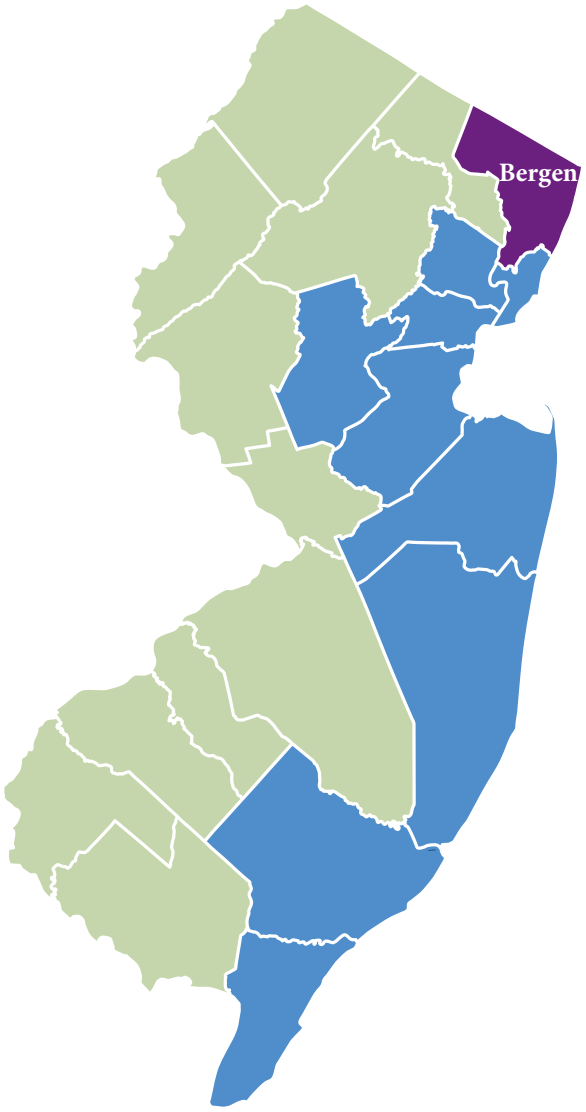
Enhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters



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

Demographics, Behavioral Health Conditions, and Utilization of Health Services

June 17, 2014

This material was prepared by Healthcare Quality Strategies, Inc. (HQSI), the Medicare Quality Improvement Organization for New Jersey, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 10SOW-NJ-SSS-14-28 06/14

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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 Bergen 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)

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 socioeconomic 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.

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 under-diagnosed 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.

HQSI Project Team

Martin P. Margolies
Chief Executive Officer

Mary Jane Brubaker, MCIS
Chief Operating Officer

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

Ya-ping Su, PhD
Director, Research and Analysis

Suzanne Dalton, RN, BS, EdM
Project Manager

Andrew Miller, MD, MPH
Medical Director

Mona Abdalla, BA
Administrative Associate

Christine Aisenberg, BA
Proofreader

Kathy Brown, BS
InDesign Specialist

Zhengyu Bu, MS
Health Services Research Analyst

Sue Chen, MS
Statistician

Wei-Yi Chung, MS
Database Administrator

Barbara Coleman
Administrative Associate

Dawn Cullen, BA
Communications Specialist

Ashley Dopp, BA
Communications Specialist

Karen Hale, MEd
Community Liaison

Kim Karnell, BS
Information Specialist

Janet Knoth, BS, RN, CHPN, CPHQ
Quality Improvement Specialist

Judy Miller, MS, RN
Quality Improvement Specialist

Olubukunola Oyedele, MPH
Community Liaison

Rita Pascale
Administrative Associate

Barbara Perzyna, BS
Visual Communications Specialist

Ziphora Sam, MPH
Epidemiologist

Marianne Sagarese, BSN, RN
Quality Improvement Specialist

Nicole Skyer-Brandwene, MS, RPh, BCPS
Quality Improvement Specialist

Acknowledgements

Special thanks to the subject matter experts who assisted with the project by providing feedback and guidance to the HQSI project team.

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

Mary Ditri, MA, CHCC
New Jersey Hospital Association

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

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

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

Sheldon Green
New Jersey Primary Care Association

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

Bob Kley
Mental Health Association in New Jersey, Inc.

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

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

Elyse Perweiler, MPP, RN
NJ Institute for Successful Aging

Lynn Stefanowicz, MA, LCSW
Meridian Behavioral Health

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

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

Key Observations

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

1. There was a relative increase in the rates of depression or proxy disorders (4.65%), depression alone (3.08%), anxiety disorders alone (10.36%), adjustment disorders alone (3.13%), and suicide and intentional self-inflicted injury (2.89%) in Bergen County.

2. The highest rates of depression or proxy disorders in Bergen County were among Hispanic beneficiaries (211.02 per 1,000 beneficiaries), female beneficiaries (229.59 per 1,000 beneficiaries), and beneficiaries below 65 years old (353.32 per 1,000 beneficiaries).

3. Bergen County had the lowest rate of alcohol or substance abuse (23.40 per 1,000 beneficiaries) among all 10 counties despite an 18.48% relative increase in prevalence.

4. Bergen County had the lowest rate of substance abuse alone (11.80 per 1,000 beneficiaries) among all 10 counties despite having the largest relative increase (19.43%) in prevalence.

5. Bergen County had the lowest rate of PTSD (2.51 per 1,000 beneficiaries) among all 10 counties and was the only county to experience a relative decrease (1.95%) in this condition.

6. There was a 0.54% relative decrease in the rate of any of the top five risk factors for depression or proxy disorders. There was also relative decrease in the rates of Alzheimer's disease and related disorders or senile dementia (10.82%) and amputations (4.05%).

7. Among the risk factors, Bergen County had the highest rate of hip/pelvic fractures (8.99 per 1,000 beneficiaries) among all 10 counties despite a relative decrease (3.12%) in prevalence.

8. The utilization rate of the depression screening benefit in Bergen County increased from 4.33 per 1,000 Medicare FFS beneficiaries before the storm to 12.04 per 1,000 beneficiaries after the storm.

9. Bergen County had the highest rate of individual psychotherapy (61.52 per 1,000 beneficiaries) among all 10 counties despite a relative decrease (2.23%) in utilization.

10. Bergen County had the lowest rate of observation stays that occurred within 30 days of an acute care hospital discharge (3.88 per 1,000 beneficiaries) among all 10 counties.

11. Bergen County had the smallest decrease (2.46%) in the utilization of home health agency services among all 10 counties.

This *Snapshot of Bergen 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 Bergen 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 Bergen County

Behavioral Health Conditions	Prevalence per 1,000 Medicare FFS Beneficiaries					
	Bergen 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	184.06	192.61	4.65	192.99	197.65	2.41
• Depression alone	123.64	127.45	3.08	124.72	125.36	0.51
• Anxiety Disorders alone	96.76	106.78	10.36	105.70	113.91	7.77
• Adjustment Disorders alone	26.53	27.36	3.13	29.82	29.09	-2.45
Alcohol or Substance Abuse	19.75	23.40	18.48	30.51	33.73	10.55
• Substance Abuse alone	9.88	11.80	19.43	16.71	17.54	4.97
PTSD	2.56	2.51	-1.95	4.18	4.69	12.20
Suicide and Intentional Self-Inflicted Injury	3.46	3.56	2.89	4.40	4.39	-0.23
Top Five Risk Factors* for Depression or Proxy Disorders						
• Any of the Top Five Risk Factors	127.43	126.74	-0.54	136.36	136.15	-0.15
• Substance or Alcohol Abuse or Tobacco Use	69.33	73.28	5.70	78.33	81.78	4.40
• Alzheimer's Disease and related disorders or Senile Dementia	37.51	33.45	-10.82	39.11	34.91	-10.74
• Sleep Disturbance	22.75	22.87	0.53	24.24	24.78	2.23
• Hip/Pelvic Fractures	9.28	8.99	-3.12	7.95	7.66	-3.65
• Amputations	0.74	0.71	-4.05	1.11	0.99	-10.81
Behavioral Health Services	**Utilization per 1,000 Medicare FFS Beneficiaries**					
	Bergen 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**
Assessments						
• Depression Screening**	4.33	12.04	178.06	4.81	12.03	150.10
• Psychiatric Diagnostic Procedures	52.45	45.55	-13.16	53.41	45.69	-14.45
• Neuropsychological Tests	10.53	11.00	4.46	9.48	10.85	14.45
Therapy						
• Individual Psychotherapy	62.92	61.52	-2.23	54.56	53.07	-2.73
• Family Psychotherapy	4.23	2.96	-30.02	3.43	2.42	-29.45
• Group Psychotherapy	2.26	2.60	15.04	2.98	2.71	-9.06
Psychiatric Hospital Admissions	9.02	7.54	-16.41	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		
At A Glance (January 1, 2013 – December 31, 2013)		
Total Medicare FFS Population	139,126	
Females	78,920	(56.73%)
Males	60,206	(43.27%)
White	115,481	(83.00%)
Black	6,658	(4.79%)
Asian	6,646	(4.78%)
Hispanic	3,343	(2.40%)
Other	6,998	(5.03%)
Average Age		73.92

Source: Medicare Claims Database

Bergen County

Total Medicare FFS Beneficiary Population by County

Figure 2. Total Medicare FFS Beneficiaries by County*

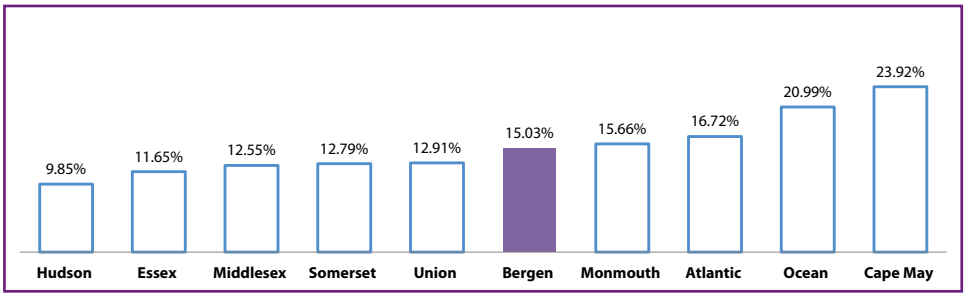
County	10/1/11-9/30/12	1/1/13-12/31/13	Absolute Change
Atlantic	47,571	46,666	-905
Bergen	**142,502**	**139,126**	**-3,376**
Cape May	23,769	23,291	-478
Essex	96,277	90,946	-5,331
Hudson	67,359	63,548	-3,811
Middlesex	107,061	104,272	-2,789
Monmouth	101,644	100,021	-1,623
Ocean	126,653	121,962	-4,691
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 Bergen County prior to Superstorm Sandy was 142,502. After the storm, the population decreased to 139,126.

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 15.03% of Bergen 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 57% of the entire Medicare FFS population in Bergen County and males 43%. After the storm, the female beneficiary population decreased to 56.73% and males increased to 43.27%.

Percent of Medicare FFS Beneficiary Population by Race by County

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

		County										
		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 Bergen 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

		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

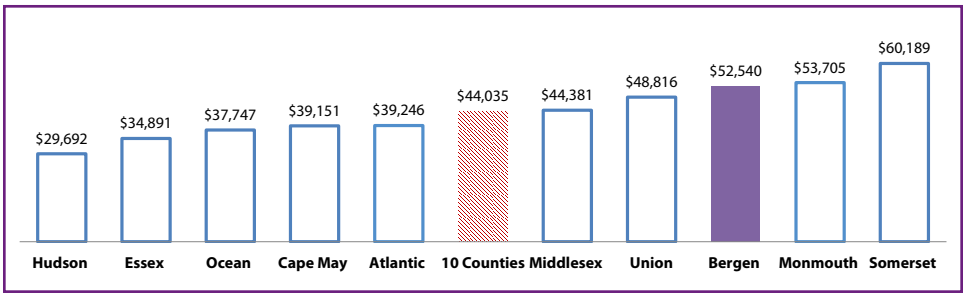
* Age calculated as end date of time frame or date of death minus birth date.
** Due to rounding, the absolute change may not be the same as the difference subtracted from the two time frames shown.

Both before and after Superstorm Sandy, the largest age group of the Medicare FFS beneficiary population in Bergen 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 73.97 before the storm to 73.92 after the storm. This is also the oldest average age of beneficiaries among all 10 counties.

Income Status by County

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



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 Bergen County had a median household income of $52,540. This was higher than the average income among all 10 counties.

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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.

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

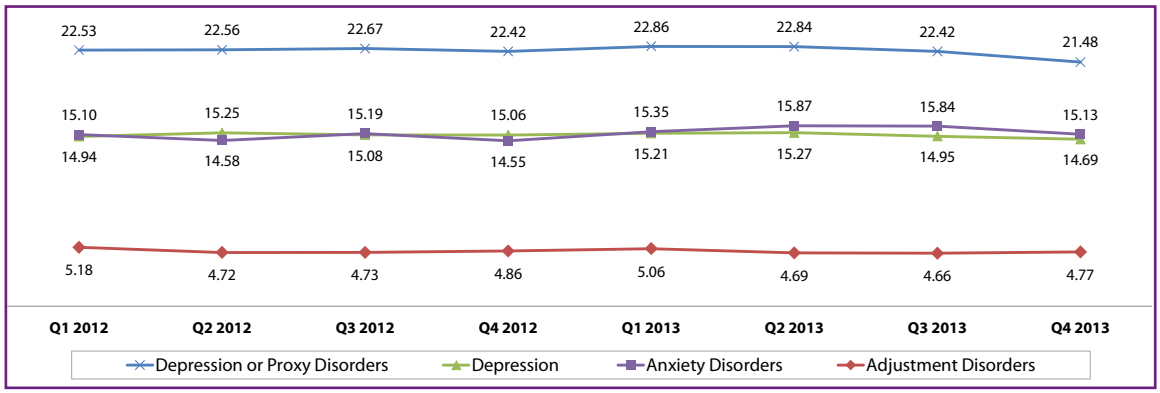
Prevalence of the selected behavioral health conditions before and after Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each condition.

In the 12 months prior to Superstorm Sandy, Bergen County had the lowest prevalence rate of alcohol or substance abuse and substance abuse alone. After the storm, Bergen County had the lowest rates of alcohol or substance abuse and substance abuse alone, despite the increase in prevalence. Bergen County also had the lowest rate of PTSD.

Figure 9. Percent Change of Prevalence of Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries						
	Bergen 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	184.06	192.61	4.65	192.99	197.65	2.41
• Depression	123.64	127.45	3.08	124.72	125.36	0.51
• Anxiety	96.76	106.78	10.36	105.70	113.91	7.77
• Adjustment	26.53	27.36	3.13	29.82	29.09	-2.45
Alcohol or Substance Abuse	19.75	23.40	18.48	30.51	33.73	10.55
• Substance abuse alone	9.88	11.80	19.43	16.71	17.54	4.97
PTSD	2.56	2.51	-1.95	4.18	4.69	12.20
Suicide and intentional self-inflicted injuries	3.46	3.56	2.89	4.40	4.39	-0.23

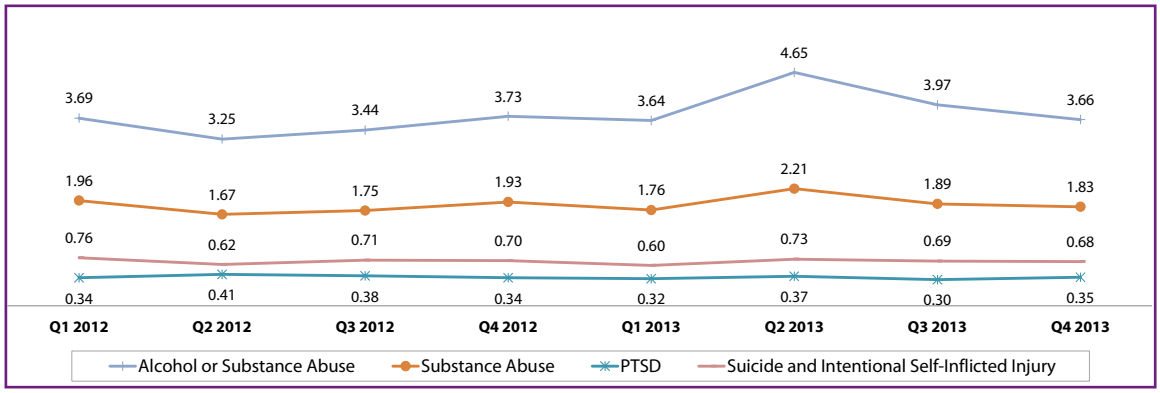
Bergen County experienced an increase in depression or proxy disorders, depression alone, anxiety disorders, adjustment disorders alone, alcohol or substance abuse, substance abuse alone, and suicide and intentional self-inflicted injury.

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 Bergen County.

Figure 12. Annual Prevalence Trend of Selected Behavioral Health Conditions: Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries

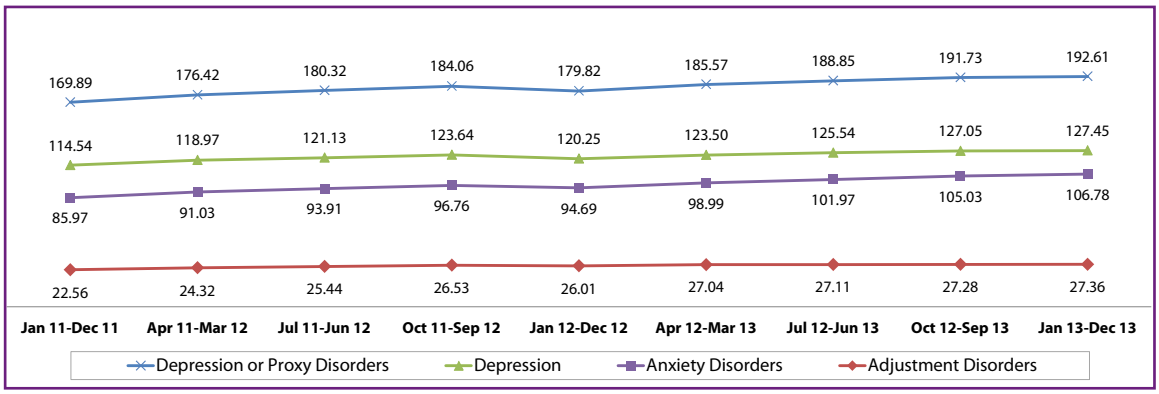
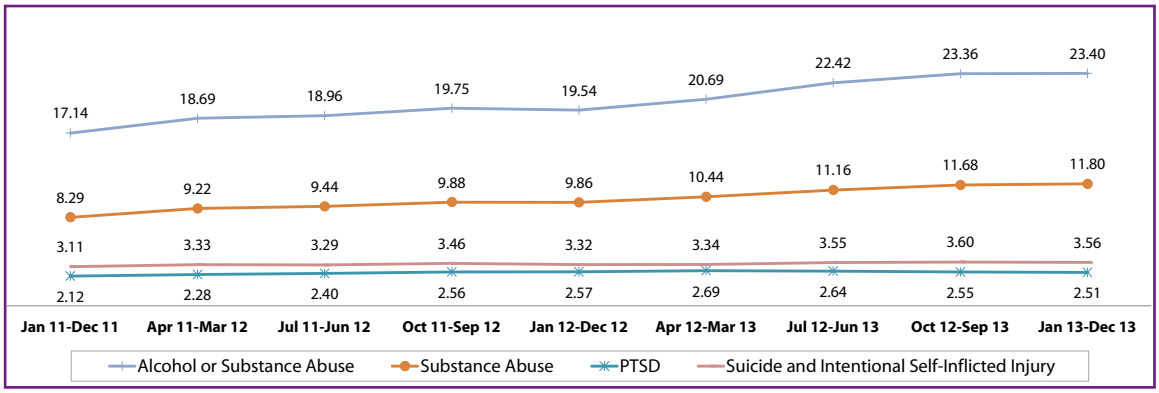


Figure 13. Annual Prevalence Trend of Other Selected Behavioral Health Conditions per 1,000 Medicare FFS Beneficiaries



The charts above reflect annual trending in the prevalence of the selected behavioral health conditions among Medicare FFS beneficiaries in Bergen 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	21,226	89.08	22,266	88.71
• Black	907	3.81	967	3.85
• Hispanic	646	2.71	636	2.53
• Asian	511	2.14	601	2.39
• Other	538	2.26	630	2.51
Gender				
• Males	7,689	32.27	8,060	32.11
• Females	16,139	67.73	17,040	67.89
Age				
• Below 65	3,876	16.27	3,812	15.19
• 65-74	7,186	30.16	7,962	31.72
• 75-84	7,001	29.38	7,196	28.67
• 85 and Above	5,765	24.19	6,130	24.42
Total	23,828	100.00	25,100	100.00

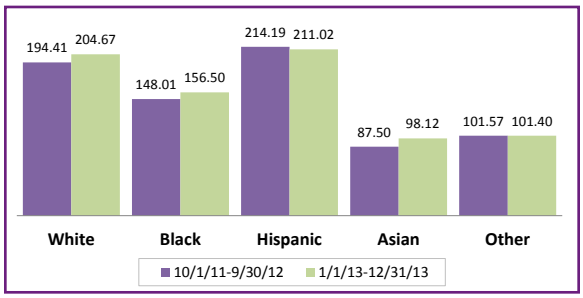
This table displays the number and percentage of Medicare FFS beneficiaries of each race, gender, and age diagnosed with depression or proxy disorders before and after Superstorm Sandy. There were 23,828 beneficiaries diagnosed with depression or proxy disorders in Bergen County before the storm. This increased to 25,100 beneficiaries after the storm.

