

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

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## Initial Data Profile: South Amboy/ Laurence Harbor Community

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

January 24, 2014



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

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

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

**E**nhancing Coordination of Behavioral Health Services after Superstorm Sandy: Planning for Future Disasters is a Special Innovation Project funded by the Centers for Medicare & Medicaid Services (CMS). As part of this project, Healthcare Quality Strategies, Inc. (HQSI), the CMS quality improvement organization (QIO) for New Jersey, studied data on prevalence and incidence of selected behavioral health conditions, the utilization of health services, and demographic information from the Medicare claims database for Medicare Fee-for-Service (FFS) beneficiaries residing in the 10 New Jersey FEMA-declared disaster counties after Superstorm Sandy. From its analysis, HQSI created data profiles for each of these FEMA-designated counties as well as a subset of 10 selected communities.

This is the initial profile for the South Amboy/Laurence Harbor community in Middlesex County. The South Amboy/Laurence Harbor community was selected because it had high rates of Medicare FFS beneficiaries both with and at risk for depression or proxy disorders.

This profile is based on Medicare FFS claims data and provides 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 community before and after Superstorm Sandy. Since patients with behavioral health conditions may receive other health services because of medical problems caused by their behavioral health conditions or they may avoid utilizing behavioral health services, this report also looks at the utilization of non-behavioral health services.

The county and community 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 January 2012. This benefit is important for victims of storms like Superstorm Sandy who are often at an elevated risk for behavioral health issues and can experience a prolonged period of elevated risk after a disaster. Older adults and disabled residents with chronic behavioral health conditions in particular are at increased risk of deteriorating health, depression, increased isolation, and breakdown in the continuum of health care. They are also less likely to report symptoms, which a depression screening can capture.

## METHODOLOGY

**E**ach community profile compares one community's statistics to the aggregate of its county. 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. Based on the ICD-9-CM (International Classification of Disease, Ninth Revision, Clinical Modification),

CPT (Current Procedural Terminology) or HCPCS (Healthcare Common Procedure Coding System) codes in Medicare Part A and Part B claims, beneficiaries were identified for chronic conditions including diseases/conditions related to behavioral health, such as depression. Appendices A through F contain documentation, technical notes, codes, algorithms, data sources, and references.

Medicare Part A 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). Medicare Part A claims were also used to analyze utilization of health services in or by acute care hospitals, skilled nursing facilities, medical rehabilitation facilities, home health agencies, hospice, and inpatient psychiatric facilities.

Furthermore, Medicare Part A and Part B claims were used to aggregate data on behavioral health providers including: provider location, overall provider type, provider type by services, and major provider listing. Geographical mapping of health providers was also done using ArcGIS Online Explorer.

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

## MEASUREMENT TIME FRAMES

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

- The pre-Sandy time period was defined as January 1, 2011 through September 30, 2012. Statistics on demographics, prevalence of behavioral health conditions, and utilization of health services are presented for this 21-month period.
- Annual prevalence with rolling quarters of behavioral health conditions and utilization statistics are included to adjust for seasonal variation and to examine possible changes pre- and post-Superstorm Sandy. The time period used for this analysis was January 1, 2011 through March 31, 2013. This time period includes six data time points.

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

## DATA CONSIDERATIONS

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

Identification of the selected communities is based on ZIP codes. The depiction of the communities may be incomplete because New Jersey ZIP codes may encompass more than one town or township, and municipal maps do not always align with the ZIP codes upon which GIS mapping software is based. There is also a possibility of under or overestimating the number of Medicare beneficiaries in a community. However, HQSI tried to include as accurate an assessment of community data as possible.

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

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

This type of community profile can be used to provide a baseline for the prevalence and incidence rates of eight selected behavioral health conditions (see page 11) based on the ICD-9-CM codes through the Medicare claims database. Possibly, after further data collection and analytic development using post-Sandy data, it can also be used to prioritize and plan community and county preparation for the care, tracking, and monitoring of Medicare FFS beneficiaries behavioral health status and health care utilization patterns.

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



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### KEY OBSERVATIONS

(based on Medicare FFS data in the 21 months prior to Superstorm Sandy)


1. In the South Amboy/Laurence Harbor community, 20.6% of Medicare FFS beneficiaries experienced depression or proxy disorders (depression or anxiety or adjustment disorders).
2. In the South Amboy/Laurence Harbor community, 16.8% of Medicare FFS beneficiaries were at risk for depression or proxy disorders.
3. The South Amboy/Laurence Harbor community had higher rates of substance or alcohol abuse or tobacco use (11.5%), alcohol or substance abuse (3.9%), and substance abuse (2.1%) than Middlesex County.
4. As in all the selected communities, utilization of the Medicare depression screening benefit in the South Amboy/Laurence Harbor community for calendar year 2012 was low (1.38 per 1,000 Medicare FFS beneficiaries).
5. Utilization of other behavioral health services such as psychiatric diagnostic procedures, individual psychotherapy, family psychotherapy, group psychotherapy and psychiatric hospital admissions was lower in the South Amboy/Laurence Harbor community than in Middlesex County.
6. Among the behavioral health providers that served Medicare FFS beneficiaries in the South Amboy/Laurence Harbor community, 45.5% of were physicians, 21.1% were psychologists, 20.7% were social workers, and 3.8% were nurses.

# EXECUTIVE SUMMARY

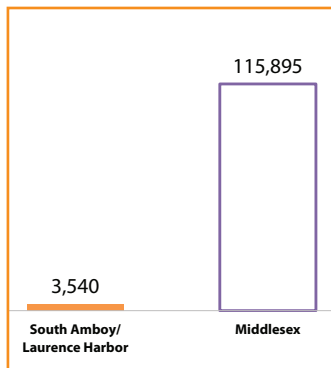
The *Snapshot of the South Amboy/Laurence Harbor Community* (Figure 1) summarizes the prevalence of the behavioral health conditions as well as risk factors for depression or proxy disorders analyzed for this profile. This *Snapshot* also lists the most frequently performed behavioral health assessments and therapies in the South Amboy/Laurence Harbor community compared to the average of Middlesex County. The non-behavioral health utilization measures that were calculated for this profile are not included in the *Snapshot*.

<b>Figure 1. Snapshot of the South Amboy/Laurence Harbor Community</b>		
<b>Behavioral Health Disorders</b>	<b>Prevalence per 1,000 Beneficiaries (21 Months Prior to Superstorm Sandy)</b>	
	<b>South Amboy/ Laurence Harbor</b>	<b>Middlesex County</b>
Depression or Proxy Disorders	206.13	236.32
• Depression alone	129.46	156.07
• Anxiety Disorders alone	119.34	131.79
• Adjustment Disorders alone	32.18	37.58
PTSD	4.34	5.71
Alcohol or Substance Abuse	38.69	35.12
• Substance Abuse alone	20.97	19.58
Suicide and Intentional Self-Inflicted Injury	3.25	5.60
Top Five Risk Factors for Depression or Proxy Disorders*	168.16	163.31
• Alzheimer’s Disease and related disorders or Senile Dementia	37.25	48.66
• Sleep Disturbance	27.12	33.49
• Substance or Alcohol Abuse or Tobacco Use	115.00	89.12
• Hip/Pelvic Fractures	12.66	12.06
• Amputations	1.81	1.49
<b>Behavioral Health Services</b>	<b>Utilization per 1,000 Beneficiaries (21 Months Prior to Superstorm Sandy)</b>	
	<b>South Amboy/ Laurence Harbor</b>	<b>Middlesex County</b>
Assessments		
• Depression Screening	1.38	7.50
• Neuropsychological Test	11.57	11.22
• Psychiatric Diagnostic Procedures	68.35	74.20
Therapy		
• Individual Psychotherapy	52.80	68.07
• Family Psychotherapy	2.89	4.60
• Group Psychotherapy	4.70	6.69
Psychiatric Hospital Admissions	6.15	10.33

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

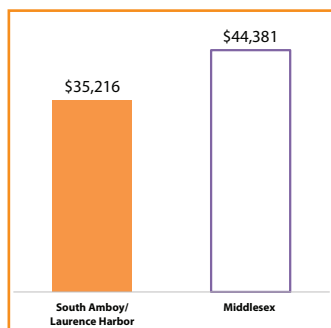
Medicare FFS Demographics		South Amboy/Laurence Harbor	
<b>At A Glance</b>			
Total Medicare FFS Population	3,540		
Females	1,956 (55.25%)		
Males	1,584 (44.75%)		
White	(89.52%)		
Black	(3.28%)		
Asian	(2.49%)		
Hispanic	(1.86%)		
Other	(2.85%)		
Average Age	68.84		
Geographic Area	4.45 square miles		
ZIP Code	08879		
Source: Medicare Claims Database			

**FIGURE 2. TOTAL MEDICARE FFS BENEFICIARIES (1/1/ 2011 - 3/31/ 2013)**



The total Medicare FFS beneficiary population residing in the South Amboy/Laurence Harbor community is 3,540. This is 3.05% of the total beneficiary population of Middlesex County.

**FIGURE 3. 2012 MEDIAN HOUSEHOLD INCOME (65 YEARS AND ABOVE)**



According to U.S. Census data from 2012, residents aged 65 and over residing in the South Amboy/Laurence Harbor community had a median household income of \$35,216.

**FIGURE 4. PERCENT OF MEDICARE FFS BENEFICIARY POPULATION BY GENDER (1/1/2011 – 3/31/2013)**

Gender	South Amboy/ Laurence Harbor	Middlesex
Percent of Females	55.25	56.02
Percent of Males	44.75	43.98

Females make up 55.25% of the entire Medicare FFS population residing in the South Amboy/Laurence Harbor community and males 44.75%.

**FIGURE 5. PERCENT OF MEDICARE FFS BENEFICIARY POPULATION BY RACE (1/1/2011 – 3/31/2013)**

Race	South Amboy/ Laurence Harbor	Middlesex
Percent of Whites	89.52	77.29
Percent of Blacks	3.28	7.65
Percent of Other	2.85	5.32
Percent of Asians	2.49	6.26
Percent of Hispanics	1.86	3.48

A majority of the beneficiary population residing in the South Amboy/Laurence Harbor community is White (89.52%), followed by Black (3.28%), Other (2.85%), Asian (2.49%), and Hispanic (1.86%).

**FIGURE 6. PERCENT OF MEDICARE FFS BENEFICIARY POPULATION BY AGE (1/1/2011 – 3/31/2013)**

Age	South Amboy/ Laurence Harbor*	Middlesex
Percent of beneficiaries <65	32.77	26.36
Percent of beneficiaries 65 – 74	35.20	37.27
Percent of beneficiaries 75 – 84	22.15	24.57
Percent of beneficiaries 85 and Above	9.89	11.80
Average Age	68.84	70.51

The beneficiary population residing in the South Amboy/Laurence Harbor community varies by age group with the largest group between ages 65 and 74 years old followed by beneficiaries younger than 65 years old. The average age of beneficiaries in this community is 68.84.

\* Total does not add up to 100% due to rounding.

## PREVALENCE AND INCIDENCE

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

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

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

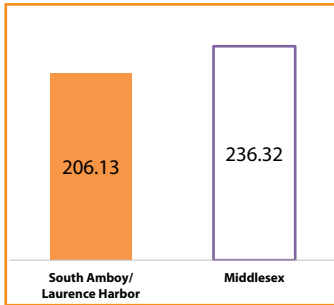
1. Prevalence of the condition for the pre-Sandy time frame (Q1 2011 – Q3 2012, or 21 months)
2. Quarterly new incidence compared to prior year (Q1 2012 – Q1 2013)
3. The yearly prevalence of the condition with quarterly rolling trends to account for seasonal variation

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

# BEHAVIORAL HEALTH CONDITIONS

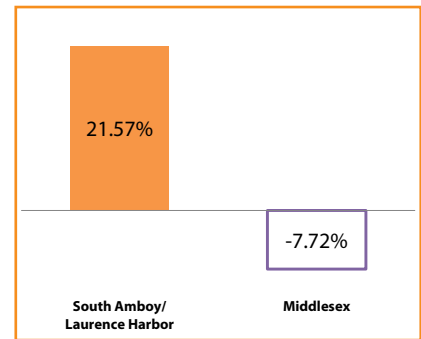
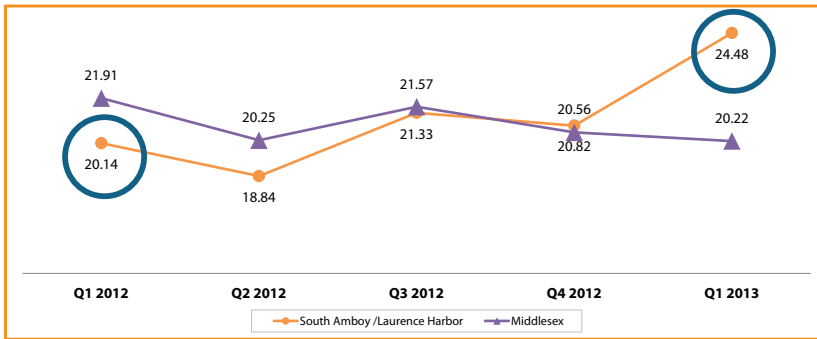
## Depression or Proxy Disorders

**FIGURE 7. PREVALENCE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of depression or proxy disorders for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 206.13 per 1,000 beneficiaries compared to the 236.32 per 1,000 beneficiaries rate of Middlesex County.

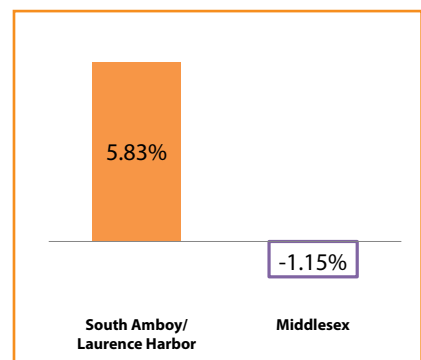
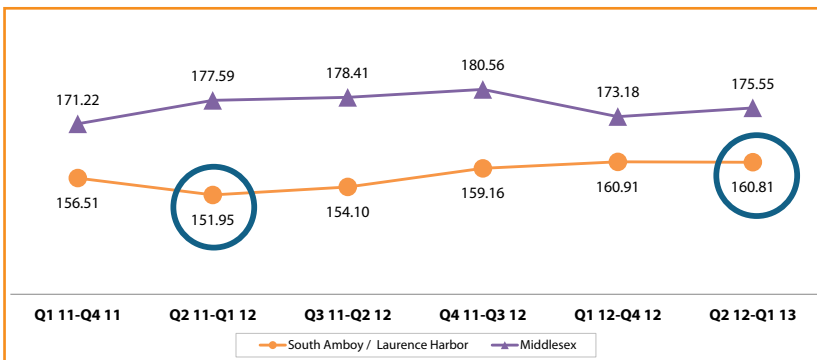
**FIGURE 8. QUARTERLY NEW INCIDENCE AND RELATIVE CHANGE OF DEPRESSION OR PROXY DISORDERS\* PER 1,000 MEDICARE FFS BENEFICIARIES**



\* Quarterly new incidences compared to prior year.

