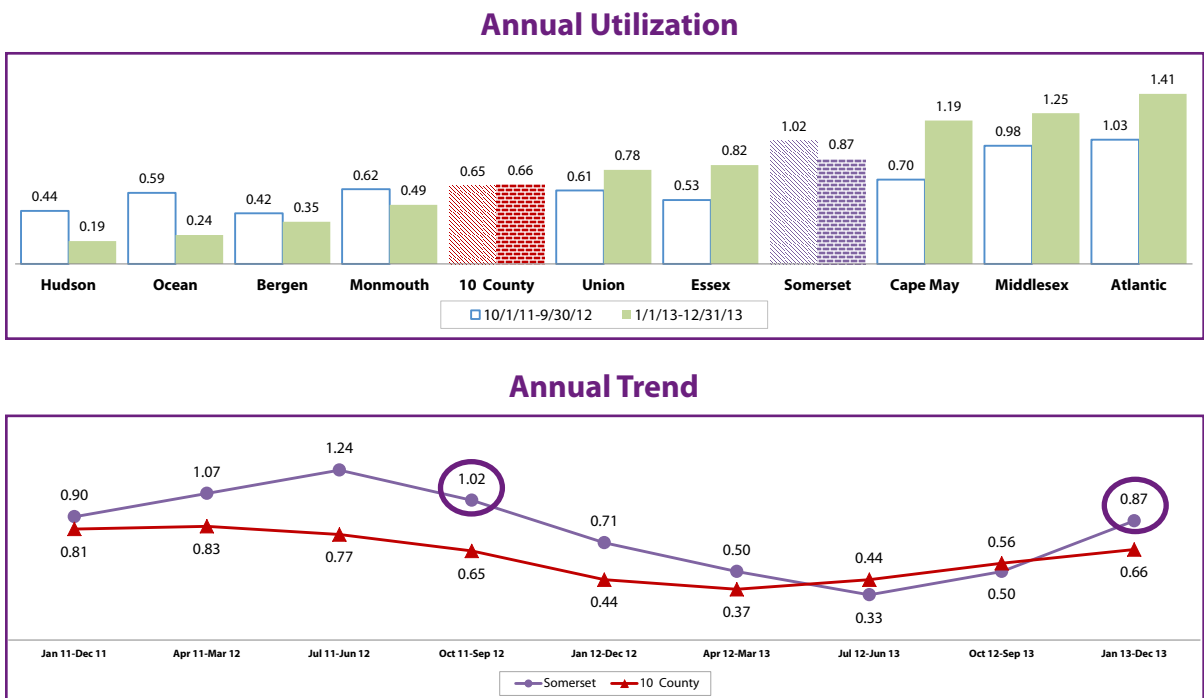
The rate of health and behavior assessment/intervention in Somerset County in the 12 months prior to Superstorm Sandy was 1.02 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 0.87 per 1,000 beneficiaries.

Due to these low numbers, no percent change data has been provided for this assessment.

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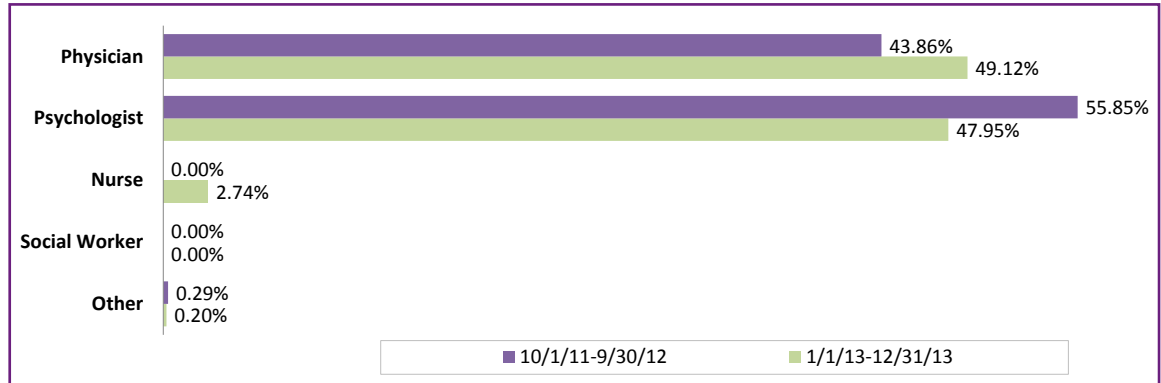
Neuropsychological Tests

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.[8]

FIGURE 57. NEUROPSYCHOLOGICAL TESTS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Annual Trend

Percent Change
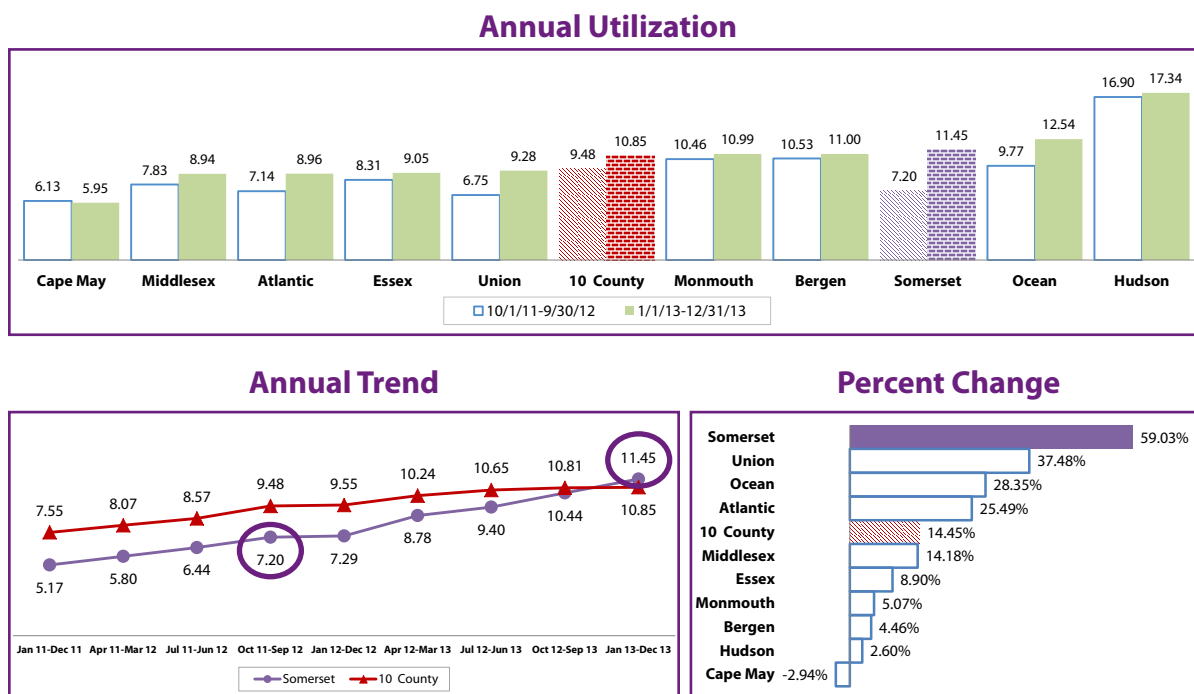
The rate of neuropsychological tests in Somerset County in the 12 months prior to Superstorm Sandy was 7.20 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 11.45 per 1,000 beneficiaries. This change reflects a 59.03% relative increase, the largest increase among all 10 counties.

FIGURE 58. NEUROPSYCHOLOGICAL TESTS CLAIMS* FOR MEDICARE FFS BENEFICIARIES

Physician: 43.86% / 49.12%
Psychologist: 55.85% / 47.95%
Nurse: 0.00% / 2.74%
Social Worker: 0.00% / 0.00%
Other: 0.29% / 0.20%

Legend: ■ 10/1/11-9/30/12   ■ 1/1/13-12/31/13

* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for the procedure.
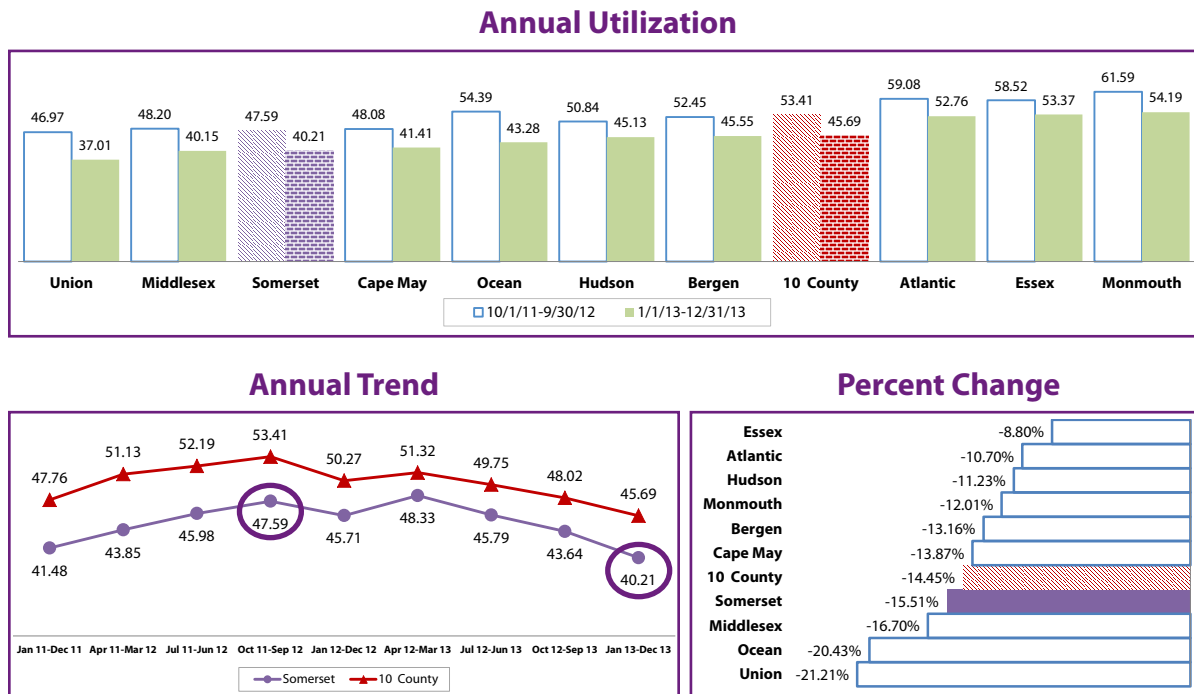
In the 12 months prior to Superstorm Sandy, 55.85% of neuropsychological tests claims were filed by psychologists, 43.86% were filed by physicians, and 0.29% were filed by others.