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	21,226	109,180	194.41	22,266	108,789	204.67
• Black	907	6,128	148.01	967	6,179	156.50
• Hispanic	646	3,016	214.19	636	3,014	211.02
• Asian	511	5,840	87.50	601	6,125	98.12
• Other	538	5,297	101.57	630	6,213	101.40
Gender						
• Males	7,689	55,347	138.92	8,060	56,100	143.67
• Females	16,139	74,114	217.76	17,040	74,220	229.59
Age						
• Below 65	3,876	10,996	352.49	3,812	10,789	353.32
• 65-74	7,186	56,923	126.24	7,962	58,792	135.43
• 75-84	7,001	39,505	177.22	7,196	38,648	186.19
• 85 and Above	5,765	22,037	261.61	6,130	22,091	277.49
Total	23,828	129,461	184.06	25,100	130,320	192.60

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

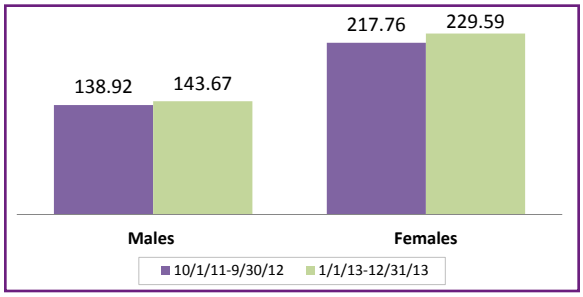
This table displays the rate of Medicare FFS beneficiaries per 1,000 diagnosed with depression or proxy disorders by race, gender, and age both before and after Superstorm Sandy by different demographic groups. The numerator is the number of beneficiaries with a claim for depression or proxy disorders;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



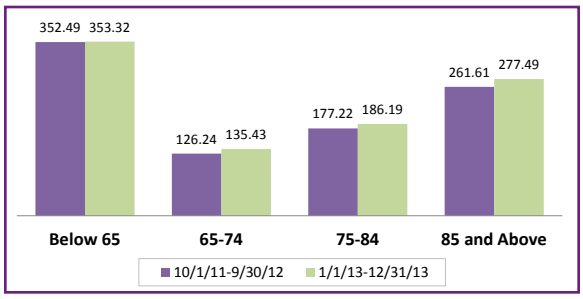
Hispanic Medicare FFS beneficiaries have the highest rate of depression or proxy disorders followed by White and Black beneficiaries. In the 12 months prior to Superstorm Sandy, 214.19 per 1,000 Hispanic beneficiaries were diagnosed with depression or proxy disorders. After the storm, this rate decreased to 211.02 per 1,000 beneficiaries.

Figure 17. Depression or Proxy Disorders Rate by Gender per 1,000 Medicare FFS Beneficiaries



Female Medicare FFS beneficiaries have a higher rate of depression or proxy disorders. In the 12 months prior to Superstorm Sandy, 217.76 per 1,000 female beneficiaries were diagnosed with depression or proxy disorders. After the storm, this rate increased to 229.59 per 1,000 beneficiaries.

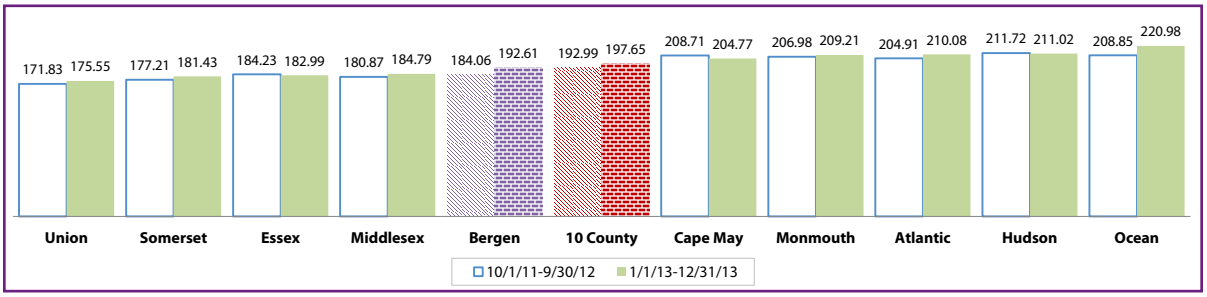
Figure 18. Depression or Proxy Disorders Rate by Age Group per 1,000 Medicare FFS Beneficiaries



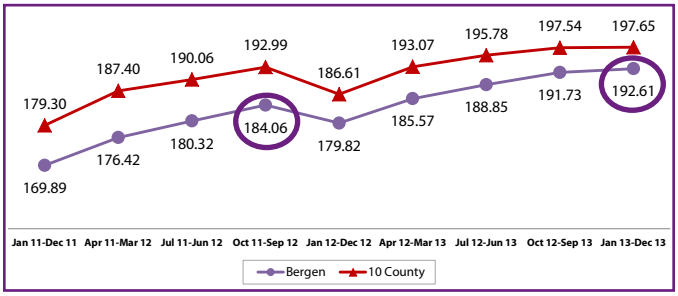
Medicare FFS beneficiaries below the age of 65 have the highest rate of depression or proxy disorders followed by beneficiaries ages 85 and above. In the 12 months prior to Superstorm Sandy, 352.49 per 1,000 beneficiaries below the age of 65 were diagnosed with depression or proxy disorders. After the storm, this rate increased to 353.32 per 1,000 beneficiaries.

Figure 19. Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries

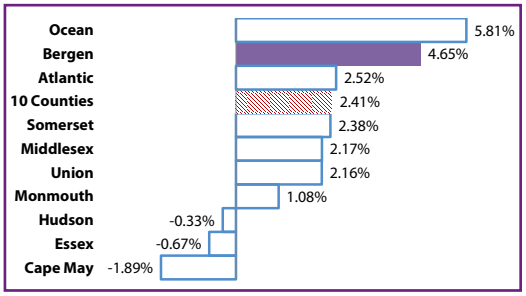
Annual Prevalence



Annual Trend

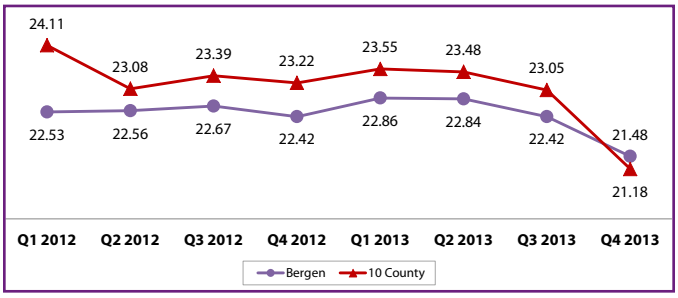


Percent Change



The prevalence rate of depression or proxy disorders in Bergen County in the 12 months prior to Superstorm Sandy was 184.06 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 192.61 per 1,000 beneficiaries, reflecting a 4.65% relative increase.

Figure 20. Quarterly New Incidence of Depression or Proxy Disorders* per 1,000 Medicare FFS Beneficiaries

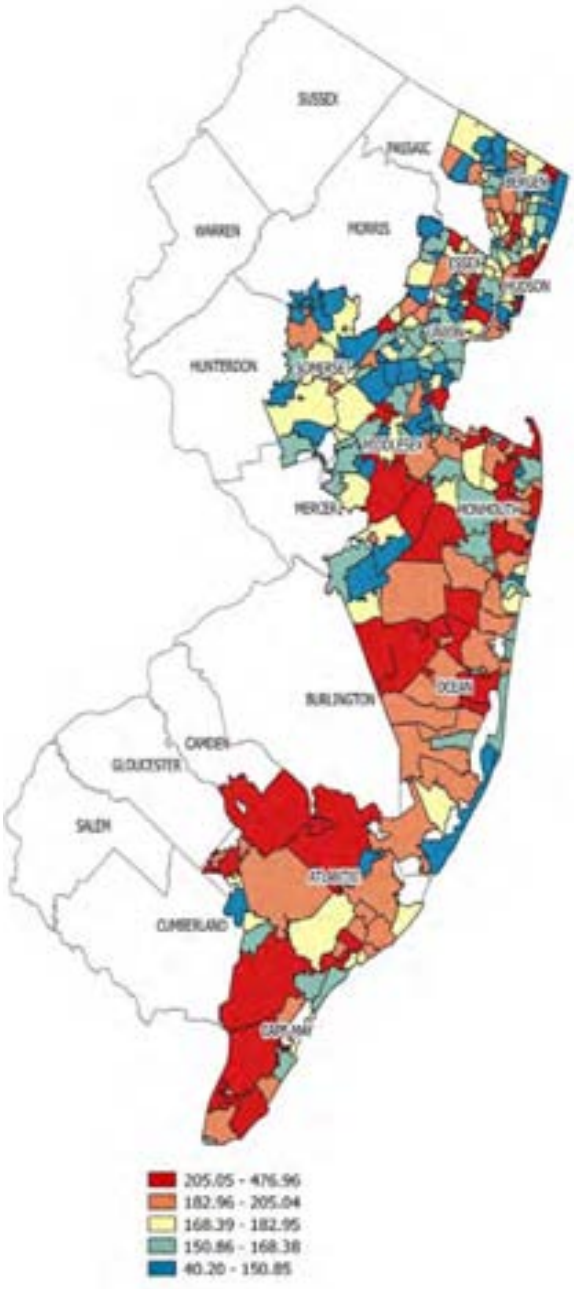


This chart reflects trending of quarterly new incidence of depression or proxy disorders among Medicare FFS beneficiaries in Bergen County.

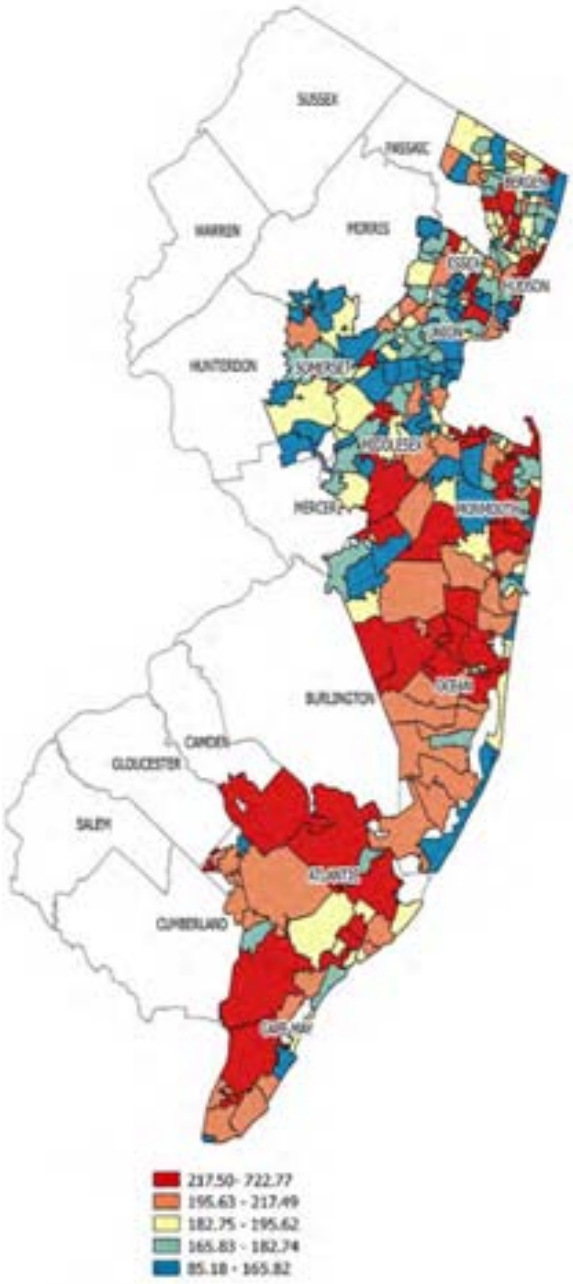
* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

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

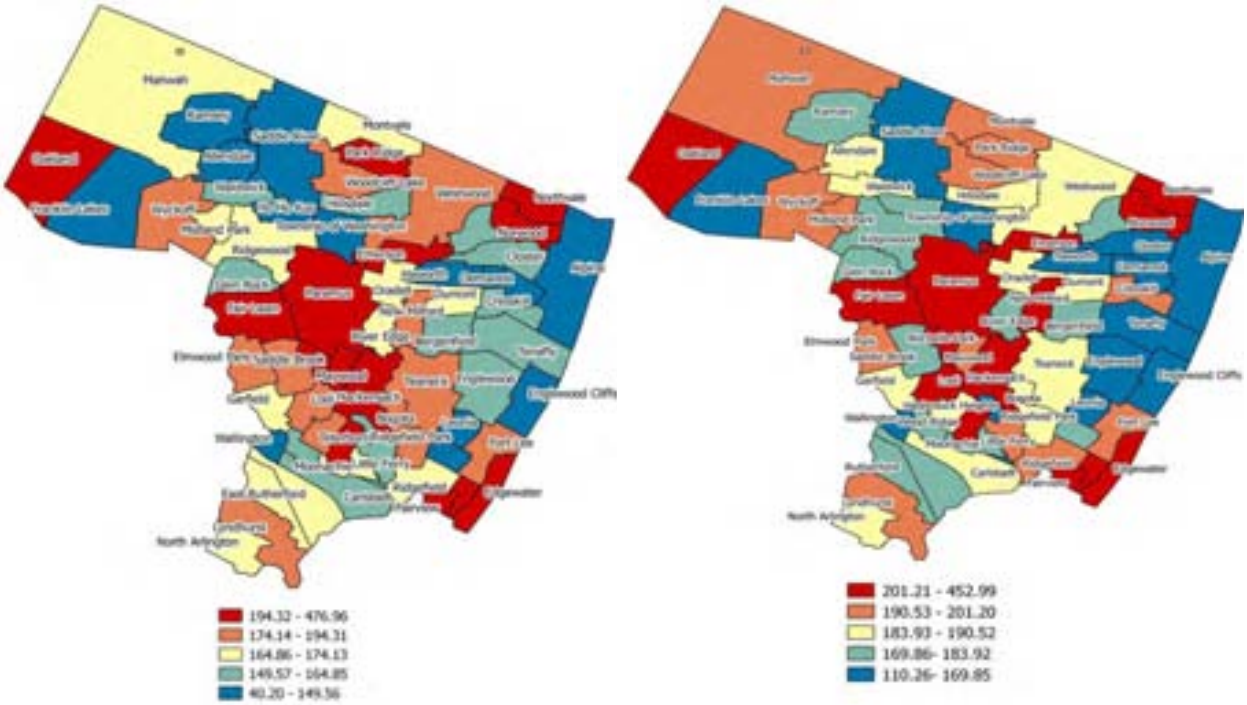


The color-coded map of New Jersey depicts prevalence of depression or proxy disorders from high (red) to low (blue) in the 10 FEMA-declared disaster counties before and after Superstorm Sandy.

* Mapped using ZIP codes of the 10 counties.

Figure 22. Bergen 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**

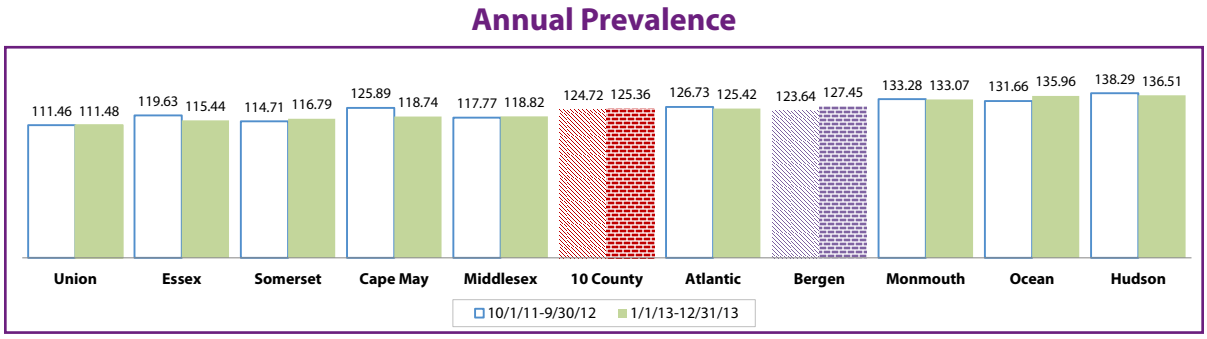


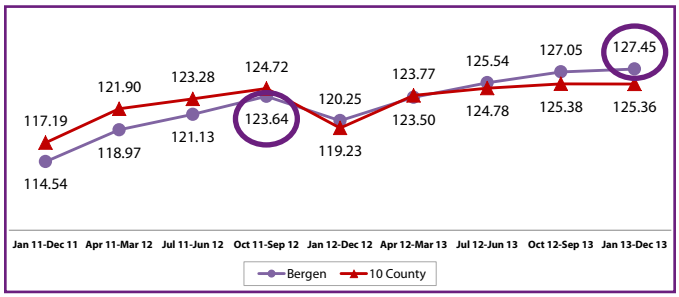
The color-coded map of Bergen County depicts regional variation of prevalence of depression or proxy disorders from high (red) to low (blue) before and after Superstorm Sandy.

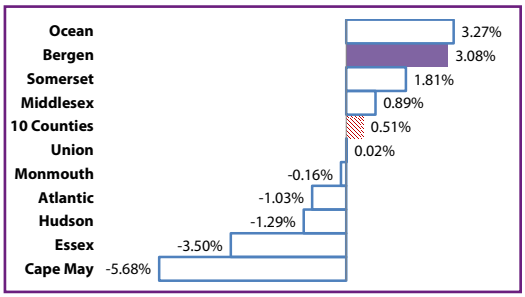
* Mapped using ZIP codes; may not display all the city names located within the ZIP code.

Depression

Figure 23. Depression per 1,000 Medicare FFS Beneficiaries

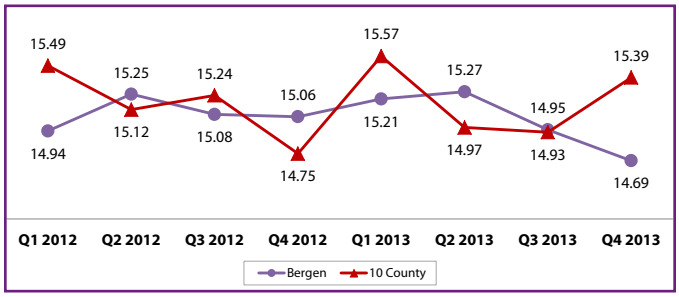






The prevalence rate of depression in Bergen County in the 12 months prior to Superstorm Sandy was 123.64 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 127.45 per 1,000 beneficiaries, reflecting a 3.08% increase.

Figure 24. Quarterly New Incidence of Depression* per 1,000 Medicare FFS Beneficiaries



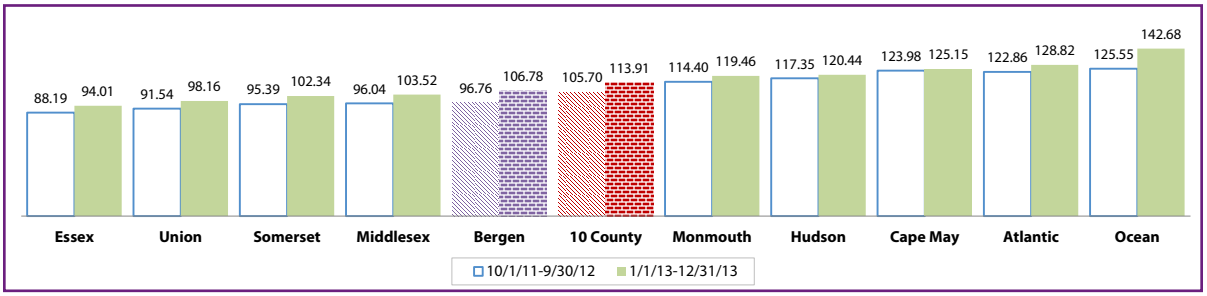
This chart reflects trending of quarterly new incidence of depression among Medicare FFS beneficiaries in Bergen County.

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

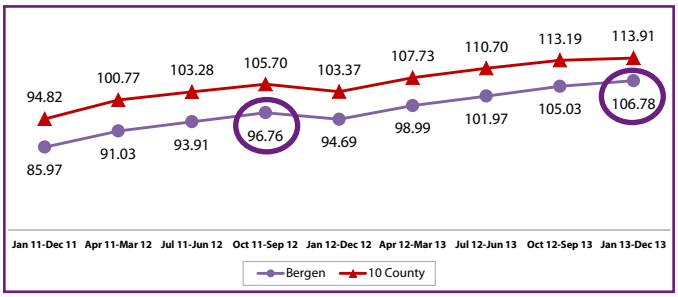
Anxiety Disorders

Figure 25. Anxiety Disorders per 1,000 Medicare FFS Beneficiaries

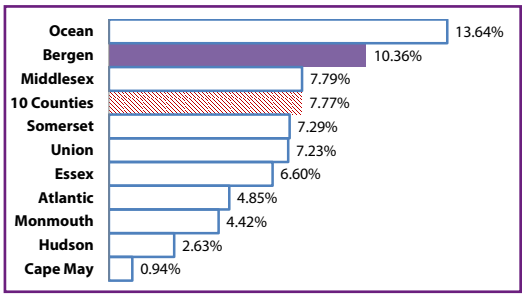
Annual Prevalence



Annual Trend

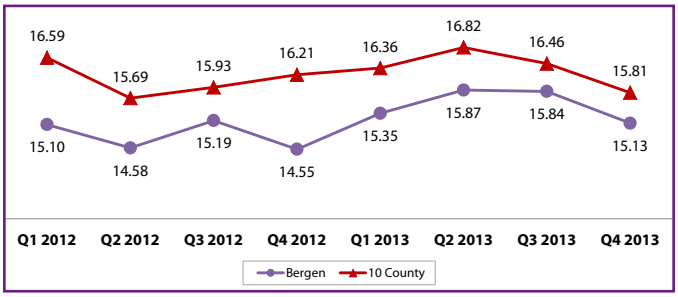


Percent Change



The prevalence rate of anxiety disorders in Bergen County in the 12 months prior to Superstorm Sandy was 96.76 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 106.78 per 1,000 beneficiaries, reflecting a 10.36% relative increase.

Figure 26. Quarterly New Incidence of Anxiety Disorders* per 1,000 Medicare FFS Beneficiaries



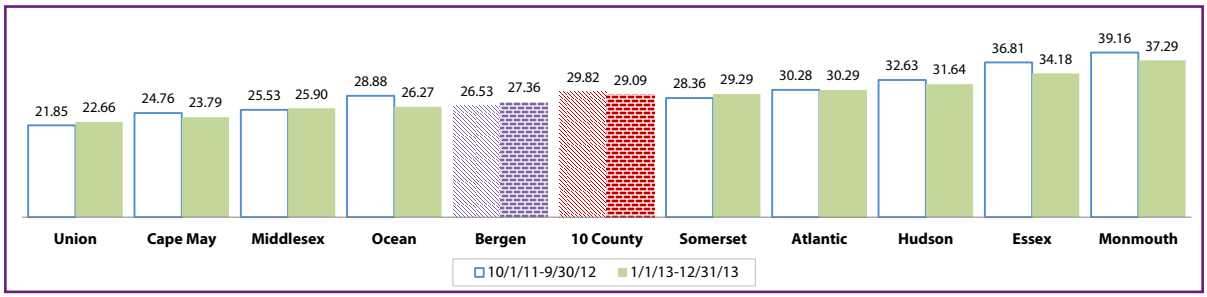
This chart reflects trending of quarterly new incidence of anxiety disorders among Medicare FFS beneficiaries in Bergen County.