For Q1 2013, there were 24.48 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community newly diagnosed with depression or proxy disorders compared to Q1 2012, which was 20.14 per 1,000 beneficiaries. This was a 21.57% relative increase in new incidence of depression or proxy disorders.

**FIGURE 9. YEARLY PREVALENCE AND RELATIVE CHANGE OF DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES**

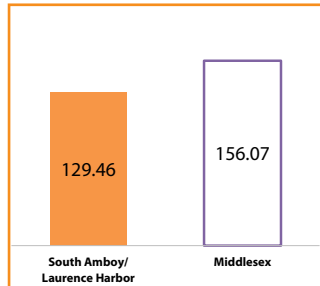


The yearly prevalence rate of depression or proxy disorders for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 160.81 per 1,000 beneficiaries from Q2 2012 – Q1 2013. This was a 5.83% relative increase when compared to 151.95 per 1,000 beneficiaries from Q2 2011 – Q1 2012.



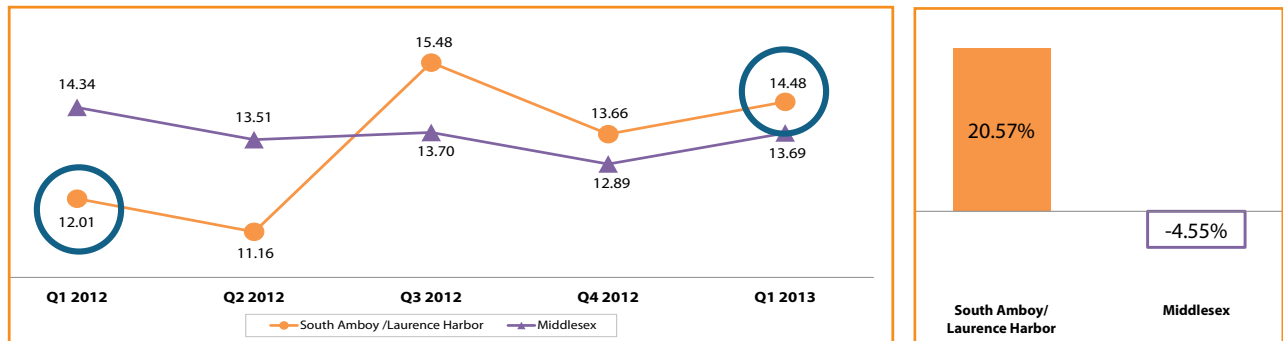
## Depression

**FIGURE 10. PREVALENCE OF DEPRESSION PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of depression for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 129.46 per 1,000 beneficiaries, compared to the 156.07 per 1,000 beneficiaries rate in Middlesex County.

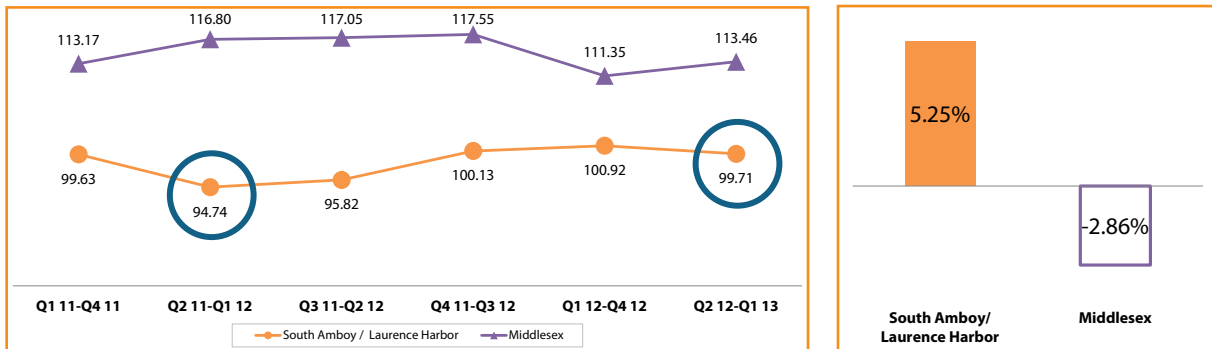
**FIGURE 11. QUARTERLY NEW INCIDENCE AND RELATIVE CHANGE OF DEPRESSION\* PER 1,000 MEDICARE FFS BENEFICIARIES**



\* Quarterly new incidences compared to prior year.

For Q1 2013, there were 14.48 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community newly diagnosed with depression compared to Q1 2012, which was 12.01 per 1,000 beneficiaries. This was a 20.57% relative increase in new incidence of depression.

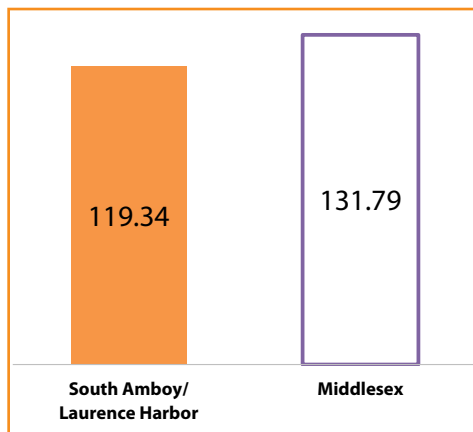
**FIGURE 12. YEARLY PREVALENCE AND RELATIVE CHANGE OF DEPRESSION PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly prevalence rate of depression for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 99.71 per 1,000 beneficiaries from Q2 2012 – Q1 2013. This was a 5.25% relative increase when compared to 94.74 per 1,000 beneficiaries from Q2 2011 – Q1 2012.

## Anxiety Disorders

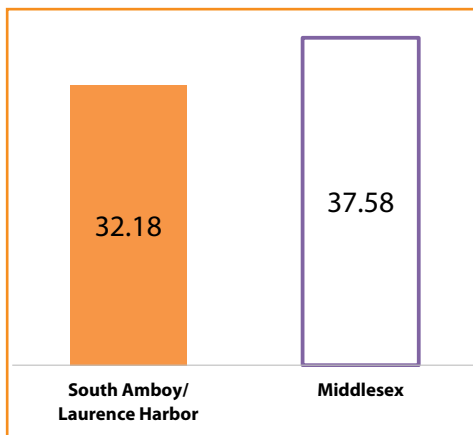
**FIGURE 13. PREVALENCE OF ANXIETY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of anxiety disorders for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 119.34 per 1,000 beneficiaries compared to the 131.79 per 1,000 beneficiaries rate of Middlesex County.

## Adjustment Disorders

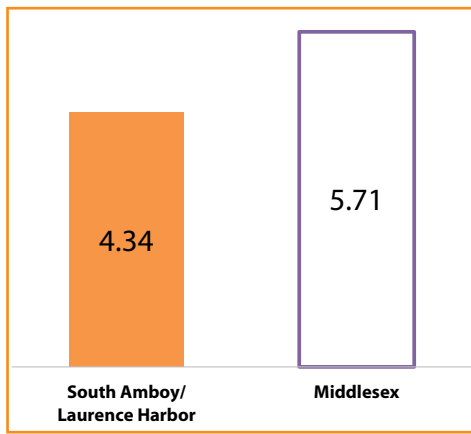
**FIGURE 14. PREVALENCE OF ADJUSTMENT DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of adjustment disorders for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 32.18 per 1,000 beneficiaries compared to the 37.58 per 1,000 beneficiaries rate of Middlesex County.

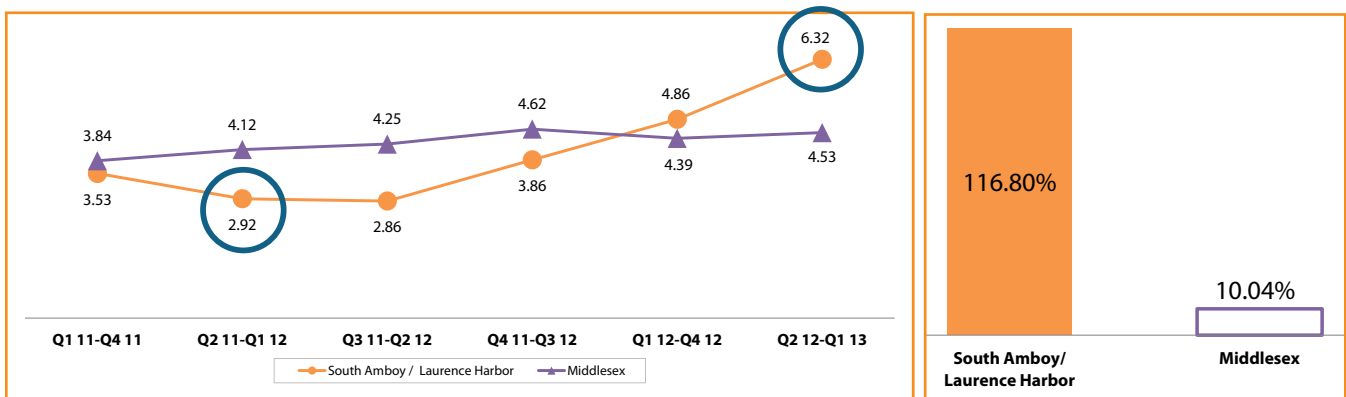
## Post-Traumatic Stress Disorder (PTSD)\*

**FIGURE 15. PREVALENCE OF PTSD PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of PTSD for Medicare FFS beneficiaries residing in the South Amby/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 4.34 per 1,000 beneficiaries compared to the 5.71 per 1,000 beneficiaries rate of Middlesex County.

**FIGURE 16. YEARLY PREVALENCE AND RELATIVE CHANGE OF PTSD PER 1,000 MEDICARE FFS BENEFICIARIES**

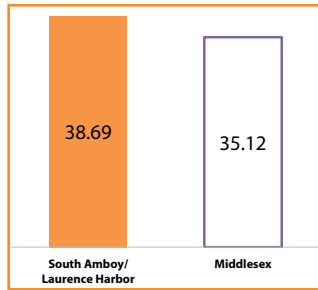


The yearly prevalence rate of PTSD for Medicare FFS beneficiaries residing in the South Amby/Laurence Harbor community was 6.32 per 1,000 beneficiaries from Q2 2012 – Q1 2013. This was a 116.80% relative increase when compared to 2.92 per 1,000 beneficiaries from Q2 2011 – Q1 2012.

\* The quarterly chart for this condition was not generated due to low rates in a quarter.

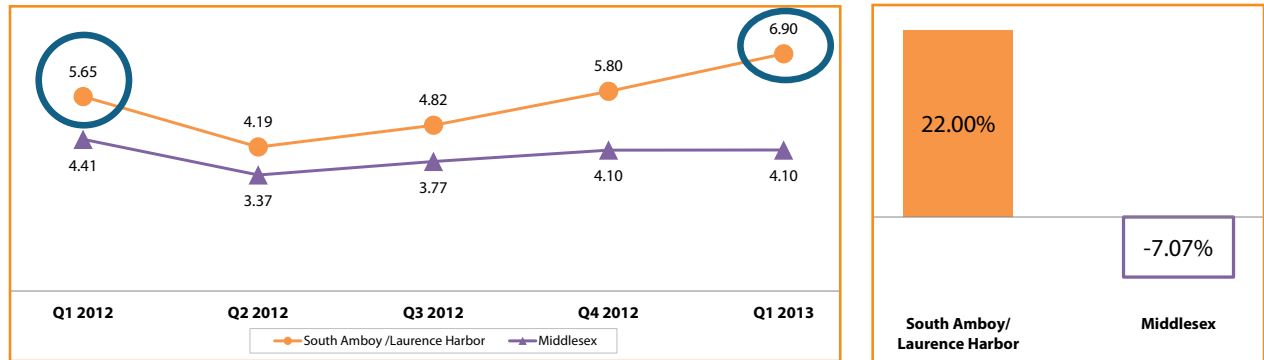
## Alcohol or Substance Abuse

**FIGURE 17. PREVALENCE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of alcohol or substance abuse for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 38.69 per 1,000 beneficiaries compared to the 35.12 per 1,000 beneficiaries rate of Middlesex County.

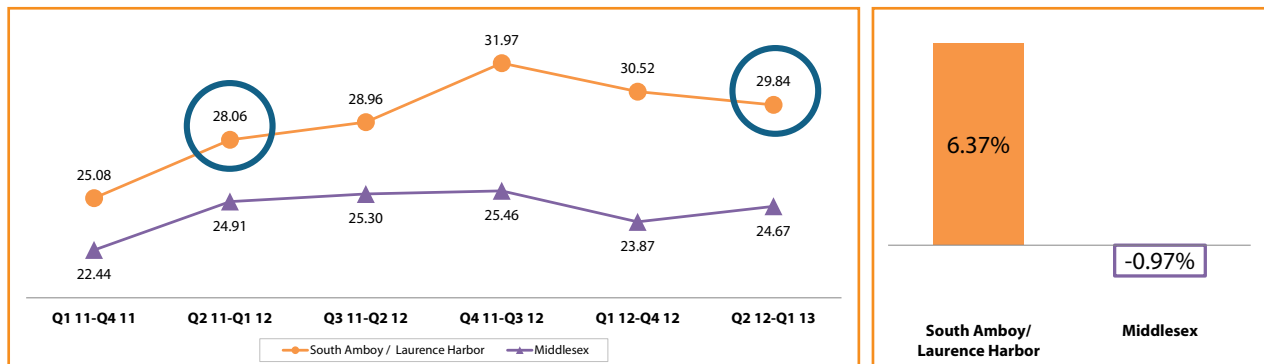
**FIGURE 18. QUARTERLY NEW INCIDENCE AND RELATIVE CHANGE OF ALCOHOL OR SUBSTANCE ABUSE\* PER 1,000 MEDICARE FFS BENEFICIARIES**



\* Quarterly new incidences compared to prior year.

For Q1 2013, there were 6.90 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community newly diagnosed with alcohol or substance abuse compared to Q1 2012, which was 5.65 per 1,000 beneficiaries. This was a 22.00% relative decrease in new incidence of alcohol or substance abuse.