After the storm, 49.12% of neuropsychological tests claims were filed by physicians, 47.95% were filed by psychologists, 2.74% were filed by nurses, and 0.20% were filed by others.

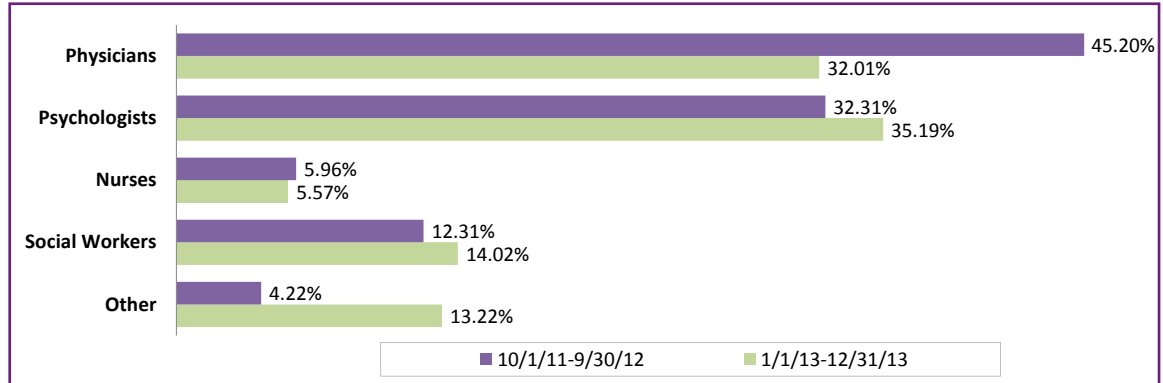UTILIZATION

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.[8]

FIGURE 59. PSYCHIATRIC DIAGNOSTIC PROCEDURES PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Union	Middlesex	Somerset	Cape May	Ocean	Hudson	Bergen	10 County	Atlantic	Essex	Monmouth
10/1/11-9/30/12	46.97	48.20	47.59	48.08	54.39	50.84	52.45	53.41	59.08	58.52	61.59
1/1/13-12/31/13	37.01	40.15	40.21	41.41	43.28	45.13	45.55	45.69	52.76	53.37	54.19

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	41.48	43.85	45.98	47.59	45.71	48.33	45.79	43.64	40.21
10 County	47.76	51.13	52.19	53.41	50.27	51.32	49.75	48.02	45.69

Percent Change

Essex	-8.80%
Atlantic	-10.70%
Hudson	-11.23%
Monmouth	-12.01%
Bergen	-13.16%
Cape May	-13.87%
10 County	-14.45%
Somerset	-15.51%
Middlesex	-16.70%
Ocean	-20.43%
Union	-21.21%

The rate of psychiatric diagnostic procedures in Somerset County in the 12 months prior to Superstorm Sandy was 47.59 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 40.21 per 1,000 beneficiaries, reflecting a 15.51% relative decrease.

UTILIZATION

FIGURE 60. PSYCHIATRIC DIAGNOSTIC PROCEDURES CLAIMS*
FOR MEDICARE FFS BENEFICIARIES

Physicians — 45.20% / 32.01%
Psychologists — 32.31% / 35.19%
Nurses — 5.96% / 5.57%
Social Workers — 12.31% / 14.02%
Other — 4.22% / 13.22%

Legend: 10/1/11-9/30/12 ; 1/1/13-12/31/13

* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for the procedure.

In the 12 months prior to Superstorm Sandy, 45.20% of psychiatric diagnostic procedures claims were filed by physicians, 32.31% were filed by psychologists, 12.31% were filed by social workers, 5.96% were filed by nurses, and 4.22% were filed by others.

After the storm, 35.19% of psychiatric diagnostic procedures claims were filed by psychologists, 32.01% were filed by physicians, 14.02% were filed by social workers, 13.22% were filed by others, and 5.57% were filed by nurses.

Therapies

Summary

	Individual Psychotherapy	Family Psychotherapy*	Group Psychotherapy*	Biofeedback Therapy*	Electroconvulsive Therapy*
Figure 61. Annual Utilization of Behavioral Health Therapy Services per 1,000 Medicare FFS Beneficiaries					
County	Individual Psychotherapy	Family Psychotherapy*	Group Psychotherapy*	Biofeedback Therapy*	Electroconvulsive Therapy*
October 1, 2011 – September 30, 2012					
Atlantic	52.03	2.82	5.25	0.58	0.28
Bergen	62.92	4.23	2.26	0.87	0.40
Cape May	**38.97**	**0.98**	**1.39**	0.56	0.56
Essex	62.28	4.12	2.36	0.33	0.40
Hudson	57.04	5.06	2.42	**0.22**	**0.27**
Middlesex	53.52	3.07	5.38	1.68	0.47
Monmouth	53.59	3.56	3.23	0.26	0.61
Ocean	48.83	2.70	1.75	0.48	0.59
Somerset	57.46	3.84	4.18	0.54	0.85
Union	43.83	2.01	2.25	0.87	0.37
10 counties	**54.56**	**3.43**	**2.98**	**0.68**	**0.47**
January 1, 2013 – December 31, 2013					
Atlantic	47.85	1.54	3.46	0.90	0.35
Bergen	61.52	2.96	2.60	0.39	0.40
Cape May	**39.21**	**0.92**	**0.64**	0.41	0.73
Essex	56.97	2.43	2.81	0.44	0.34
Hudson	57.83	2.68	2.19	**0.12**	**0.24**
Middlesex	50.86	2.45	4.79	1.90	0.55
Monmouth	52.00	2.68	2.55	0.32	0.56
Ocean	52.21	2.20	1.43	0.56	0.51
Somerset	55.09	3.76	4.03	0.87	0.72
Union	40.26	1.38	2.01	0.75	0.37
10 counties	**53.07**	**2.42**	**2.71**	**0.68**	**0.46**

* Rates lower than 5 per 1,000 beneficiaries.

■ Lowest   ☐ Highest

In the 12 months prior to Superstorm Sandy, Somerset County had the highest utilization rate of ECT. After the storm, Somerset County no longer had the highest rate of ECT; however, it did have the highest utilization rate of family psychotherapy.

UTILIZATION

Figure 62. Percent Change of Behavioral Health Service Utilization – Therapies per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Individual Psychotherapy	57.46	55.09	-4.12	54.56	53.07	-2.73
Family Psychotherapy*	3.84	3.76	-2.08	3.43	2.42	-29.45
Group Psychotherapy*	4.18	4.03	-3.59	2.98	2.71	-9.06
Biofeedback Therapy*	0.54	0.87	61.11	0.68	0.68	0.00
Electroconvulsive Therapy*	0.85	0.72	-15.29	0.47	0.46	-2.13

* Rates lower than 5 per 1,000 beneficiaries.

Similar to the 10 counties, Somerset County experienced a decrease in individual, family, and group psychotherapy, as well as ECT after Superstorm Sandy.