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

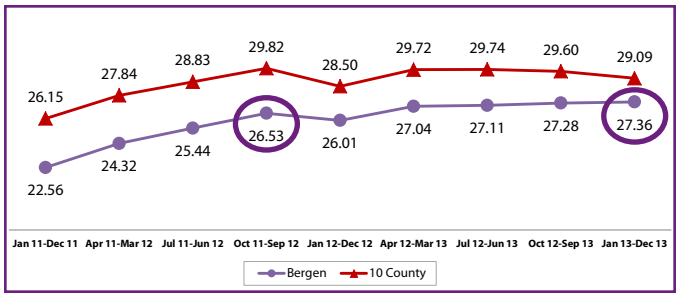
Adjustment Disorders

Figure 27. Adjustment Disorders per 1,000 Medicare FFS Beneficiaries

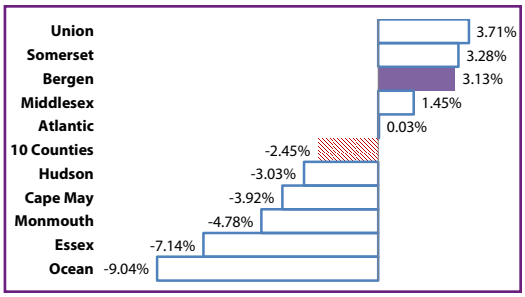
Annual Prevalence



Annual Trend

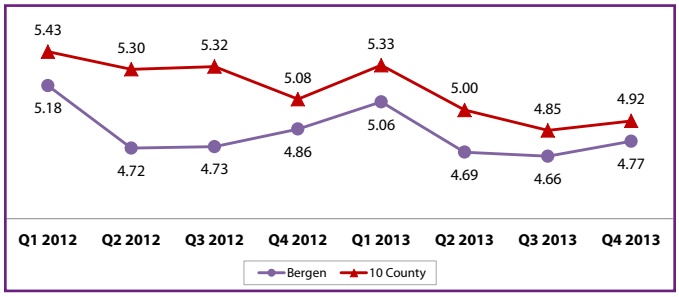


Percent Change



The prevalence rate of adjustment disorders in Bergen County in the 12 months prior to Superstorm Sandy was 26.53 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 27.36 per 1,000 beneficiaries, reflecting a 3.13% relative increase.

Figure 28. Quarterly New Incidence of Adjustment Disorders* per 1,000 Medicare FFS Beneficiaries

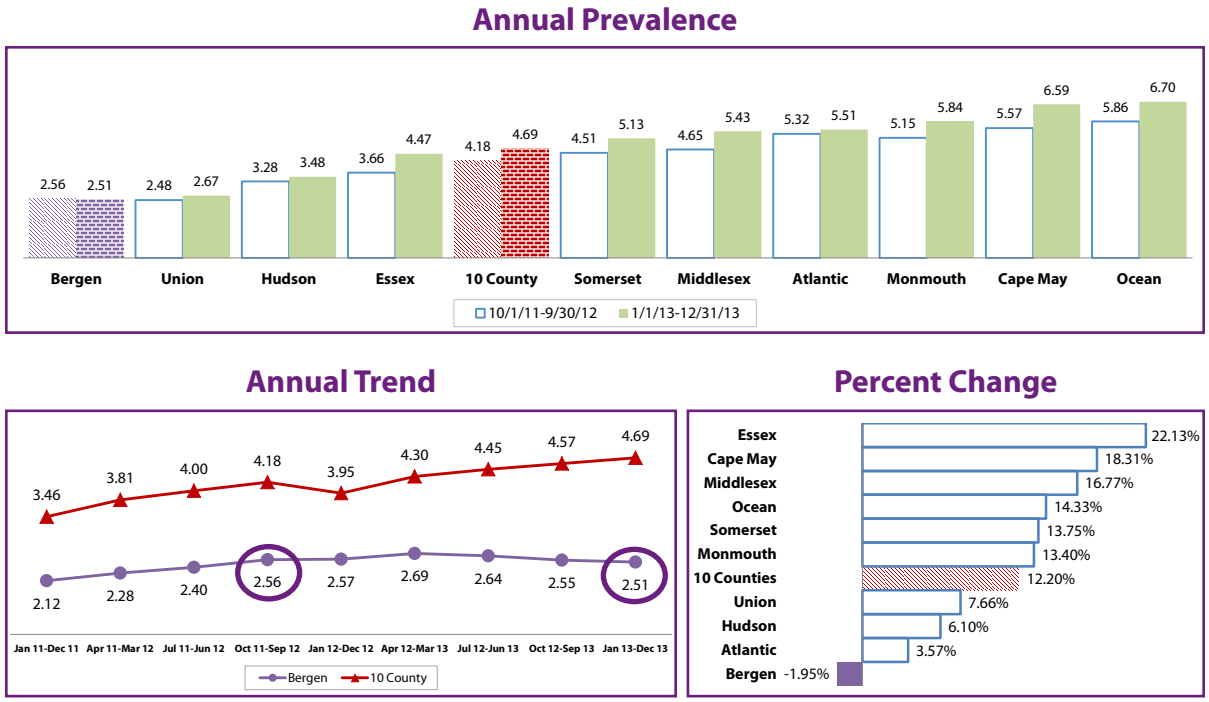


This chart reflects trending of quarterly new incidence of adjustment disorders among Medicare FFS beneficiaries in Bergen County.

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

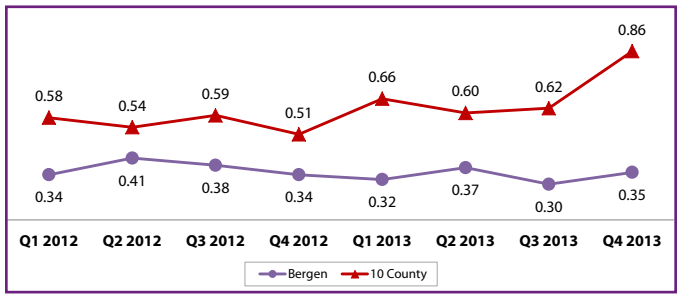
Post-Traumatic Stress Disorder (PTSD)

Figure 29. PTSD per 1,000 Medicare FFS Beneficiaries



The prevalence rate of PTSD in Bergen County in the 12 months prior to Superstorm Sandy was 2.56 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 2.51 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 1.95% relative decrease, the only decrease among all 10 counties.

Figure 30. Quarterly New Incidence of PTSD* per 1,000 Medicare FFS Beneficiaries

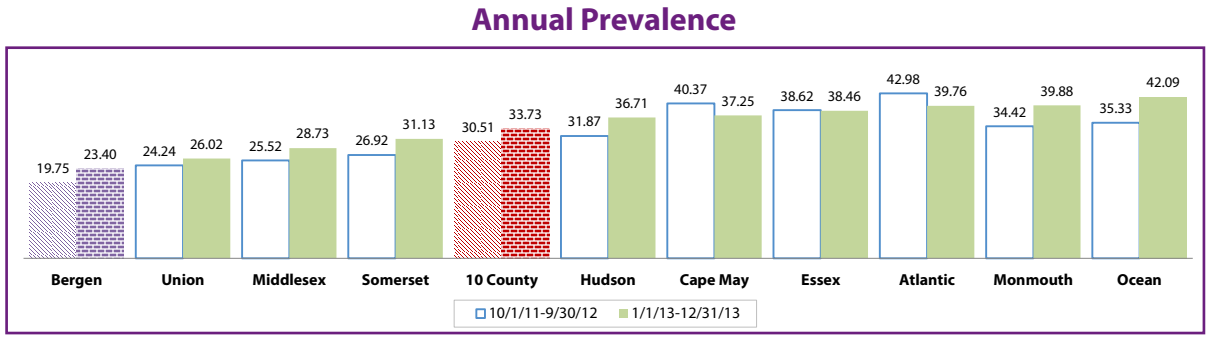


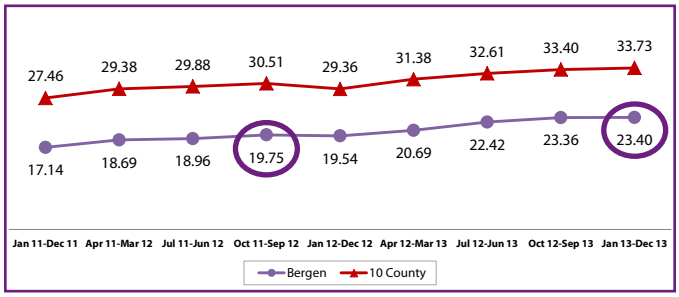
This chart reflects trending of quarterly new incidence of PTSD among Medicare FFS beneficiaries in Bergen County.

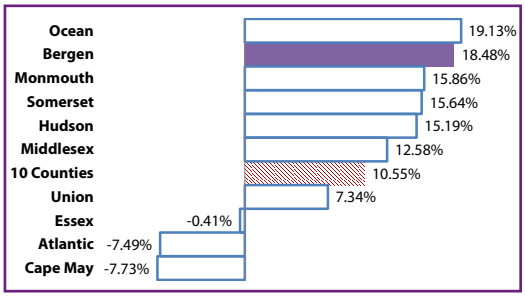
* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

Alcohol or Substance Abuse

Figure 31. Alcohol or Substance Abuse per 1,000 Medicare FFS Beneficiaries



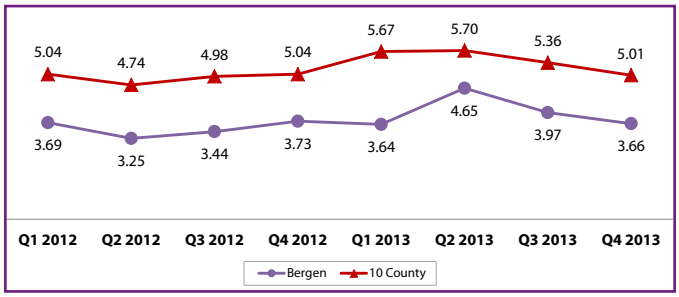




The alcohol or substance abuse measure includes Medicare FFS beneficiaries who were reported for either alcohol abuse or substance abuse.

The prevalence rate of alcohol or substance abuse in Bergen County in the 12 months prior to Superstorm Sandy was 19.75 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 23.40 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects an 18.48% relative increase.

Figure 32. Quarterly New Incidence of Alcohol or Substance Abuse* per 1,000 Medicare FFS Beneficiaries

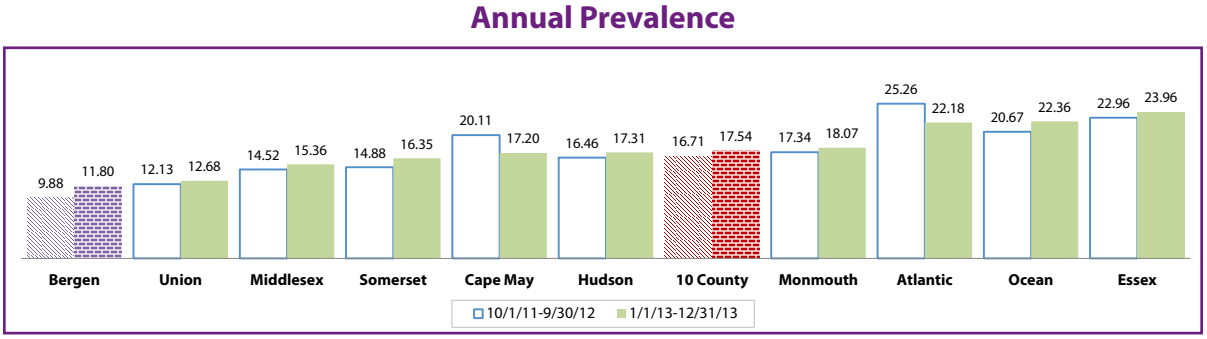


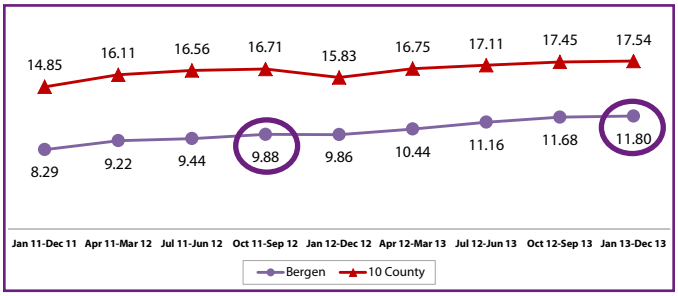
This chart reflects trending of quarterly new incidence of alcohol or substance abuse among Medicare FFS beneficiaries in Bergen County.

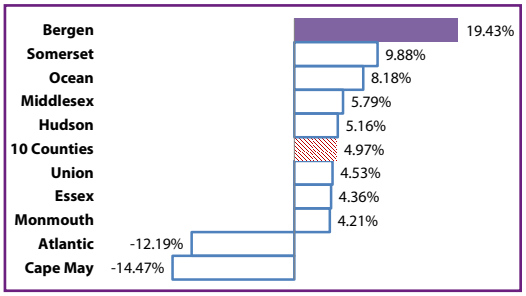
* Quarterly new incidences of conditions that were non-existent (not reported) in the last 12 months.

Substance Abuse Alone

Figure 33. Substance Abuse Alone per 1,000 Medicare FFS Beneficiaries

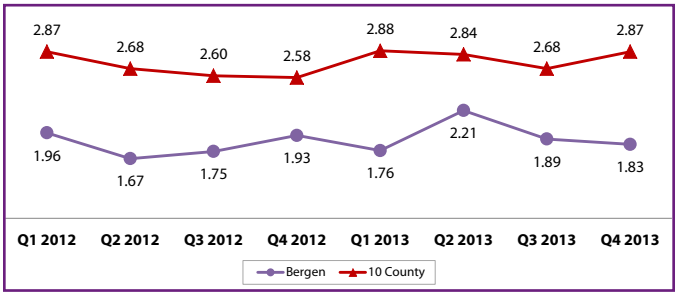






The prevalence rate of substance abuse alone in Bergen County in the 12 months prior to Superstorm Sandy was 9.88 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 11.80 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 19.43% relative increase, the largest increase among all 10 counties.

Figure 34. Quarterly New Incidence of Substance Abuse Alone* per 1,000 Medicare FFS Beneficiaries



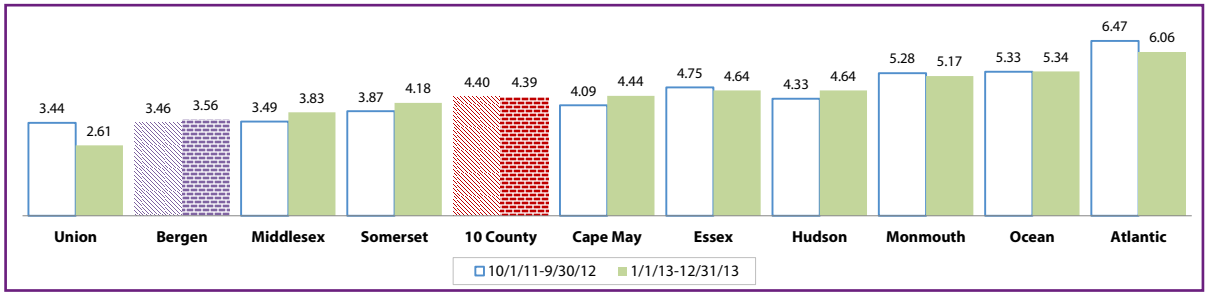
This chart reflects trending of quarterly new incidence of substance abuse alone among Medicare FFS beneficiaries in Bergen County.

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

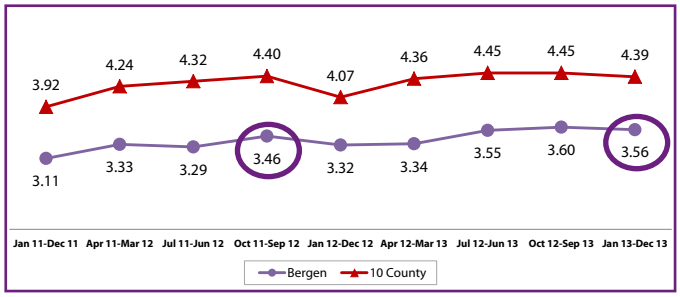
Suicide and Intentional Self-Inflicted Injury

Figure 35. Suicide and Intentional Self-Inflicted Injury per 1,000 Medicare FFS Beneficiaries

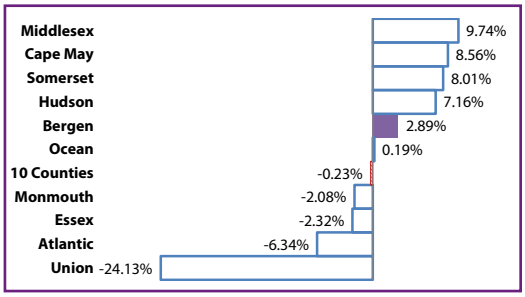
Annual Prevalence



Annual Trend

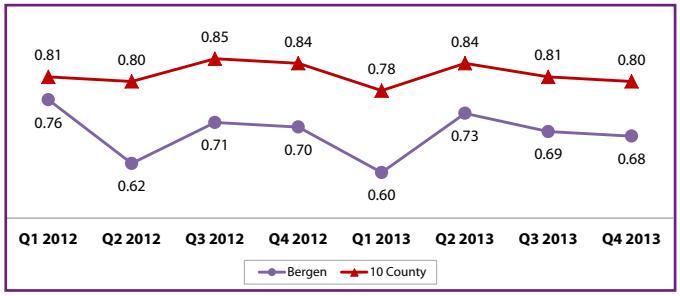


Percent Change



The prevalence rate of suicide and intentional self-inflicted injury in Bergen County in the 12 months prior to Superstorm Sandy was 3.46 per 1,000 Medicare FFS beneficiaries. After the storm, the rate increased to 3.56 per 1,000 beneficiaries, reflecting a 2.89% relative increase.

Figure 36. Quarterly New Incidence of Suicide and Intentional Self-Inflicted Injury per 1,000 Medicare FFS Beneficiaries



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

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

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

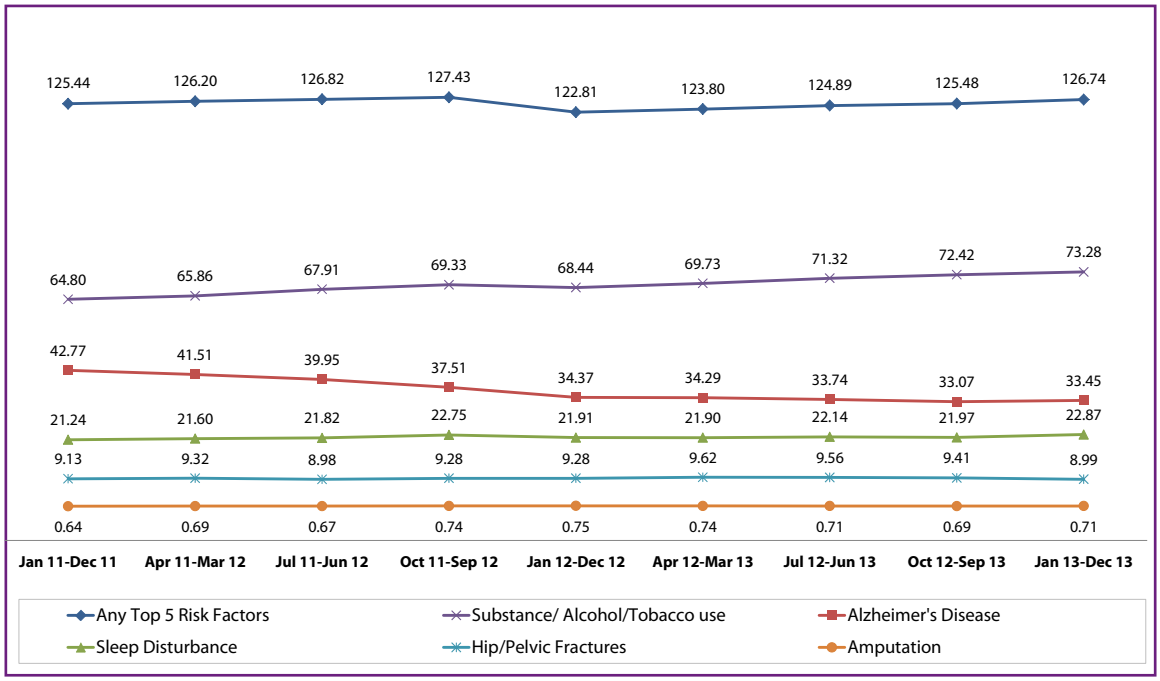
Figure 37. Percent Change of Prevalence of the Top Five Risk Factors of Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries

	Bergen 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	127.43	126.74	-0.54	136.36	136.15	-0.15
• Substance or Alcohol Abuse or Tobacco Use	69.33	73.28	5.70	78.33	81.78	4.40
• Alzheimer's Disease and Related Disorders or Senile Dementia	37.51	33.45	-10.82	39.11	34.91	-10.74
• Sleep Disturbance	22.75	22.87	0.53	24.24	24.78	2.23
• Hip/Pelvic Fractures	9.28	8.99	-3.12	7.95	7.66	-3.65
• Amputations*	0.74	0.71	-4.05	1.11	0.99	-10.81

* Rates lower than 5 per 1,000 beneficiaries.

Bergen County experienced a decrease in any of the top five risk factors for depression or proxy disorders, Alzheimer's disease and related disorders or senile dementia, hip/pelvic fractures, and amputations.