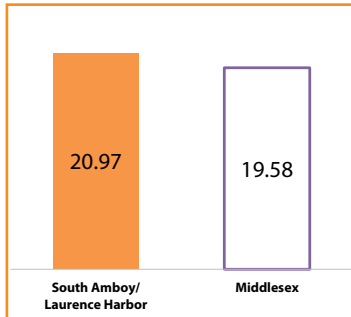
**FIGURE 19. YEARLY PREVALENCE AND RELATIVE CHANGE OF ALCOHOL OR SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly prevalence rate of alcohol or substance abuse for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 29.84 per 1,000 beneficiaries from Q2 2012 – Q1 2013. This was a 6.37% relative increase when compared to 28.06 per 1,000 beneficiaries from Q2 2011 – Q1 2012.

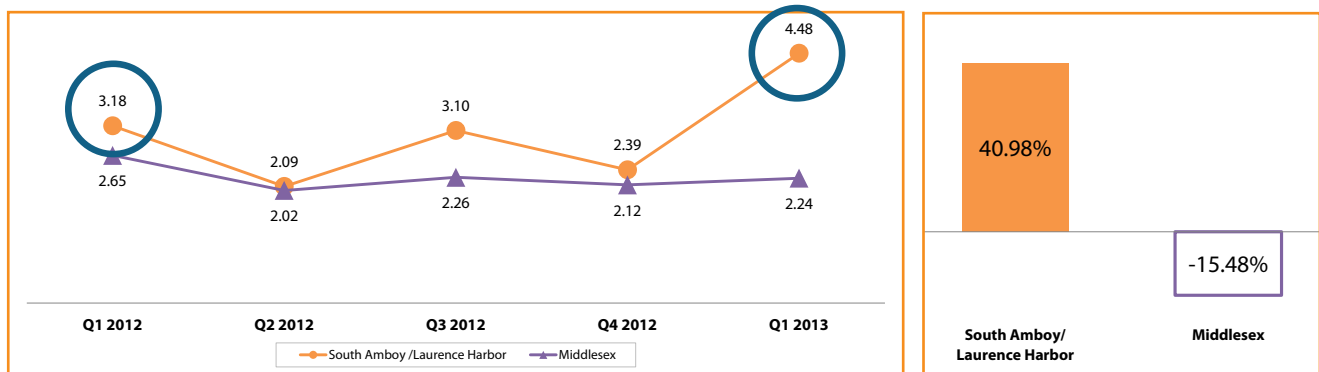
## Substance Abuse

**FIGURE 20. PREVALENCE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of substance abuse for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 20.97 per 1,000 beneficiaries compared to the 19.58 per 1,000 beneficiaries rate of Middlesex County.

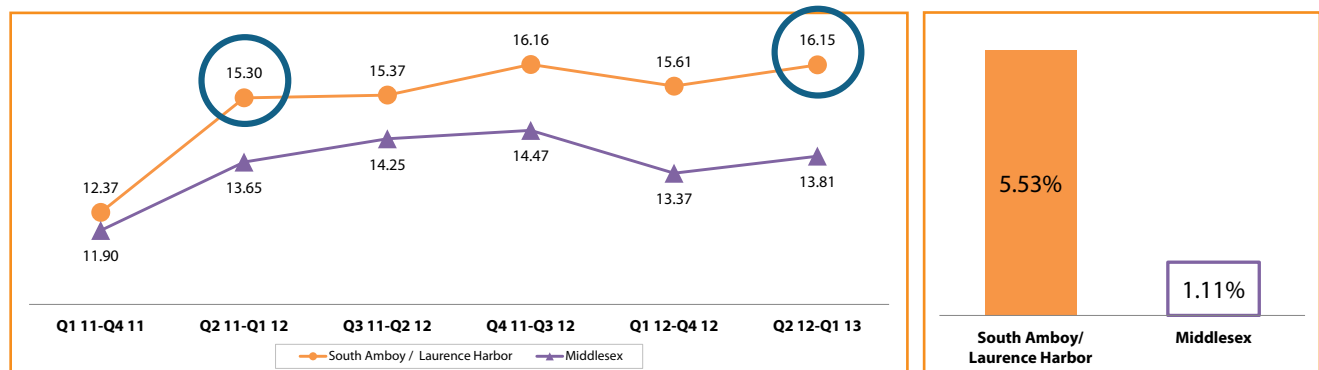
**FIGURE 21. QUARTERLY NEW INCIDENCE AND RELATIVE CHANGE OF SUBSTANCE ABUSE\* PER 1,000 MEDICARE FFS BENEFICIARIES**



\* Quarterly new incidences compared to prior year.

For Q1 2013, there were 4.48 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community newly diagnosed with substance abuse compared to Q1 2012, which was 3.18 per 1,000 beneficiaries. This was a 40.98% relative increase in new incidence of substance abuse.

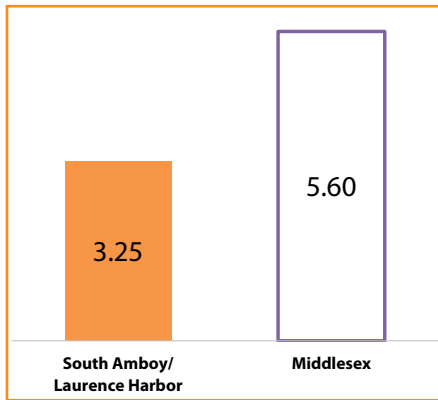
**FIGURE 22. YEARLY PREVALENCE AND RELATIVE CHANGE OF SUBSTANCE ABUSE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly prevalence rate of substance abuse for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 16.15 per 1,000 beneficiaries from Q2 2012 – Q1 2013. This was a 5.53% relative increase when compared to 15.30 per 1,000 beneficiaries from Q2 2011 – Q1 2012.

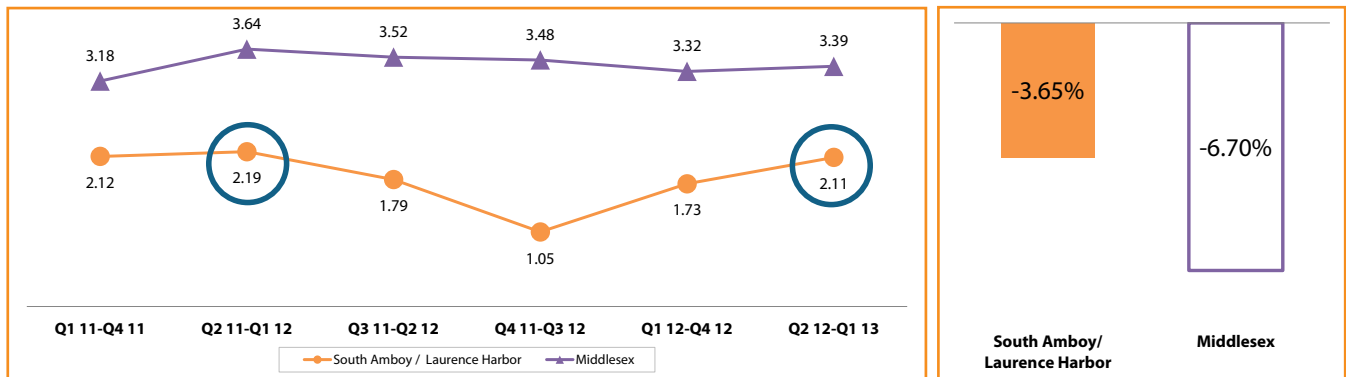
## Suicide and Intentional Self-Inflicted Injury\*

**FIGURE 23. PREVALENCE OF SUICIDE AND INTENTIONAL SELF-INFLECTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of suicide and intentional self-inflicted injury for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 3.25 per 1,000 beneficiaries compared to the 5.60 per 1,000 beneficiaries rate of Middlesex County.

**FIGURE 24. YEARLY PREVALENCE OF SUICIDE AND INTENTIONAL SELF-INFLECTED INJURY PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly prevalence rate of suicide and intentional self-inflicted injury for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 2.11 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 3.65% relative decrease when compared to 2.19 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

\* The quarterly chart for this condition was not generated due to low rates in a quarter.

## RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

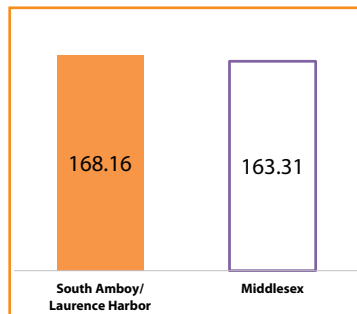
To identify beneficiaries at risk of developing depression or proxy disorders, HQSI conducted a literature review on the potential risk factors for depression or proxy disorders. Previous studies suggested that psychosocial factors, biological factors, deteriorating physical functioning, and medication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

Based on the literature review and data analysis 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, alcohol or substance abuse or tobacco use, hip/pelvic fractures, and amputations (see Appendix B).

For Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community who were diagnosed with these risk factor conditions prior to being diagnosed with depression or proxy disorders, these conditions may have contributed to the risk of developing depression or proxy disorders. The following figures show the prevalence rates for these five conditions in the 21 months prior to Superstorm Sandy.

### Top Five Risk Factors for Depression or Proxy Disorders

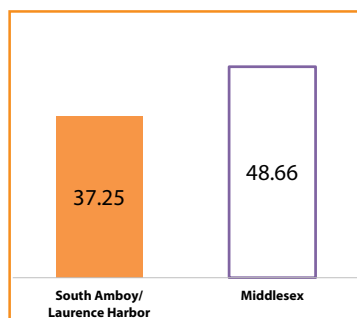
**FIGURE 25. PREVALENCE OF TOP FIVE RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community with one or more of the top five risk factors for depression or proxy disorders in the 21 months prior to Superstorm Sandy was 168.16 per 1,000 beneficiaries. This was higher than the prevalence rate in Middlesex County.

### Alzheimer’s Disease and Related Disorders or Senile Dementia

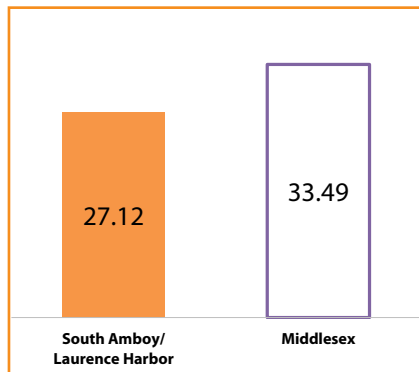
**FIGURE 26. PREVALENCE OF ALZHEIMER’S DISEASE AND RELATED DISORDERS OR SENILE DEMENTIA PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of Alzheimer’s disease and related disorders or senile dementia for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 37.25 per 1,000 beneficiaries. This was lower than the prevalence rate in Middlesex County.

## Sleep Disturbance

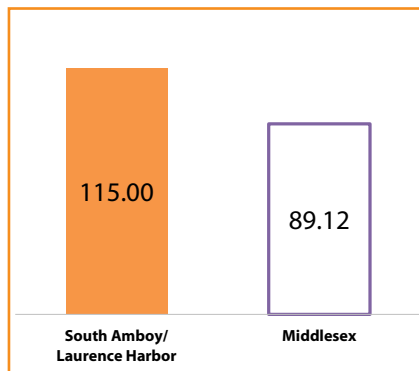
**FIGURE 27. PREVALENCE OF SLEEP DISTURBANCE  
PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of sleep disturbance for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 27.12 per 1,000 beneficiaries. This was lower than the prevalence rate in Middlesex County.

## Substance or Alcohol Abuse or Tobacco Use

**FIGURE 28. PREVALENCE OF SUBSTANCE OR ALCOHOL ABUSE OR TOBACCO USE  
PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**

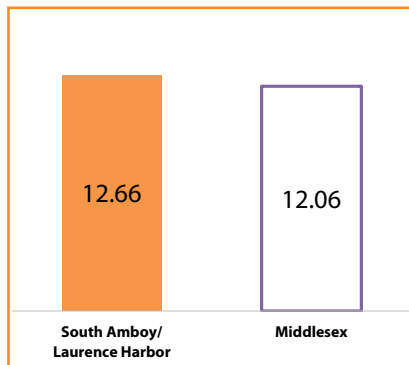


The prevalence rate of substance or alcohol abuse or tobacco use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 115.00 per 1,000 beneficiaries. This was higher than the prevalence rate in Middlesex County.



## Hip/Pelvic Fractures

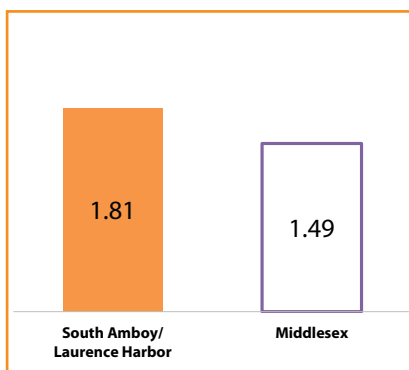
**FIGURE 29. PREVALENCE OF HIP/PELVIC FRACTURES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of hip/pelvic fractures for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 12.66 per 1,000 beneficiaries. This was higher than the prevalence rate in Middlesex County.

## Amputations

**FIGURE 30. PREVALENCE OF AMPUTATIONS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The prevalence rate of amputations for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 1.81 per 1,000 beneficiaries. This was higher than the prevalence rate in Middlesex County.

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# UTILIZATION OF OUTPATIENT BEHAVIORAL HEALTH SERVICES

## Assessment

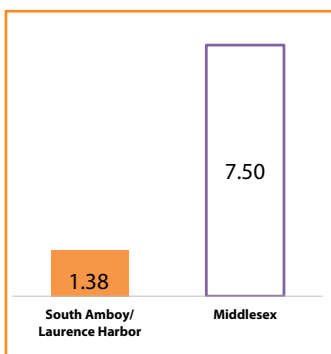
### Depression Screening

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.

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

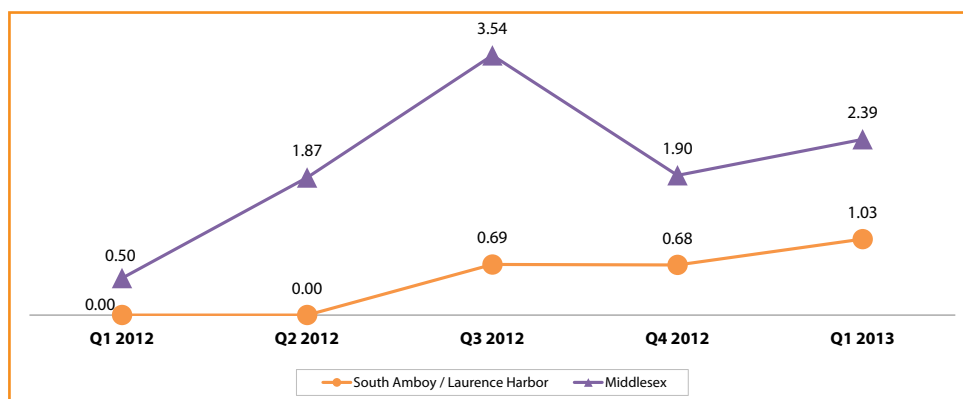
The depression screening utilization rate has been low among all the counties and communities included in this study.