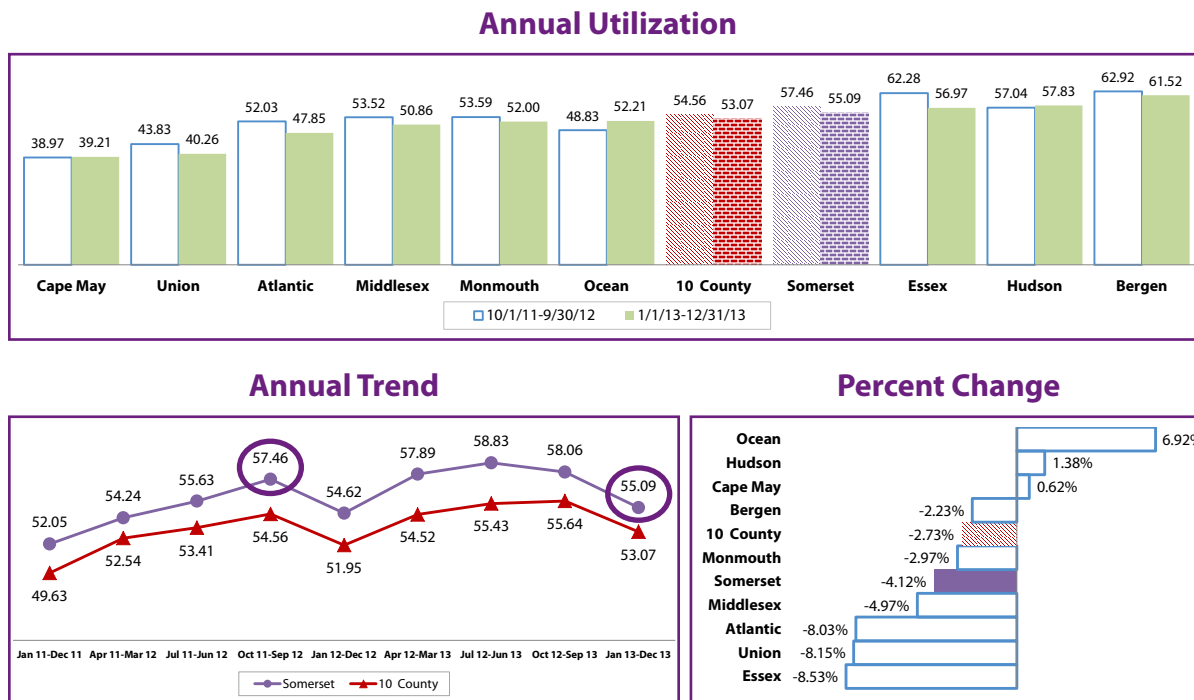### FIGURE 63. ANNUAL UTILIZATION TREND OF BEHAVIORAL HEALTH THERAPY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES
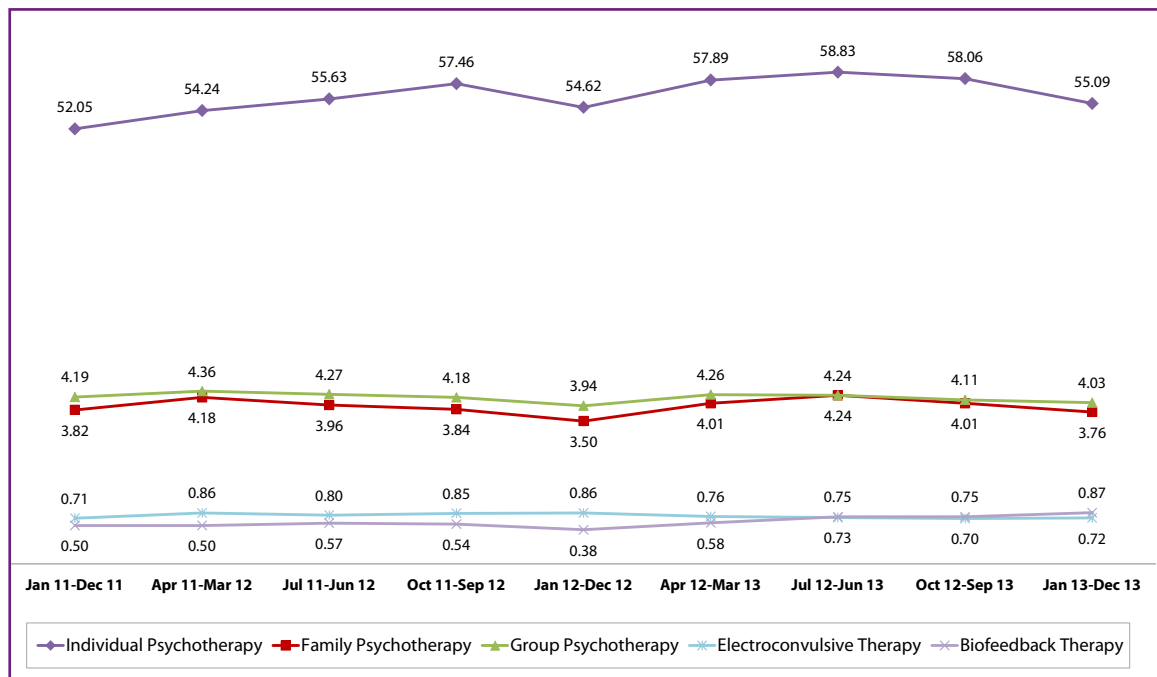
This chart presents annual trending in the yearly utilization of behavioral health therapies among Medicare FFS beneficiaries in Somerset County.
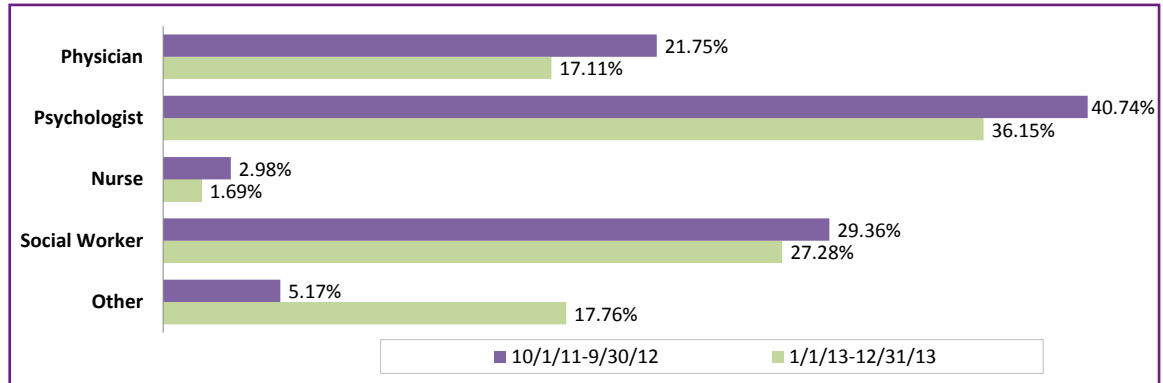
Individual Psychotherapy

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.[8]

FIGURE 64. INDIVIDUAL PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

County	10/1/11-9/30/12	1/1/13-12/31/13
Cape May	38.97	39.21
Union	43.83	40.26
Atlantic	52.03	47.85
Middlesex	53.52	50.86
Monmouth	53.59	52.00
Ocean	48.83	52.21
10 County	54.56	53.07
Somerset	57.46	55.09
Essex	62.28	56.97
Hudson	57.04	57.83
Bergen	62.92	61.52

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	52.05	54.24	55.63	57.46	54.62	57.89	58.83	58.06	55.09
10 County	49.63	52.54	53.41	54.56	51.95	54.52	55.43	55.64	53.07

Percent Change

County	Percent Change
Ocean	6.92%
Hudson	1.38%
Cape May	0.62%
Bergen	-2.23%
10 County	-2.73%
Monmouth	-2.97%
Somerset	-4.12%
Middlesex	-4.97%
Atlantic	-8.03%
Union	-8.15%
Essex	-8.53%

The rate of individual psychotherapy in Somerset County in the 12 months prior to Superstorm Sandy was 57.46 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 55.09 per 1,000 beneficiaries, reflecting a 4.12% relative decrease.

UTILIZATION

FIGURE 65. INDIVIDUAL PSYCHOTHERAPY CLAIMS* FOR MEDICARE FFS BENEFICIARIES

Provider	10/1/11-9/30/12	1/1/13-12/31/13
Physician	21.75%	17.11%
Psychologist	40.74%	36.15%
Nurse	2.98%	1.69%
Social Worker	29.36%	27.28%
Other	5.17%	17.76%

* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for the procedure.
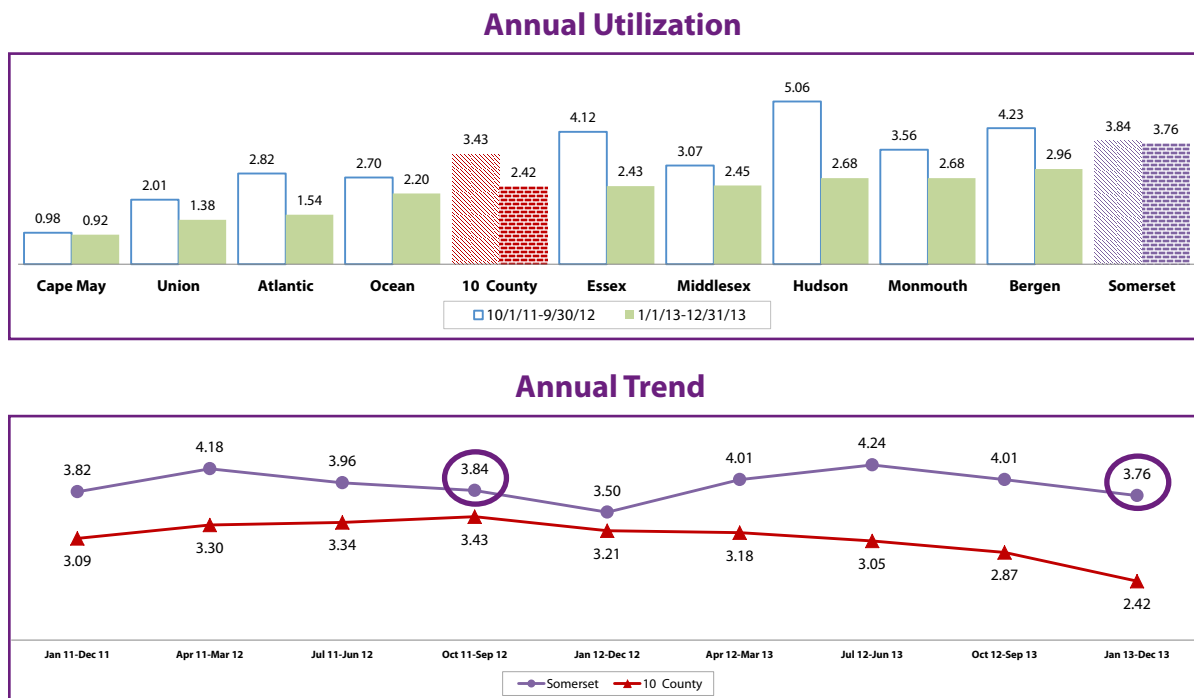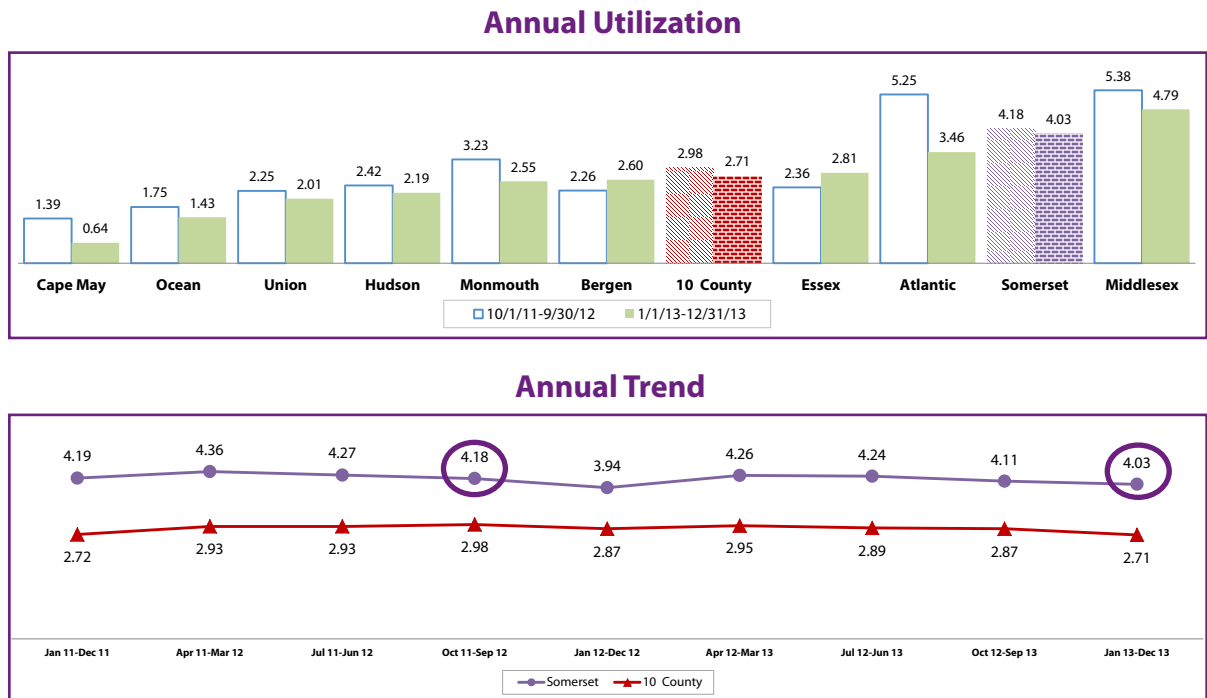
In the 12 months prior to Superstorm Sandy, 40.74% of individual psychotherapy claims were filed by psychologists, 29.36% were filed by social workers, 21.75% were filed by physicians, 5.17% were filed by others, and 2.98% were filed by nurses.