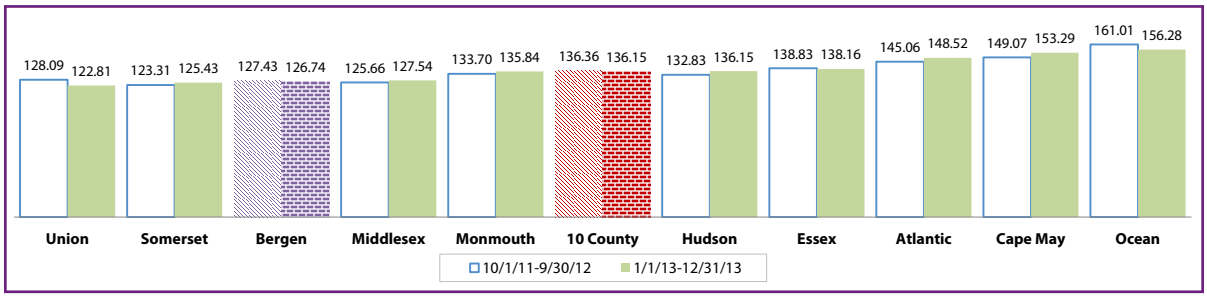
Figure 38. Annual Prevalence Trend for Risk Factors of Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries



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

Any of the Top Five Risk Factors for Depression or Proxy Disorders

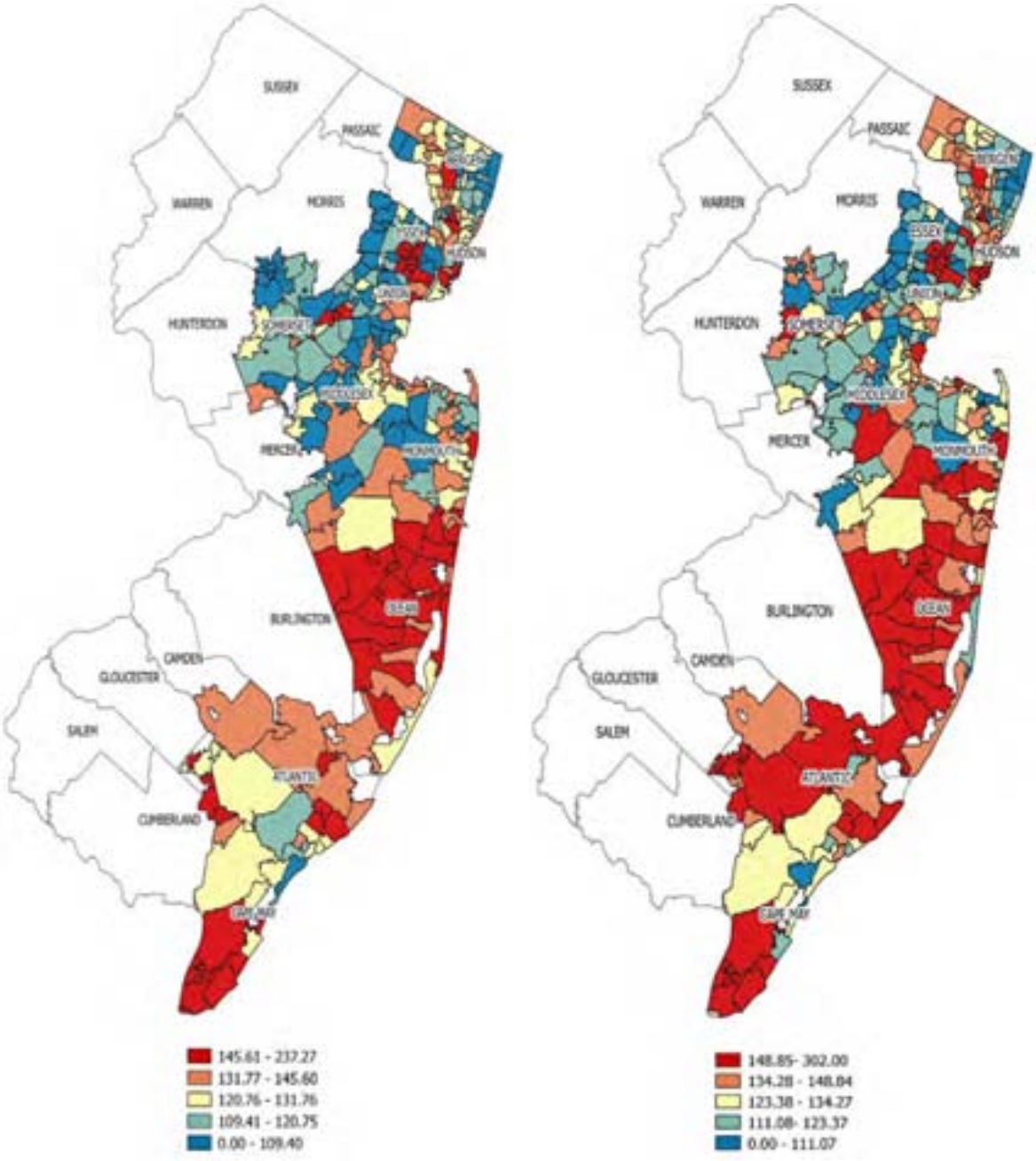
Figure 39. Annual Prevalence of Any of the Top Five Risk Factors for Depression or Proxy Disorders per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with any of the top five risk factors for depression or proxy disorders in Bergen County in the 12 months prior to Superstorm Sandy was 127.43 per 1,000 beneficiaries. After the storm, the rate decreased to 126.74 per 1,000 beneficiaries.

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**

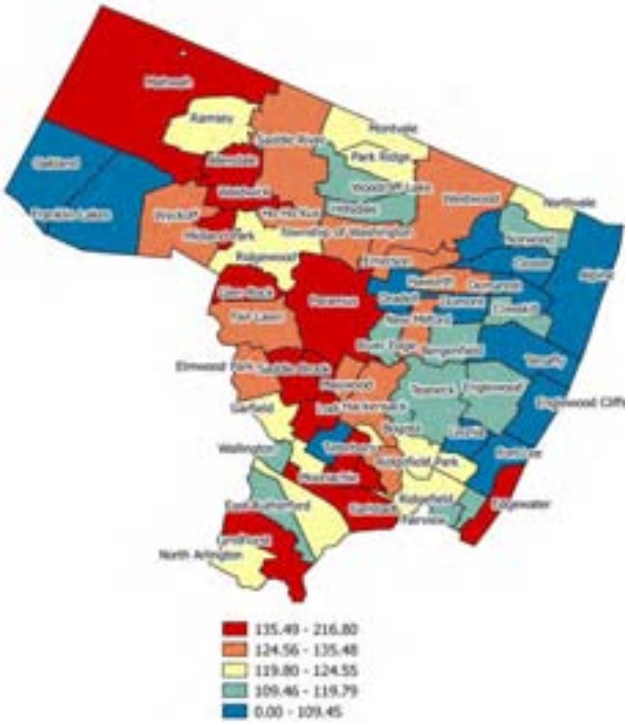


The color-coded map of New Jersey depicts prevalence of any of the top five risk factors from high (red) to low (blue) in the 10 FEMA-declared disaster counties before and after Superstorm Sandy.

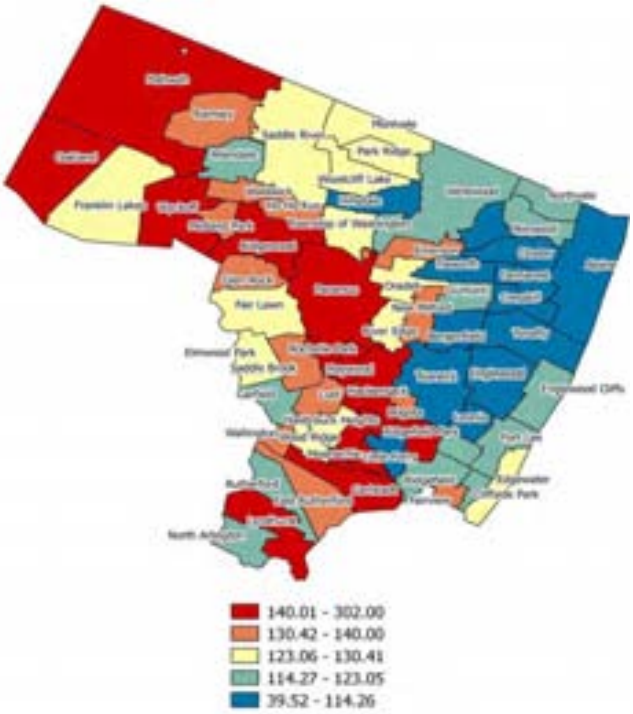
* Mapped using ZIP codes of the 10 counties.

Figure 41. Bergen 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

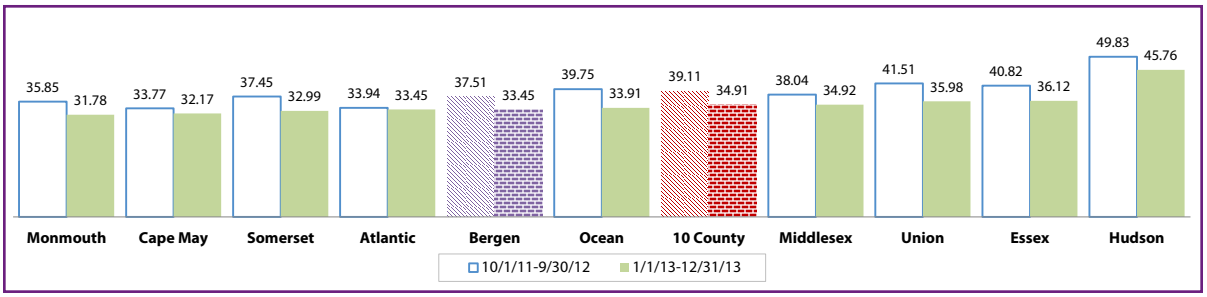


The color-coded map of Bergen County depicts regional variation of prevalence of any of the top five risk factors from high (red) to low (blue) before and after Superstorm Sandy.

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

Alzheimer's Disease and Related Disorders or Senile Dementia

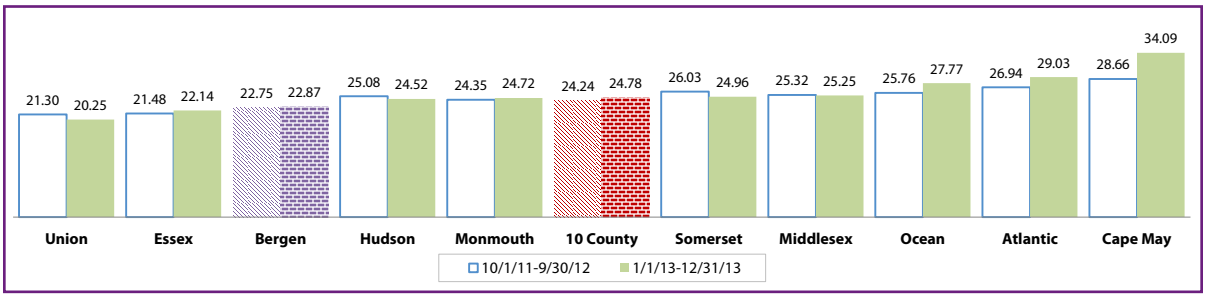
Figure 42. Annual Prevalence of Alzheimer's Disease and Related Disorders or Senile Dementia per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with Alzheimer's disease and related disorders or senile dementia in Bergen County in the 12 months prior to Superstorm Sandy was 37.51 per 1,000 beneficiaries. After the storm, the rate decreased to 33.45 per 1,000 beneficiaries.

Sleep Disturbance

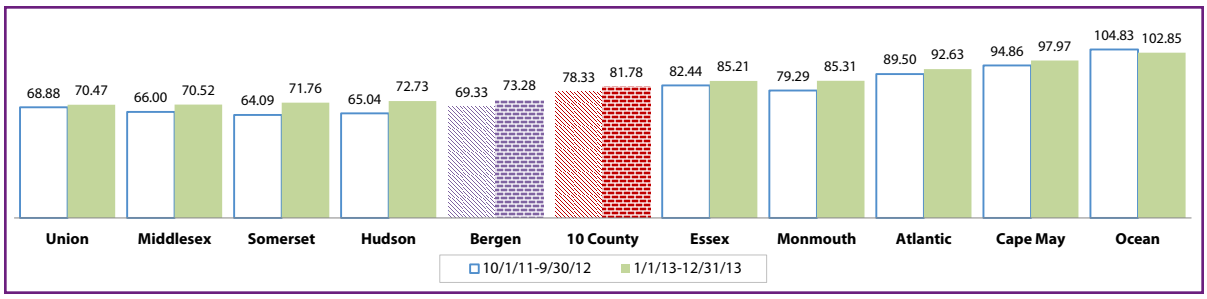
Figure 43. Annual Prevalence of Sleep Disturbance per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with sleep disturbance in Bergen County in the 12 months prior to Superstorm Sandy was 22.75 per 1,000 beneficiaries. After the storm, the rate increased to 22.87 per 1,000 beneficiaries.

Substance or Alcohol Abuse or Tobacco Use

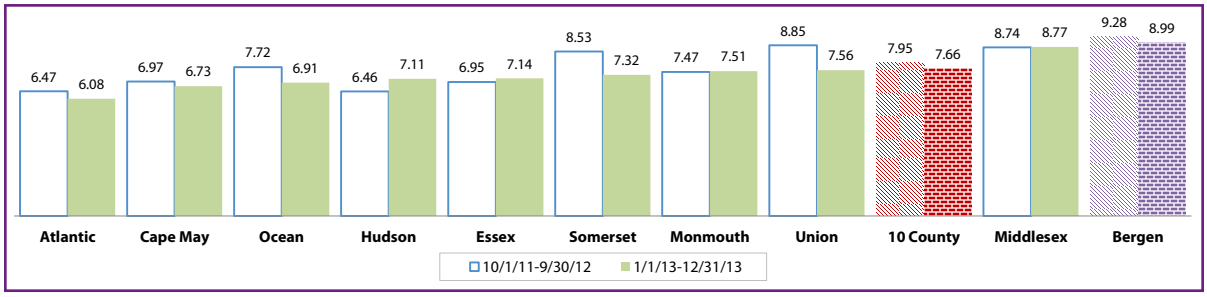
Figure 44. Annual Prevalence of Substance or Alcohol Abuse or Tobacco Use per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with substance or alcohol abuse or tobacco use in Bergen County in the 12 months prior to Superstorm Sandy was 69.33 per 1,000 beneficiaries. After the storm, the rate increased to 73.28 per 1,000 beneficiaries.

Hip/Pelvic Fractures

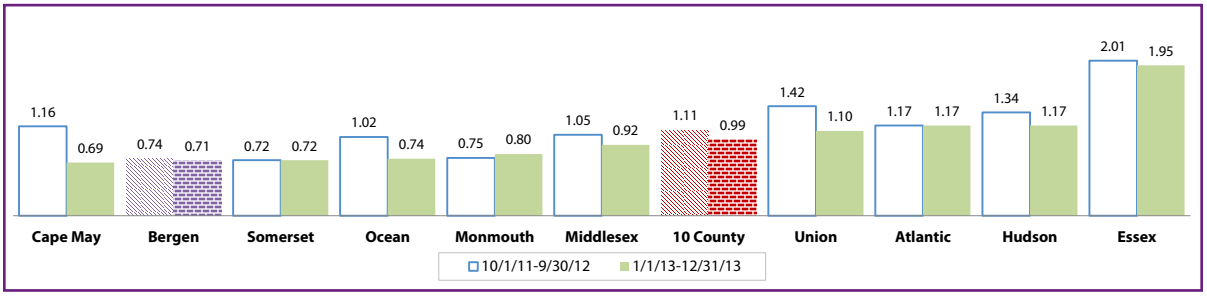
Figure 45. Annual Prevalence of Hip/Pelvic Fractures per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with hip/pelvic fractures in Bergen County in the 12 months prior to Superstorm Sandy was 9.28 per 1,000 beneficiaries. After the storm, the rate decreased to 8.99 per 1,000 beneficiaries, the highest rate among all 10 counties.

Amputations

Figure 46. Annual Prevalence of Amputations per 1,000 Medicare FFS Beneficiaries



The prevalence rate of Medicare FFS beneficiaries with amputations in Bergen County in the 12 months prior to Superstorm Sandy was 0.74 per 1,000 beneficiaries. After the storm, the rate decreased to 0.71 per 1,000 beneficiaries.

Outpatient Behavioral Health Services

Assessments

Summary

Figure 47. Annual Utilization of Behavioral Health Assessment Services per 1,000 Medicare FFS Beneficiaries					
County	**Depression Screening***	**Psychiatric Diagnostic Procedures**	**Neuropsy-chological Tests**	**Diagnostic Psychological Tests****	**Health and Behavior Assessment/ Intervention****
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).

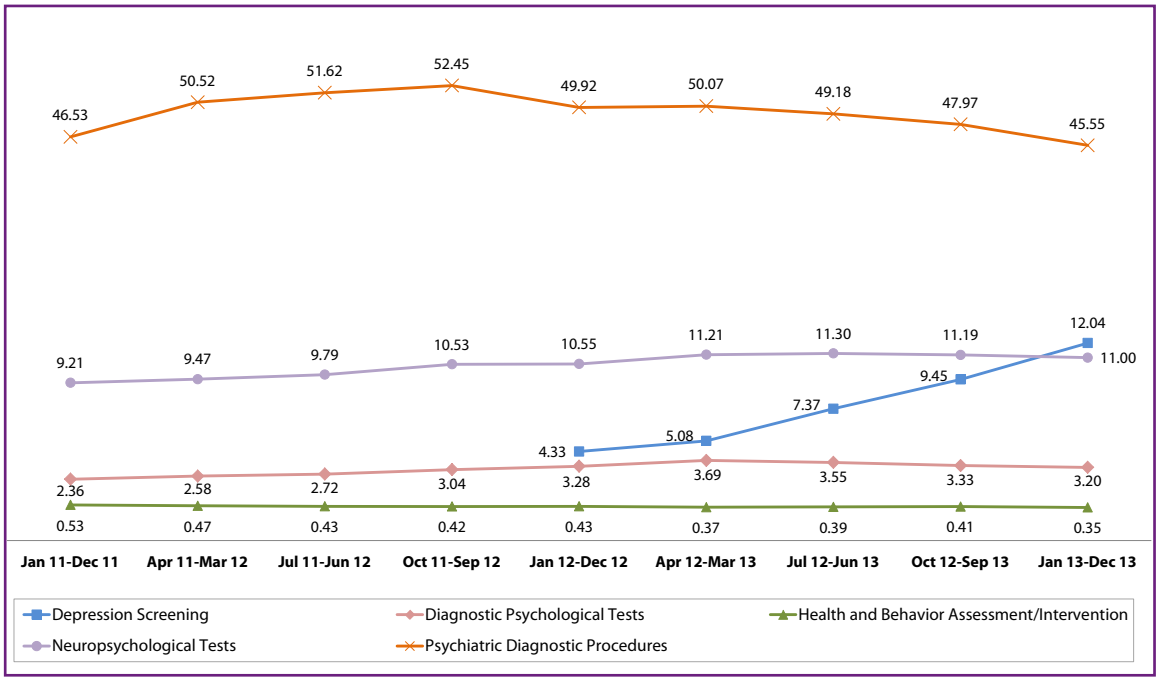
In the 12 months prior to Superstorm Sandy, Bergen County had the lowest utilization of the health and behavior assessment/intervention. After the storm, Bergen County experienced a decrease in the utilization of the health and behavior assessment/intervention however, it was no longer the lowest rate.

Figure 48. Percent Change of Behavioral Health Service Utilization – Assessments per 1,000 Medicare FFS Beneficiaries						
	Bergen 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*	4.33	12.04	178.06	4.81	12.03	150.10
Psychiatric Diagnostic Procedures	52.45	45.55	-13.16	53.41	45.69	-14.45
Neuropsychological Tests	10.53	11.00	4.46	9.48	10.85	14.45
Diagnostic Psychological Tests**	3.04	3.20	5.26	4.39	4.61	5.01
Health and Behavior Assessment/ Intervention**	0.42	0.35	-16.67	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.

Annual depression screening in Bergen County increased from 4.33 per 1,000 Medicare FFS beneficiaries to 12.04 per 1,000 beneficiaries.

Figure 49. Annual Utilization Trend of Behavioral Health Assessment Services per 1,000 Medicare FFS Beneficiaries



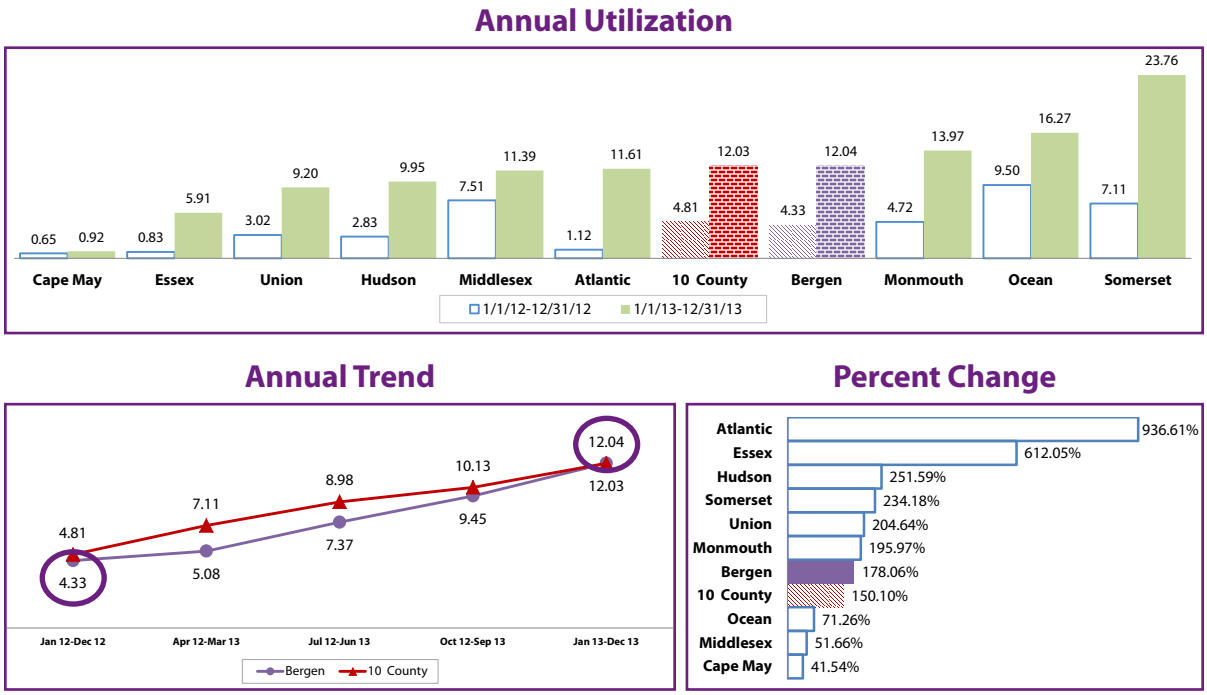
This chart reflects annual trending in the utilization of behavioral health assessment services among Medicare FFS beneficiaries in Bergen County.

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.