**FIGURE 31. DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES (CALENDAR YEAR 2012)**



The utilization rate of depression screening for beneficiaries residing in the South Amboy/Laurence Harbor community for calendar year 2012 was 1.38 per 1,000 Medicare FFS beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 32. QUARTERLY DEPRESSION SCREENING PER 1,000 MEDICARE FFS BENEFICIARIES**

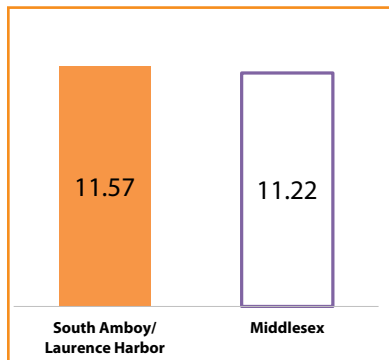


The five quarters of data above reflect trending in the use of the depression screening benefit per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community and in Middlesex County.

## Neuropsychological Tests

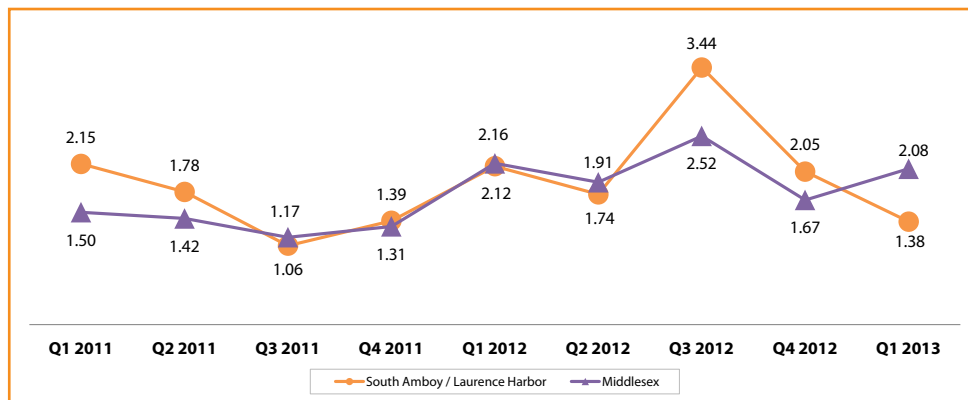
According to the CMS Mental Health Services Billing Guide, neuropsychological tests are evaluations designed to determine the functional consequences of known or suspected brain injury through testing of the neurocognitive domains responsible for language, perception, memory, learning, problem solving,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

**FIGURE 33. NEUROPSYCHOLOGICAL TESTS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The utilization rate of neuropsychological tests for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 11.57 per 1,000 beneficiaries. This was higher than the rate in Middlesex County.

**FIGURE 34. QUARTERLY NEUROPSYCHOLOGICAL TESTS PER 1,000 MEDICARE FFS BENEFICIARIES**

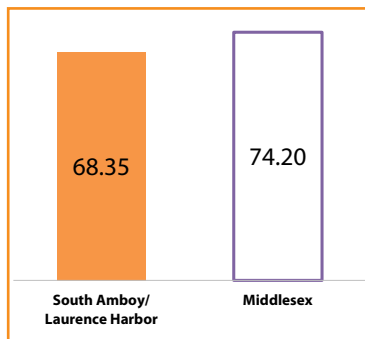


The nine quarters of data above reflect trending in the use of neuropsychological tests per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community and in Middlesex County.

## Psychiatric Diagnostic Procedures

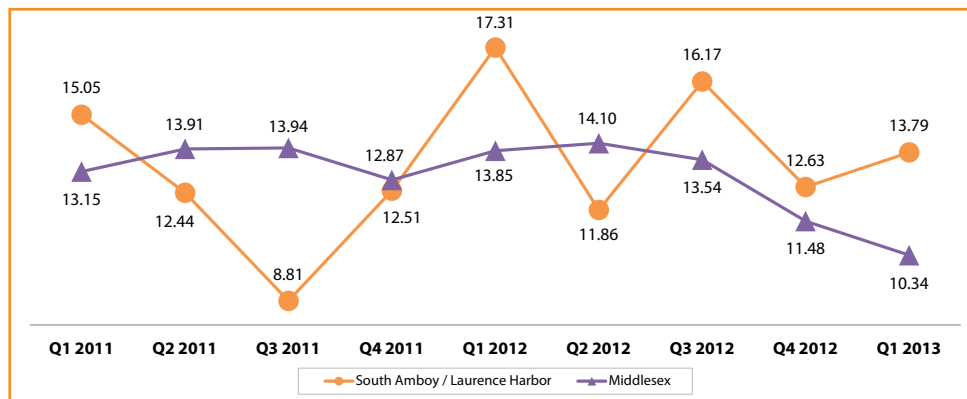
According to the CMS Mental Health Services Billing Guide, psychiatric diagnostic evaluation is an integrated biopsychosocial assessment, including history, mental status, and recommendations. The evaluation may include communication with family or other sources and review of diagnostic studies.

**FIGURE 35. PSYCHIATRIC DIAGNOSTIC PROCEDURES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The utilization rate of psychiatric diagnostic procedures for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 68.35 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 36. QUARTERLY PSYCHIATRIC DIAGNOSTIC PROCEDURES PER 1,000 MEDICARE FFS BENEFICIARIES**



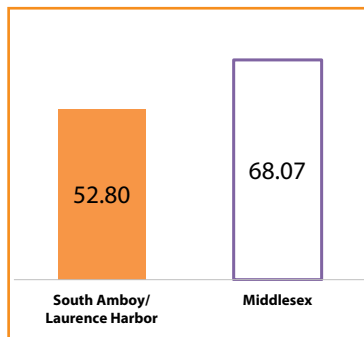
The nine quarters of data above reflect trending in the use of psychiatric diagnostic procedures per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community and in Middlesex County.

## Therapies

### Individual Psychotherapy

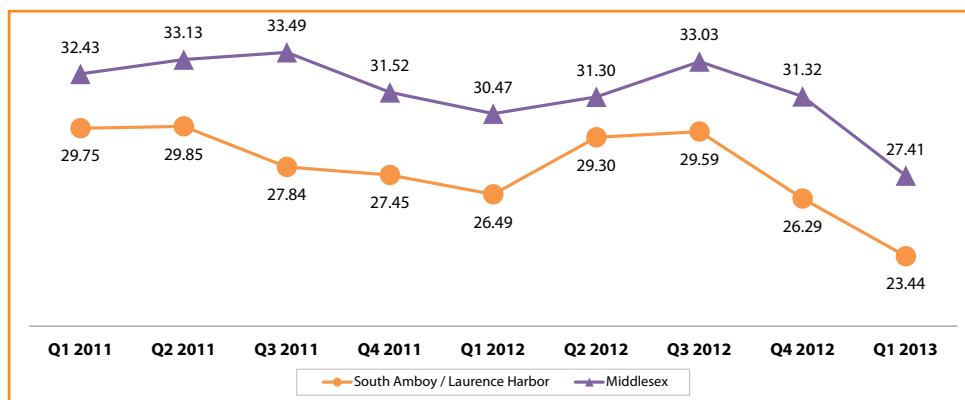
According to the CMS Mental Health Services Billing Guide, individual psychotherapy is the treatment of mental illness and behavioral disturbances where the physician or other qualified health professional attempts to alleviate the emotional disturbances, reverse or change maladaptive patterns of behavior,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

**FIGURE 37. INDIVIDUAL PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The utilization rate of individual psychotherapy for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 52.80 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 38. QUARTERLY INDIVIDUAL PSYCHOTHERAPY PER 1,000 MEDICARE FFS BENEFICIARIES**

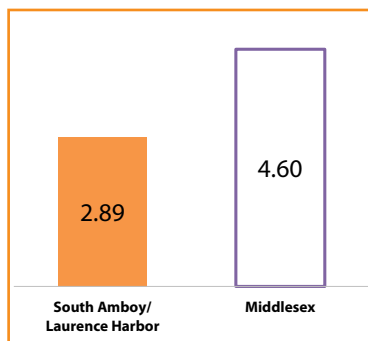


The nine quarters of data above reflect trending in the use of individual psychotherapy per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community and in Middlesex County.

## 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.

**FIGURE 39. FAMILY PSYCHOTHERAPY  
PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



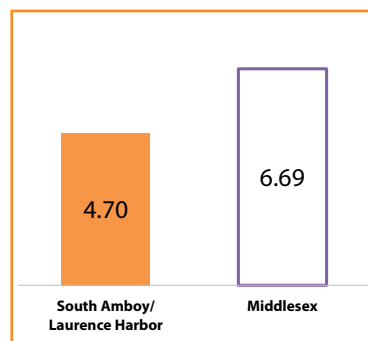
The utilization rate of family psychotherapy for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 2.89 per 1,000 beneficiaries in the 21 months prior to Superstorm Sandy. This was lower than the rate in Middlesex County.

Due to these low numbers, no quarterly trending 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.

**FIGURE 40. GROUP PSYCHOTHERAPY  
PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



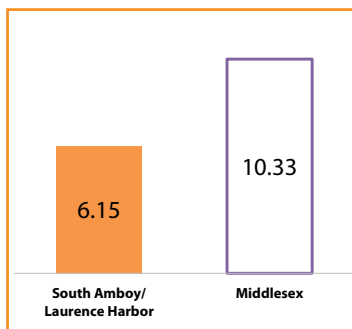
The utilization rate of group psychotherapy for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 4.70 per 1,000 beneficiaries in the 21 months prior to Superstorm Sandy. This was lower than the rate in Middlesex County.

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

## INPATIENT SERVICES

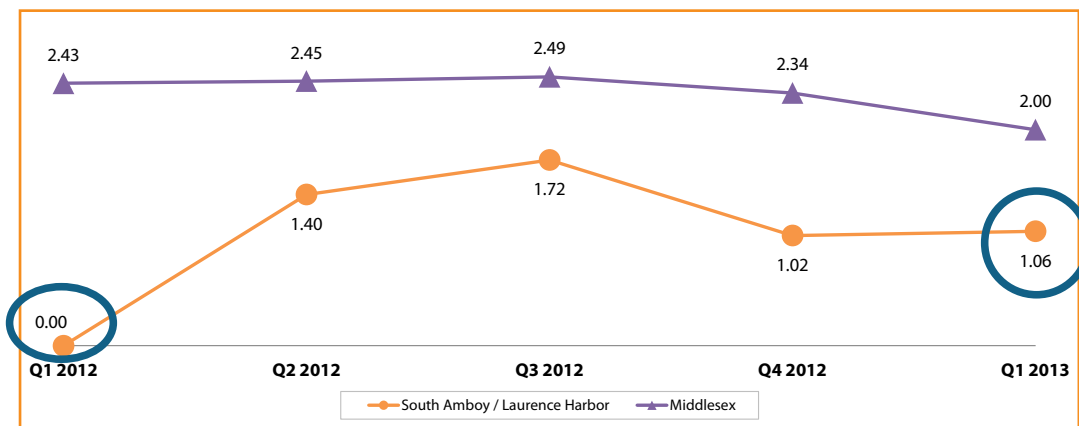
### Psychiatric Hospital Admissions

**FIGURE 41. PSYCHIATRIC HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



The rate of admissions for standalone psychiatric hospitals or distinct part psychiatric units in an acute care hospital for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 6.15 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

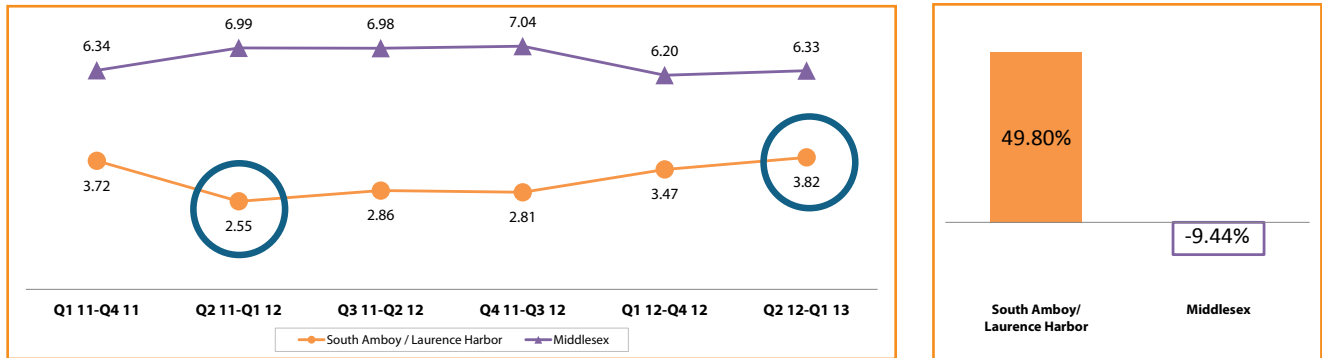
**FIGURE 42. QUARTERLY PSYCHIATRIC HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 1.06 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community admitted to psychiatric hospitals compared to Q1 2012 when there were no admissions. This was lower than the Q1 2013 rate in Middlesex County.



**FIGURE 43. YEARLY PSYCHIATRIC HOSPITAL ADMISSIONS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



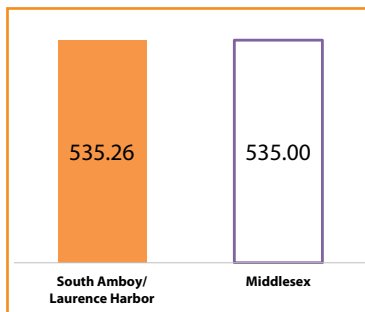
The yearly rate of psychiatric hospital admissions for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 3.82 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 49.80% relative increase when compared to 2.55 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

## Acute Care Hospitals

### Admissions

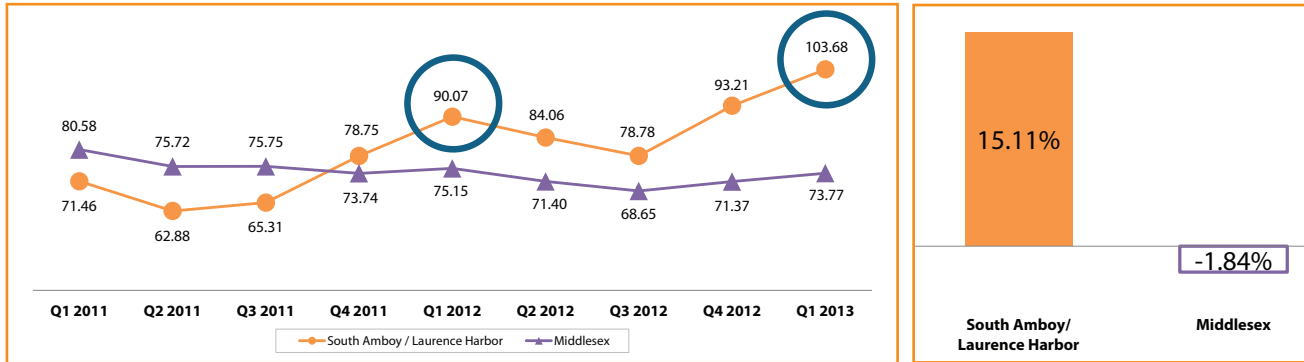
The following data shows all-cause utilization measures and includes all Medicare FFS beneficiaries, not just beneficiaries with behavioral health conditions.