After the storm, 36.15% of individual psychotherapy claims were filed by psychologists, 27.28% were filed by social workers, 17.76% were filed by others, 17.11% were filed by physicians, and 1.69% were filed by nurses.

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.[8]

FIGURE 66. FAMILY PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Annual Trend

The rate of family psychotherapy in Somerset County in the 12 months prior to Superstorm Sandy was 3.84 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 3.76 per 1,000 beneficiaries, the highest rate among all 10 counties.

Due to these low numbers, no percent change data has been provided for this therapy.

Group Psychotherapy

According to the CMS Mental Health Services Billing Guide, group psychotherapy is a form of treatment where a selected group of patients are guided by a licensed psychotherapist for the purpose of helping to change maladaptive patterns which interfere with social functioning and are associated with a diagnosable psychiatric illness.[8]

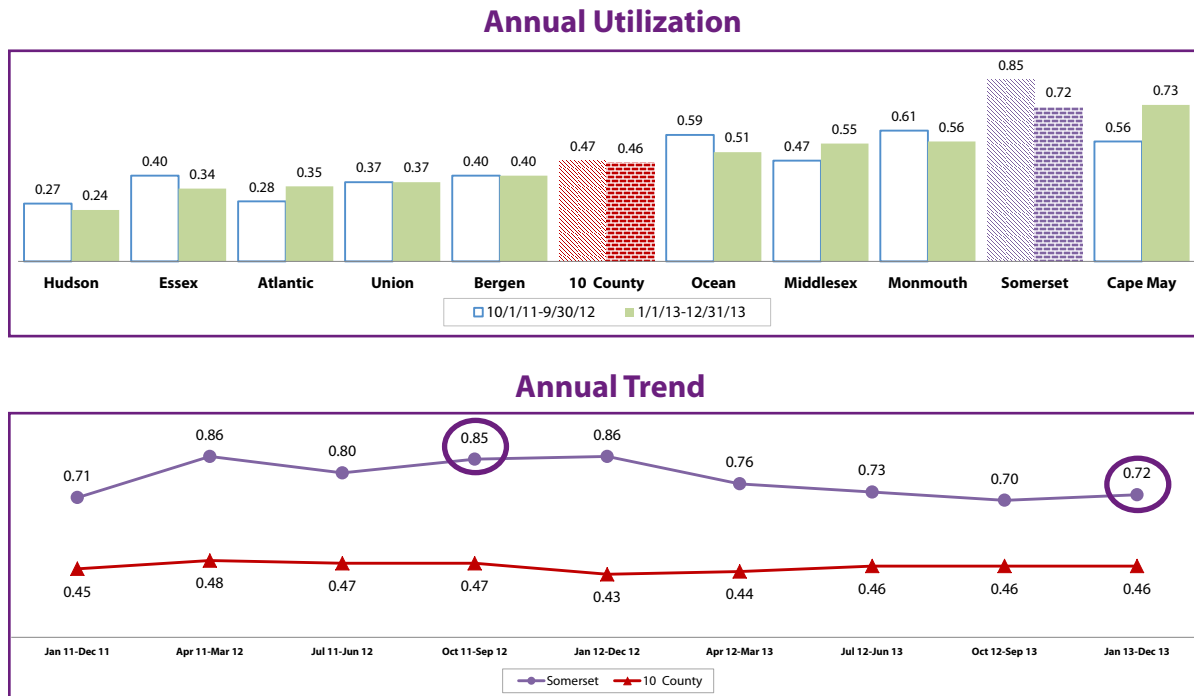### FIGURE 67. GROUP PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Cape May	Ocean	Union	Hudson	Monmouth	Bergen	10 County	Essex	Atlantic	Somerset	Middlesex
10/1/11-9/30/12	1.39	1.75	2.25	2.42	3.23	2.26	2.98	2.36	5.25	4.18	5.38
1/1/13-12/31/13	0.64	1.43	2.01	2.19	2.55	2.60	2.71	2.81	3.46	4.03	4.79

Annual Trend

|	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	4.19	4.36	4.27	4.18	3.94	4.26	4.24	4.11	4.03
10 County	2.72	2.93	2.93	2.98	2.87	2.95	2.89	2.87	2.71

The rate of group psychotherapy in Somerset County in the 12 months prior to Superstorm Sandy was 4.18 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 4.03 per 1,000 beneficiaries.

Due to these low numbers, no percent change data has been provided for this therapy.

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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 disorder 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.[8]

FIGURE 68. ELECTROCONVULSIVE THERAPY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Hudson	Essex	Atlantic	Union	Bergen	10 County	Ocean	Middlesex	Monmouth	Somerset	Cape May
10/1/11-9/30/12	0.27	0.40	0.28	0.37	0.40	0.47	0.59	0.47	0.61	0.85	0.56
1/1/13-12/31/13	0.24	0.34	0.35	0.37	0.40	0.46	0.51	0.55	0.56	0.72	0.73

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	0.71	0.86	0.80	0.85	0.86	0.76	0.73	0.70	0.72
10 County	0.45	0.48	0.47	0.47	0.43	0.44	0.46	0.46	0.46

The rate of ECT in Somerset County in the 12 months prior to Superstorm Sandy was 0.85 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 0.72 per 1,000 beneficiaries.

Due to these low numbers, no percent change data has been provided for this therapy.

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 that a person can exert voluntary control over those functions, and thereby alleviate an abnormal bodily condition.[8]

FIGURE 69. BIOFEEDBACK THERAPY PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Annual Trend
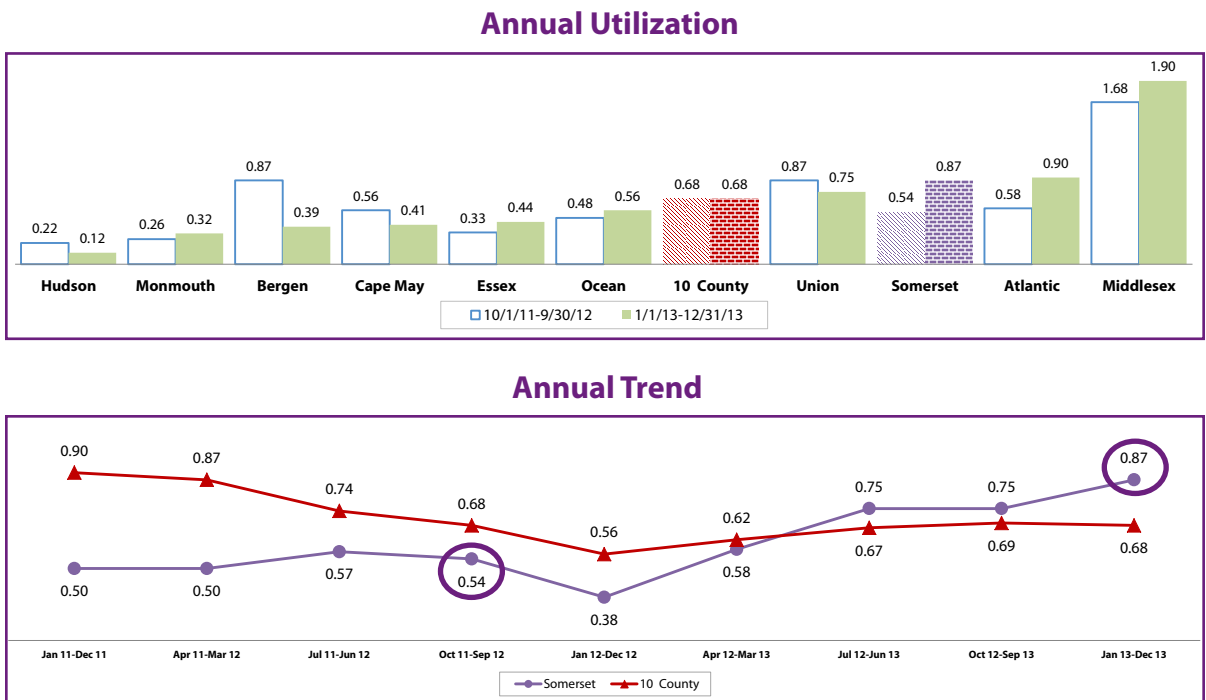
The rate of biofeedback therapy in Somerset County in the 12 months prior to Superstorm Sandy was 0.54 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 0.87 per 1,000 beneficiaries.

Due to these low numbers, no percent change data has been provided for this therapy.

INPATIENT SERVICES

Summary

Inpatient services included four measures of utilization: inpatient psychiatric facilities, acute care hospital admissions, observation stays with a subsequent hospital admission, and emergency department visits with a subsequent hospital admission.

County	Psychiatric Hospital Admissions	Acute Care Hospital Admissions	Emergency Department Visits*	Observation Stays*
Figure 70. Annual Utilization of Inpatient Health Services per 1,000 Medicare FFS Beneficiaries				
October 1, 2011 – September 30, 2012				
Atlantic	7.19	**368.11**	**292.80**	16.62
Bergen	9.02	287.47	217.75	6.06
Cape May	5.11	357.46	264.97	4.88
Essex	**10.00**	346.65	280.60	**29.72**
Hudson	9.84	339.25	245.61	21.52
Middlesex	7.07	296.92	237.95	15.34
Monmouth	9.44	317.02	247.54	6.43
Ocean	7.67	334.84	252.79	4.48
Somerset	8.89	278.54	216.63	4.79
Union	8.28	277.31	219.60	7.58
10 counties	**8.50**	**315.77**	**244.57**	**11.62**
January 1, 2013 – December 31, 2013				
Atlantic	6.55	**330.22**	**263.07**	**20.83**
Bergen	7.54	258.44	196.30	4.53
Cape May	5.10	308.15	223.86	5.97
Essex	8.13	303.36	243.59	18.54
Hudson	**8.36**	306.50	252.89	20.17
Middlesex	5.76	274.86	222.97	20.14
Monmouth	7.78	281.93	223.40	5.90
Ocean	6.97	293.55	220.56	15.49
Somerset	6.39	244.19	191.13	4.11
Union	6.90	256.85	200.86	6.83
10 counties	**7.13**	**282.33**	**221.31**	**12.34**

* Emergency department visits and observation stay rates were based on inpatient Part A claims only.