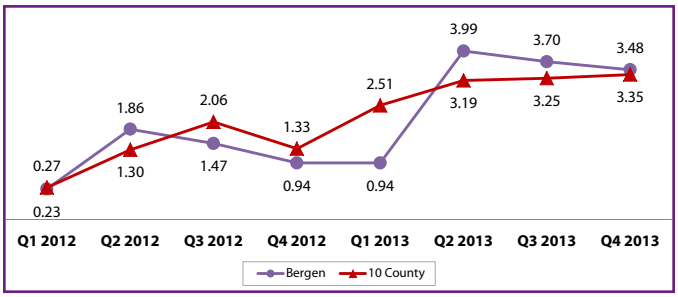
Beginning October 2011, depression screening became a Medicare-covered service. According to the CMS Screening for Depression Booklet,[7] Medicare Part B covers an annual screening for depression of 15 minutes in length for beneficiaries in primary care settings when staff-assisted depression care supports 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



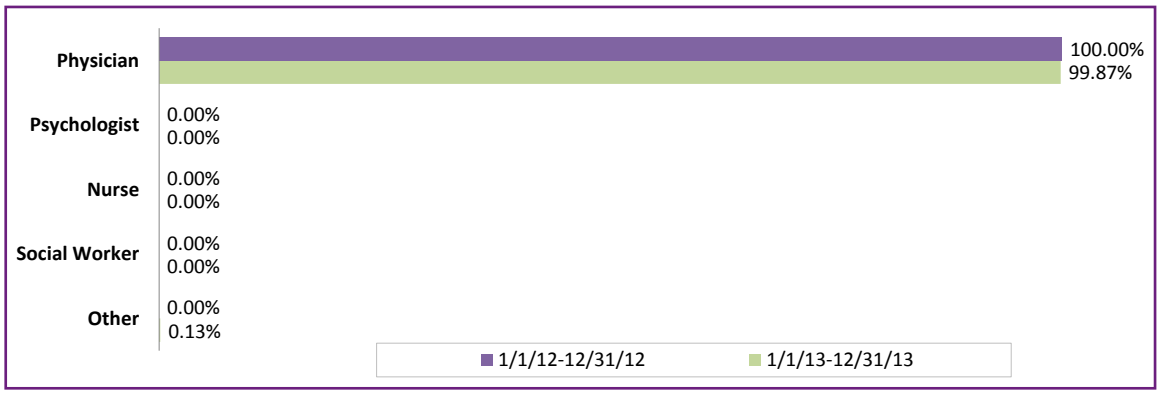
The rate of depression screening in Bergen County for calendar year 2012 was 4.33 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 12.04 per 1,000 beneficiaries, reflecting a 178.06% relative increase.

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 Bergen County.

Figure 52. Depression Screening* Claims for Medicare FFS Beneficiaries

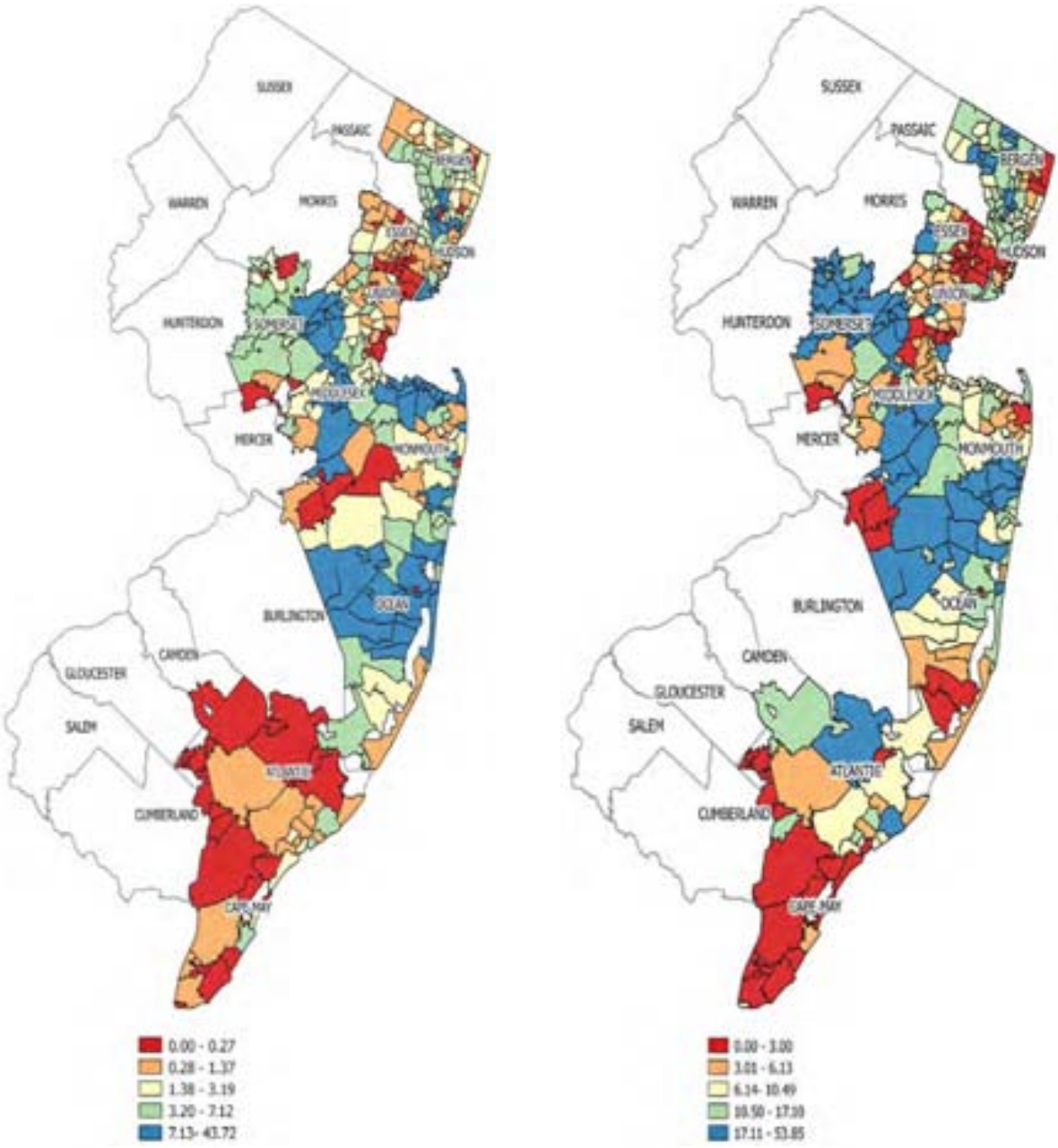


* Depression screening is a one-time benefit in 12 months.

In calendar year 2012, all depression screening claims in Bergen County were filed by physicians. After the storm, 99.87% were filed by physicians and 0.13% 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**

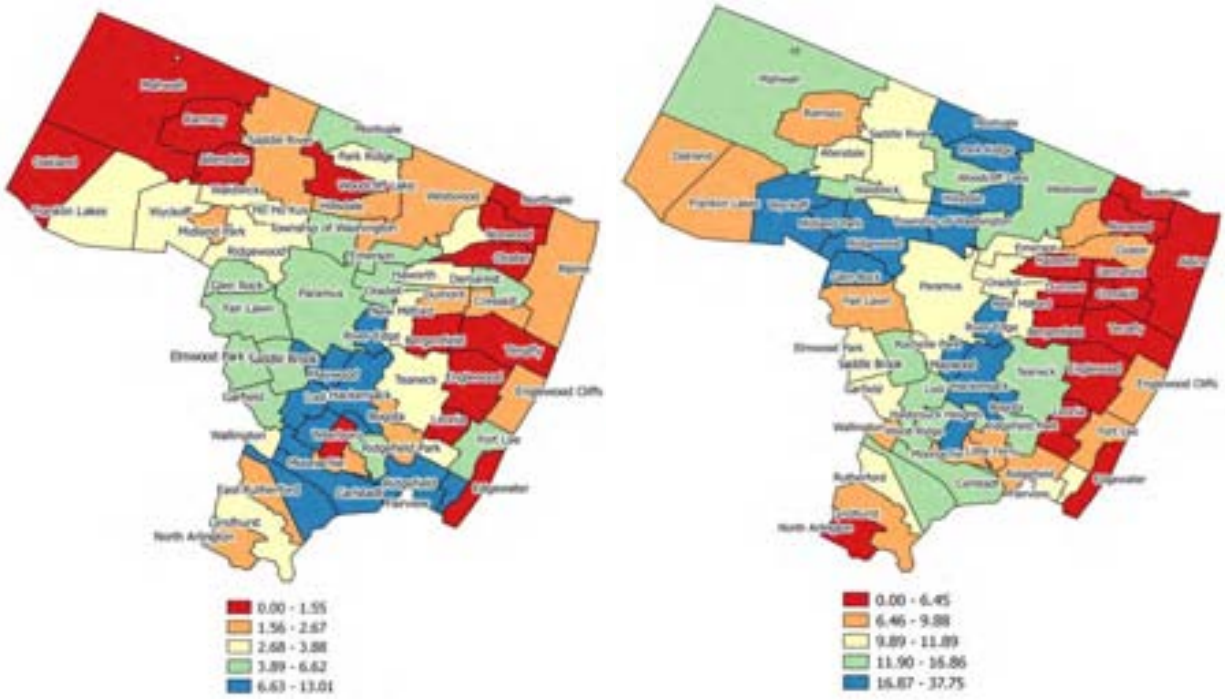


The color-coded map of New Jersey depicts the use of depression screening from low (red) to high (blue) in the 10 FEMA-declared disaster counties before and after Superstorm Sandy.

* Mapped using ZIP codes of the 10 counties.

FIGURE 54. BERGEN 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 Bergen 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.

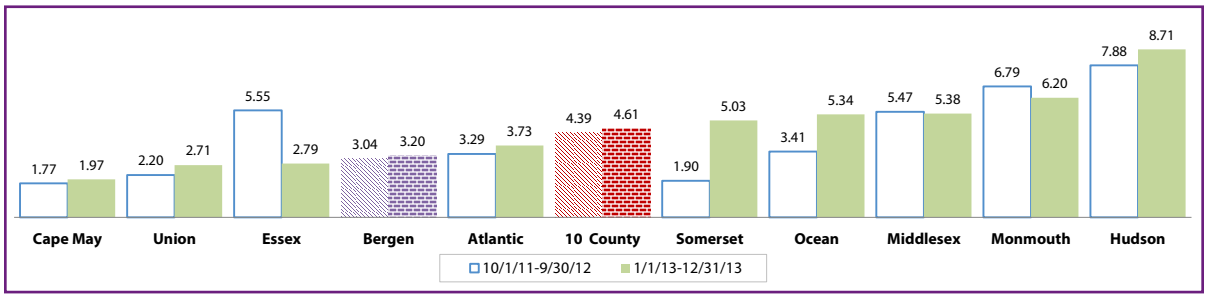
* Mapped using ZIP codes; may not display all the city names located within the ZIP code.

Diagnostic Psychological Tests

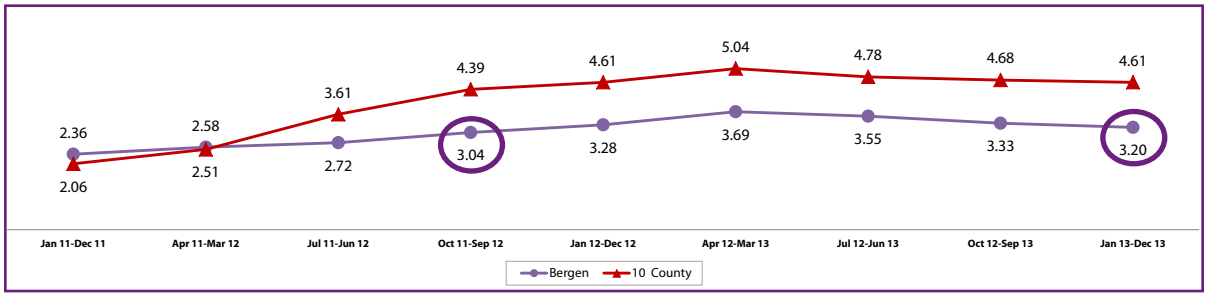
According to the CMS Mental Health Services Billing Guide, psychological testing includes psychodiagnostic assessment of emotionality, intellectual abilities, personality, and psychopathology (e.g., Minnesota Multiphasic Personality Inventory, Rorschach, or Wechsler Adult Intelligence Scale).[8]

Figure 55. Diagnostic Psychological Tests per 1,000 Medicare FFS Beneficiaries

Annual Utilization



Annual Trend



The rate of diagnostic psychological tests in Bergen County in the 12 months prior to Superstorm Sandy was 3.04 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 3.20 per 1,000 beneficiaries.

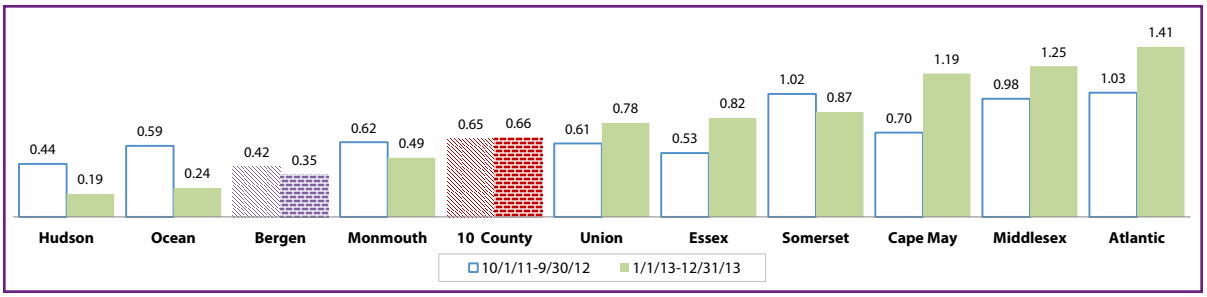
Due to these low numbers, no percent change data has been provided for this assessment.

Health and Behavior Assessment/Intervention

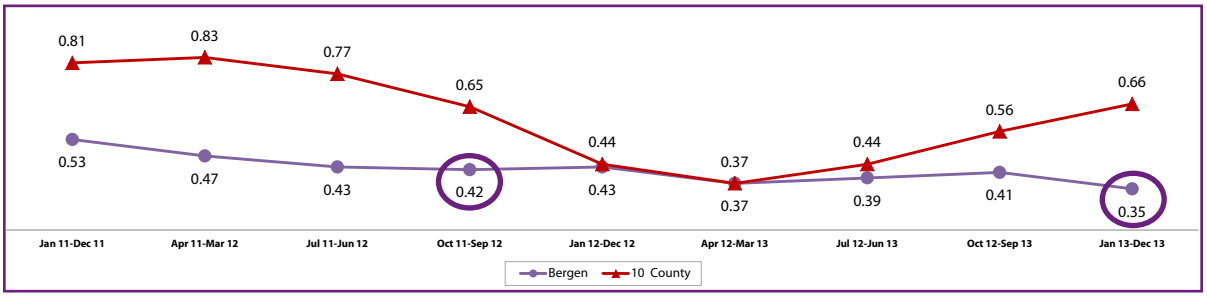
According to the CMS Mental Health Services Billing Guide, health and behavior assessments are used to identify the psychological, behavioral, emotional, cognitive, and social factors important to the prevention, treatment, or management of physical health problems.[8]

Figure 56. Health and Behavior Assessment/Intervention per 1,000 Medicare FFS Beneficiaries

Annual Utilization



Annual Trend



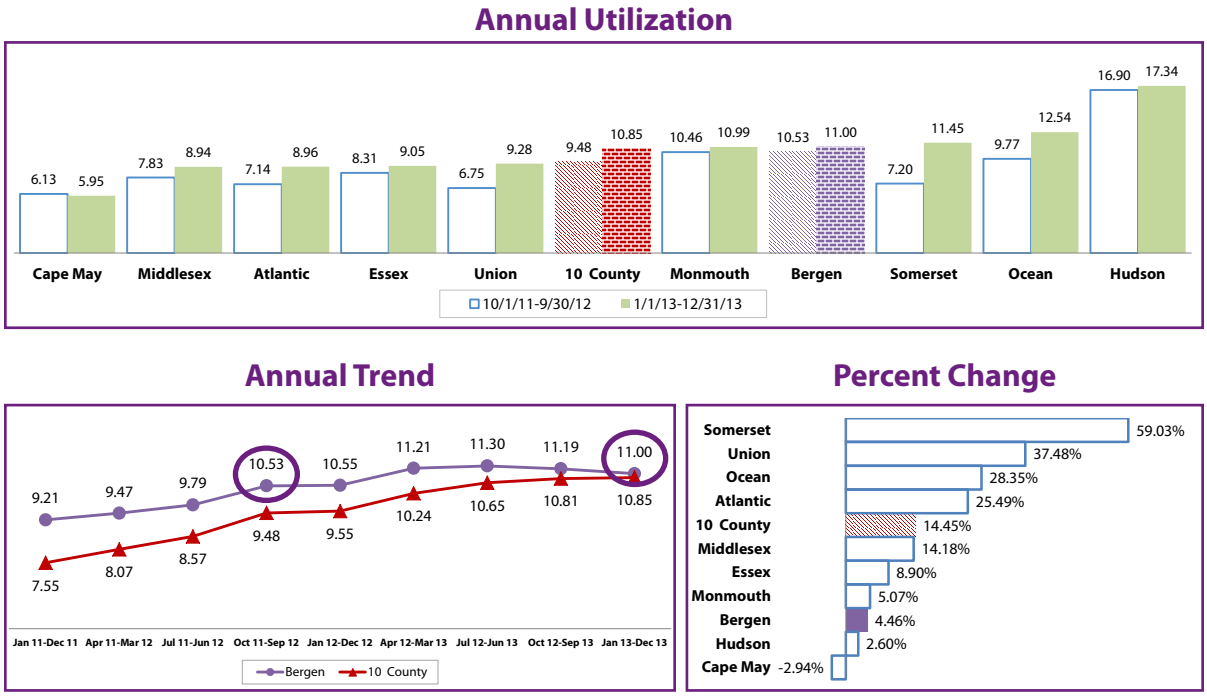
The rate of health and behavior assessment/intervention in Bergen County in the 12 months prior to Superstorm Sandy was 0.42 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 0.35 per 1,000 beneficiaries.

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

Neuropsychological Tests

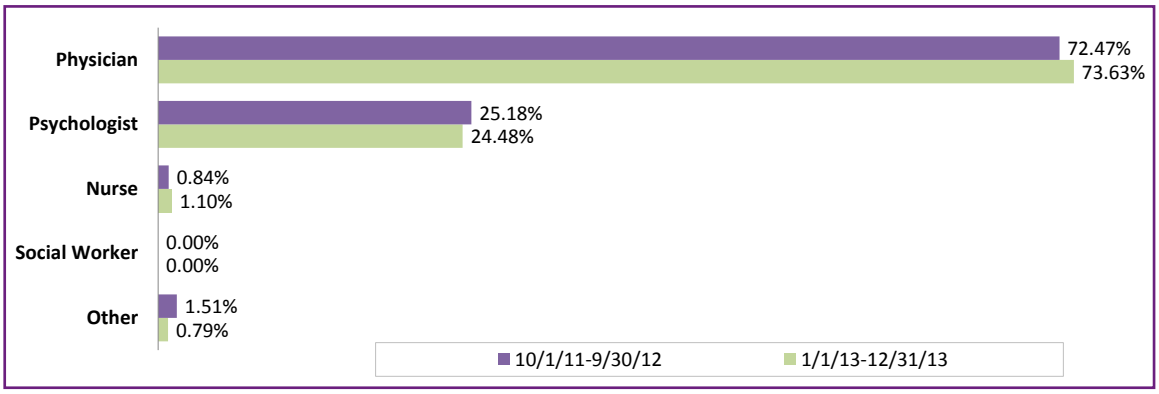
According to the CMS Mental Health Services Billing Guide, neuropsychological tests are evaluations designed to determine the functional consequences of known or suspected brain injury through testing of the neurocognitive domains responsible for language, perception, memory, learning, problem solving, and adaptation.[8]

Figure 57. Neuropsychological Tests per 1,000 Medicare FFS Beneficiaries



The rate of neuropsychological tests in Bergen County in the 12 months prior to Superstorm Sandy was 10.53 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 11.00 per 1,000 beneficiaries, reflecting a 4.46% relative increase.

Figure 58. Neuropsychological Tests Claims* for Medicare FFS Beneficiaries



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

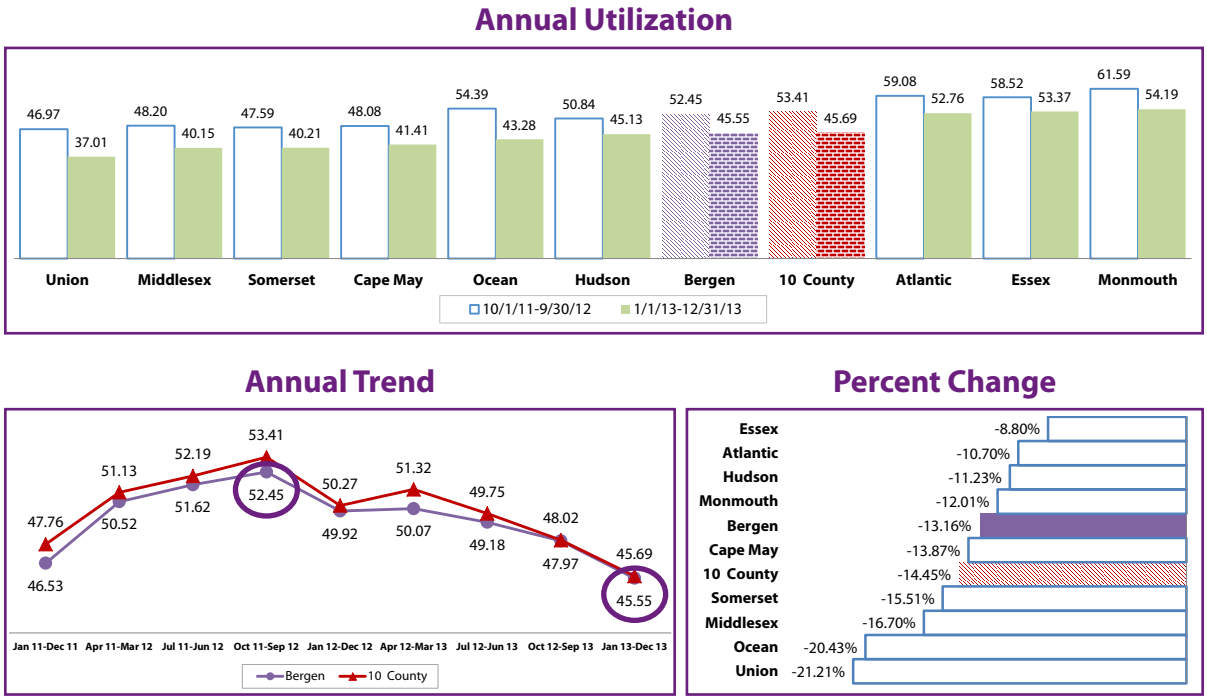
In the 12 months prior to Superstorm Sandy, 72.47% of neuropsychological tests claims were filed by physicians, 25.18% were filed by psychologists, 1.51% were filed by others, and 0.84% were filed by nurses.