**FIGURE 44. ACUTE CARE HOSPITAL ADMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



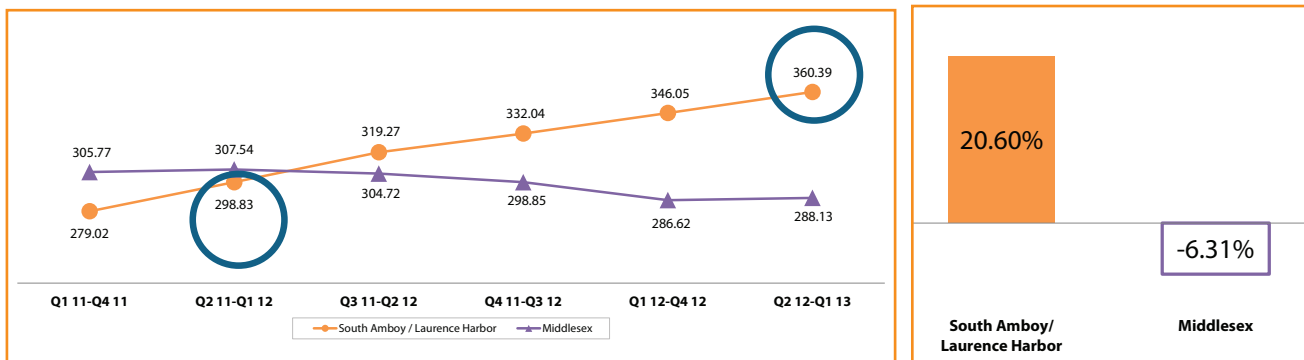
The rate of hospital admissions for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 535.26 per 1,000 beneficiaries. This was higher than the rate in Middlesex County.

**FIGURE 45. QUARTERLY ACUTE CARE HOSPITAL ADMISSIONS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 103.86 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community admitted to acute care hospitals compared to Q1 2012, which was 90.07 per 1,000 beneficiaries. This was a 15.11% relative increase in hospital admissions in the South Amboy/Laurence Harbor community.

**FIGURE 46. YEARLY ACUTE CARE HOSPITAL ADMISSIONS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**

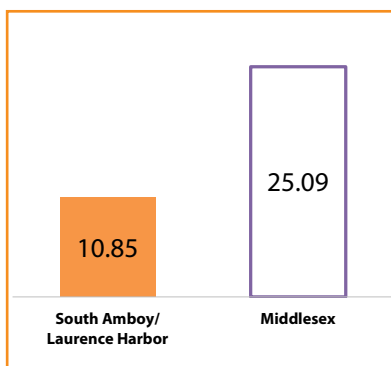


The yearly rate of acute care hospital admissions for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 360.39 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 20.60% relative increase when compared to 298.83 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

## Observation Stays

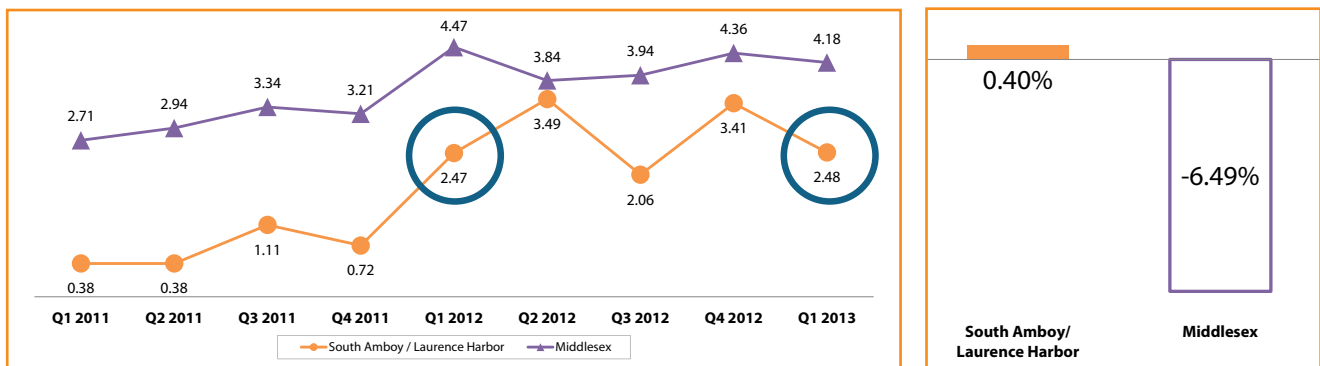
According to the U.S. Department of Health and Human Services, observation stays are short-term treatments and assessments provided to Medicare FFS beneficiaries as outpatients to determine whether they require further treatment as inpatients or can be discharged.

**FIGURE 47. OBSERVATION STAYS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



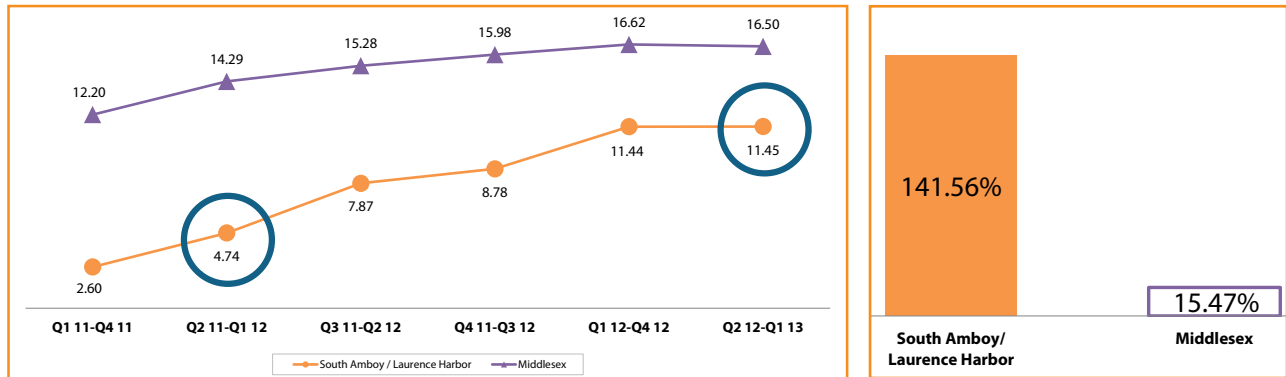
The rate of observation stays for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 10.85 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 48. QUARTERLY OBSERVATION STAYS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 2.48 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community with observation stays compared to Q1 2012, which was 2.47 per 1,000 beneficiaries. This was a 0.40% relative increase in observation stays.

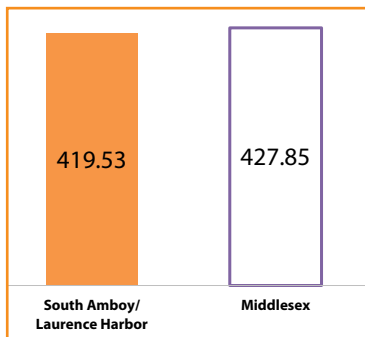
**FIGURE 49. YEARLY OBSERVATION STAYS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of observation stays for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 11.45 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 141.56% relative increase when compared to 4.74 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

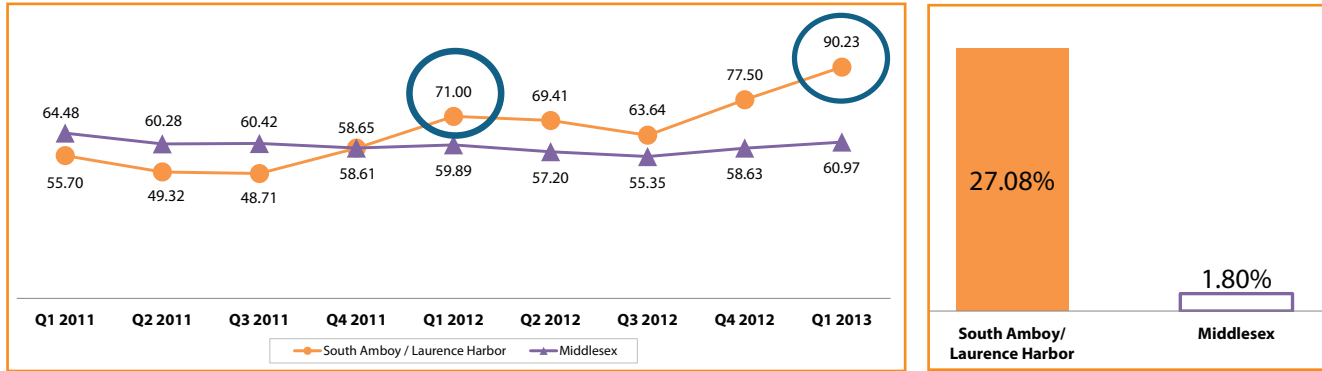
## Emergency Department Visits

**FIGURE 50. EMERGENCY DEPARTMENT VISITS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



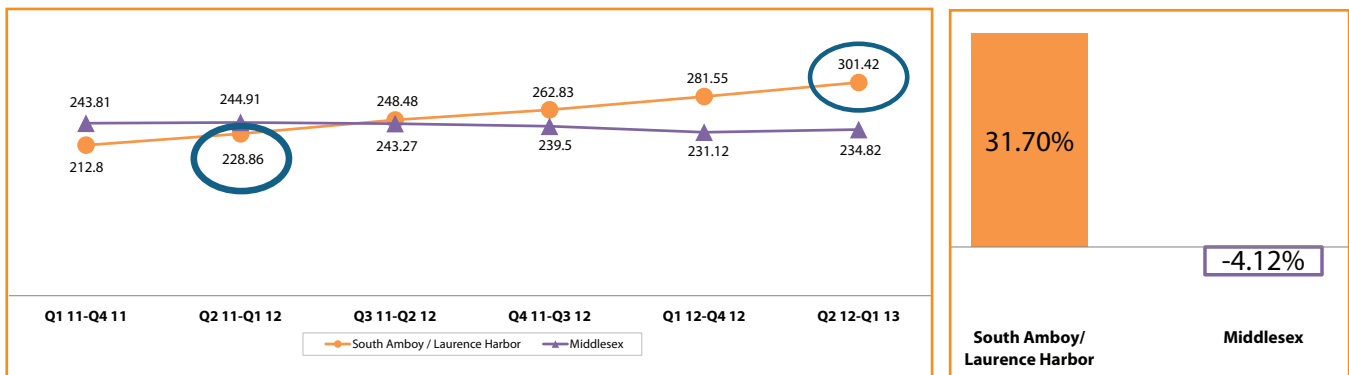
The rate of emergency department visits for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 419.53 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 51. QUARTERLY EMERGENCY DEPARTMENT VISITS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 90.23 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community making emergency department visits compared to Q1 2012, which was 71.00 per 1,000 beneficiaries. This was a 27.08% relative increase in emergency department visits.

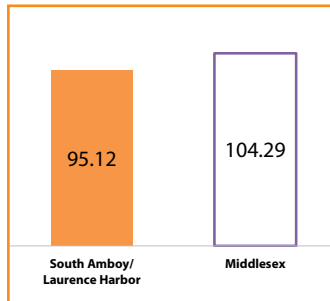
**FIGURE 52. YEARLY EMERGENCY DEPARTMENT VISITS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of emergency department visits for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 301.42 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 31.70% relative increase when compared to 228.86 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

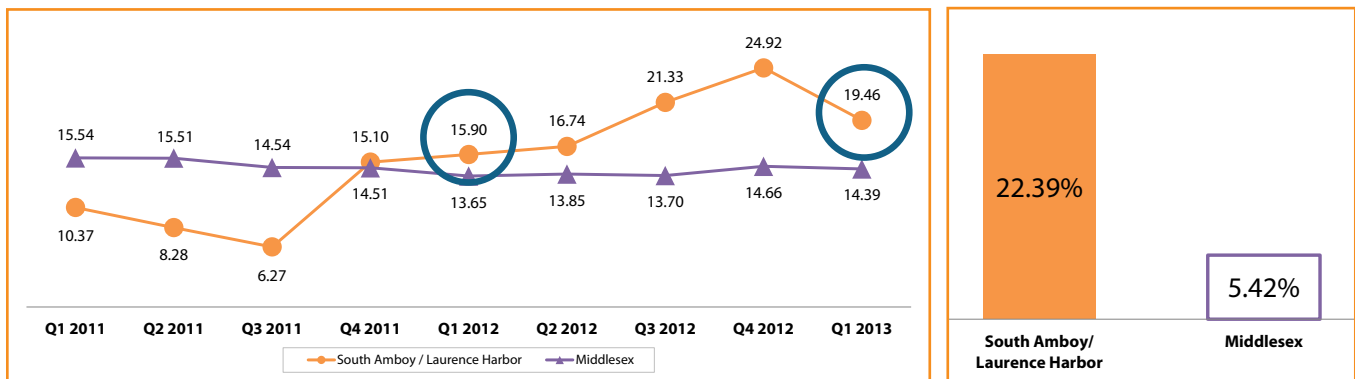
## 30-Day Hospital Readmissions

**FIGURE 53. 30-DAY HOSPITAL READMISSIONS PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



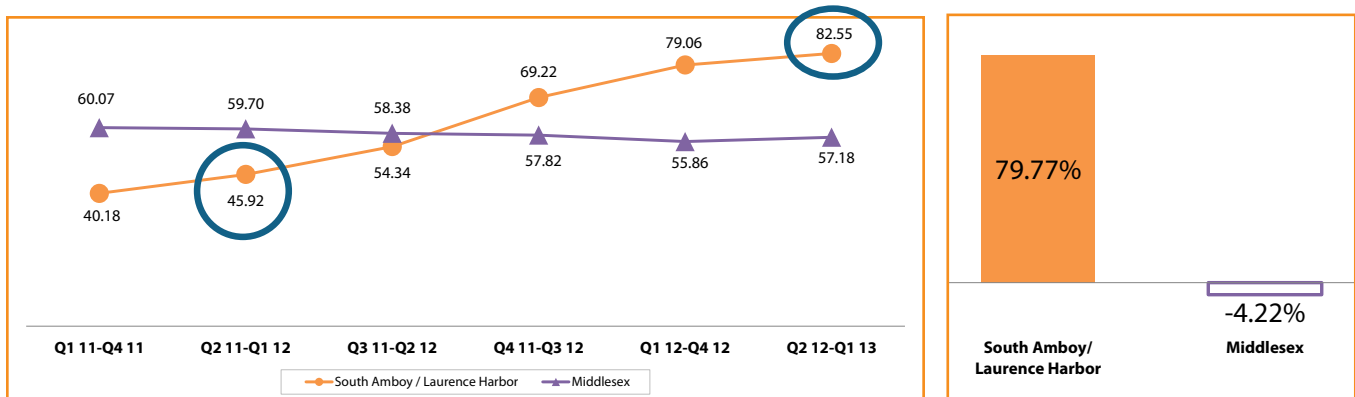
The rate of 30-day hospital readmissions for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 95.12 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 54. QUARTERLY 30-DAY HOSPITAL READMISSIONS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 19.46 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community readmitted to the hospital within 30 days of discharge compared to Q1 2012, which was 15.90 per 1,000 beneficiaries. This was a 22.39% relative increase in 30-day hospital readmissions.