🟥 Highest   ⬜ Lowest

Utilization of inpatient health services per 1,000 Medicare FFS beneficiaries before and after 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.

In the 12 months prior to Superstorm Sandy, Somerset County had the lowest utilization emergency department visits. After the storm, Somerset County still had the lowest utilization emergency department visits, as well as acute care hospital admissions and observation stays.

Figure 71. Percent Change of Inpatient Health Service Utilization per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Psychiatric Admissions	8.89	6.39	-28.12	8.50	7.13	-16.06
Acute Care Hospital Admissions	278.54	244.19	-12.33	315.77	282.33	-10.59
Emergency Department Visits*	216.63	191.13	-11.77	244.57	221.31	-9.51
Observation Stays*	4.79	4.11	-14.20	11.62	12.34	6.26

* Emergency department visits and observation stay rates were based on inpatient Part A claims only.

After the storm, Somerset County experienced a decrease in the utilization of all inpatient health services.

FIGURE 72. ANNUAL UTILIZATION TREND OF INPATIENT HEALTH SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

This chart reflects annual trending in the utilization of inpatient health services among Medicare FFS beneficiaries in Somerset County.

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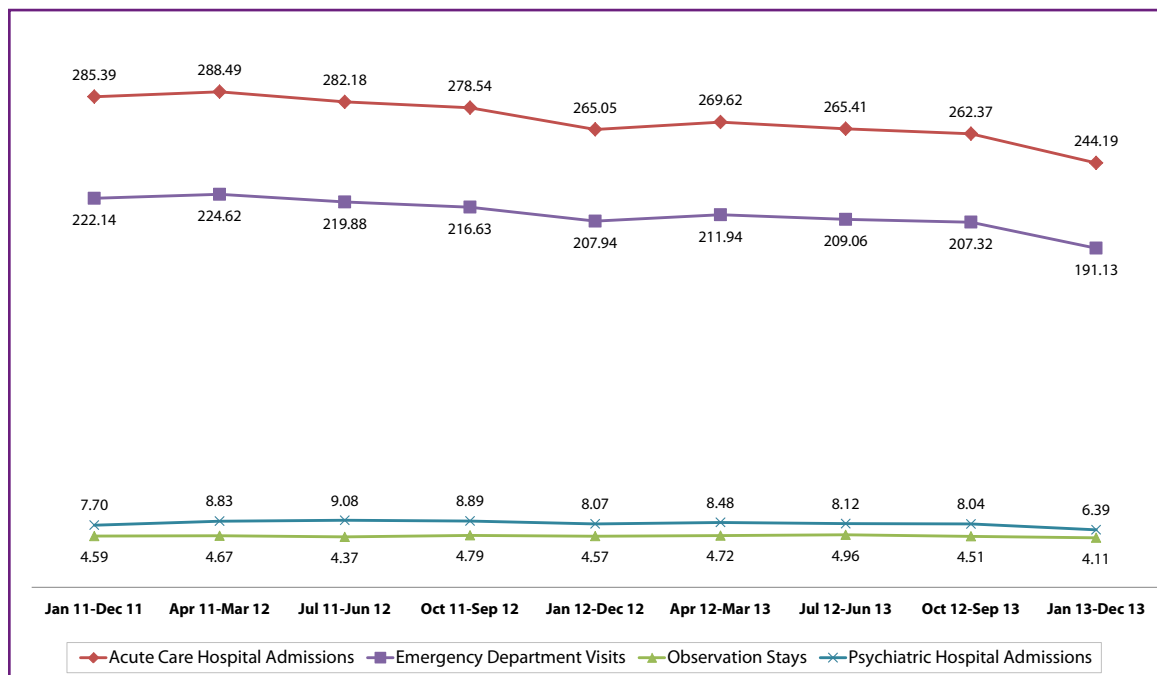
UTILIZATION

Psychiatric Hospital Admissions

FIGURE 73. PSYCHIATRIC HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Cape May	Middlesex	Somerset	Atlantic	Union	Ocean	10 Counties	Bergen	Monmouth	Essex	Hudson
10/1/11-9/30/12	5.11	7.07	8.89	7.19	8.28	7.67	8.50	9.02	9.44	10.00	9.84
1/1/13-12/31/13	5.10	5.76	6.39	6.55	6.90	6.97	7.13	7.54	7.78	8.13	8.36

Annual Trend

Somerset: 7.86, 8.83, 9.08, 8.89, 8.07, 8.48, 8.12, 8.10, 6.39
10 Counties: 7.70, 8.49, 8.54, 8.50, 7.59, 8.01, 8.03, 8.04, 7.13

Jan 11-Dec 11, Apr 11-Mar 12, Jul 11-Jun 12, Oct 11-Sep 12, Jan 12-Dec 12, Apr 12-Mar 13, Jul 12-Jun 13, Oct 12-Sep 13, Jan 13-Dec 13

Percent Change

Cape May	-0.20%
Atlantic	-8.90%
Ocean	-9.13%
Hudson	-15.04%
10 Counties	-16.06%
Bergen	-16.41%
Union	-16.67%
Monmouth	-17.58%
Middlesex	-18.53%
Essex	-18.70%
Somerset	-28.12%

In the 12 months prior to Superstorm Sandy, standalone psychiatric hospitals or distinct part psychiatric units in acute care hospitals in Somerset County had an admissions rate of 8.89 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 6.39 per 1,000 beneficiaries. This change reflects a 28.12% relative decrease, the largest decrease among all 10 counties.

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.

FIGURE 74. ACUTE CARE HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Somerset	Union	Bergen	Middlesex	Monmouth	10 Counties	Ocean	Essex	Hudson	Cape May	Atlantic
10/1/11-9/30/12	278.54	277.31	287.47	296.92	317.02	315.77	334.84	346.65	339.25	357.46	368.11
1/1/13-12/31/13	244.19	256.85	258.44	274.86	281.93	282.33	293.55	303.36	306.50	308.15	330.22

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
10 Counties	324.19	324.96	320.45	315.77	302.18	306.85	304.31	301.10	282.33
Somerset	285.39	288.49	282.18	278.54	265.05	269.62	265.41	262.37	244.19

Percent Change

Union	-7.38%
Middlesex	-7.43%
Hudson	-9.65%
Bergen	-10.10%
Atlantic	-10.29%
10 Counties	-10.59%
Monmouth	-11.07%
Ocean	-12.33%
Somerset	-12.33%
Essex	-12.49%
Cape May	-13.79%

In the 12 months prior to Superstorm Sandy, acute care hospitals in Somerset County had an acute care hospital admissions rate of 278.54 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 244.19 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 12.33% relative decrease.

Observation Stays

A ccording 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.

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

Annual Utilization

	Somerset	Bergen	Monmouth	Cape May	Union	10 Counties	Ocean	Essex	Middlesex	Hudson	Atlantic
10/1/11-9/30/12	4.79	6.06	6.43	4.88	7.58	11.62	4.48	29.72	15.34	21.52	16.62
1/1/13-12/31/13	4.11	4.53	5.90	5.97	6.83	12.34	15.49	18.54	20.14	20.17	20.83

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
10 Counties	9.95	10.79	11.21	11.62	11.81	12.57	12.88	12.86	12.34
Somerset	4.59	4.67	4.37	4.79	4.57	4.72	4.96	4.51	4.11

Percent Change

County	Percent Change
Ocean	245.76%
Middlesex	31.29%
Atlantic	25.33%
Cape May	22.34%
10 Counties	6.26%
Hudson	-6.27%
Monmouth	-8.24%
Union	-9.89%
Somerset	-14.20%
Bergen	-25.25%
Essex	-37.62%

In the 12 months prior to Superstorm Sandy, observation stays in acute care hospitals in Somerset County had a rate of 4.79 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 4.11 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 14.20% relative decrease.
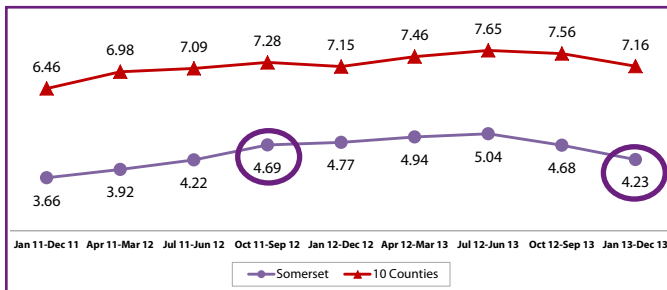
UTILIZATION

Emergency Department Visits

FIGURE 76. EMERGENCY DEPARTMENT VISITS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Somerset 216.63 / 191.13
Bergen 217.75 / 196.30
Union 219.60 / 200.86
Ocean 252.79 / 220.56
10 Counties 244.57 / 221.31
Middlesex 237.95 / 222.97
Monmouth 247.54 / 223.40
Cape May 264.97 / 223.86
Essex 280.60 / 243.59
Hudson 245.61 / 252.89
Atlantic 292.80 / 263.07

□ 10/1/11-9/30/12   ■ 1/1/13-12/31/13

Annual Trend

251.54 251.20 247.64 244.57 233.86 239.56 238.26 236.18 221.31

222.14 224.62 219.88 216.63 207.94 211.94 209.06 207.32 191.13

Jan 11-Dec 11 Apr 11-Mar 12 Jul 11-Jun 12 Oct 11-Sep 12 Jan 12-Dec 12 Apr 12-Mar 13 Jul 12-Jun 13 Oct 12-Sep 13 Jan 13-Dec 13

—●— Somerset   —▲— 10 Counties

Percent Change

County	Percent Change
Hudson	2.96%
Middlesex	-6.30%
Union	-8.53%
10 Counties	-9.51%
Monmouth	-9.75%
Bergen	-9.85%
Atlantic	-10.15%
Somerset	-11.77%
Ocean	-12.75%
Essex	-13.19%
Cape May	-15.51%

In the 12 months prior to Superstorm Sandy, the rate of emergency department visits in Somerset County was 216.63 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 191.13 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects an 11.77% relative decrease.