After the storm, 73.63% of neuropsychological tests claims were filed by physicians, 24.48% were filed by psychologists, 1.10% were filed by nurses, and 0.79% were filed by others.

Psychiatric Diagnostic Procedures

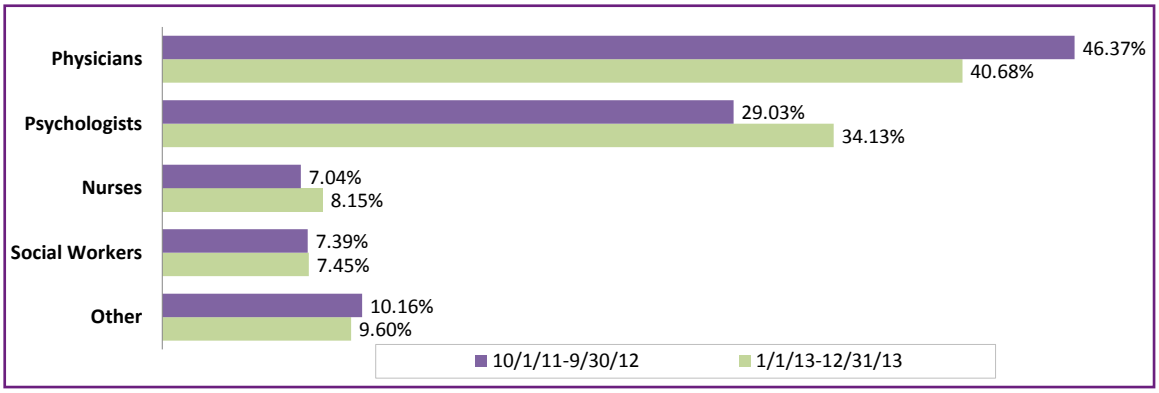
According to the CMS Mental Health Services Billing Guide, psychiatric diagnostic evaluation is an integrated biopsychosocial assessment, including history, mental status, and recommendations. The evaluation may include communication with family or other sources and review of diagnostic studies.[8]

Figure 59. Psychiatric Diagnostic Procedures per 1,000 Medicare FFS Beneficiaries



The rate of psychiatric diagnostic procedures in Bergen County in the 12 months prior to Superstorm Sandy was 52.45 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 45.55 per 1,000 beneficiaries, reflecting a 13.16% relative decrease.

Figure 60. Psychiatric Diagnostic Procedures Claims* for Medicare FFS Beneficiaries



* 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, 46.37% of psychiatric diagnostic procedures claims were filed by physicians, 29.03% were filed by psychologists, 10.16% were filed by others, 7.39% were filed by social workers, and 7.04% were filed by nurses.

After the storm, 40.68% of psychiatric diagnostic procedures claims were filed by physicians, 34.13% were filed by psychologists, 9.60% were filed by others, 8.15% were filed by nurses, and 7.45% were filed by social workers.

Therapies

Summary

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

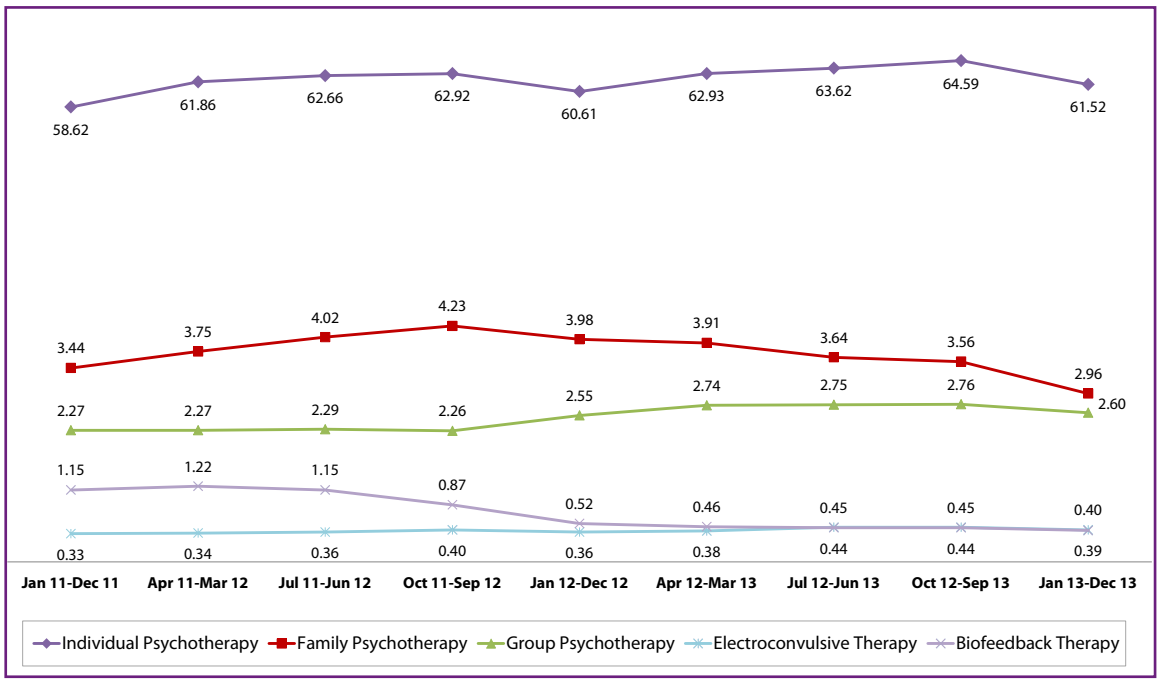
In the 12 months prior to Superstorm Sandy, Bergen County had the highest utilization of individual psychotherapy. After the storm, Bergen County still had the highest utilization of individual psychotherapy, despite a decrease in the utilization rate.

Figure 62. Percent Change of Behavioral Health Service Utilization – Therapies per 1,000 Medicare FFS Beneficiaries						
	Bergen 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	62.92	61.52	-2.23	54.56	53.07	-2.73
Family Psychotherapy*	4.23	2.96	-30.02	3.43	2.42	-29.45
Group Psychotherapy*	2.26	2.60	15.04	2.98	2.71	-9.06
Biofeedback Therapy*	0.87	0.39	-55.17	0.68	0.68	0.00
Electroconvulsive Therapy*	0.40	0.40	0.00	0.47	0.46	-2.13

* Rates lower than 5 per 1,000 beneficiaries.

Bergen County experienced an increase in group psychotherapy as well as a decrease in individual psychotherapy, family psychotherapy, and biofeedback psychotherapy.

Figure 63. Annual Utilization Trend of Behavioral Health Therapy Services per 1,000 Medicare FFS Beneficiaries

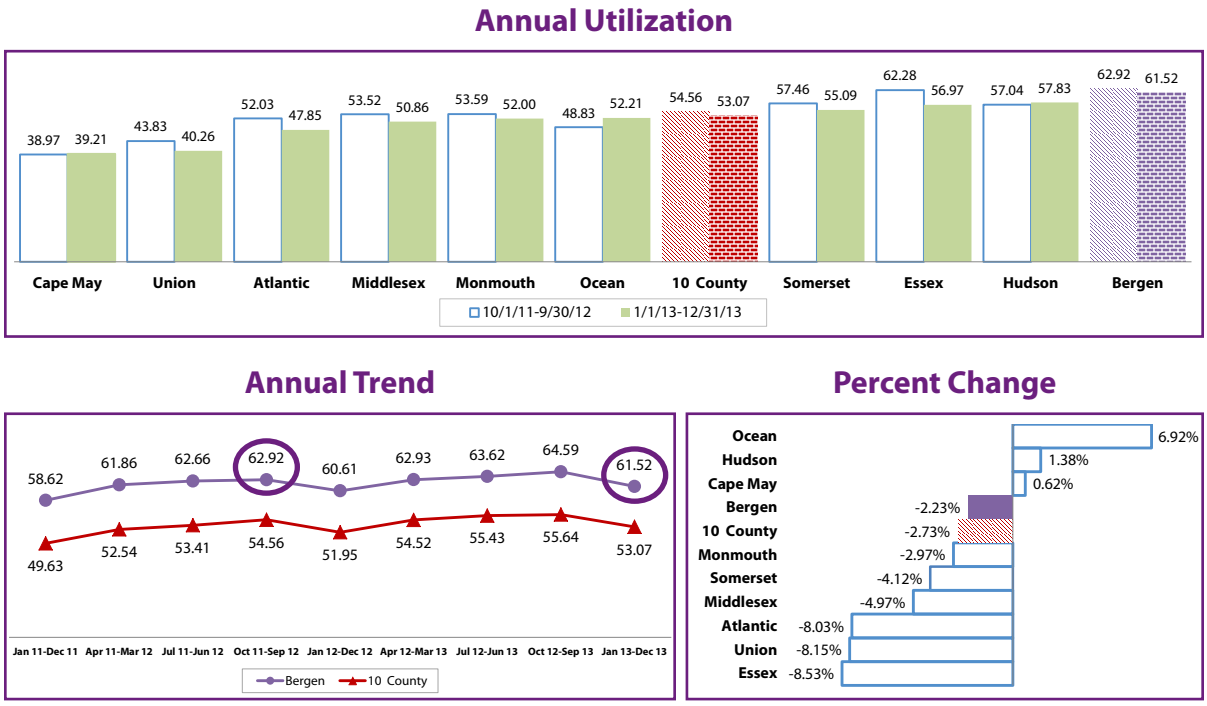


This chart presents annual trending in the yearly utilization of behavioral health therapies among Medicare FFS beneficiaries in Bergen County.

Individual Psychotherapy

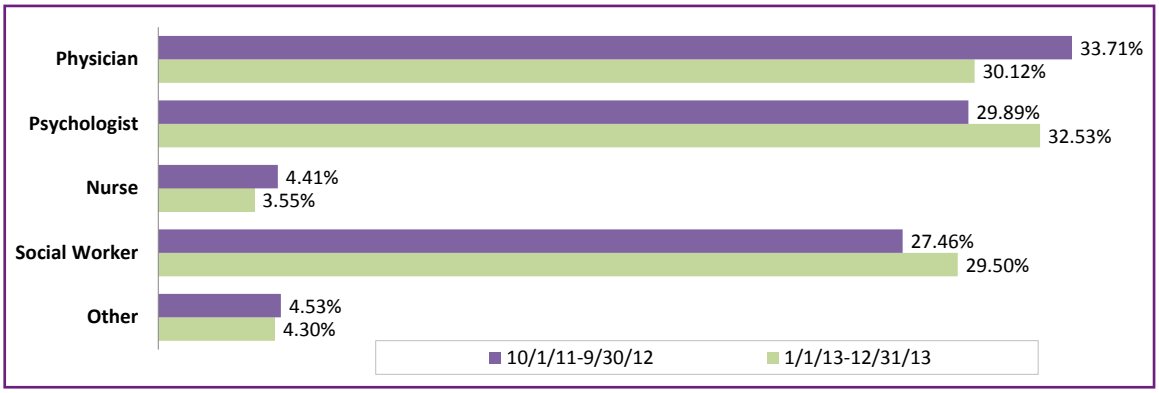
According to the CMS Mental Health Services Billing Guide, individual psychotherapy is the treatment of mental illness and behavioral disturbances where the physician or other qualified health professional attempts to alleviate the emotional disturbances, reverse or change maladaptive patterns of behavior, 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



The rate of individual psychotherapy in Bergen County in the 12 months prior to Superstorm Sandy was 62.92 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 61.52 per 1,000 beneficiaries, the highest rate among all 10 counties. This change reflects a 2.23% relative decrease.

Figure 65. Individual Psychotherapy Claims* for Medicare FFS Beneficiaries



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

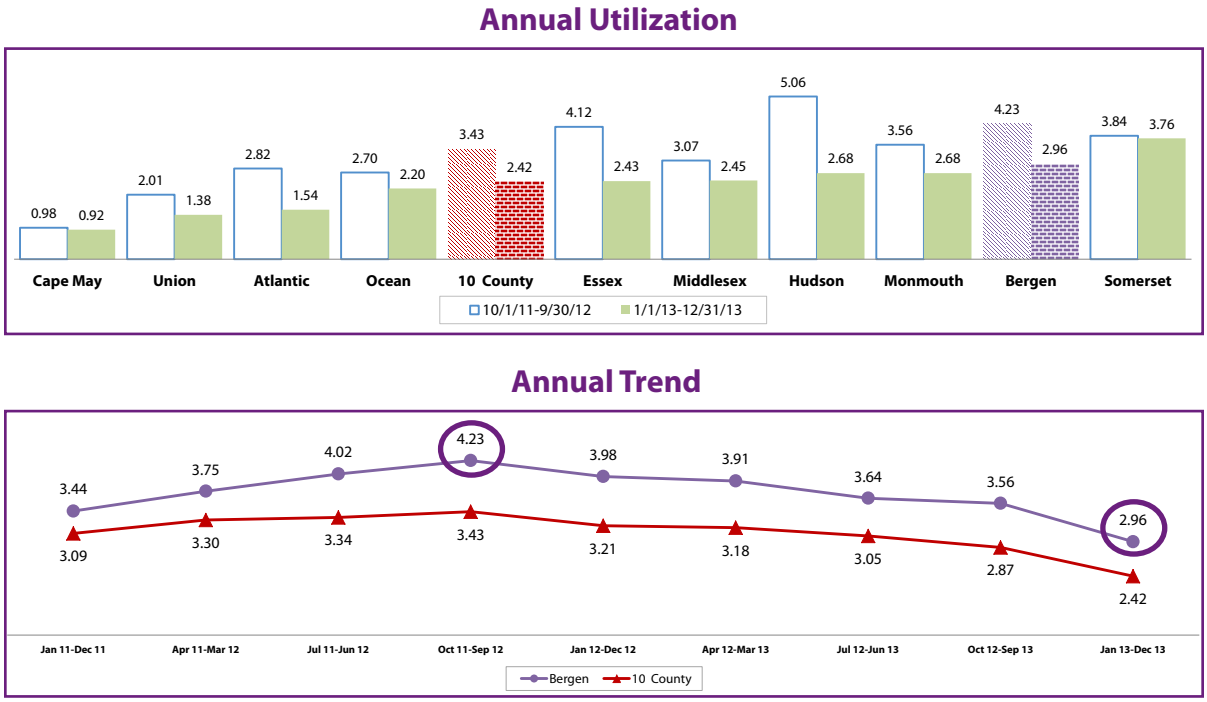
In the 12 months prior to Superstorm Sandy, 33.71% of individual psychotherapy claims were filed by physicians, 29.89% were filed by psychologists, 27.46% were filed by social workers, 4.53% were filed by others, and 4.41% were filed by nurses.

After the storm, 32.53% of individual psychotherapy claims were filed by psychologists, 30.12% were filed by physicians, 29.50% were filed by social workers, 4.30% were filed by others, and 3.55% were filed by nurses.

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



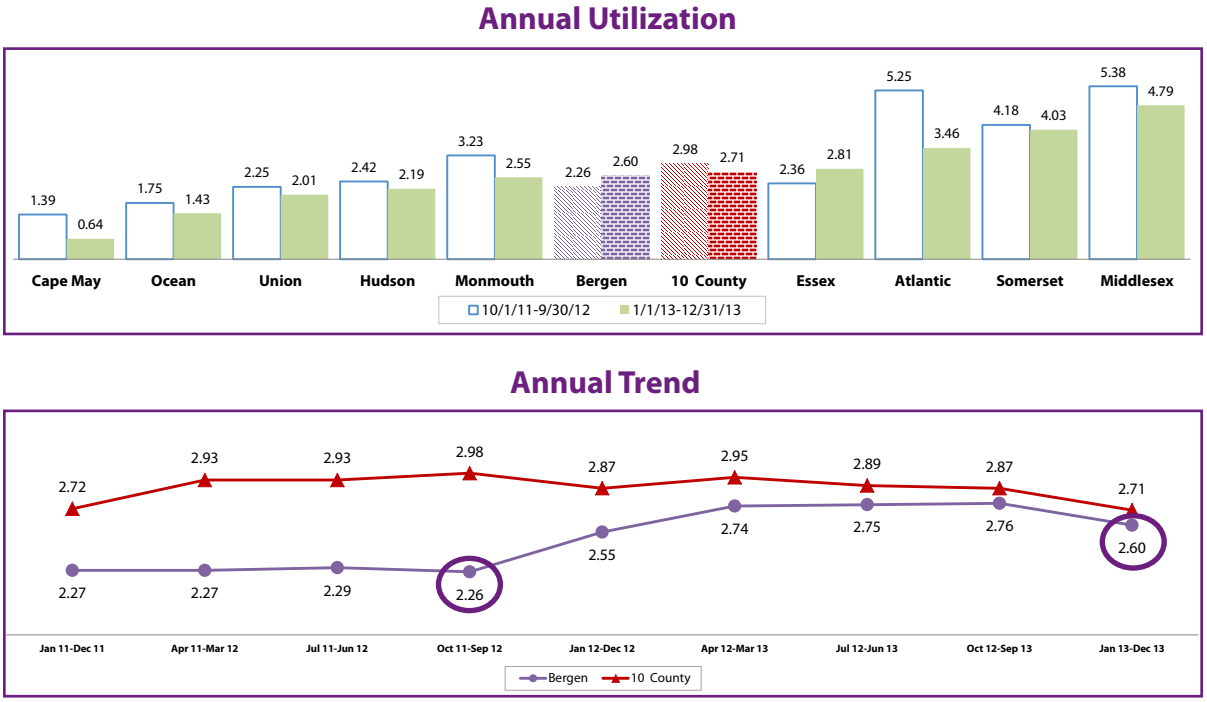
The rate of family psychotherapy in Bergen County in the 12 months prior to Superstorm Sandy was 4.23 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 2.96 per 1,000 beneficiaries.

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



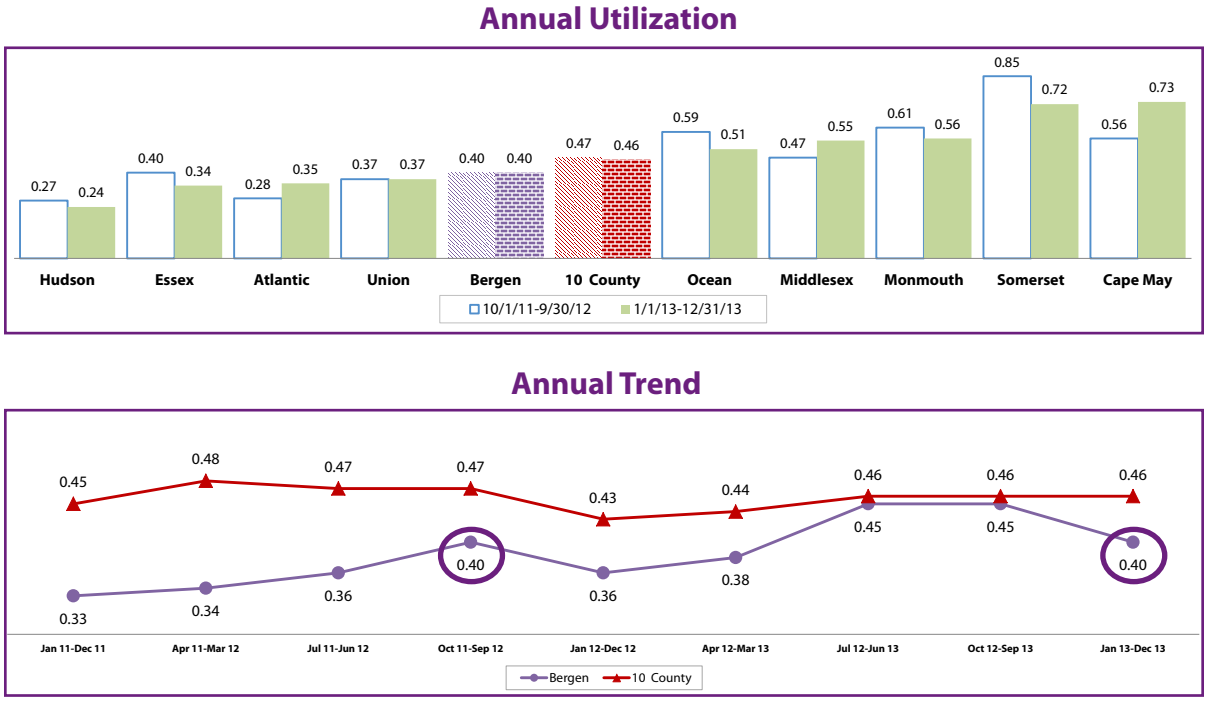
The rate of group psychotherapy in Bergen County in the 12 months prior to Superstorm Sandy was 2.26 per 1,000 Medicare FFS beneficiaries. After the storm, this rate increased to 2.60 per 1,000 beneficiaries.

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

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



The rate of ECT in Bergen County in the 12 months prior to Superstorm Sandy was 0.40 per 1,000 Medicare FFS beneficiaries. After the storm, this rate remained the same.

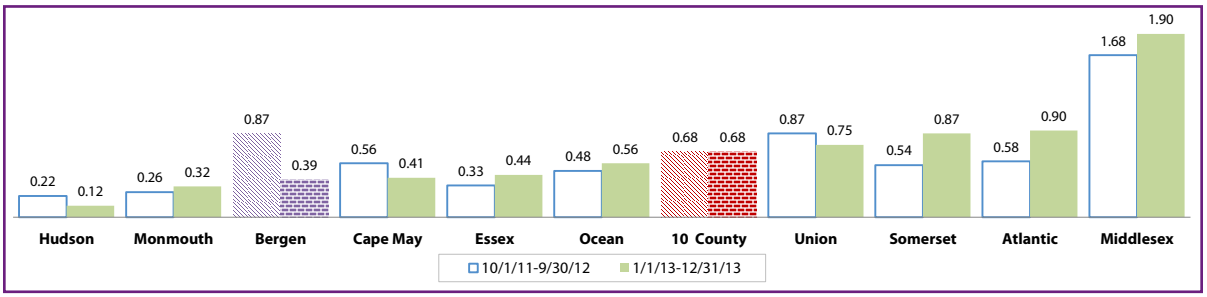
Due to these low numbers, no percent change data has been provided for this therapy.