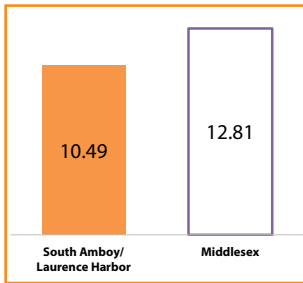
**FIGURE 55. YEARLY 30-DAY HOSPITAL READMISSIONS AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of 30-day hospital readmissions for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 82.55 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 79.77% relative increase when compared to 45.92 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

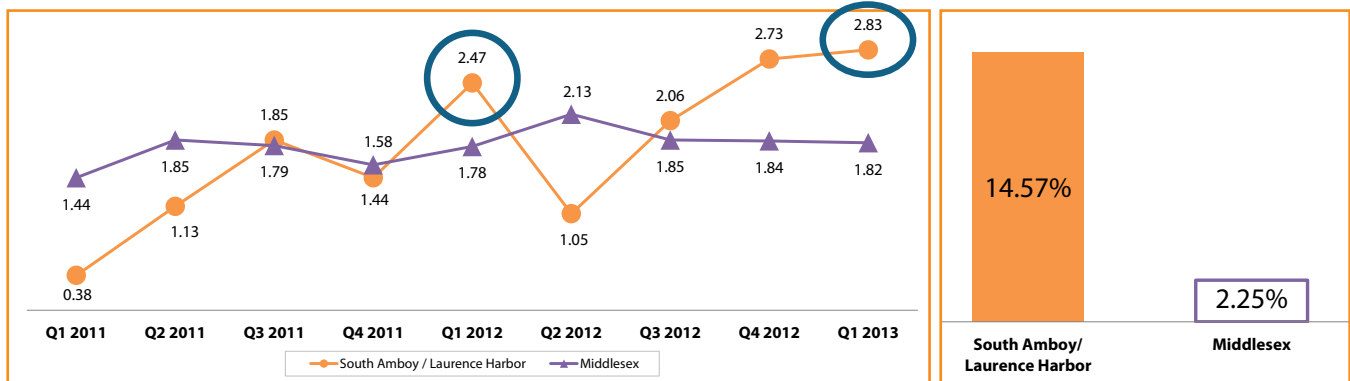
## Observation Stays Within 30 Days of Discharge

**FIGURE 56. OBSERVATION STAYS WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



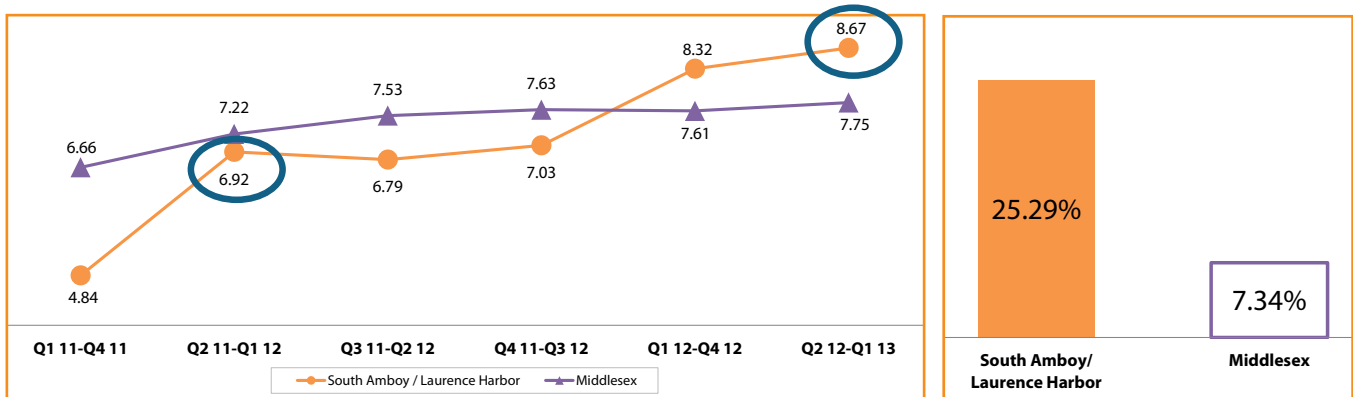
The rate of observation stays within 30 days of discharge for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 10.49 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 57. QUARTERLY OBSERVATION STAYS WITHIN 30 DAYS OF DISCHARGE AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 2.83 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community receiving observation stays within 30 days of discharge compared to Q1 2012, which was 2.47 per 1,000 beneficiaries. This was a 14.57% relative increase in observation stays within 30 days of discharge.

**FIGURE 58. YEARLY OBSERVATION STAYS WITHIN 30 DAYS OF DISCHARGE AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of observation stays within 30 days of discharge for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 8.67 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 25.29% relative increase when compared to 6.92 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

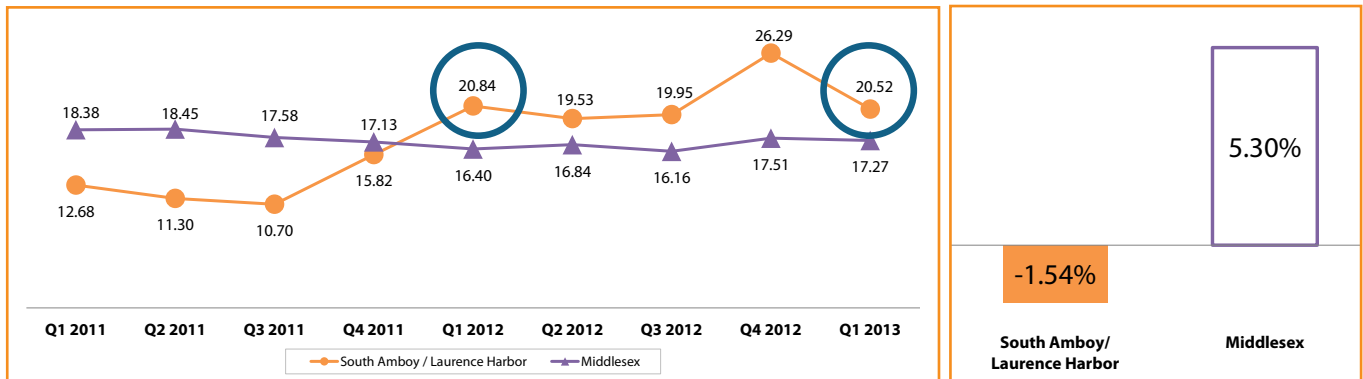
## Emergency Department Visits Within 30 Days of Discharge

**FIGURE 59. EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



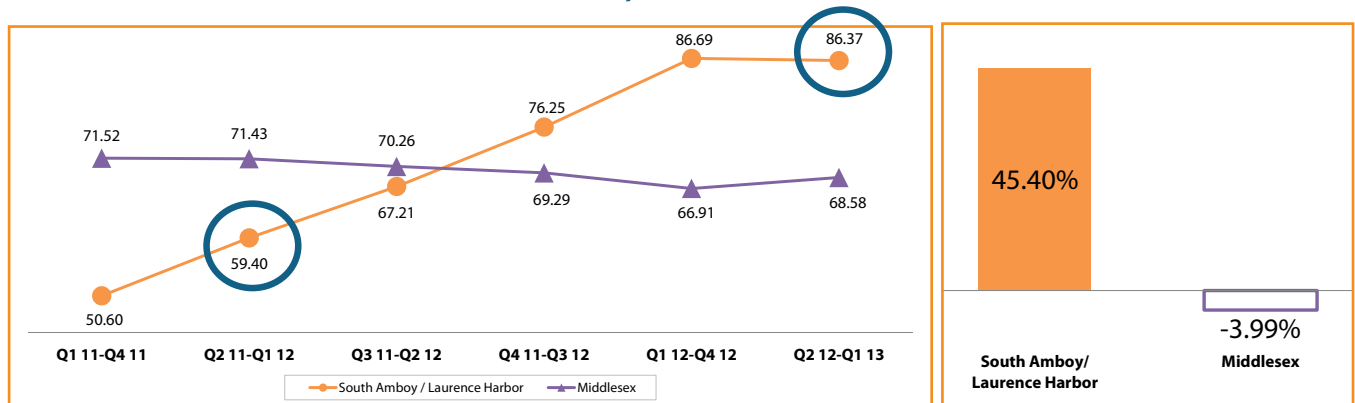
The rate of emergency department visits within 30 days of discharge for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 112.12 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 60. QUARTERLY EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 20.52 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community making emergency department visits within 30 days of discharge compared to Q1 2012, which was 20.84 per 1,000 beneficiaries. This was a 1.54% relative decrease in emergency department visits within 30 days of discharge.

**FIGURE 61. YEARLY EMERGENCY DEPARTMENT VISITS WITHIN 30 DAYS OF DISCHARGE AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



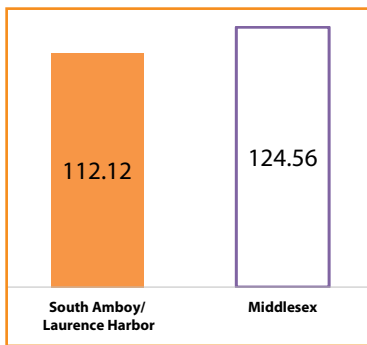
The yearly rate of emergency department visits within 30 days of discharge for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 86.37 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 45.40% relative increase when compared to 59.40 per 1,000 beneficiaries from Q2 2011 - Q1 2012.



## Other Settings

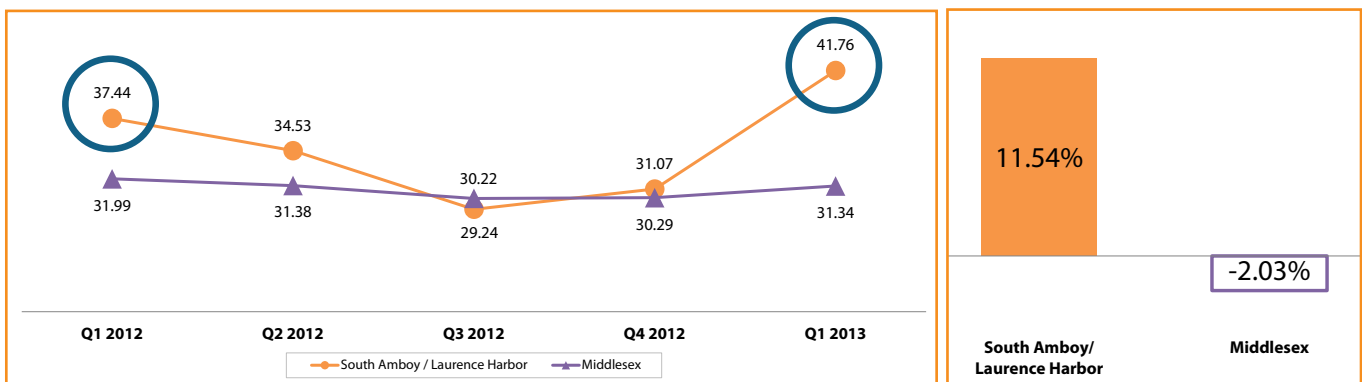
### Home Health Agency Services

**FIGURE 62. UTILIZATION OF HOME HEALTH AGENCY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



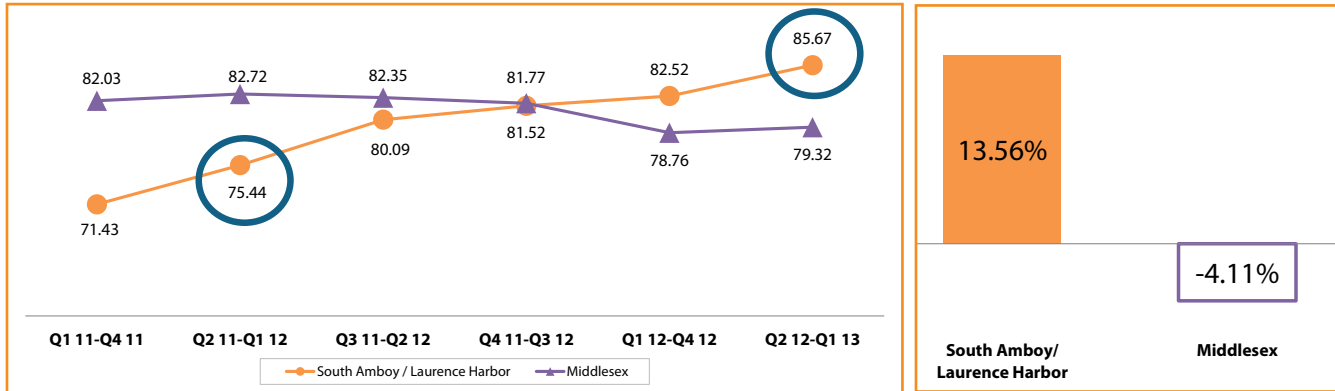
The rate of home health agency use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 112.12 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 63. QUARTERLY UTILIZATION OF HOME HEALTH AGENCY SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 41.76 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community using home health agency services compared to Q1 2012, which was 37.44 per 1,000 beneficiaries. This was a 11.54% relative increase in the use of home health agency services.