Within 30 Days of Acute Care Hospital Discharge

Summary

Figure 77. Annual Utilization of Inpatient Health Services Within 30 Days of Discharge per 1,000 Medicare FFS Beneficiaries			
County	30-Day Hospital Readmissions	Emergency Department Visits*	Observation Stays*
October 1, 2011 – September 30, 2012			
Atlantic	75.10	**96.67**	8.31
Bergen	53.19	62.71	4.09
Cape May	64.06	83.85	5.95
Essex	**79.02**	90.77	**12.02**
Hudson	75.79	82.47	11.99
Middlesex	57.82	69.31	7.62
Monmouth	57.80	71.78	6.16
Ocean	62.43	78.93	7.18
Somerset	50.97	61.32	4.69
Union	50.82	61.30	5.74
10 counties	61.76	74.31	7.28
January 1, 2013 – December 31, 2013			
Atlantic	61.02	**81.44**	9.19
Bergen	44.29	53.65	3.88
Cape May	50.23	69.26	5.60
Essex	63.44	76.10	8.70
Hudson	**65.97**	78.58	**10.93**
Middlesex	52.02	63.65	8.37
Monmouth	46.09	61.90	5.86
Ocean	50.03	66.11	9.82
Somerset	40.27	50.98	4.23
Union	47.02	55.02	4.81
10 counties	51.37	64.36	7.16

* Emergency department visits and observation stay rates were based on both inpatient and outpatient Part A claims.

■ Highest   □ Lowest

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 hospital readmissions, observation stays, and emergency department visits that occurred within 30 days of discharge. The emergency department visits is measured as with or without a subsequent hospital admission and observation stays is measured as with or without a subsequent hospital admission.

After the storm, Somerset County had the lowest utilization rates of 30-day hospital readmissions and emergency department visits that occurred within 30 days of discharge.

UTILIZATION

Figure 78. Percent Change of Inpatient Health Service Utilization Within 30 Days of Discharge per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
30-Day Hospital Readmissions	50.97	40.27	-20.99	61.76	51.37	-16.83
Emergency Department Visits*	61.32	50.98	-16.86	74.31	64.36	-13.38
Observation Stays*	4.69	4.23	-9.81	7.28	7.16	-1.61

* Emergency department visits and observation stay rates were based on both inpatient and outpatient Part A claims.

Similar to the 10 counties, Somerset County experienced a relative decrease in the utilization of all inpatient health services within 30 days of discharge.

FIGURE 79. ANNUAL UTILIZATION TREND OF INPATIENT HEALTH SERVICES WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES
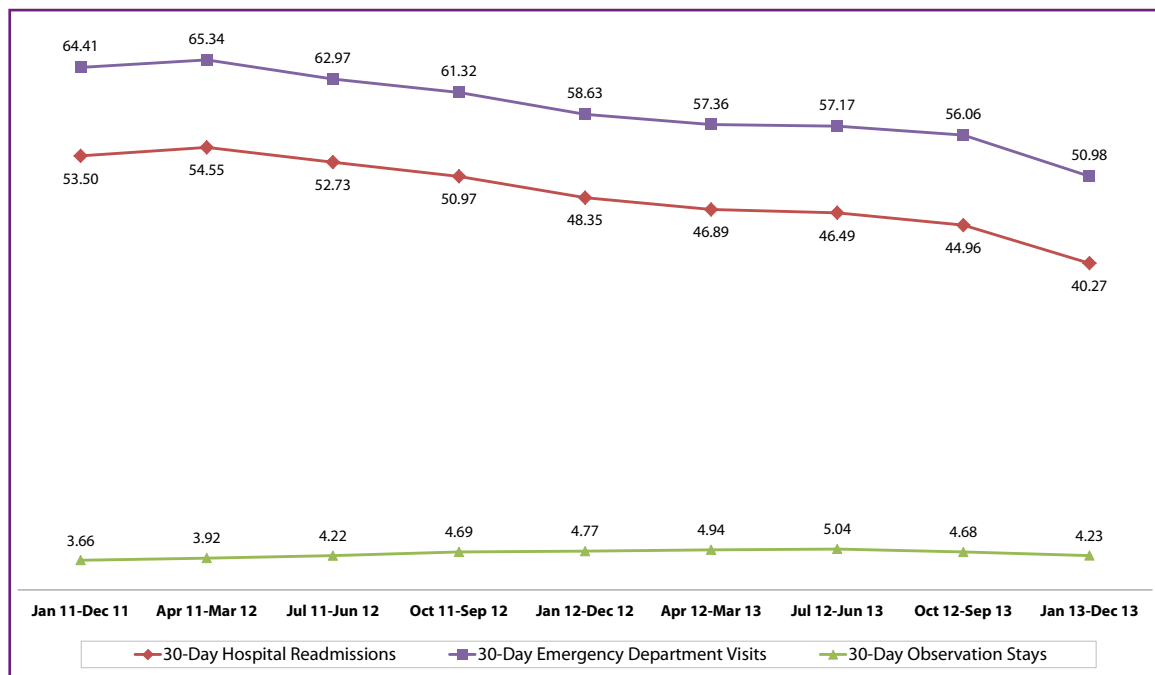
This chart reflects annual trending in utilization of inpatient health services within 30 days of discharge among Medicare FFS beneficiaries in Somerset County.

30-Day Hospital Readmissions

FIGURE 80. 30-DAY HOSPITAL READMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

Somerset: 50.97 / 40.27
Bergen: 53.19 / 44.29
Monmouth: 57.80 / 46.09
Union: 50.82 / 47.02
Ocean: 62.43 / 50.03
Cape May: 64.06 / 50.23
10 Counties: 61.76 / 51.37
Middlesex: 57.82 / 52.02
Atlantic: 75.10 / 61.02
Essex: 79.02 / 63.44
Hudson: 75.79 / 65.97

□ 10/1/11-9/30/12   ■ 1/1/13-12/31/13

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
10 Counties	65.91	65.05	63.19	61.76	58.41	58.94	57.71	56.21	51.37
Somerset	53.50	54.55	52.73	50.97	48.35	46.89	46.49	44.96	40.27

Percent Change

County	% Change
Union	-7.48%
Middlesex	-10.03%
Hudson	-12.96%
Bergen	-16.73%
10 Counties	-16.83%
Atlantic	-18.75%
Essex	-19.72%
Ocean	-19.86%
Monmouth	-20.26%
Somerset	-20.99%
Cape May	-21.59%

In the 12 months prior to Superstorm Sandy, acute care hospitals in Somerset County had a 30-day readmission rate of 50.97 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 40.27 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 20.99% relative decrease.

Observation Stays Within 30 Days of Discharge

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

Annual Utilization

County	10/1/11-9/30/12	1/1/13-12/31/13
Bergen	4.09	3.88
Somerset	4.69	4.23
Union	5.74	4.81
Cape May	5.95	5.60
Monmouth	6.16	5.86
10 Counties	7.28	7.16
Middlesex	7.62	8.37
Essex	12.02	8.70
Atlantic	8.31	9.19
Ocean	7.18	9.82
Hudson	11.99	10.93

Annual Trend

Period	Somerset	10 Counties
Jan 11-Dec 11	3.66	6.46
Apr 11-Mar 12	3.92	6.98
Jul 11-Jun 12	4.22	7.09
Oct 11-Sep 12	4.69	7.28
Jan 12-Dec 12	4.77	7.15
Apr 12-Mar 13	4.94	7.46
Jul 12-Jun 13	5.04	7.65
Oct 12-Sep 13	4.68	7.56
Jan 13-Dec 13	4.23	7.16

Percent Change

County	Percent Change
Ocean	36.77%
Atlantic	10.59%
Middlesex	9.84%
10 Counties	-1.61%
Monmouth	-4.87%
Bergen	-5.13%
Cape May	-5.88%
Hudson	-8.84%
Somerset	-9.81%
Union	-16.20%
Essex	-27.62%

In the 12 months prior to Superstorm Sandy, the rate of observation stays within 30 days of discharge in Somerset County was 4.69 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 4.23 per 1,000 beneficiaries, reflecting a 9.81% relative decrease.

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Emergency Department Visits Within 30 Days of Discharge

FIGURE 82. EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Somerset	Bergen	Union	Monmouth	Middlesex	10 Counties	Ocean	Cape May	Essex	Hudson	Atlantic
10/1/11-9/30/12	61.32	62.71	61.30	71.78	69.31	74.31	78.93	83.85	90.77	82.47	96.67
1/1/13-12/31/13	50.98	53.65	55.02	61.90	63.65	64.36	66.11	69.26	76.10	78.58	81.44

Annual Trend

10 Counties: 78.06 (Jan 11-Dec 11), 77.64 (Apr 11-Mar 12), 75.85 (Jul 11-Jun 12), 74.31 (Oct 11-Sep 12), 70.66 (Jan 12-Dec 12), 71.91 (Apr 12-Mar 13), 71.01 (Jul 12-Jun 13), 70.16 (Oct 12-Sep 13), 64.36 (Jan 13-Dec 13)

Somerset: 64.41, 65.34, 62.97, 61.32, 58.63, 57.36, 57.17, 56.06, 50.98

Percent Change

County	Percent Change
Hudson	-4.72%
Middlesex	-8.17%
Union	-10.24%
10 Counties	-13.38%
Monmouth	-13.76%
Bergen	-14.45%
Atlantic	-15.75%
Essex	-16.16%
Ocean	-16.24%
Somerset	-16.86%
Cape May	-17.40%

In the 12 months prior to Superstorm Sandy, the rate of emergency department visits within 30 days of discharge in Somerset County was 61.32 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 50.98 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 16.86% relative decrease.

UTILIZATION

Other Settings

Summary

This profile also examines 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.