Biofeedback Therapy

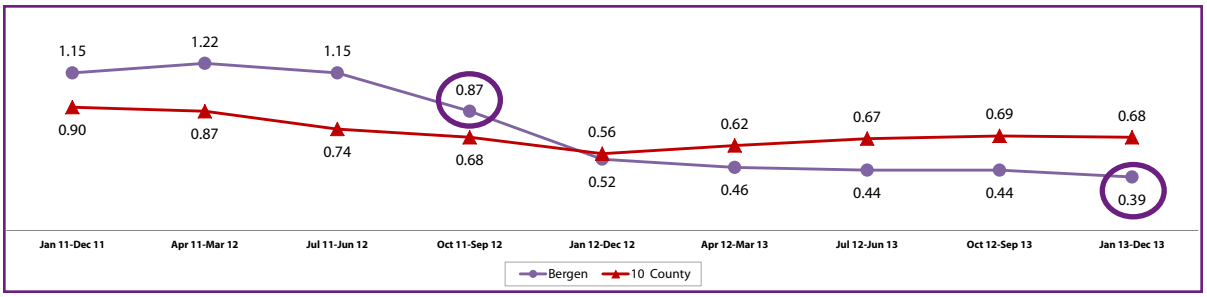
According to the CMS Mental Health Services Billing Guide, biofeedback therapy provides visual, auditory, or other evidence of the status of certain body functions so that a person can exert voluntary control over those functions, and thereby alleviate an abnormal bodily condition.[8]

Figure 69. Biofeedback Therapy per 1,000 Medicare FFS Beneficiaries

Annual Utilization



Annual Trend



The rate of biofeedback therapy in Bergen County in the 12 months prior to Superstorm Sandy was 0.87 per 1,000 Medicare FFS beneficiaries. After the storm, this rate decreased to 0.39 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.

Figure 70. Annual Utilization of Inpatient Health Services per 1,000 Medicare FFS Beneficiaries

County	Psychiatric Hospital Admissions	Acute Care Hospital Admissions	Emergency Department Visits*	Observation Stays*
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.

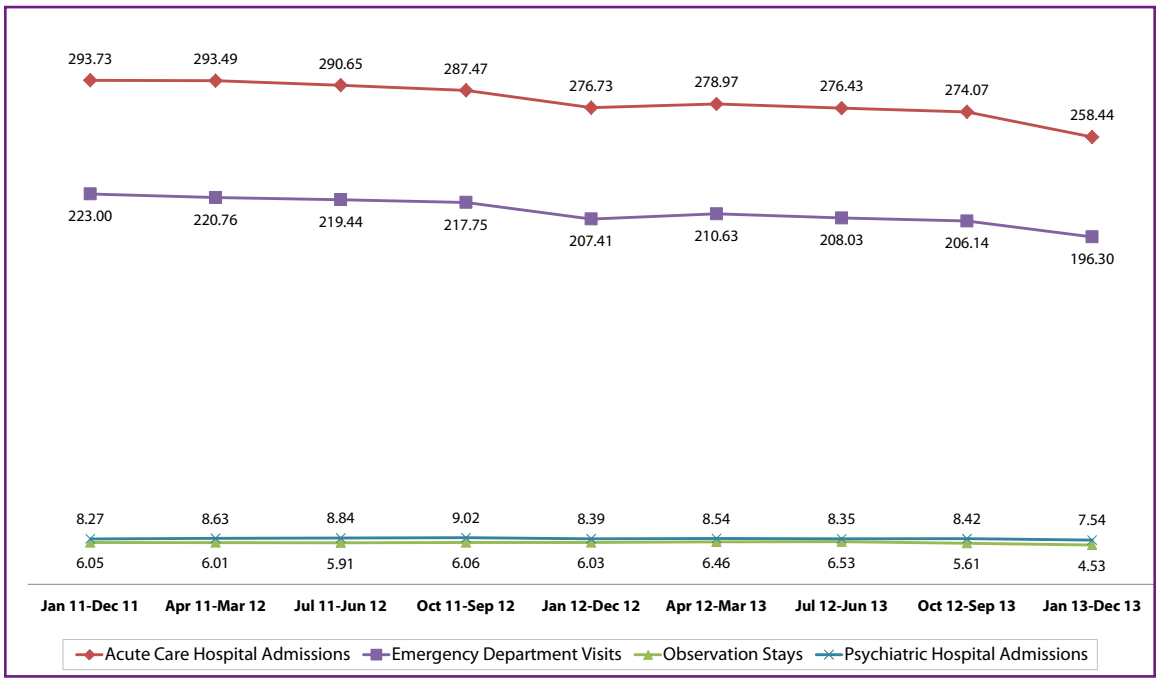
Bergen County experienced a relative decrease in the rates of psychiatric hospital admissions, acute care hospital admissions, emergency department visits, and observation stays.

Figure 71. Percent Change of Inpatient Health Service Utilization per 1,000 Medicare FFS Beneficiaries						
	Bergen 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	9.02	7.54	-16.41	8.50	7.13	-16.06
Acute Care Hospital Admissions	287.47	258.44	-10.10	315.77	282.33	-10.59
Emergency Department Visits*	217.75	196.30	-9.85	244.57	221.31	-9.51
Observation Stays*	6.06	4.53	-25.25	11.62	12.34	6.26

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

Bergen County experienced a decrease in the utilization of all of the inpatient health services listed above.

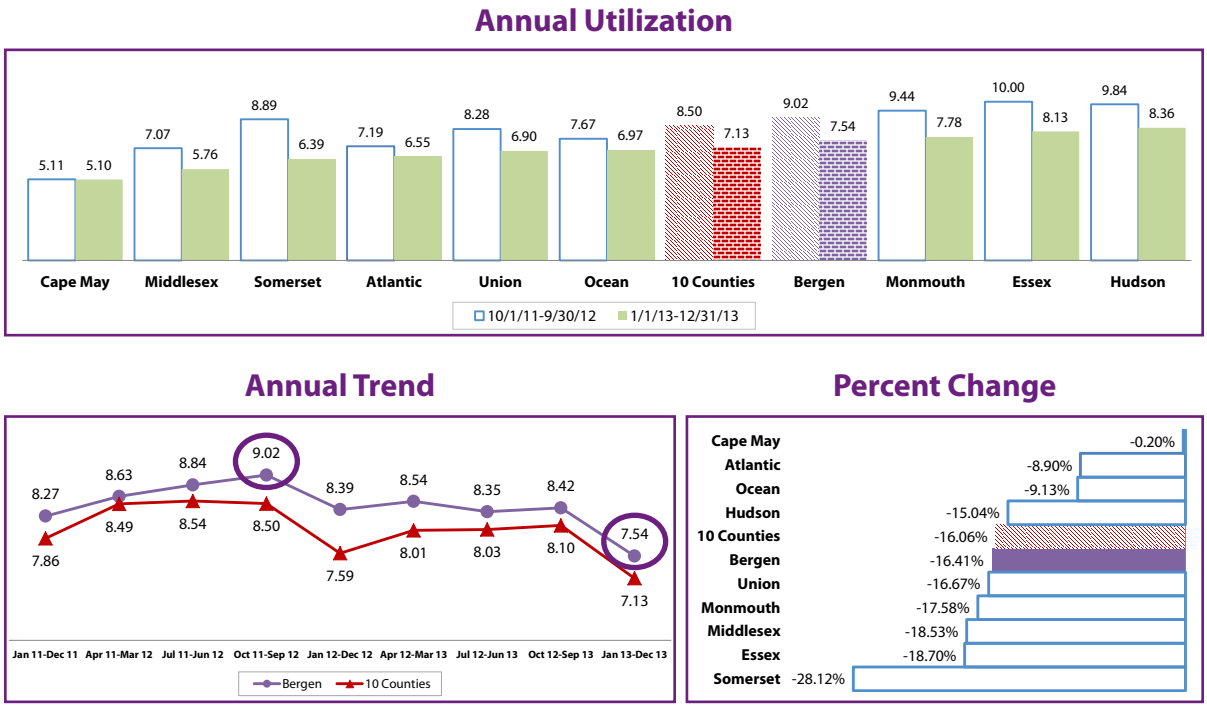
Figure 72. Annual Utilization Trend of Inpatient Health Services per 1,000 Medicare FFS Beneficiaries



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

Psychiatric Hospital Admissions

Figure 73. Psychiatric Hospital Admissions per 1,000 Medicare FFS Beneficiaries



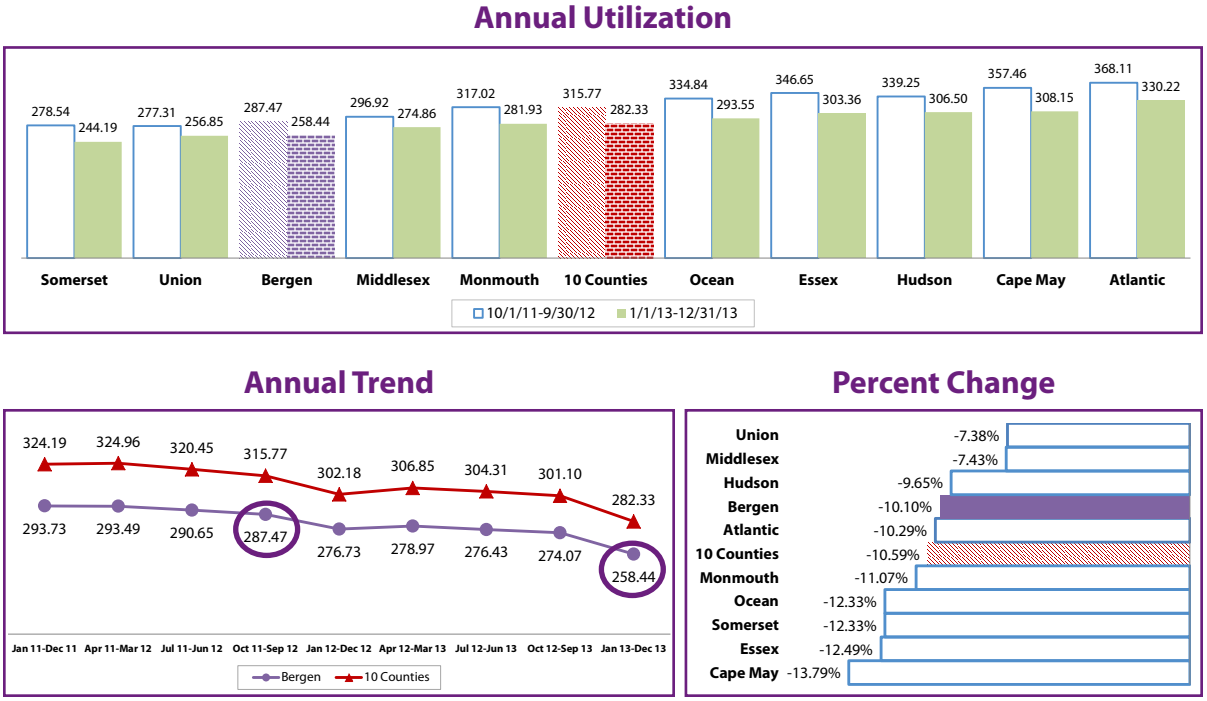
In the 12 months prior to Superstorm Sandy, standalone psychiatric hospitals or distinct part psychiatric units in acute care hospitals in Bergen County had an admissions rate of 9.02 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 7.54 per 1,000 beneficiaries, reflecting a 16.41% relative decrease.

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

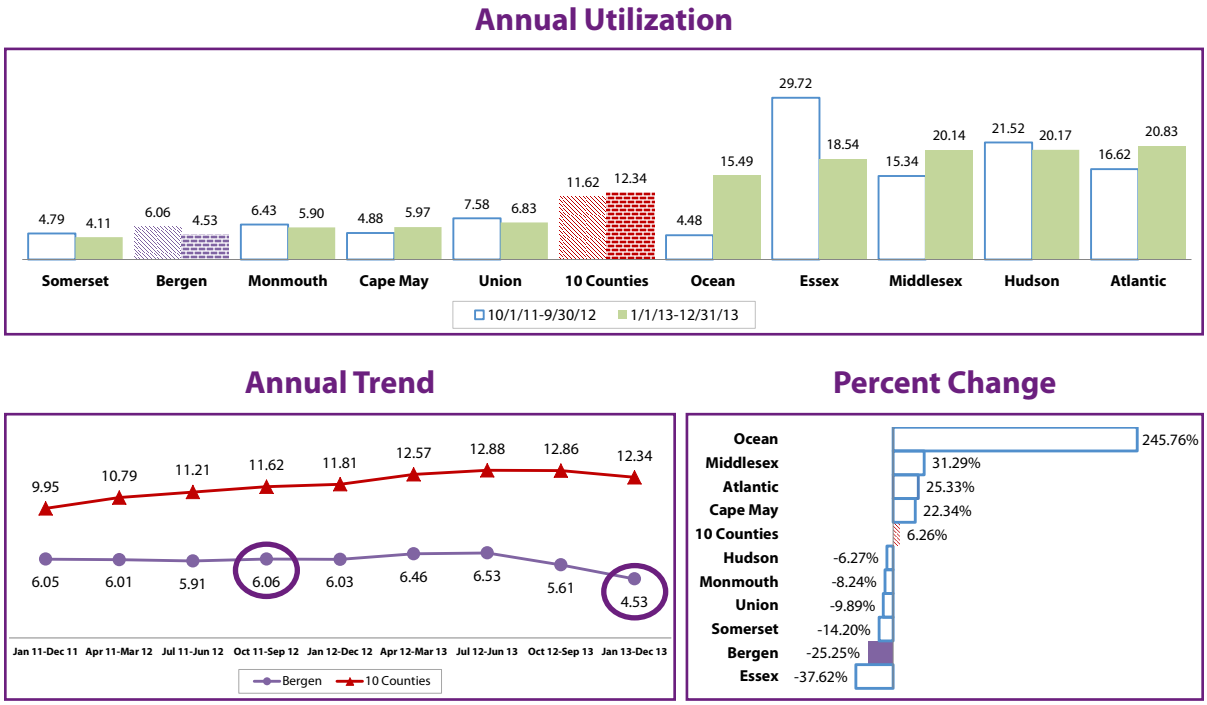


In the 12 months prior to Superstorm Sandy, Bergen County had an acute care admissions rate of 287.47 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 258.44 per 1,000 beneficiaries, reflecting a 10.10% relative decrease.

Observation Stays

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

Figure 75. Observation Stays per 1,000 Medicare FFS Beneficiaries

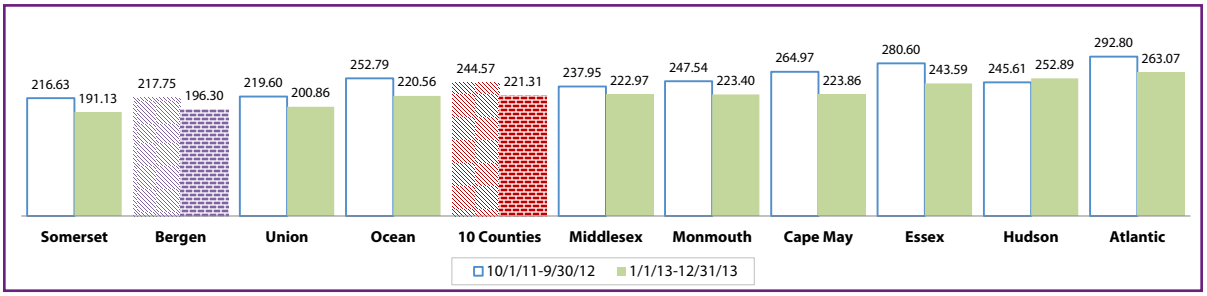


In the 12 months prior to Superstorm Sandy, observation stays in acute care hospitals in Bergen County had a rate of 6.06 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 4.53 per 1,000 beneficiaries, reflecting a 25.25% relative decrease.

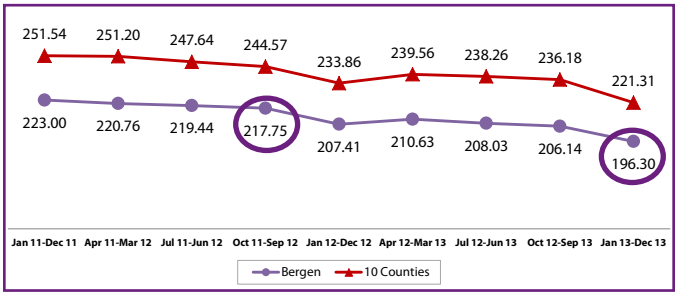
Emergency Department Visits

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

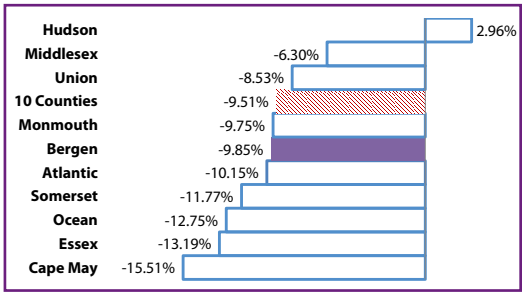
Annual Utilization



Annual Trend



Percent Change



In the 12 months prior to Superstorm Sandy, emergency department visits in Bergen County had a rate of 217.75 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 196.30 per 1,000 beneficiaries, reflecting a 9.85% 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.

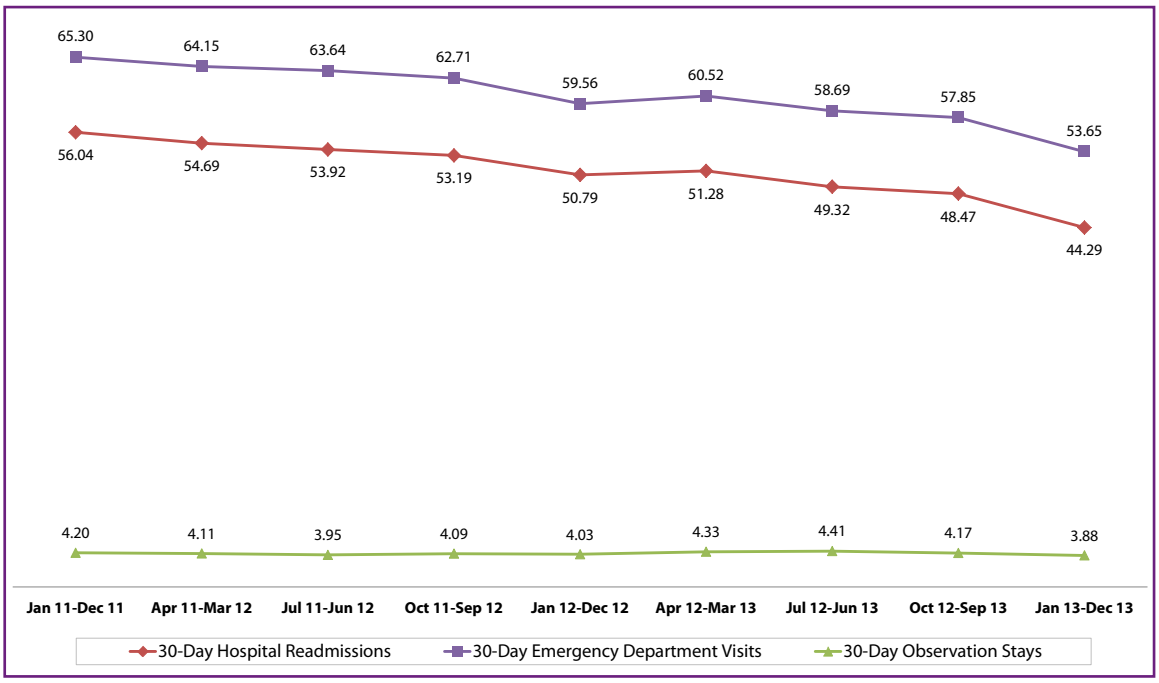
In the 12 months prior to Superstorm Sandy, Bergen County had the lowest utilization of observation stays within 30 days of discharge. After the storm, there was a decrease in the utilization of observation stays within 30 days of discharge, helping it remain the lowest rate among all 10 counties.

Figure 78. Percent Change of Inpatient Health Service Utilization Within 30 Days of Discharge per 1,000 Medicare FFS Beneficiaries						
	Bergen 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	53.19	44.29	-16.73	61.76	51.37	-16.83
Emergency Department Visits*	62.71	53.65	-14.45	74.31	64.36	-13.38
Observation Stays*	4.09	3.88	-5.13	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, Bergen County experienced a decrease in all of the inpatient health services within 30 days of discharge listed above.

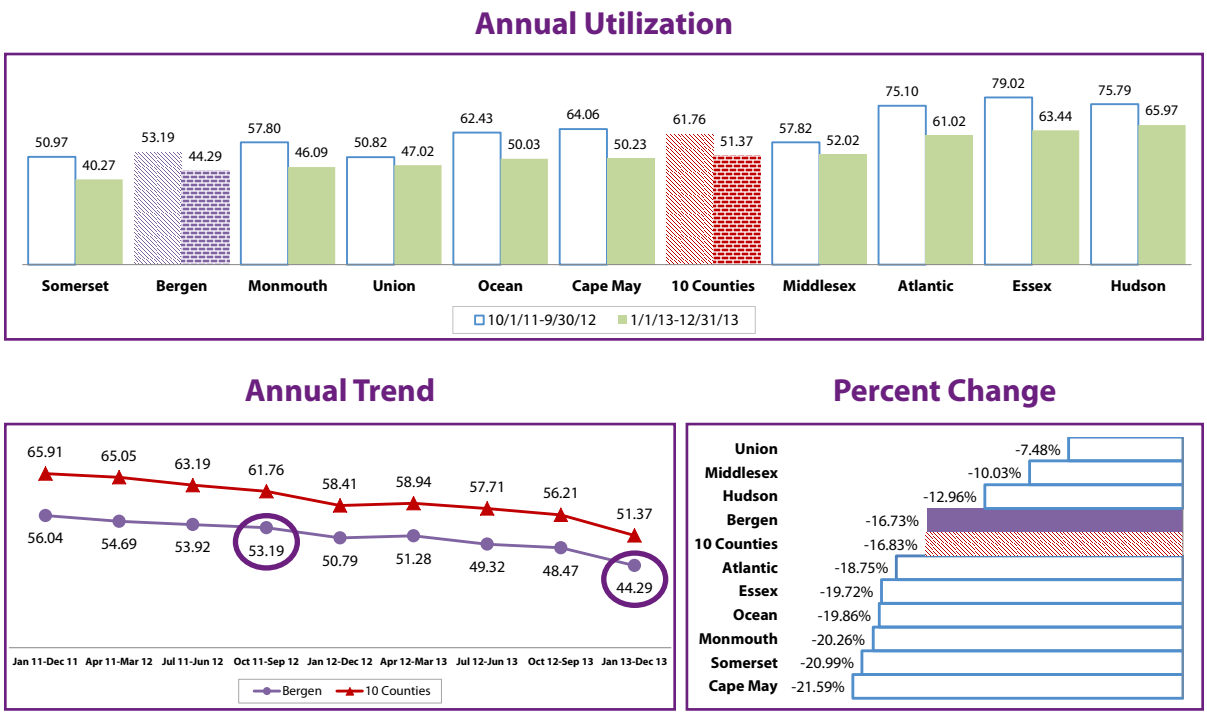
Figure 79. Annual Utilization Trend of Inpatient Health Services Within 30 Days of Discharge per 1,000 Medicare FFS Beneficiaries



This chart reflects annual trending in utilization of inpatient health services within 30 days of discharge among Medicare FFS beneficiaries in Bergen County.