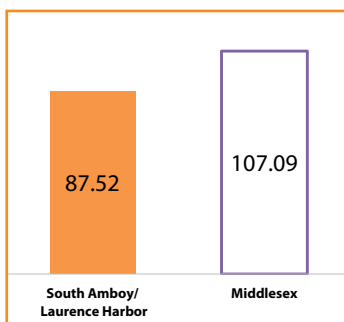
**FIGURE 64. YEARLY UTILIZATION OF HOME HEALTH AGENCY SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of home health agency use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 85.67 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 13.56% relative increase when compared to 75.44 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

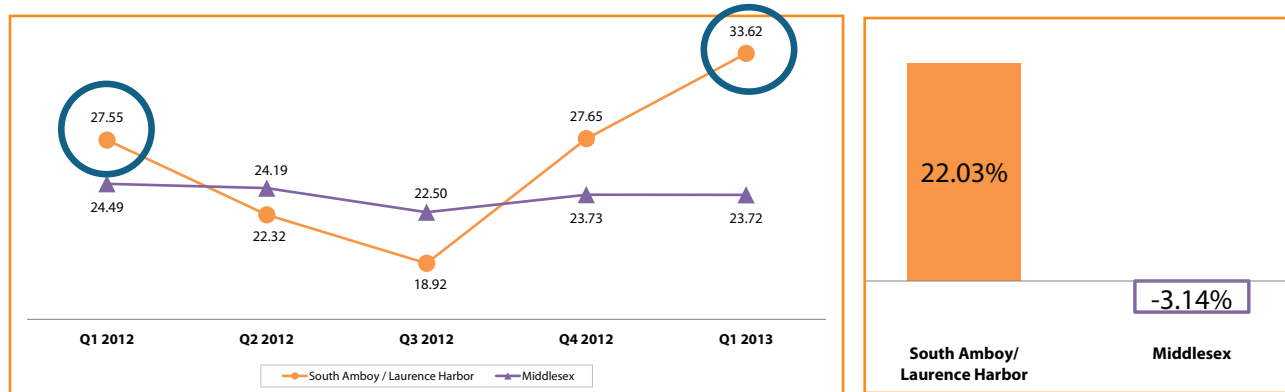
## Skilled Nursing Facility Services

**FIGURE 65. UTILIZATION OF SKILLED NURSING FACILITY SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



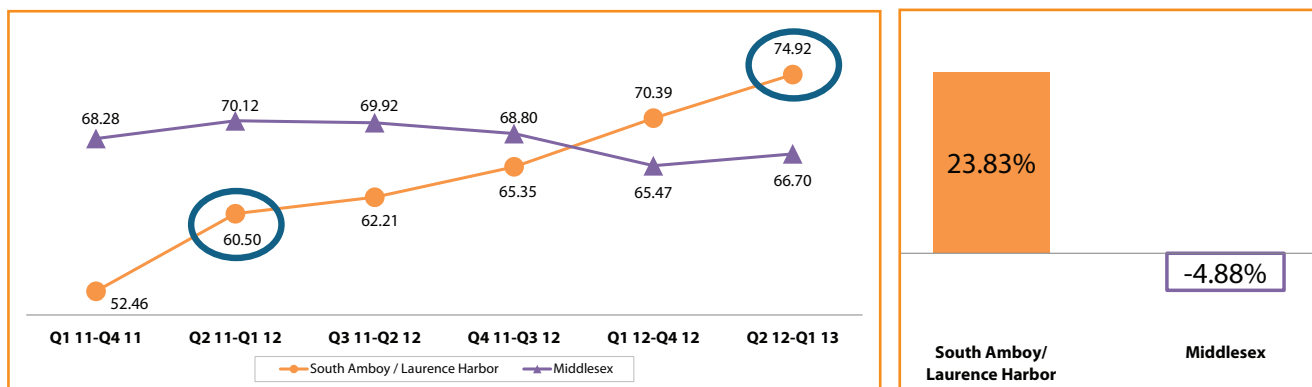
The rate of skilled nursing facility use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 87.52 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 66. QUARTERLY UTILIZATION OF SKILLED NURSING FACILITY SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 33.62 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community using skilled nursing facility services compared to Q1 2012, which was 27.55 per 1,000 beneficiaries. This was a 22.03% relative increase in the use of skilled nursing facility services.

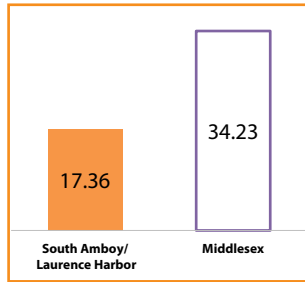
**FIGURE 67. YEARLY UTILIZATION OF SKILLED NURSING FACILITY SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of skilled nursing facility use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 74.92 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 23.83% relative increase when compared to 60.50 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

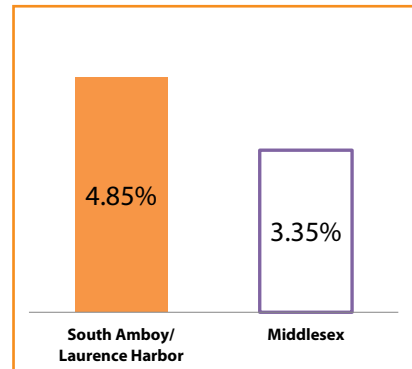
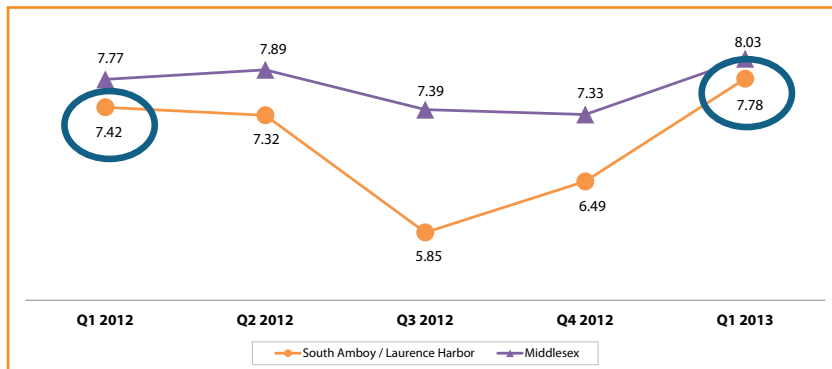
## Hospice Services

**FIGURE 68. UTILIZATION OF HOSPICE SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



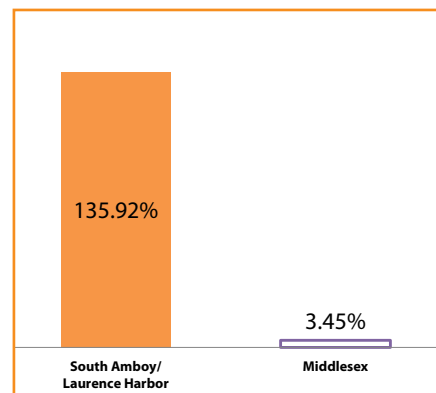
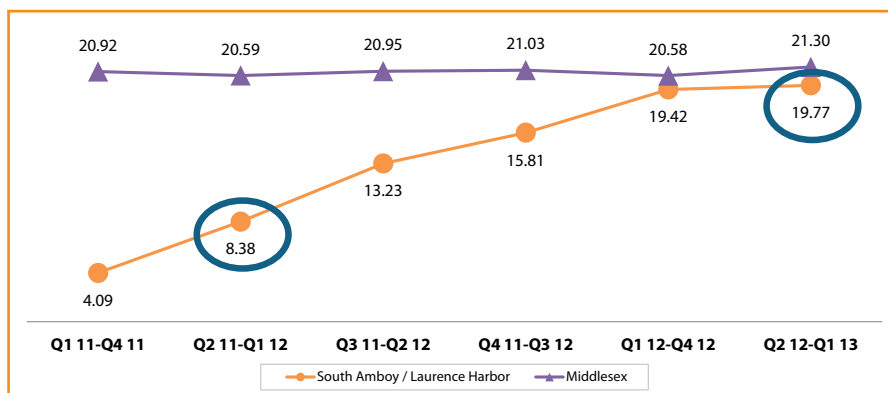
The rate of hospice use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 17.36 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 69. QUARTERLY UTILIZATION OF HOSPICE SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 7.78 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community using hospice services compared to Q1 2012, which was 7.42 per 1,000 beneficiaries. This was a 4.85% relative increase in the use of hospice services.

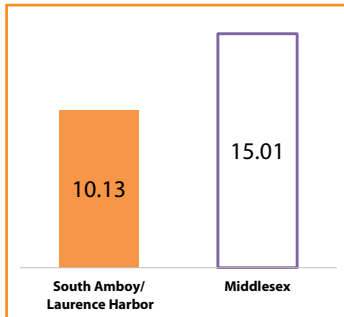
**FIGURE 70. YEARLY UTILIZATION OF HOSPICE SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of hospice use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 19.77 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 135.92% relative increase when compared to 8.38 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

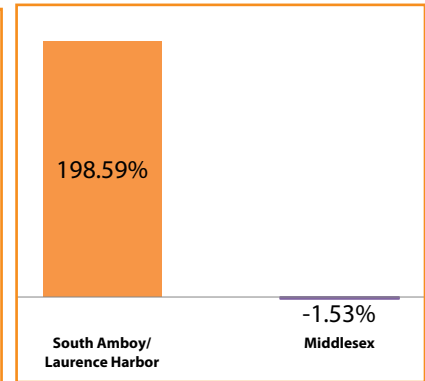
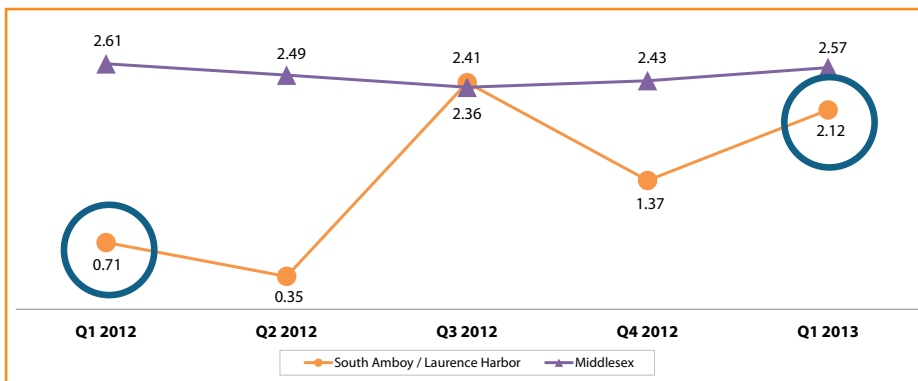
## Medical Rehabilitation Services

**FIGURE 71. UTILIZATION OF MEDICAL REHABILITATION SERVICES PER 1,000 MEDICARE FFS BENEFICIARIES (PRE-SANDY: Q1 2011 – Q3 2012)**



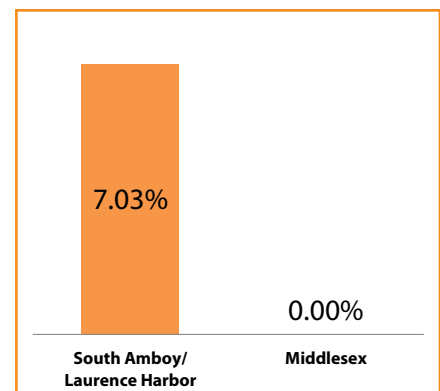
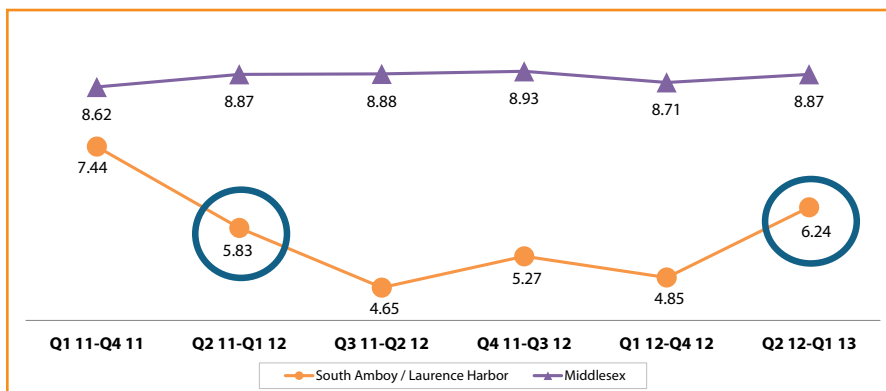
The rate of medical rehabilitation use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy was 10.13 per 1,000 beneficiaries. This was lower than the rate in Middlesex County.

**FIGURE 72. QUARTERLY UTILIZATION OF MEDICAL REHABILITATION SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



For Q1 2013, there were 2.12 per 1,000 Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community using medical rehabilitation services compared to Q1 2012, which was 0.71 per 1,000 beneficiaries. This was a 198.59% relative increase in the use of medical rehabilitation services.

**FIGURE 73. YEARLY UTILIZATION OF MEDICAL REHABILITATION SERVICES AND RELATIVE CHANGE PER 1,000 MEDICARE FFS BENEFICIARIES**



The yearly rate of medical rehabilitation use for Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community was 6.24 per 1,000 beneficiaries from Q2 2012 - Q1 2013. This was a 7.03% relative increase when compared to 5.83 per 1,000 beneficiaries from Q2 2011 - Q1 2012.

## BEHAVIORAL HEALTH PROVIDER LOCATION BY SERVICES FOR SOUTH AMBOY/LAURENCE HARBOR COMMUNITY BENEFICIARIES

The tables below illustrate the number of claims filed by providers outside and inside New Jersey for the depression screening benefit, psychiatric diagnostic procedures, neuropsychological testing, and individual psychotherapy. Totals may not add up to 100% due to rounding.

There were four claims for the depression screening benefit among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community for calendar year 2012. Of these, 50% were filed by providers in Middlesex County, 50% were filed by providers in all other New Jersey counties, and none were filed from within the South Amboy/Laurence Harbor community.

**Figure 74. Provider Location for Depression Screening\* Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community Calendar Year 2012**

Providers	Number of Claims N=4	Percent
Outside of New Jersey	0	0.0
New Jersey	4	100.0
• Middlesex County	2	50.0
– South Amboy/Laurence Harbor Community	0	0.0
• Other Counties	2	50.0

\* Depression screening is a one time benefit per year.

There were 306 claims for psychiatric diagnostic procedures among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 42.2% were filed by providers in Middlesex County, 56.5% were filed by providers in all other New Jersey counties, 1.3% were filed by providers outside of New Jersey, and none were filed by providers within the South Amboy/Laurence Harbor community.

**Figure 75. Provider Location for Psychiatric Diagnostic Procedure Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community\***

Providers	Number of Claims N=306	Percent
Outside of New Jersey	4	1.3
New Jersey	302	98.7
• Middlesex County	129	42.2
– South Amboy/Laurence Harbor Community	0	0.0
• Other Counties	173	56.5

\* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for these procedures at different locations.

There were 42 claims for neuropsychological testing among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 38.1% were filed by providers located in Middlesex County, 54.8% were filed by providers in all other New Jersey counties, 7.1% were filed by providers outside New Jersey, and none were filed by providers within the South Amboy/Laurence Harbor community.