County	Home Health Agency Services	Skilled Nursing Facility Services	Hospice Services	Medical Rehabilitation Services
Figure 83. Annual Utilization of Other Health Services per 1,000 Medicare FFS Beneficiaries				
October 1, 2011 – September 30, 2012				
Atlantic	98.16	64.48	28.04	14.01
Bergen	90.68	67.60	21.85	11.60
Cape May	96.11	67.91	29.92	7.80
Essex	80.94	**77.28**	20.20	9.81
Hudson	97.65	72.46	18.25	8.03
Middlesex	81.86	68.88	21.07	8.93
Monmouth	96.00	71.39	30.11	16.06
Ocean	**100.09**	76.58	**30.49**	**22.50**
Somerset	81.46	66.98	24.98	10.37
Union	84.19	69.60	20.56	9.19
10 counties	**90.62**	**71.08**	**24.27**	**12.75**
January 1, 2013 – December 31, 2013				
Atlantic	92.63	57.91	27.06	13.18
Bergen	88.45	64.69	21.19	11.06
Cape May	89.44	61.43	28.05	7.42
Essex	77.98	**72.56**	19.36	8.71
Hudson	88.29	72.27	15.52	6.75
Middlesex	76.38	64.56	20.92	9.25
Monmouth	88.13	65.96	27.72	15.27
Ocean	**93.45**	68.46	**28.24**	**20.55**
Somerset	76.40	58.33	22.84	7.62
Union	76.61	64.12	20.80	8.87
10 counties	**85.02**	**65.99**	**23.01**	**11.86**

■ Highest □ Lowest

Utilization of health services per 1,000 Medicare FFS beneficiaries for these settings before and after Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each measure.

After the storm, Somerset County experienced a decrease in the utilization of all other health services.

Figure 84. Percent Change of Other Health Services Utilization per 1,000 Medicare FFS Beneficiaries						
	Somerset County			10 County Rate		
	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change	10/1/11 – 9/30/12	1/1/13 – 12/31/13	% Change
Home Health Agency	81.46	76.40	-6.21	90.62	85.02	-6.18
Skilled Nursing Facility	66.98	58.33	-12.91	71.08	65.99	-7.16
Hospice	24.98	22.84	-8.57	24.27	23.01	-5.16
Medical Rehabilitation	10.37	7.62	-26.52	12.75	11.86	-6.98

After the storm, Somerset County experienced a 26.52% relative decrease in medical rehabilitation services whereas the 10 counties experienced a 6.98% relative decrease.

FIGURE 85. ANNUAL UTILIZATION TREND IN OTHER HEALTH SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES
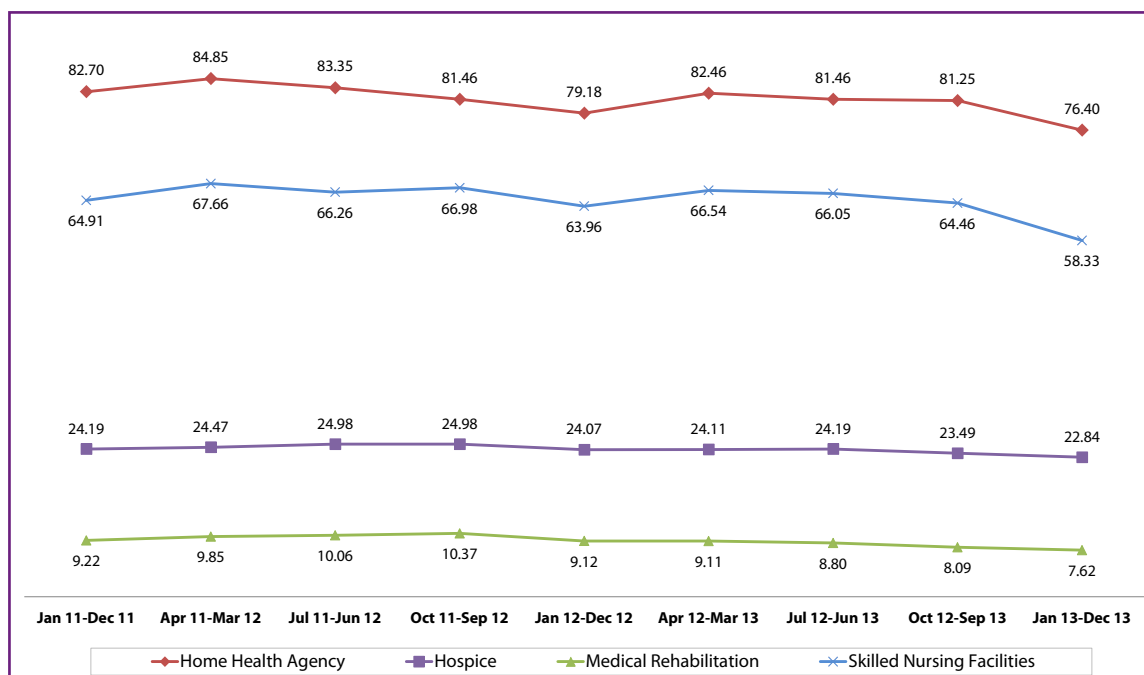
This chart reflects annual trending in the utilization of other health services among Medicare FFS beneficiaries in Somerset County.

Home Health Agency Services

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

Annual Utilization

	Middlesex	Somerset	Union	Essex	10 Counties	Monmouth	Hudson	Bergen	Cape May	Atlantic	Ocean
10/1/11-9/30/12	81.86	81.46	84.19	80.94	90.62	96.00	97.65	90.68	96.11	98.16	100.09
1/1/13-12/31/13	76.38	76.40	76.61	77.98	85.02	88.13	88.29	88.45	89.44	92.63	93.45

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
10 Counties	89.70	91.69	91.14	90.62	86.93	89.32	88.95	88.64	85.02
Somerset	82.70	84.85	83.35	81.46	79.18	82.46	81.46	81.25	76.40

Percent Change

Bergen	-2.46%
Essex	-3.66%
Atlantic	-5.63%
10 Counties	-6.18%
Somerset	-6.21%
Ocean	-6.63%
Middlesex	-6.69%
Cape May	-6.94%
Monmouth	-8.20%
Union	-9.00%
Hudson	-9.59%

In the 12 months prior to Superstorm Sandy, the utilization rate of home health agency services in Somerset County was 81.46 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 76.40 per 1,000 beneficiaries, reflecting a 6.21% relative decrease.

UTILIZATION

Skilled Nursing Facility Services

FIGURE 87. SKILLED NURSING FACILITY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

	Atlantic	Somerset	Cape May	Union	Middlesex	Bergen	Monmouth	10 Counties	Ocean	Hudson	Essex
10/1/11-9/30/12	64.48	66.98	67.91	69.60	68.88	67.60	71.39	71.08	76.58	72.46	77.28
1/1/13-12/31/13	57.91	58.33	61.43	64.12	64.56	64.69	65.96	65.99	68.46	72.27	72.56

Annual Trend

Percent Change

Hudson	-0.26%
Bergen	-4.30%
Essex	-6.11%
Middlesex	-6.27%
10 Counties	-7.16%
Monmouth	-7.61%
Union	-7.87%
Cape May	-9.54%
Atlantic	-10.19%
Ocean	-10.60%
Somerset	-12.91%
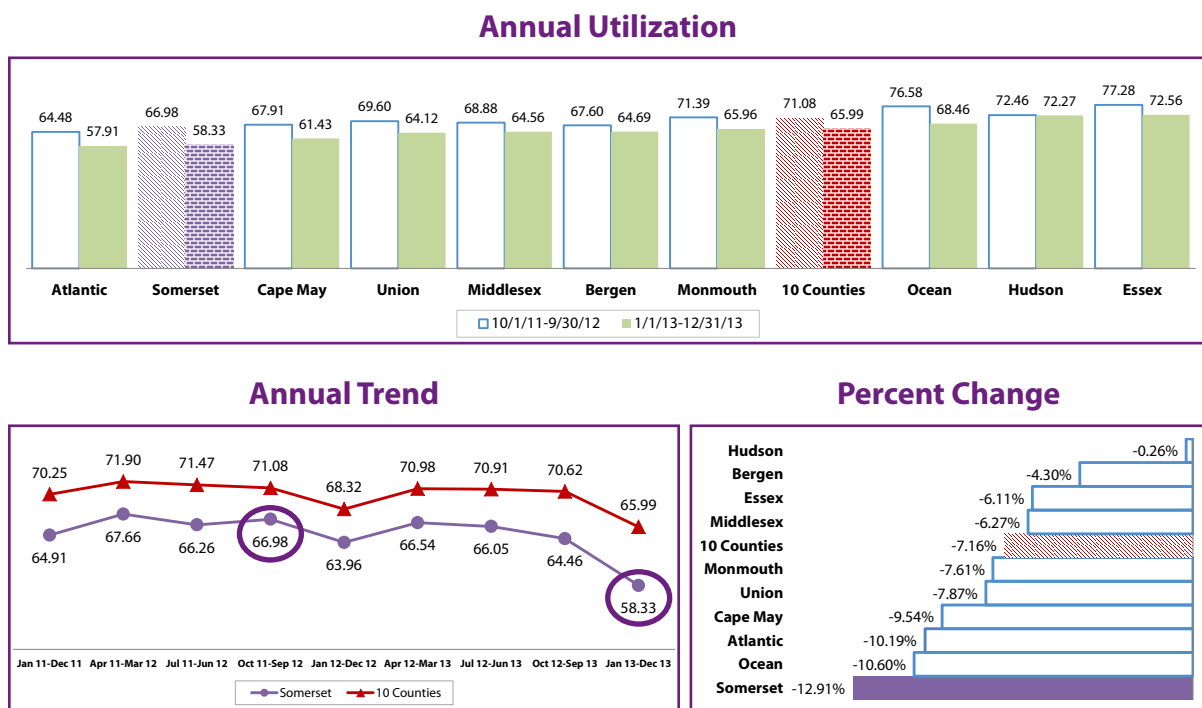
In the 12 months prior to Superstorm Sandy, the utilization rate of skilled nursing facility services in Somerset County was 66.98 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 58.33 per 1,000 beneficiaries. This change reflects a 12.91% relative decrease, the largest decrease among all 10 counties.