30-Day Hospital Readmissions

Figure 80. 30-Day Hospital Readmissions per 1,000 Medicare FFS Beneficiaries

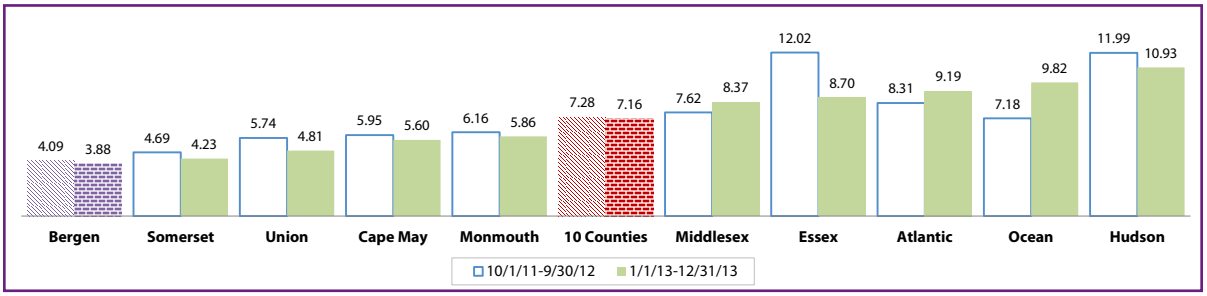


In the 12 months prior to Superstorm Sandy, acute care hospitals in Bergen County had a 30-day readmission rate of 53.19 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 44.29 per 1,000 beneficiaries, reflecting a 16.73% relative decrease.

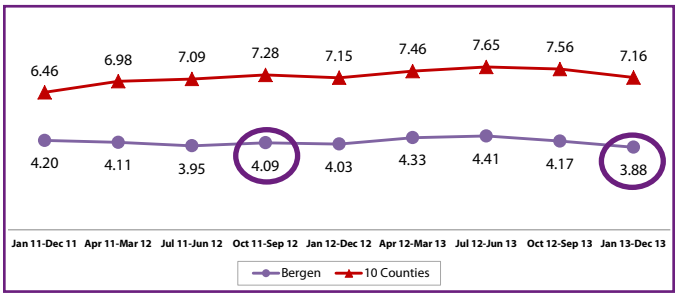
Observation Stays Within 30 Days of Discharge

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

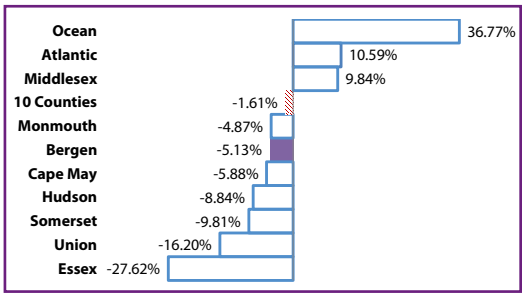
Annual Utilization



Annual Trend



Percent Change

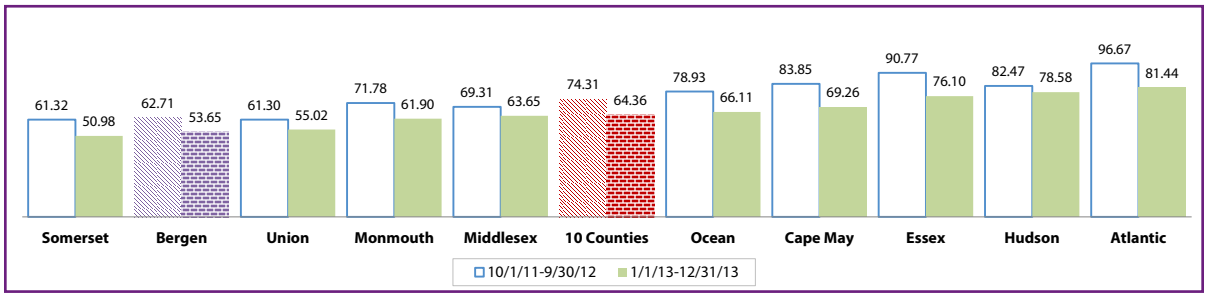


In the 12 months prior to Superstorm Sandy, the rate of observation stays within 30 days of discharge in Bergen County was 4.09 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 3.88 per 1,000 beneficiaries, the lowest rate among all 10 counties. This change reflects a 5.13% relative decrease.

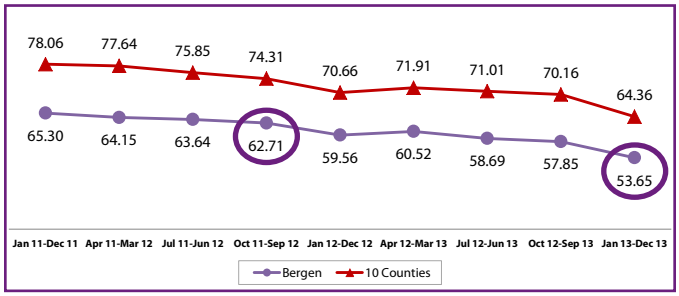
Emergency Department Visits Within 30 Days of Discharge

Figure 82. Emergency Department Visits Within 30 Days of Discharge per 1,000 Medicare FFS Beneficiaries

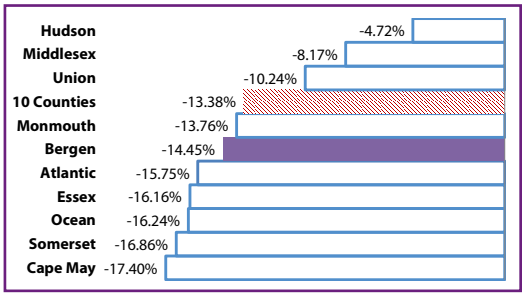
Annual Utilization



Annual Trend



Percent Change



In the 12 months prior to Superstorm Sandy, the rate of emergency department visits within 30 days of discharge in Bergen County was 62.71 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 53.65 per 1,000 beneficiaries, reflecting a 14.45% relative decrease.

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.

Figure 83. Annual Utilization of Other Health Services per 1,000 Medicare FFS Beneficiaries

County	Home Health Agency Services	Skilled Nursing Facility Services	Hospice Services	Medical Rehabilitation Services
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

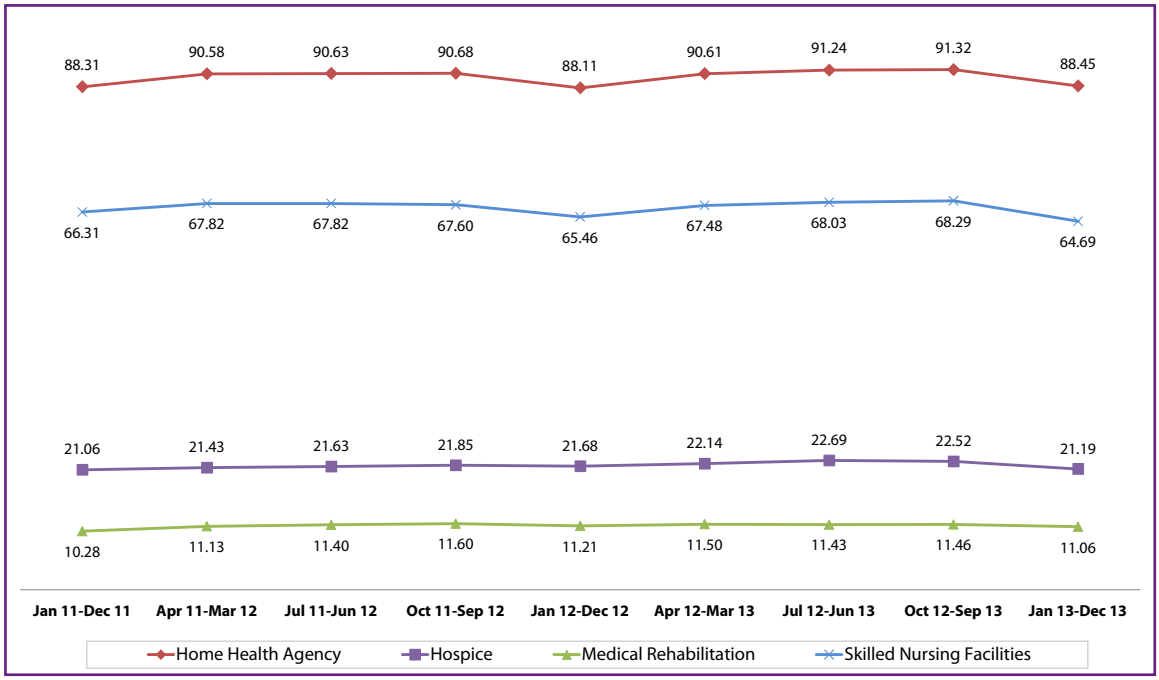
Utilization of health services per 1,000 Medicare FFS beneficiaries for these settings before and after Superstorm Sandy in the 10 counties is color coded with highest (red) and lowest (light blue) for each measure.

Bergen County experienced a relative decrease in the utilization of home health agency, skilled nursing facility, hospice, and medical rehabilitation services.

Figure 84. Percent Change of Other Health Services Utilization per 1,000 Medicare FFS Beneficiaries						
	Bergen 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	90.68	88.45	-2.46	90.62	85.02	-6.18
Skilled Nursing Facility	67.60	64.69	-4.30	71.08	65.99	-7.16
Hospice	21.85	21.19	-3.02	24.27	23.01	-5.16
Medical Rehabilitation	11.60	11.06	-4.66	12.75	11.86	-6.98

Similar to the 10 counties, Bergen County experienced a relative decrease in the utilization of all the health services listed above.

Figure 85. Annual Utilization Trend in Other Health Services per 1,000 Medicare FFS Beneficiaries

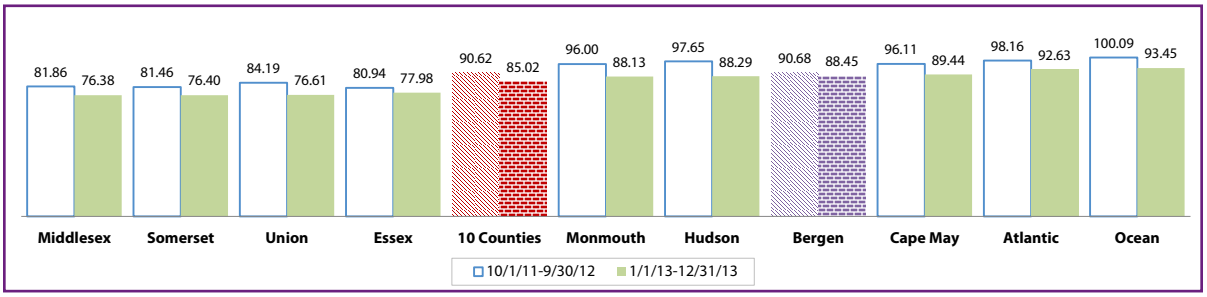


This chart reflects annual trending in the utilization of other health services among Medicare FFS beneficiaries in Bergen County.

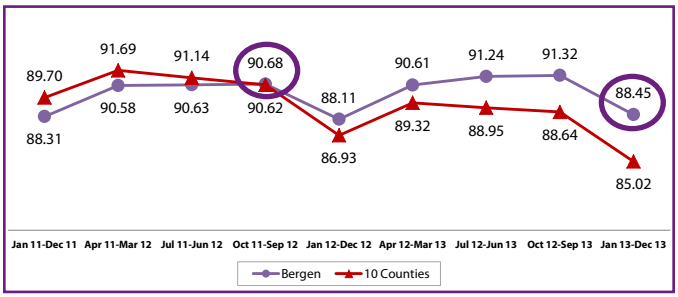
Home Health Agency Services

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

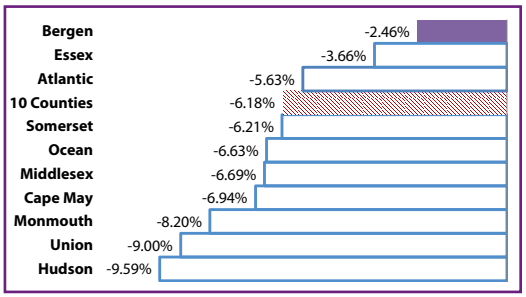
Annual Utilization



Annual Trend



Percent Change

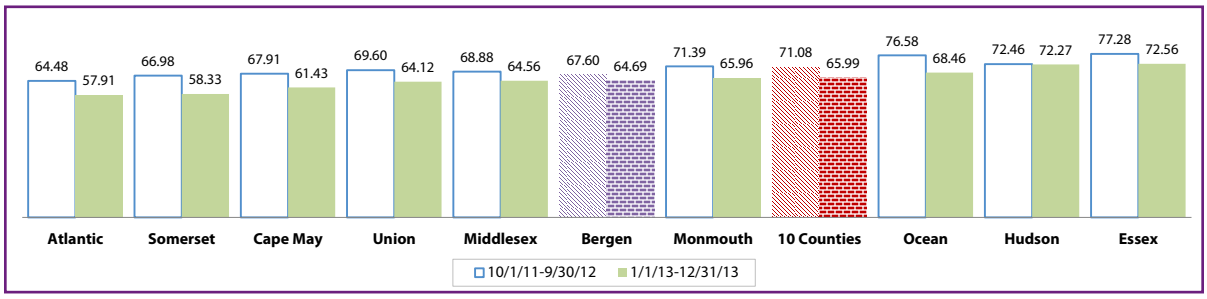


In the 12 months prior to Superstorm Sandy, the utilization rate of home health agency services in Bergen County was 90.68 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 88.45 per 1,000 beneficiaries. This change reflects a 2.46% relative decrease, the smallest decrease among all 10 counties.

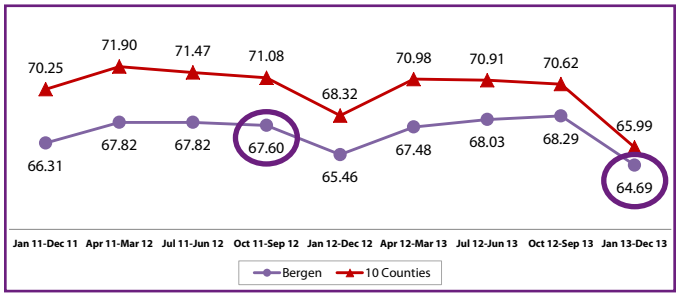
Skilled Nursing Facility Services

Figure 87. Skilled Nursing Facility Services per 1,000 Medicare FFS Beneficiaries

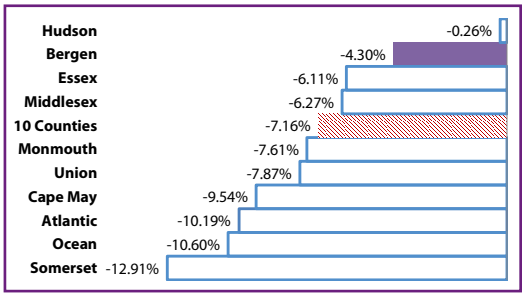
Annual Utilization



Annual Trend



Percent Change

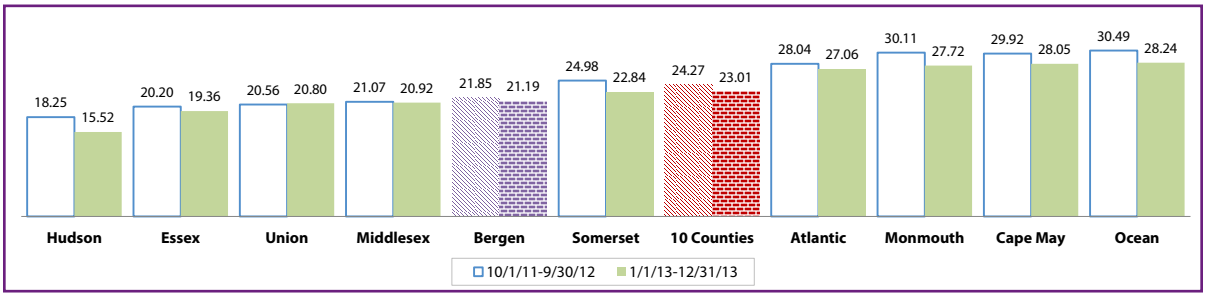


In the 12 months prior to Superstorm Sandy, the utilization rate of skilled nursing facility services in Bergen County was 67.60 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 64.69 per 1,000 beneficiaries, reflecting a 4.30% relative decrease.

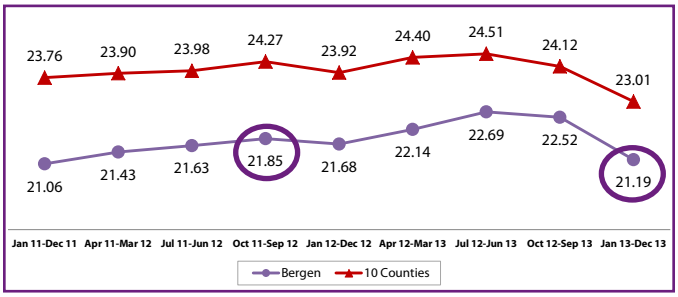
Hospice Services

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

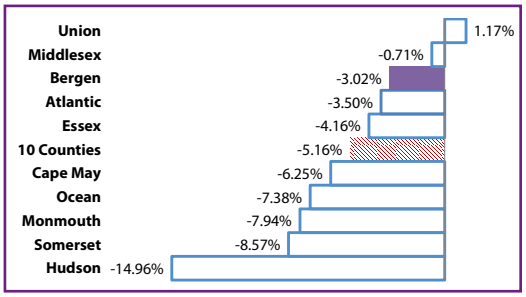
Annual Utilization



Annual Trend



Percent Change

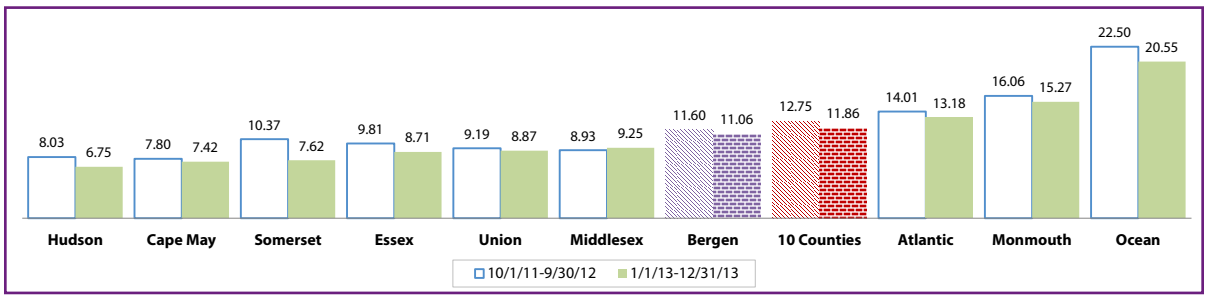


In the 12 months prior to Superstorm Sandy, the utilization rate of hospice services in Bergen County was 21.85 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 21.19 per 1,000 beneficiaries, reflecting a 3.02% relative decrease.

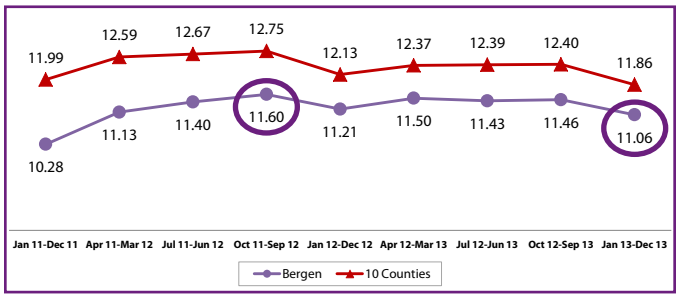
Medical Rehabilitation Services

Figure 89. Medical Rehabilitation Services per 1,000 Medicare FFS Beneficiaries

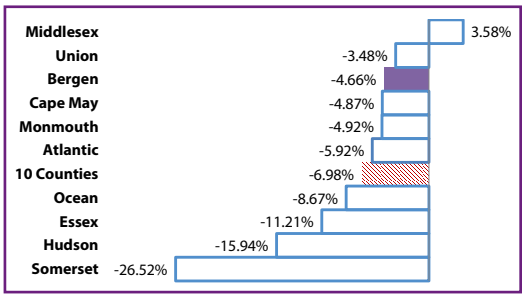
Annual Utilization



Annual Trend



Percent Change



In the 12 months prior to Superstorm Sandy, the utilization rate of medical rehabilitation services in Bergen County was 11.60 per 1,000 Medicare FFS beneficiaries. After the storm, the rate decreased to 11.06 per 1,000 beneficiaries, reflecting a 4.66% relative decrease.

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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

- [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 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:

- 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

Literature Review References for Risk Factors for Depression or Proxy Disorders

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

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

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

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

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

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

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

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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 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.

Appendix C

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

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

Appendix D: Utilization of services – Inpatient and Other Settings

Documentation and Technical Notes

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

Data Source

New Jersey Medicare 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 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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557 Cranbury Road, Suite 21
East Brunswick, NJ 08816
T 732-238-5570 • F 732-238-7766
www.hqsi.org