**Figure 76. Provider Location for Neuropsychological Tests Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community\***

Providers	Number of Claims N=42	Percent
Outside of New Jersey	3	7.1
New Jersey	39	92.9
• Middlesex County	16	38.1
– South Amboy/Laurence Harbor Community	0	0.0
• Other Counties	23	54.8

\* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for these procedures at different locations.

There were 1,762 claims for individual psychotherapy among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 46.0% were filed by providers located in Middlesex County, 51.3% were filed by providers in all other New Jersey counties, 2.7% were filed by providers outside New Jersey, and 0.1% were filed by providers located within the South Amboy/Laurence Harbor community.

**Figure 77. Provider Location for Individual Psychotherapy Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community\***

Providers	Number of Claims N=1,762	Percent
Outside of New Jersey	48	2.7
New Jersey	1,714	97.3
• Middlesex County	810	46.0
– South Amboy/Laurence Harbor Community	1	0.1
• Other Counties	904	51.3

\* Number of claims, instead of unique beneficiaries were used in this analysis because a beneficiary can have multiple encounters for these procedures at different locations.

## OVERALL TYPE OF BEHAVIORAL HEALTH PROVIDERS

The table below illustrates the type of health care providers most frequently visited by Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community. Totals may not add up to 100% due to rounding.

There were 213 behavioral health providers serving all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 45.54% were physicians, 21.13% were psychologists, 20.66% were social workers, and 3.76% were nurses. This table includes providers located anywhere in the United States who had at least one claim for beneficiaries residing in this community.

Figure 78. Behavioral Health Providers used by South Amboy/Laurence Harbor Medicare FFS Beneficiaries (Pre-Sandy: Q1 2011 – Q3 2012)			
	Providers	Percent	Credentials
Physicians	97	45.54	DO, MD
Psychologists	45	21.13	PhD, PsyD, EdD
Social Workers	44	20.66	MSW, LCSW
Nurses	8	3.76	APN, RN, NP
Others	19	8.92	Other
<b>Total</b>	<b>213</b>	<b>100.00</b>	

## PROVIDERS BY BEHAVIORAL HEALTH SERVICES

The table below illustrates the type of health care providers most frequently visited for the depression screening benefit, psychiatric diagnostic procedures, neuropsychological testing, and individual psychotherapy. Totals may not add up to 100% due to rounding.

There were four claims filed for the depression screening benefit among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community. Of these, 100% were filed by physicians.

Figure 79. Depression Screening* Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community (Calendar Year 2012)			
	Number of Claims	Percent	Credentials
Physicians	4	100.0	DO, MD
Psychologists	0	0.0	PhD, PsyD, EdD
Social Workers	0	0.0	MSW, LCSW
Nurses	0	0.0	APN, RN, NP
Others	0	0.0	Other
<b>Total</b>	<b>4</b>	<b>100.0</b>	

\* Depression screening is a one time benefit per year



There were 306 claims filed for psychiatric diagnostic procedures among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 64.4% were filed by physicians, 22.2% were filed by psychologists, 7.2% were filed by social workers, and 1.6% were filed by nurses.

**Figure 80. Psychiatric Diagnostic Procedures Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community (Pre-Sandy: Q1 2011 – Q3 2012)**

	Number of Claims	Percent	Credentials
Physicians	197	64.4	DO, MD
Psychologists	68	22.2	PhD, PsyD, EdD
Social Workers	22	7.2	MSW, LCSW
Nurses	5	1.6	APN, RN, NP
Others	14	4.6	Other
<b>Total</b>	<b>306</b>	<b>100.0</b>	

There were 42 claims filed for neuropsychological testing among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 69.0% were filed by physicians and 31.0% were filed by psychologists.

**Figure 81. Neuropsychological Tests Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community (Pre-Sandy: Q1 2011 – Q3 2012)**

	Number of Claims	Percent	Credentials
Physicians	29	69.0	DO, MD
Psychologists	13	31.0	PhD, PsyD, EdD
Social Workers	0	0.0	MSW, LCSW
Nurses	0	0.0	APN, RN, NP
Others	0	0.0	Other
<b>Total</b>	<b>42</b>	<b>100.0</b>	

There were 1,762 claims filed for individual psychotherapy among all Medicare FFS beneficiaries residing in the South Amboy/Laurence Harbor community in the 21 months prior to Superstorm Sandy. Of these, 53.0% were filed by psychologists, 22.8% were filed by physicians, 16.5% were filed by social workers, and 1.8% were filed by nurses.

**Figure 82. Individual Psychotherapy Claims for Medicare FFS Beneficiaries Residing in South Amboy/Laurence Harbor Community (Pre-Sandy: Q1 2011 – Q3 2012)**

	Number of Claims	Percent	Credentials
Physicians	402	22.8	DO, MD
Psychologists	934	53.0	PhD, PsyD, EdD
Social Workers	291	16.5	MSW, LCSW
Nurses	31	1.8	APN, RN, NP
Others	104	5.9	Other
<b>Total</b>	<b>1,762</b>	<b>100.0</b>	

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## LISTING OF PROVIDERS

The list below shows the major healthcare facilities that served the beneficiaries of the South Amboy/Laurence Harbor community based on the Medicare Part A claims database. These are providers in all different care settings and are not restricted to behavioral health providers or services. The map on the following page depicts the location of these providers in relation to the South Amboy/Laurence Harbor community.

### Acute Care Hospitals

Raritan Bay Medical Center  
Bayshore Community Hospital  
Robert Wood Johnson University Hospital  
JFK Medical Center  
Saint Peter's University Hospital  
Riverview Medical Center  
CentraState Medical Center  
Jersey Shore University Medical Center  
Deborah Heart and Lung Center  
Saint Barnabas Medical Center

### Medical Rehabilitation Centers

JFK Johnson Rehabilitation Institute

### Skilled Nursing Facilities

Briarwood Care & Rehabilitation Center  
Madison Center  
Victoria Health Care Center  
Bayshore Health Care Center  
Bayshore Community Hospital Sau  
Roosevelt Care Center Edison  
Reformed Church Home  
CareOne at Holmdel  
Regency Park Nursing Center

### Hospice Facilities

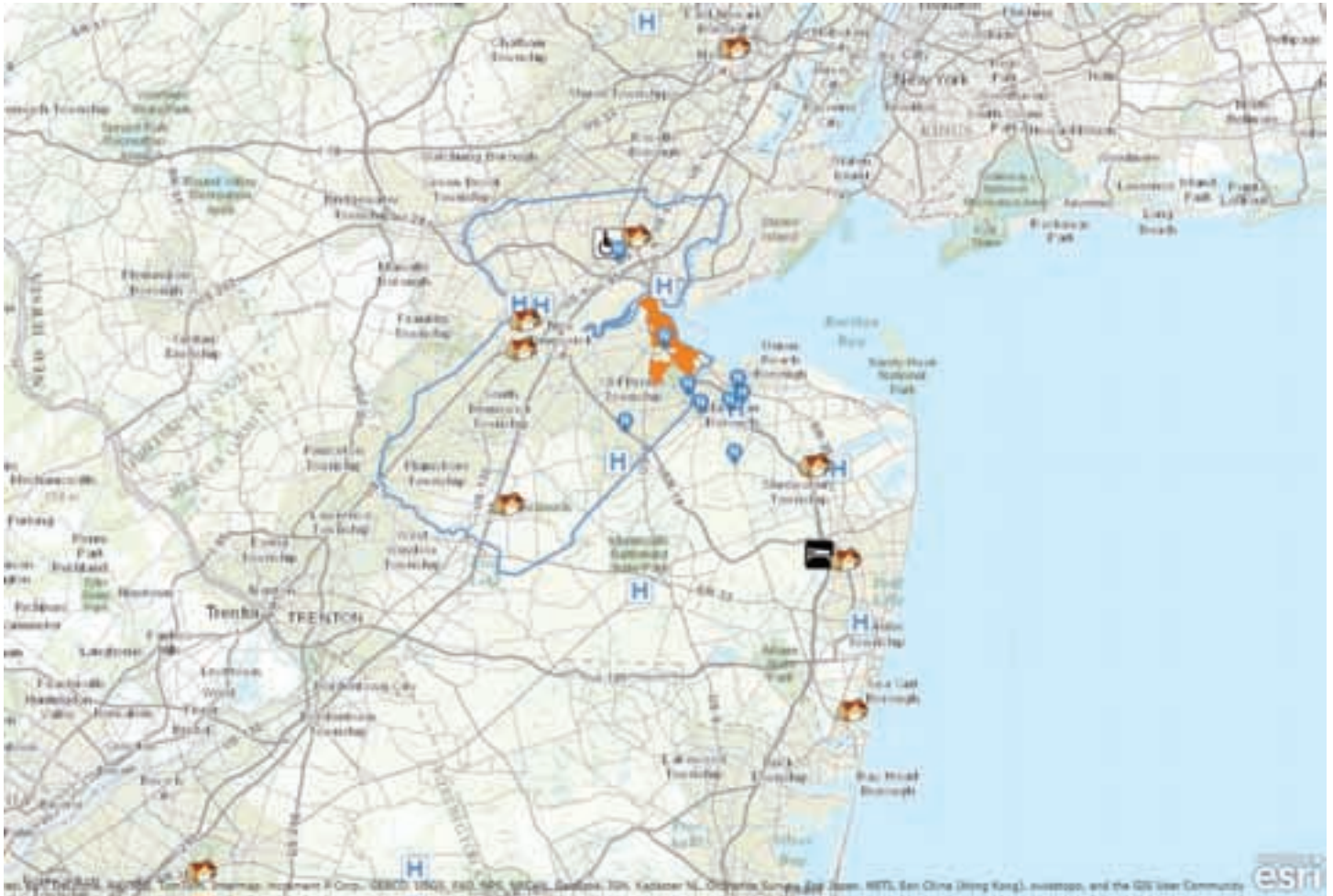
Visiting Nurse Association of Central Jersey Hospice

### Home Health Agency

Visiting Nurse Association of Central Jersey  
JFK at Home  
Robert Wood Johnson Visiting Nurses, Inc

## SOUTH AMBOY/LAURENCE HARBOR COMMUNITY PROVIDERS

The map below shows the major healthcare facilities that served the beneficiaries of the South Amboy/Laurence Harbor community based on the Medicare Part A claims database. These are providers in all different care settings and are not restricted to behavioral health providers or services. There is only one provider located in the community and that is a skilled nursing facility.



**Map Legend**

<p>▼ Medical Rehabilitation Centers</p>	<p>▼ Psychiatric Facilities</p>	<p>▼ Hospice Facilities</p>	<p>▼ Home Health Agencies</p>
<p>▼ Acute Care Hospitals</p>	<p>▼ Skilled Nursing Facility</p>		

## APPENDIX A: BEHAVIORAL HEALTH CONDITIONS

### Documentation and Technical Notes

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

#### *Data Source*

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

#### *Reference Time Period*

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

#### *Denominator*

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

#### *Numerator*

- Unique beneficiaries with disease-specific inpatient OR outpatient claim during the time frame
- CCW and AHRQ disease diagnosis code match (ICD-9-CM codes) Part A dgns\_cd\_1-25 and dgns\_e\_cd\_1-3; Match Part B dgns\_cd\_1\_12

#### *Exclusions*

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

#### *Resources*

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

- [https://www.ccwdata.org/cs/groups/public/documents/document/clin\\_cond\\_algo\\_req\\_proc.pdf](https://www.ccwdata.org/cs/groups/public/documents/document/clin_cond_algo_req_proc.pdf)
- <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>

# APPENDIX A

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

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

## APPENDIX B: RISK FACTORS FOR DEPRESSION OR PROXY DISORDERS

### Documentation and Technical Notes

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

#### *Data Source*

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

#### *Reference Time Period*

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

#### *Denominator*

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

#### *Numerator*

- Unique beneficiaries with disease-specific inpatient OR outpatient claim during the time frame
- CCW and AHRQ disease diagnosis code match (ICD-9-CM codes) Part A dgns\_cd\_1-25 and dgns\_e\_cd\_1-3; Match Part B dgns\_cd\_1\_12

#### *Exclusions*

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

#### *Model*

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

#### *Resources*

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

- [https://www.ccwdata.org/cs/groups/public/documents/document/clin\\_cond\\_algo\\_req\\_proc.pdf](https://www.ccwdata.org/cs/groups/public/documents/document/clin_cond_algo_req_proc.pdf)
- <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>



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## APPENDIX B

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

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

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

## APPENDIX C: UTILIZATION OF OUTPATIENT MENTAL HEALTH SERVICES

### Documentation and Technical Notes

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

#### *Data Source*

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

#### *Reference Time Period*

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

#### *Denominator*

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

#### *Numerator*

Unique beneficiaries with specific outpatient mental health service claims

#### *Exclusions*

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

#### *Resources*

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

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

Mental Health Services	Numerator: CPT/HCPCS Codes
Assessments	
Depression Screening	G0444
Diagnostic Psychological Tests	96101, 96102, 96103, 96105, 96110, 96111
Health and Behavior Assessment/Intervention	96150, 96151, 96152, 96153, 96154, 96155
Neuropsychological Tests	96116, 96118, 96119, 96120
Psychiatric Diagnostic Procedures	90801, 90802, 90791, 90792
Therapies	
Individual Psychotherapy	90804, 90805, 90832, 90833, 90806, 90807, 90834, 90836, 90808, 90809, 90810, 90811, 90812, 90813, 90814, 90815, 90816, 90817, 90818, 90819, 90821, 90822, 90823, 90824, 90826, 90827, 90828, 90829, 90837, 90838, 90839, 90840
Family Psychotherapy	90846, 90847
Group Psychotherapy	90849, 90853, 90857
Electroconvulsive Therapy	90870
Biofeedback Therapy	90901, 90911

## APPENDIX D: UTILIZATION OF SERVICES – INPATIENT AND OTHER SETTINGS

### Documentation and Technical Notes

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

#### *Data Source*

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

#### *Reference Time Period*

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

#### *Denominator*

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

#### *Exclusions*

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

#### *Utilization Measure*

Refer to Appendix E.

## Numerator

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

## APPENDIX E: TIME FRAMES AND FORMULAE

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

### Formulae

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

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

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

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

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## **APPENDIX G: PROVIDER SUMMARY TABLES AND PROVIDER LISTINGS**

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

### *Data Source*

New Jersey Medicare Part A and Part B FFS claims data

### *Reference Time Period*

Provider summary tables were based on Pre-Sandy time frame (Q1 2011-Q3 2012)

### *Mapping Tool*

ArcGIS Explorer Online. ArcGIS® software by Esri. [www.esri.com](http://www.esri.com)

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