Hospice Services

FIGURE 88. HOSPICE SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES

Annual Utilization

County	10/1/11-9/30/12	1/1/13-12/31/13
Hudson	18.25	15.52
Essex	20.20	19.36
Union	20.56	20.80
Middlesex	21.07	20.92
Bergen	21.85	21.19
Somerset	24.98	22.84
10 Counties	24.27	23.01
Atlantic	28.04	27.06
Monmouth	30.11	27.72
Cape May	29.92	28.05
Ocean	30.49	28.24

Annual Trend

Somerset: Jan 11-Dec 11: 24.19; Apr 11-Mar 12: 24.47; Jul 11-Jun 12: 24.98; Oct 11-Sep 12: 24.98; Jan 12-Dec 12: 24.07; Apr 12-Mar 13: 24.40; Jul 12-Jun 13: 24.51; Oct 12-Sep 13: 23.49; Jan 13-Dec 13: 22.84

10 Counties: Jan 11-Dec 11: 23.76; Apr 11-Mar 12: 23.90; Jul 11-Jun 12: 23.98; Oct 11-Sep 12: 24.27; Jan 12-Dec 12: 23.92; Apr 12-Mar 13: 24.11; Jul 12-Jun 13: 24.19; Oct 12-Sep 13: 24.12; Jan 13-Dec 13: 23.01

Percent Change

County	Percent Change
Union	1.17%
Middlesex	-0.71%
Bergen	-3.02%
Atlantic	-3.50%
Essex	-4.16%
10 Counties	-5.16%
Cape May	-6.25%
Ocean	-7.38%
Monmouth	-7.94%
Somerset	-8.57%
Hudson	-14.96%

In the 12 months prior to Superstorm Sandy, the utilization rate of hospice services in Somerset County was 24.98 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 22.84 per 1,000 beneficiaries, reflecting an 8.57% relative decrease.

Medical Rehabilitation Services

Annual Utilization

	Hudson	Cape May	Somerset	Essex	Union	Middlesex	Bergen	10 Counties	Atlantic	Monmouth	Ocean
10/1/11-9/30/12	8.03	7.80	10.37	9.81	9.19	8.93	11.60	12.75	14.01	16.06	22.50
1/1/13-12/31/13	6.75	7.42	7.62	8.71	8.87	9.25	11.06	11.86	13.18	15.27	20.55

Annual Trend

	Jan 11-Dec 11	Apr 11-Mar 12	Jul 11-Jun 12	Oct 11-Sep 12	Jan 12-Dec 12	Apr 12-Mar 13	Jul 12-Jun 13	Oct 12-Sep 13	Jan 13-Dec 13
Somerset	9.22	9.85	10.06	10.37	9.12	9.11	8.80	8.09	7.62
10 Counties	11.99	12.59	12.67	12.75	12.13	12.37	12.39	12.40	11.86

Percent Change

Middlesex	3.58%
Union	-3.48%
Bergen	-4.66%
Cape May	-4.87%
Monmouth	-4.92%
Atlantic	-5.92%
10 Counties	-6.98%
Ocean	-8.67%
Essex	-11.21%
Hudson	-15.94%
Somerset	-26.52%

In the 12 months prior to Superstorm Sandy, the utilization rate of medical rehabilitation services in Somerset County was 10.37 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 7.62 per 1,000 beneficiaries. This change reflects a 26.52% relative decrease, the largest decrease among all 10 counties.

UTILIZATION

UTILIZATION

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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 FFS Part A and Part B claims data and denominator file

Reference Time Period

- Annual prevalence for the selected behavioral health conditions comparing October 2011 – September 2012 to January 1, 2013 – December 31, 2013

- Annual prevalence trend with quarterly rolling for the selected behavioral health conditions (data starting from January 1, 2011 to December 31, 2013)

- Quarterly new incidence trend of conditions that were not existent (not reported) in the past 12 months of the selected eight behavioral health conditions (data starting from January 1, 2012 to December 31, 2013)

Mapping Tool

- QGIS Development Team, 2014, QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org

- Source: ZIP code boundaries based on the 2013 U.S. Census Tiger Files

Denominator

- Denominator was the sum of all eligible Medicare FFS beneficiaries who were in the CMS denominator file during the measurement time frame

- Eligible beneficiaries were computed after adjusting for total enrolled FFS days divided by the total measurement days in the time frame

- Where Medicare FFS enrolled days > 0

Numerator

- Unique Medicare FFS beneficiaries with disease-specific inpatient or outpatient claims 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; Age calculated as end date of time frame or date of death – birth date

- Eligible Medicare 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:

- Buccaneer, A General Dynamics Company. Chronic Condition Data Warehouse: Additions and Access – Task Order 10 New Clinical Conditions: Requirements and Processing

APPENDIX A

- [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

- 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

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 Alone	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 FFS Part A and Part B claims data and denominator file

Reference Time Period

- Annual prevalence of risk factors for depression or proxy disorders comparing October 1, 2011 – September 30, 2012 to January 1, 2013 – December 31, 2013
- Annual prevalence trend for risk factors for depression or proxy disorders consists of nine points of data with rolling quarters (starting January 1, 2011 and December 31, 2013)

Mapping Tool

- QGIS Development Team, 2014, QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org
- Source: ZIP code boundaries based on the 2013 U.S. Census Tiger Files

Denominator

- Denominator was the sum of all eligible Medicare FFS beneficiaries who were in the CMS denominator file during the measurement time frame
- Eligible beneficiaries were computed after adjusting for total enrolled FFS days divided by the total measurement days in the time frame
- Where Medicare FFS enrolled days > 0

Numerator

- Unique Medicare FFS beneficiaries with disease-specific inpatient or outpatient claims 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; Age calculated as end date of time frame or date of death – birth date
- Eligible Medicare 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:

APPENDIX B

- 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
- 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

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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 FFS Part A and Part B claims data and denominator file

Reference Time Period

- Annual utilization comparing October 1, 2011 – September 30, 2012 to January 1, 2013 – December 31, 2013
- Annual utilization trend consists of nine points of data with rolling quarters (starting January 1, 2011 and ending December 31, 2013)
- Quarterly utilization trend charts for depression screening contains data from January 1, 2012 to December 31, 2013

Mapping Tool

- QGIS Development Team, 2014, QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org
- Source: ZIP code boundaries based on the 2013 U.S. Census Tiger Files

Denominator

- Denominator was the sum of all eligible Medicare FFS beneficiaries who were in the CMS denominator file during the measurement time frame
- Eligible beneficiaries were computed after adjusting for total enrolled FFS days divided by the total measurement days in the time frame
- Where Medicare FFS enrolled days > 0

Numerator

Unique Medicare FFS beneficiaries with specific outpatient mental health service claims

Exclusions

- HMO coverage period
- Age <18 or >= 110; Age calculated as end date of time frame or date of death – birth date
- Eligible Medicare 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.cmsbilling.org/forms/NHIC_Medicare_B_Mental_Heatlh_billing_guide_2008.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 C

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 FFS Part A claims data and denominator file

Reference Time Period

- Annual utilization comparing October 1, 2011 – September 30, 2012 to January 1, 2013 – December 31, 2013
- Annual utilization trend consists of nine points of data with rolling quarters (starting January 1, 2011 and ending December 31, 2013)

Denominator

- Denominator was the sum of all eligible Medicare FFS beneficiaries who were in the CMS denominator file during the measurement time frame
- Eligible beneficiaries were computed after adjusting for total enrolled FFS days divided by the total measurement days in the time frame
- Where Medicare FFS enrolled days > 0

Exclusions

- HMO coverage period
- Age <18 or >= 110; Age calculated as end date of time frame or date of death – birth date
- Eligible Medicare FFS days/total measurement days =0

Utilization Measure

Refer to Appendix E.

Numerator

Utilization Measure Description	Numerator
Acute Care Hospital Admission	Number of inpatient admissions (Nch_clm_type_cd = 60, 61)
30-Day Hospital Readmissions	Number of readmissions that occurred within 30 days of hospital discharge (Nch_clm_type_cd = 60, 61)
Emergency Department Visits	Number of emergency department visits, with subsequent inpatient admission (Nch_clm_type_cd = 60, 61 and revenue code in '0450''0451''0452' '0456''0459''0981')
Emergency Department Visits within 30 Days of Hospital Discharge	Number of emergency department visits within 30 days of hospital discharge, with or without subsequent admission (Nch_clm_type_cd = 60, 61, 40 and revenue code in '0450''0451' '0452''0456' '0459''0981')
Observation Stays	Number of observation stays, with subsequent inpatient admission (Nch_clm_type_cd = 60, 61 and revenue code in '0762')
Observation Stays within 30 Days of Hospital Discharge	Number of observation stays within 30 days of hospital discharge, with or without subsequent admission (Nch_clm_type_cd = 60, 61, 40 and revenue code in '0762')
Home Health Agency Services	Number of eligible beneficiaries with at least one home health agency claim (Nch_clm_type_cd = 10)
Skilled Nursing Facility Services	Number of eligible beneficiaries with at least one skilled nursing facility claim (Nch_clm_type_cd =20, 30)
Hospice Services	Number of eligible beneficiaries with at least one hospice claim (Nch_clm_type_cd = 50)
Medical Rehabilitation Services	Number of eligible beneficiaries with at least one medical rehabilitation claim (Nch_clm_type_cd = 60, 61 and hsp_id format: xxTxxx or between xx3025 and xx3099)
Psychiatric Hospital Admissions	Number of eligible beneficiaries with at least one psychiatric hospital admission claim (Nch_clm_type_cd = 60, 61 and hsp_id format: xxSxxx or between xx4000 and xx4499)

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

$$\text{Incidence} = \frac{\text{(Number of unique beneficiaries with new cases during the time frame, condition not present in the past 12 months)}}{\text{(Total unique beneficiaries in the population during the time frame)}}$$

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

$$\text{Utilization} = \frac{\text{(Number of unique beneficiaries or measures with specific service utilization)}}{\text{(Total unique beneficiaries in the population during the time frame)}}$$

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

APPENDIX F: PROFESSIONAL TYPE BY BEHAVIORAL HEALTH SERVICES

The following defines the data source and time period for the provider summary tables and listings:

Data Source

New Jersey Medicare FFS Part B claims data

Reference Time Period

- Professional type of behavioral health service claims during October 1, 2011 – September 30, 2012 and January 1, 2013 – December 31, 2013

Professional Type Credentials

- Physicians: DO, MD
- Psychologists: PhD, PsyD, EdD
- Social Workers: MSW, LCSW
- Nurses: APN, RN, NP
- Others: Other

APPENDIX G: REFERENCES

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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

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APPENDIX G

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Executive Summary

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